

## VXM RANGE - ULTRAVIOLET DISINFECTION SYSTEM

### UV FOR DECHLORINATION OF WATER

Chlorination provides significant benefits in the disinfection of water. Most municipal water supplies have small amounts of residual chlorine present in the water. However, for many industrial processes, the presence of chlorine in the feedwater is undesirable. For many items of process equipment, such as RO, the chlorine - even small quantities, can damage equipment. In the food and beverage industry, chlorine can introduce unwanted flavours and odours to the final product as well.

It is common therefore to require de-chlorination. Typically, the most common forms of dechlorination are Sodium Metabisulphite and Granular Activated Carbon. As a chemical, sodium metabisulphite has all the associated chemical issues - maintenance of dosing equipment, handling, recording and potential odour and taste problems. GAC also has drawbacks. The GAC media itself can become a breeding ground for microorganisms and needs to be regularly cleaned and sanitized. Frequent replacement of the media is required resulting in additional operating costs. Finally, as a filter, GAC also has an additional pumping requirement to overcome any headloss within the filter itself.

#### THE UV ADVANTAGE

UV is an alternative method of dechlorination due to its key advantages:

- No chemicals are added to the water
- No significant headloss is added to the piping system
- UV acts as a powerful disinfectant and is effective versus chlorine resistant organisms such as Cryptosporidium
- UV is located in the piping system and requires very little space, ideal for retrofits
- The equipment requires little maintenance and is easily integrated into BMS/SCADA systems

The VXM products are very suitable for the dechlorination of water, providing a high level of power density within the product. This is necessary as dechlorination requires considerably higher doses than standard disinfection. Depending on inlet concentrations and the required level of de-chlorination, doses between 600 and 1100mJ/cm<sup>2</sup> are required.



#### SPECIFICATIONS

- Designed for very high dose applications
- Efficient and enhanced power control
- High performance lamps
- Simple, fast, and reliable maintenance
- Enhanced performance monitoring and integration by sophisticated control system
- Built in safety features
- High power density suitable for dechlorination and other high dose requirements.
- Sugar Syrup and other ultra-low UVT liquids
- MODBUS® or PROFIBUS connectivity

## HIGHLY EFFICIENT & COST EFFECTIVE

Using energy efficient UV light sources and the latest variable power electronic ballasts, the VXM products provide cost-effective and efficient liquid treatment with flexible options for easy integration. The medium pressure polychromatic lamps, combined with the variable power option allows the operator to minimize OPEX costs while still delivering the required dechlorination levels. The range of configurable options, from surface finishes to pipe connections allows the user to configure the product easily to their specific requirements either for pharmaceutical, food & beverage or any other process requiring dechlorination.

## SOPHISTICATED CONTROL SYSTEM

The Spectra 3 control system is a sophisticated microprocessor designed for control flexibility and system integration. The Spectra 3 allows full integration into production process lines, and is essential for applications of this type, with a range of user-selectable analog, and digital input and outputs, combined with Modbus® capability. The Spectra 3 also provides a data logging facility for quality records and monitoring.



SPECTRA 3 CONTROLLER

## INCREASE PRODUCTION UPTIME

Operators will benefit from the patent-pending\* TwistLok™ lamp configuration, combining a simple lamp connection with a mechanical safety interlock for safe and speedy lamp replacement. In addition, the V Clamp quartz system into the system ensures that the seal can be fitted accurately without stressing the quartz sleeve or having a leaking seal. The systems use the latest AT-900 UV intensity system, traceable to NIST standards to provide an effective method of monitoring performance, ensuring confidence in the system operation at all times. Using the feedback from the AT-900 also enables the power to the lamps to be varied depending on the quality of liquid to be treated, allowing power savings and increased lamp life.

\*Patent pending in some countries.



TWISTLOK LAMP CONFIGURATION

Performance is not claimed nor implied for any product not yet validated; unvalidated products use single point summation calculations to provide delivered dose recommendations. Performance limitations depend on feed conditions, overall installed system design, and operation and maintenance processes; please refer to Operations Manuals. For more information: [Contactus@evoqua.com](mailto:Contactus@evoqua.com)

## CHAMBER SPECIFICATIONS

| Features                              | Standard Chamber Specification   | Options  |
|---------------------------------------|--|--|
| Lamp Life                             | 9,000 hours  |  |
| Lamp design                           | TwistLok™ Quick Release, Enhanced Safety, Medium Pressure Lamp   |  |
| Lamp and Wiper Access                 | Single Ended Access<br>(Excl VXM-125-4 + VXM-180-3/4)  |  |
| Design Pressure                       | 10 Barg Design (15 Barg Test)  |  |
| Variable Power                        | 100% to 30% Power (Automatic Dose Pacing)  |  |
| Connection Type                       | EN 1092 PN10   | DIN 32676 EN 1092 PN16, ASME Class 150,<br>DIN 32676, ASME BPE<br>DIN 11851 (VXM-180-3 Only)           |
| Material Construction                 | 316L Stainless Steel   |  |
| Internal Surface Finish               | 0.8 Ra (VXM-25-4/6, VXM-180-3/4 Only)<br>1.6 Ra (VXM-260-10, VXM-460-10, VXM-660-10,<br>VXM 860-12 Only) | 0.4 Ra (VXM-25-4/6, VXM-73-4 Only)<br>0.8 Ra (VXM-260-10, VXM-460-10, VXM-<br>660-10, VXM 860-12 Only) |
| Internal / External Surface Treatment | Machine Polish   | Electropolish (VXM-25-4/6, VXM-180-3/4<br>Only)  |
| Quartz Type                           | High Purity Quartz Sleeves   | TiO2 Doped Quartz  |
| Installation / Mounting               | Adjustable Inlet/Outlet Orientation  | Z-type (VXM-180-3/4 Only)  |
| Wiper System                          | Not Included as standard   | Automatic Wiper System (Excl VXM-180-3)  |
| Sensors                               | 1 Monitor Package Incl NIST UV Sensor + PT100<br>Temp Sensor   |  |
| Vent Port                             | BSP  | NPT, DIN 32676, ASME BPE<br>DIN 11851  |
| Drain Port                            | BSP  | NPT, DIN 32676, ASME BPE<br>DIN 11851  |
| Seals                                 | EPDM   |  |

## CONTROL PANEL SPECIFICATIONS

| Features                  | Standard Control Panel Specification | Options               |
|---------------------------|--------------------------------------|-----------------------|
| Material                  | Epoxy Coated Mild steel - RAL 7035   | Stainless Steel (304) |
| Control Type              | Microprocessor                       |                       |
| Power supply              | Electronic Ballast                   |                       |
| Ingress Protection        | IP54                                 |                       |
| Ventilation               | Forced Air cooled (Fan)              |                       |
| Interface                 | Spectra Membrane                     | Spectra Touch         |
| Communication             | Modbus (RS-422 / RS-485)             | Profibus DP           |
| Protection                | Door Locked Isolator                 |                       |
| Operating Temperature     | Max Working Ambient +45°C            |                       |
| Digital Inputs / Outputs  | 3 selectable                         | Additional 3          |
| Analogue Inputs / Outputs | 1 selectable                         | Additional 1          |

**TRANSFORMING**  
**WATER**  
— **ENRICHING** —  
**LIFE**



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