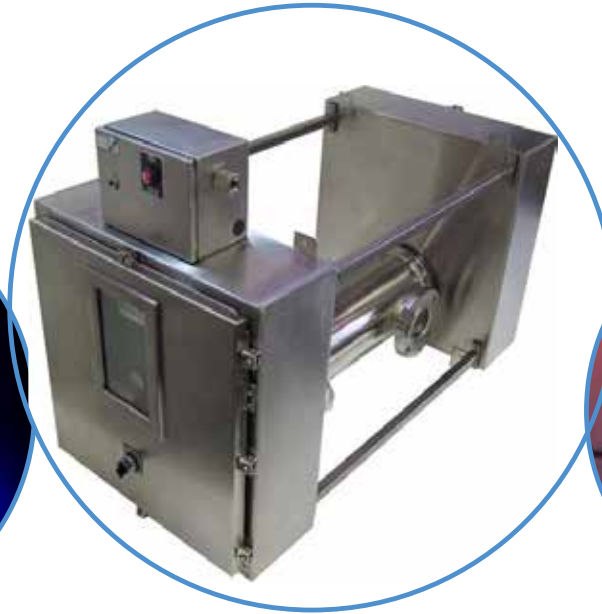
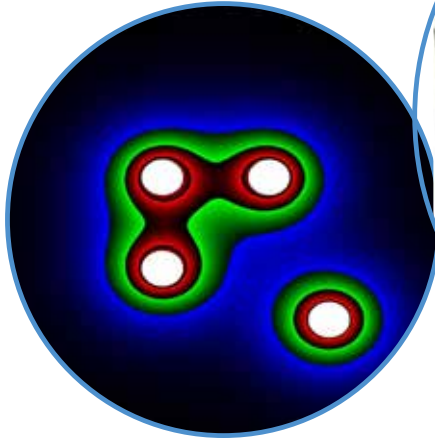


# ULTRAVIOLET DISINFECTION

Hazard Area Classification UV Systems

## ILLUMINATION "EXP" SERIES



IL-EXP SERIES

### PRODUCT OVERVIEW

The "IL-EXP" systems are manufactured in the USA and are designed to treat flows ranging from .25 to 1,000's of gallons per minute.

The IL-EXP Series is designed and customized to meet a variety of hazardous area classifications (Class I, Division 1 Class I, Division 2 Class II, Division 1 Class II, Division 2 Class III, Division 1 and Class III, Division 2).

A hazardous location is defined as a place where concentrations of flammable gases, vapors, or dusts occur. Electrical equipment that is installed in these locations is designed and tested to ensure it does not initiate an explosion, due to arcing contacts or high surface temperature of equipment.

Utilizing traditional explosion proof enclosures and parts as well as gas purge technology (gas purge systems are designed to shut down in the event of gas pressure loss) Glasco designs systems to meet varied engineering protocols.

The concern in hazardous installations is that even voltages insufficient to break down air can be associated with enough energy to ignite atmospheres containing flammable gases or vapors, or suspended dust. For example, hydrogen gas, natural gas, or petrol/gasoline vapor mixed with air can be ignited by sparks produced by electrical apparatus. Examples of industrial facilities with hazardous areas are petrochemical refineries, chemical plants, grain elevators, and coal mines.

### APPLICATIONS

- Petrochemical plants
- Pharmaceutical
- Mining
- Offshore drilling operations
- Chemical plants
- Drilling rigs
- Offshore drilling operations
- Food and Beverage processing
- Laboratories



GLASCO UV

**SYSTEM DESIGN AND MODIFICATIONS**

While we offer a full product line of disinfection systems that can be used in hazardous areas, we are often asked to customize these offerings to meet specific rigorous engineering specifications.

Due to the expanding nature of the worldwide Oil and Gas and Petrochemical businesses, we find that no two engineering specifications are the same. Therefore, we review and respond to each project on an individual basis.

**OUTDOOR INSTALLATIONS**

When designing an “IL-EXP” for outdoor installations, we have to evaluate how to keep the internal components cool. On many gas purge systems, the UV electronics are maintained at a proper operating temperature, but outdoor systems provide a challenge.

When designing, we will evaluate special explosion proof air conditioners as well as forced air Vortex cooling technologies.

**TYPICAL SYSTEM - IL-EXP-300-2**

- Class I, Div 2
- Ballast Control Center with gas purge system
- 2” raised face 150# flanges
- UV monitoring system
- Drain ports
- Energy efficient electronic ballasts
- Running time meter
- LED lamp status indicators



**IL-EXP-300-2**

**CUSTOM DESIGN**

Glasco UV has the ability to manufacture UV systems according to the customer’s exacting specifications.

The system pictured (IL-EXP-5000-20) is a custom movable UV photochemical reactor with a nitrogen purge system.

System was designed according to the pharmaceutical company’s project team’s needs and in compliance with their internal safety and quality standards.

