ULTRAVIOLET DISINFECTION

ILLUMINATION “IL-BT” SERIES

IL-BT SERIES

OVERVIEW

Ultraviolet “UV” disinfection is an accepted method for reducing microorganisms in water and wastewater.

The “**IL-BT**” series uses a “Bullet” or “L” style chamber (vessels) to treat a range of flow rates for both clean and wastewater. For large flows, multiple vessels are used.

Water enters the chamber via the conical inlet and once inside, it is exposed to UV light. The UV lamps produce the majority of its light in the 254-nm wavelength. At this wavelength, UV light destroys bacteria, protozoa, viruses, molds, algae and other microbes. This includes fecal coliform and such waterborne diseases as: E-coli, hepatitis, cholera, as well as many others.

Systems integrate energy efficient low pressure high output and high intensity (amalgam) UV lamps. These lamps last over 12,000 hours and produce 90%+ of their light in the 254 nm range.

FEATURES

- Electropolished 316L stainless steel vessels
- Low pressure UV lamps (HO and Amalgam)
- 150 psi (10 Bar) pressure rating
- Flexible flange sizes
- UV lamp monitoring
- Remote stainless steel electrical enclosures
- Lamp status and running time indicators

OPTIONS

- Automatic or manual quartz cleaning
- Programmable Logic Controls (PLC)
- UV transmission monitoring
- Chemical cleaning system
- Remote On/Off
- Explosion proof electronics

MADE IN THE USA

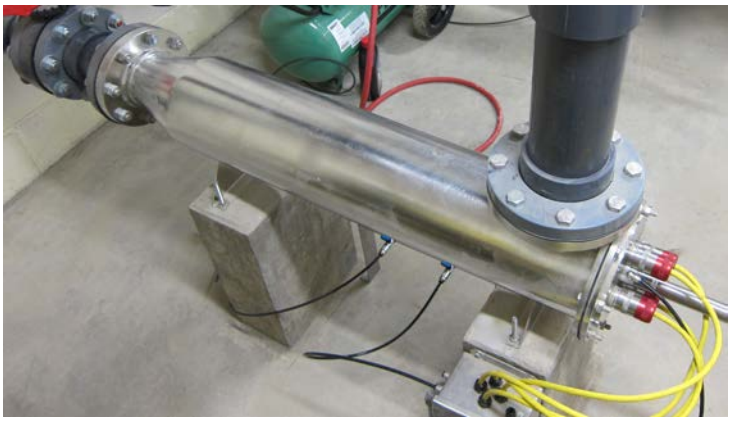
GLASCO UV

OPERATIONAL OVERVIEW

The “Bullet” or “L” Style vessel allows the plant to connect to the conical inlet. The design allows for flexible horizontal or vertical installation. The Bullet design provides low headloss and enhanced hydraulics.

As with all UV systems, the main operational and maintenance responsibilities have to do with keeping the system clean and the lamps operating at optimum performance.

Lamps need to be replaced every 12,000 hours. Due to the harsh nature of some liquids, the quartz sleeves (the protective glass-like tubes that protect the lamps) need to be cleaned. The amount of cleaning is directly related to the pre-treatment processes and the make-up of the water or wastewater Fouled quartz prevent the UV light from penetrating and will reduce system efficiency.



The “**IL-BT**” systems may incorporate a manual or automatic quartz cleaning systems. The manual system allows operators to swab the sleeves on a periodic basis. The automatic - pneumatically driven system - pushes a wiper mechanism over the sleeves to remove build up.

IL-BT SERIES

CONFIGURATION

Piping to and from the vessels can cause issues due to spatial constraints and existing piping. Glasco UV offers flexibility when designing the UV system by allowing custom flange sizes.

The “IL BT” Series uses an “L” or “Bullet” style design. Their are other orientations available:

- “U” design where inlet and outlet are on same side
- “Opposing” where inlet and outlet are on opposite

Chambers are generally manufactured using raised faced 150# flanges. They are also available in DN style and various other end user requested configurations.

SYSTEM DESIGN

The following is a list of information required to size a UV disinfection system:

- Peak instant flow rate
- No flow situations
- Biological goal (dosage or permit)
- UV transmission %
- Total Suspended Solids (TSS)
- Total Dissolved Solids (TDS)
- Iron and Manganese levels
- Installation location (indoor or outdoor)
- Understanding of plant treatment process
- Staffing level for system maintenance

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SYSTEM OVERVIEW

The UV lamps are installed into protective quartz sleeves. These quartz sleeves are fitted into the head of the unit and are sealed tight by compression fittings, orings and washers. The head is removable and will also hold the cleaning mechanism as well as the optional heat monitoring thermistor.

Chambers have 150 # raised face flanges and are fitted with a monitoring and drain port.

A remote Ballast Control Center (BCC) houses the ballasts, electronics, power control, monitoring devices and displays. Protected power is brought to the BCC by plant electrician. The BCC has a corresponding - pre-wired and conduited - junction box. This junction box is mounted on or near the chamber. It holds the lamp connector harnesses, the UV sensor wiring and the optional high heat or automatic cleaning features.

GLASCO UV

FEATURES

American manufactured 316L stainless steel pressure vessels are at the heart of the product line. Vessels are electropolished and passivated to ensure longevity and high quality.

Chambers have 150 # raised face flanges and drain and monitoring ports. Sampling ports are built into the outlet riser pipe.

The remote BCC is a modified NEMA 4x modified stainless steel enclosure. The BCC may have a window kit or may be provided with a PLC and corresponding door mounted operator user interface (OUI).

REACTOR DESIGN

As flow rates increase, the IL-BT Series grows in size to meet the project's demands. The Inlet and Outlet flanges will increase in size to meet the plant's piping.

Vessels become larger and more lamps are added. Systems can start with a single lamp and can grow to forty eight per vessel.

System integrate low pressure high output and amalgam technologies. Lamps range in length from 30" to 60" and from 80 to 1,200 watts per lamp.

IL-BT SERIES

Unit Name	GPM Clean	GPM Waste	INLET / OUTLET	WATTS	UNIT DIM LxWxH	ELECTRICAL DIMENSIONS
IL-BT-300-4	100	35	2"	340	44"x13"x14"	20"x16"x8
IL-BT-500-4	175	60	3-4"	600	44"x13"x14"	20"x16"x8
IL-BT-500-6	275	90	3-4"	900	44"x13"x14"	20"x16"x8
IL-BT-6000-4	425	150	4"	1400	80"x13"x15"	24"x20"x8"
IL-BT-6000-8	850	300	6"	2800	80"x18"x20"	24"x20"x8"
IL-BT-6000-12	1300	450	8"	4200	90"x18"x20"	24"x20"x8"
IL-BT-6000-16	1700	600	12"	5600	90"x24"x24"	24"x20"x8"
IL-BT-6000-24	2600	900	16"	8400	100"x40"x30"	36"x30"x10"
IL-BT-6000-36	5000	1750	20"	12600	100"x45"x30"	36"x30"x10"
IL-BT-6000-40	7000	2500	24"	14000	100"x45"x30"	36"x30"x10"
IL-BT-6000-48	11000	3650	30"	16800	100"x45"x30"	36"x30"x10"

Sizing is generic for 90% UVT clean water and a dosage of 30 mJ. Wastewater sizing is generic and for 65% UVT and a dosgae of 30 mJ. Consult engineered sales for your application.

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