

VXM 180-3 ULTRAVIOLET DISINFECTION SYSTEM

DESIGNED FOR THE TREATMENT OF ULTRA-LOW UVT LIQUIDS



SPECIALIZED FOR SUGAR SYRUPS

The VXM-180-3 from the ETS-UV™ family of products is designed for superior disinfection of liquids with ultra-low UV transmissivity in particular sugar syrups up to around 68Brix.

Bacteria, yeasts and molds pose a major risk to the quality and safety of liquid sugar and liquid sweetener solutions. UV disinfection is an effective method of providing the required disinfection. However, sugar syrups provide a unique challenge to conventional UV treatment systems. With a high absorption in the UV spectrum, conventional systems give a low UV transmissivity (optical clarity), and traces of color can impact the optical clarity even further. For this reason, higher UV doses are required due to the resistant nature of the microorganisms to be treated, and the sugar syrup is often at elevated temperatures.

As a specialist supplier to the food and beverage industry, Evoqua has designed the VXM-180-3 to overcome the challenges of disinfecting the high viscosities and low UV transmittance encountered in sugar solutions.

A SINGLE LAMP SYSTEM

Using a specialized high power medium pressure UV lamp, the VXM-180-3 provides the required power in a single lamp to effectively treat the sugar syrup. The system is unaffected by the higher temperature of liquid sugars. The VXM-180-3 'thin film' design, where the distance between the UV lamp and the wall of the UV reactor is less than 10 mm, is also crucial to any system treating liquid sugar. This is best achieved with a single lamp system.

HIGHLY EFFICIENT & COST EFFECTIVE

Using energy efficient UV lamps and the latest variable power electronic ballasts, the VXM-180-3 provides cost-effective and efficient liquid treatment with flexible options for easy integration. The medium pressure polychromatic lamp, combined with the variable power option allows the operator to minimize OPEX costs while still delivering the required treatment effectiveness. The range of options, from surface finishes to pipe connections allows the user to configure the product easily to their specific requirements.

SPECIFICATIONS

- Thin film design suitable for sugar syrup and other ultra-low UVT liquids
- Suitable for low UVT's (15–30% UVT)
- 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
- MODBUS® or PROFIBUS connectivity

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 inputs/outputs, combined with Modbus® capability. The Spectra 3 also provides data logging capabilities for quality records and monitoring.



Spectra 3 Controller



TwistLok Lamp Configuration

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 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 water to be treated, allowing power savings and increased lamp life for larger systems.

*Patent pending in some countries.

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 (Excl VXM-125-4 + VXM-180-3/4)	
Design Pressure	150 psi Design (225 psi Test)	
Variable Power	100% to 30% Power (Automatic Dose Pacing)	
Connection Type	ASME Class 150	EN 1092 PN10, EN 1092 PN16, DIN 32676, ASME BPE DIN 11851 (VXM-180-3 Only)
Material Construction	316L Stainless Steel	
Internal Surface Finish	32 Ra (VXM-25-4/6, VXM-180-3/4 Only) 63 Ra (VXM-260-10, VXM-460-10, VXM-660-10, VXM-860-12 Only)	16 Ra (VXM-25-4/6, VXM-73-4 Only) 32 Ra (VXM-260-10, VXM-460-10, VXM-660-10, VXM-860-12 Only)
Internal / External Surface Treatment	Machine Polish	Electropolish (VXM-25-4/6, VXM-180-3/4 Only)
Quartz Type	High Purity Quartz Thimble/Sleeve	TiO2 Doped Quartz Thimble/Sleeve
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 Temp Sensor	
Vent Port	NPT	BSP, DIN 32676, ASME BPE DIN 11851
Drain Port	NPT	BSP, DIN 32676, ASME BPE 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	
Panel Rating	NEMA12	
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 +113°F	
Digital Inputs / Outputs	3 Selectable	Additional 3
Analogue Inputs / Outputs	1 Selectable	Additional 1

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Disinfection performance will vary based on product, system design, facility operating conditions, water quality, and maintenance protocols. Refer to product, system, installation and validation documentation for details.

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