

TROJANUVFIT®AOP

# Reuse & Remediation

TROJAN  UV®

 Water  
Confidence®

## Reuse & Remediation



## Producing High-quality Drinking Water with UV Advanced Oxidation

Meeting the demand for clean water has never been more challenging. Communities around the world are facing a growing water stress – in terms of water quality or water quantity – and often both. Many are relying on more advanced treatment methods such as UV Advanced Oxidation Processes for drinking water remediation and potable wastewater reuse in order to overcome these challenges and meet demand.

The UV Advanced Oxidation Process (also known as UV AOP) can help municipalities relying on lower quality water sources to continue producing high-quality drinking water for their communities. UV AOP does this by breaking down environmental contaminants 1,4-dioxane, NDMA, MIB and Geosmin, while simultaneously treating microorganisms *Cryptosporidium* and *Giardia*.

With decades of experience in the design of UV AOP systems and dozens of full-scale installations around the world, Trojan is a global leader in the application of UV AOP technology.

## Key Benefits

### TrojanUVFit®AOP

**Intelligent and Automatic AOP Operation.** Proprietary algorithms programmed into the system controller adjust both oxidant dose and UV intensity to deliver and maintain desired AOP treatment at a low cost of operation.

**Compact design.** The small chamber footprint simplifies indoor retrofit installations and reduces construction costs.

**Reliable, proven components.** UV lamps, quartz sleeves, electronic lamp drivers, sensors and sleeve wiping system have been tested, proven reliable and are operating in hundreds of installations.

**Design flexibility.** Chambers can be installed in parallel or in series, making it simple to incorporate redundancy or future expansion needs.

**Wide range of flow rates.** Peak flow rates per chamber are suitable for either individual post-filter or manifold installation. Flow rate down to 10 gallons per minute.

**Advanced Sleeve Cleaning.** Automatic mechanical sleeve wiping system maintains maximum UV output and is available for even our largest UV chambers.

**Guaranteed performance and comprehensive warranty.** TrojanUV systems include a Lifetime Performance Guarantee\* and comprehensive warranties for systems and parts.

# TROJAN UVFIT<sup>®</sup> AOP

Designed for efficient, reliable performance

## System Control Center (SCC)

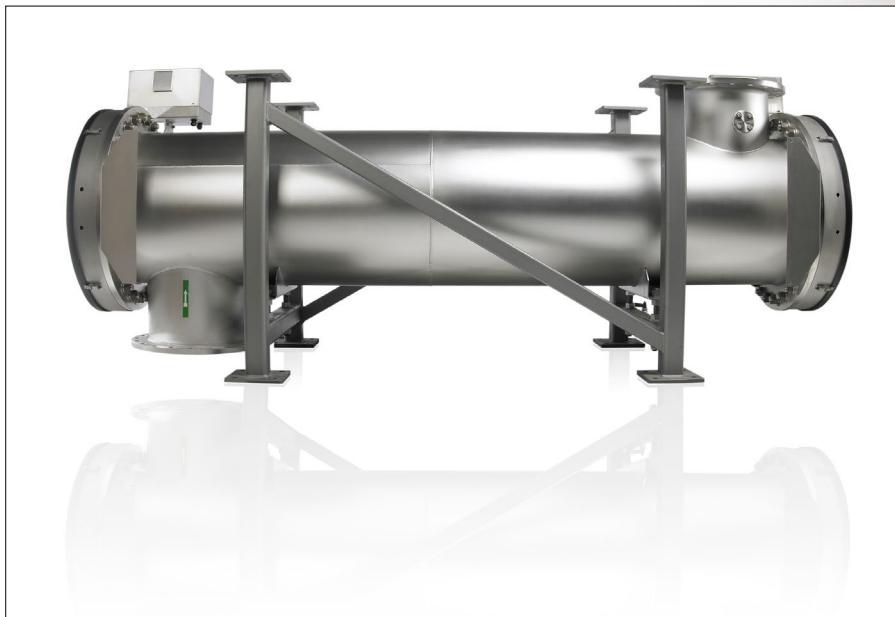
The microprocessor or Programmable Logic Controller (PLC) based controller continuously monitors and controls UV system functions. Supervisory Control and Data Acquisition (SCADA) communication for remote monitoring, control and dose pacing is available. Programmable digital and analog input/output (I/O) capabilities can generate unique alarms for individual applications and send signals to operate valves and pumps.

## Sleeve Wiping System

Automatic sleeve wiping system operates online without interrupting treatment. The wiping sequence occurs automatically at preset intervals without operator involvement.

## Amalgam Lamps

High-output amalgam lamps are energy-efficient and save operating costs due to reduced electrical consumption. Lamps are located within protective quartz sleeves with easy access from the service entrance.



*This chamber contains lamps in both ends of the chamber. Multiple inlet and outlet flange orientations are available.*

## UV Intensity Sensor

Highly accurate, photodiode sensor monitors UV output within the chamber. The sensor ensures UV light is fully penetrating the water for complete treatment.

## Power Distribution Center (PDC)

The PDC panel distributes power to the chamber, UV intensity sensor and sleeve wiping system. The panel also houses high-efficiency, variable-output lamp driver (60–100% power) with proven performance in hundreds of installations around the world.