This system utilizes eighty (80) low pressure high output lamps. All four (4) vessels are piped together to allow for a longer flow through residence time.

The onboard nitrogen purge system allows them to use the equipment in different locations through out the processing facility.



**IL-EXP-5000-20 x 4**



**GLASCO UV**



**IL - EXP "R" SERIES**  
for applications requiring remote explosion proof enclosures

**PURGE SYSTEM OPERATION**

The pressurization process is very simple. Purge gas, normally compressed air, keeps the internal pressure of the enclosure above the pressure outside. External flammable gas cannot enter the enclosure while it is pressurized.

Before power can be switched on, the enclosure must be purged to remove any flammable gas that may have entered the enclosure before it was pressurized. Purging is the action of replacing the air inside an enclosure with air known to be free of flammable gas.

The IL-EXP system is serviced when the system is powered off. Access to the UV lamps, quartz sleeves, UV sensor, heat sensor and ballasts is available by opening the enclosure door.

The enclosure is attached to the 316L stainless steel pressure vessel via stainless steel locking ring, which is gasketed on both sides.

Operational status can be viewed locally through the window kit. Displays include run time, lamp status and UV output. Remote monitoring is available via a 4-20 mA signal from the UV monitoring system.



**GLASCO UV**

## STANDARD FEATURES

- Gas purge system
- 316L stainless steel vessel manufactured in USA
- Electropolished internal and external surfaces
- Removable heads
- Monitoring port
- Drain and sample ports
- RF Flange fittings
- On board Ballast Control Center (BCC)
- Energy efficient electronic ballasts
- Running time meter
- LED lamp status indicators
- 9,000 hour lamp life
- GE Type 214 quartz sleeve

## DATA REQUIRED FOR SIZING

- Flow rate
- Area classification
- Pipe sizing
- Cleaning and sanitization program

## OPTIONAL FEATURES

- UV monitoring
- Hand Off Auto switch (HOA)
- Gas Purge for Class I Div 1
- Gas Purge for Class I Div 2
- Explosion proof flame proof remote enclosures
- High heat shutoff
- Stainless steel compression fittings
- PLC control
- Explosion proof air conditioning
- ASME Code Stamp
- Designed for Wastewater Disinfection
- DN flanges

## BENEFITS

- Non chemical method
- Instantaneous kill
- Effective on a wide range of pathogens
- No heat treatment in processing
- No change in odor, color or taste

## ABOUT UV

UV technology uses speciality lamps to target and disable waterborne disease causing microorganisms (pathogens).

Over 100 years ago, scientists discovered that when pathogens were exposed to UV light, their reproduction was limited. The light that they used resided in the UVC range of the light spectrum. Specifically, they discovered that light in the 254 nanometer (nm) range was the most effective.

When pathogens are exposed to UV light, their cells become damaged and this damage inhibits reproduction. The UV light damages the cell's DNA and RNA and once damaged, they are unable to replicate and rendered harmless.

The amount of damage is a result of the intensity of the UV light multiplied by the time the water is exposed to the light (time x intensity). The applied dosage is commonly referred to as microwatts and is often expressed as mJ/cm<sup>2</sup>. Doses of 40,000 microwatts (40 mJ) are accepted for water disinfection.

## UNITS

### IL "EXP" SERIES

| UNIT NAME     | GPM          | LPM           | INLET /<br>OUTLET | WATTS | # LAMPS | VOLTAGE               | AMP |
|---------------|--------------|---------------|-------------------|-------|---------|-----------------------|-----|
| IL-EXP-300-2  | Up to<br>50  | 189           | 2" RF Flange      | 90    | 2       | 120-277 V<br>50/60 Hz | 5   |
| IL-EXP-300-4  | Up to<br>100 | 379           | 2" RF Flange      | 180   | 4       | 120-277 V<br>50/60 Hz | 10  |
| IL-EXP-300-6  | Up to<br>150 | 568           | 2" RF Flange      | 270   | 6       | 120-277 V<br>50/60 Hz | 10  |
| IL-EXP-5000-4 | Up to<br>225 | 852           | 3" RF Flange      | 680   | 4       | 120-277 V<br>50/60 Hz | 15  |
| IL-EXP-5000-6 | Up to<br>350 | 1325          | 4" RF Flange      | 1020  | 6       | 120-277 V<br>50/60 Hz | 15  |
| IL-EXP-6000-6 | Up to<br>800 | Up to<br>3028 | 6" RF Flange      | 2100  | 6       | 230 V<br>50/60 Hz     | 20  |

The above units are typical and are displayed to treat clean water flows (90% UVT) and deliver a dosage of 40 mJ. Larger systems are available. Systems can be sized for wastewater. Please contact factory for sizing.



**GLASCO UV**

126 Christie Avenue, Mahwah, NJ 07430

• phone: 201-934-3348 fax: 201-934-3388 •

info@glascouv.com

© Copyright. 2012 Glasco UV, LLC.

www.glascouv.com

IL-EXP-0520134