

“IL” SERIES

Wastewater Disinfection - Chambered Systems



GLASCO UV



OVERVIEW

Ultraviolet “UV” disinfection is an accepted technology for reducing microorganisms in wastewater.

The “IL” wastewater series uses chambers (vessels) to treat a large range of flow rates. For large flows, multiple vessels are used.

Wastewater enters the chamber and once inside, it is exposed to UV light. The UV lamps produce 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 and many others.

Systems integrate energy efficient low pressure high output or 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 vessel
- Low pressure UV lamps (HO and Amalgam) 80 to 1200 watts per lamp
- Automatic quartz cleaning
- 150 psi (10 Bar) pressure rating
- Flexible flange sizes
- UV lamp monitoring
- Remote stainless steel electrical enclosures
- Lamp status and running time indicators

OPTIONS

- Biologically validated systems available
- Programmable Logic Controls (PLC)
- Online UV transmission monitoring
- Supplemental chemical cleaning system
- Remote On/Off

WASTEWATER



WASTEWATER SYSTEM DESIGN

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

- Peak instant flow rate
- No flow situations
- Discharge permit in ???/100 ml sample
- UV transmission %
- Total Suspended Solids (TSS)
- Biological Oxygen Demand (BOD)
- Total Dissolved Solids (TDS)
- Iron and Manganese levels
- Installation location (indoor or outdoor)
- Understanding of plant treatment process
- Staffing level for system maintenance

OPERATIONAL OVERVIEW

Wastewater facilities are installing low pressure UV lamp chambered systems to disinfect wastewater.

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.

UV lamps need to be replaced every 12,000 hours. Due to the harsh nature of wastewater, the quartz sleeves (the glass-like tubes that protect the lamps) need to be cleaned. Cleaning frequency is directly related to the pre-treatment processes and the make-up of the wastewater. Fouled quartz prevents the UV light from penetrating and will reduce system efficiency.

The "IL" systems incorporate automatic quartz cleaning systems. The pneumatically or electrically driven system pushes a wiper mechanism over the sleeves to remove build up.

WASTEWATER



Gallery of three biologically validated "U" style wastewater systems

CONFIGURATIONS

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 and locations.

The various “IL” following orientations are available:

- “U” where inlet and outlet are on same side
- “Z” opposing inlet and outlet
- “BT” or “L” inlet is at end and outlet on side

Chambers are manufactured using raised faced 150# flanges. They are also available in DN style and various other end user requested configurations. Existing piping galleries can be matched through our ability to custom design stainless steel pressure vessels.

Ballast Control Center (BCC) can be remotely located up to 90 feet from the systems (depending on the technology used). Typical systems are standard within 8 to 10 feet. Discuss with factory prior to designing. BCC can be supplied in various voltages.



WASTEWATER





“BT” Inline “L” Design

INSTALLATION DESIGN

When designing a UV wastewater treatment plant, consideration needs to be given to configuration and piping.

The goal is to have the vessels installed in a manner where they are always full of wastewater. This prevents the system from overheating and fouling.

Individual chambers can treat in excess of 7.0 MGD. Depending on redundancy requirements, systems will be designed to provide both optimal performance and energy savings. Peak flow rates are often shared between multiple units, while lower flows will be addressed through dimming.

The UV systems will be powered and controlled by remote modified NEMA 4x stainless steel enclosures that display lamp status, run time and UV output under a window kit.

For plants that require remote operation and automated system cycling, a PLC system will be provided to work in conjunction with treatment plant's computer systems.



Ballast Control Center (BCC)