

HOD™ UV Delivering Pure Performance to Pharmaceutical Plants



Reducing Chemicals and Heat Footprint Without Compromise

The pharmaceutical industry relies on chemicals and hot sanitation to ensure water disinfection, but these methods pose environmental risks, require the handling of hazardous materials, and lead to high energy costs. While conventional UV treatment offers some improvement, it falls short of delivering the level of disinfection and efficiency needed for modern pharma operations.

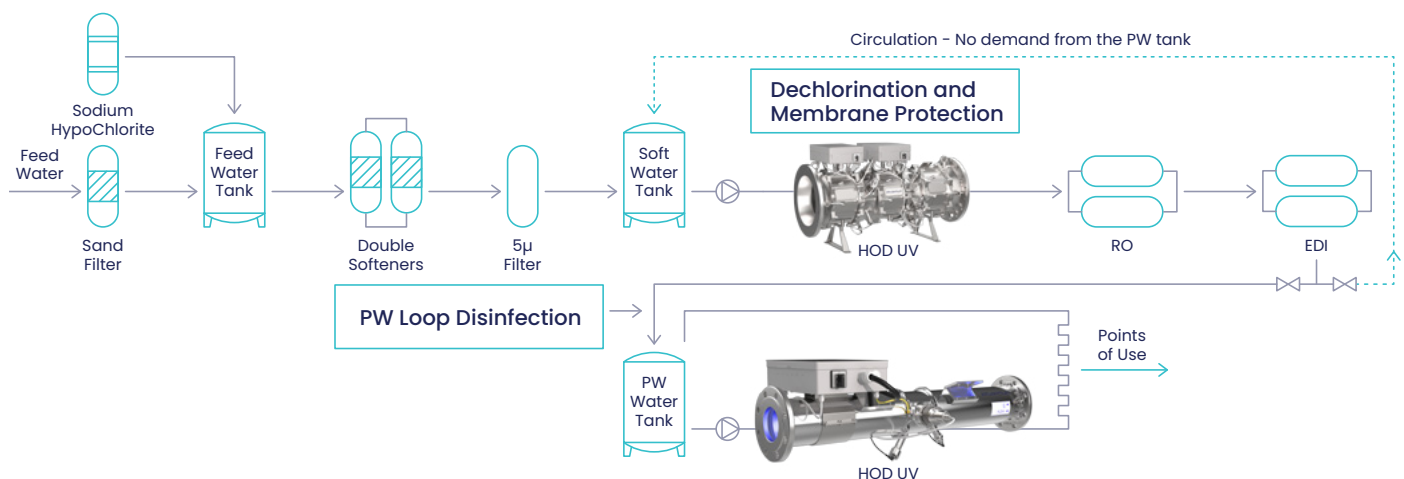
HOD™ (Hydro-Optic Disinfection) UV technology effectively eliminates pathogens, bacteria, viruses, and other harmful microorganisms- without the need for hazardous chemicals or excessive energy consumption. Designed for environments with stringent hygiene requirements, HOD UV ensures reliable, pure-performance water treatment while minimizing environmental impact and operational complexities.

Key Advantages

HOD UV for water treatment is a chemical-free technology that provides the pharmaceutical industry with field-proven applications for:

- Dechlorination**
 Decomposes the free chlorine oxidant without the need for GAC or other chemical treatments.
- RO & EDI Protection**
 Minimizes the membrane biofouling potential, and protects RO membranes and EDI
- PW & WFI Loop Disinfection**
 Removes bacteria, viruses and other harmful microorganisms
- Pseudomonas Inactivation**
 Efficiently eliminates Pseudomonas from contaminated water sources
- Ozone Destruction**
 Achieves complete O₃ destruction with adjusting UV dose.

HOD UV guarantees optimal CAPEX and OPEX performance compared to other alternatives.

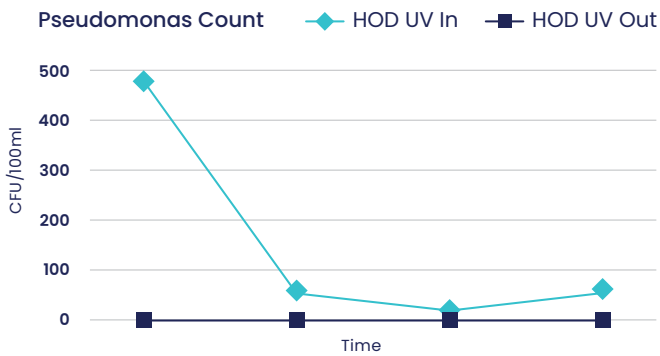


HOD UV Technology

How Does it Work?

Inactivating Pseudomonas Species

Atlantium's HOD UV system delivers outstanding effectiveness in inactivating Pseudomonas species. A leading global pharmaceutical plant that installed HOD UV reported excellent disinfection results during a three-month validation testing period. The system helped maintain consistently low Pseudomonas counts, ensuring compliance with the strictest pharmaceutical water standards.



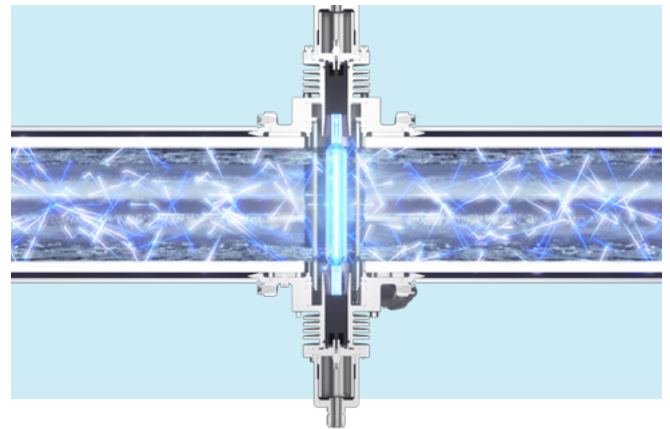
The HOD UV system features the unique Total Internal Reflection (TIR) technology that recycles UV light energy, ensures homogenous UV dose distribution and provides superior power (kW) efficiency compared to traditional UV.

Enhanced HOD UV Light

- Medium pressure high-intensity HOD UV lamps enable fewer UV lamps per system
- Medium pressure UV lamps provide a broad germicidal spectrum of polychromatic UV light (200-415 nm)
- Lamps are protected by a quartz sleeve 5 times thicker than conventional quartz sleeves
- Significantly reduced lamp-related maintenance
- Quick and easy lamp replacement, does not require emptying of the water lines or depressurization

Advanced Control System

- Continuously displays UVT, flow, power and UV dose
- Provides real-time data on operation and efficacy
- Features built-in data logging, up to six months
- Easy integration with the control SCADA system
- Customized with user settings for alarm signals
- Features user-based management with a smart authentication system



Real-Time Water Quality Monitoring

- Integrated UV transmittance (UVT) sensor on each HOD UV system
- Continuously monitors UVT%
- Optimizes system performance for actual, not estimated, UVT% levels

Real-Time Lamp Performance Monitoring

- Dedicated UV sensor for each HOD UV lamp
- Continuously monitors HOD UV lamp output
- Ensures delivery of required UV dose at all times