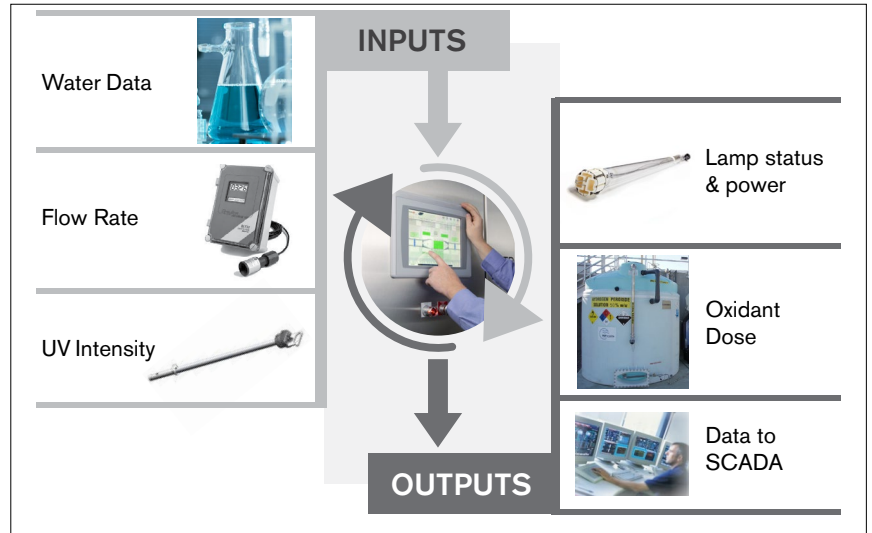
## UV Chamber

Electropolished 316L stainless steel chamber available in multiple configurations for a wide range of flow rates. Optional flange orientations allow chambers to fit into existing piping galleries or tight spaces.

## State-of-the-Art AOP Control System

Field testing ensures accurate dose delivery

- The advanced UV AOP controller processes multiple real-time inputs including flow rate and UV transmission
- Critical water characteristics including scavenging demand and alkalinity as well as other system parameters such as lamp data are all computed together to evaluate real-time performance
- Computes delivered contaminant reductions with either hydrogen peroxide or free chlorine oxidants and compares performance against desired treatment requirements
- Optimizes energy use by modulating UV output and oxidant delivery to match treatment conditions
- Displays Critical Control Points through SCADA and local and/or remote HMIs



*Real-time inputs are utilized in the computation of the break down of contaminants. The system dynamically adjusts lamp power and oxidant dose to minimize operation and maintenance costs.*

## Compact Chamber for Installation Flexibility

Efficient, cost-saving design enables retrofit or new construction

### Benefits:

- Compact footprint simplifies installation and minimizes related capital costs – ideal for retrofit and new construction applications
- Lamps and sleeves are fully serviceable from the chamber end – allowing the system to be installed against walls, other equipment or piping
- Low head loss design simplifies integration into existing process, and avoids additional pumping and associated capital and operational costs
- Multiple flange orientations available – increasing design flexibility



*Chambers can be installed in parallel or in series for increased design and installation flexibility.*

## Amalgam Lamps Require Less Energy

Maintain maximum output and reduce O&M costs

### Benefits:

- Each lamp draws 250 Watts
- Our amalgam lamps maintain high output during entire lamp life – 20% less decline than competitive UV lamps
- Deliver consistent and stable UV output over a wide range of water temperatures

## Built for Reliable Performance and Easy Maintenance

Designed for trouble-free operation and minimal service

### Benefits:

- Routine procedures, including lamp change-outs are simple and require minimal time – reducing maintenance costs
- Access to internal components (lamps, sleeves, cleaning system) through service entrance at one end
- Service entrance and connections protected by end cap
- Intensity sensor continuously monitors UV output to ensure dose delivery



*The TrojanUVFit®AOP lamps are easily replaced in minutes without the need for tools.*

## Robust Sleeve Wiping System

Automatic wiping system maintains consistent dose delivery

### Benefits:

- Wiping system minimizes fouling of quartz sleeves
- Ensures consistent UV dose delivery and optimum performance
- Automatic wiping occurs while the lamps are operating, reducing downtime
- Optional off-line chemical cleaning to reduce maintenance associated with manual cleaning

## User-Friendly Operator Interface

Touchscreen display allows easy operation and monitoring

### Benefits:

- Microprocessor or PLC-based system controls all functions and dose pacing to minimize energy use while maintaining required UV dose
- Controller features intuitive, graphical display for at-a-glance system status
- Controller communicates with plant SCADA systems for centralized monitoring of performance, lamp status, power levels, hours of operation and alarm status



*The PLC-based controller combines sophisticated system operation and reporting with an operator-friendly, touchscreen display.*

System Specifications							
Model		04AL20		08AL20		18AL40	
Number of Lamps		4		8		18	
Lamp Type		High-efficiency, High-output, Low-pressure Amalgam					
Sleeve Wiping		Automatic wiping system; optional					
Lamp Driver		Electronic, constant output (100% power) or electronic, variable output (60 to 100% power)					
Chamber							
Materials of Construction		316L Stainless Steel					
Flange Size (ANSI/DIN), inches (mm)		6 (150)		10 (250)			
Outlet Flange Orientation		Multiple orientations available 3, 6, 9 or 12 o'clock position					
Approx. Chamber Length, inches (mm)		80 (2032)		80 (2032)		82 (2083)	
Max. Operating Pressure, PSI (bar)		150 (10)		150 (10)		150 (10)	
Dry Chamber Weight, lbs (kg)		107 (49)		115 (52)		400 (181)	
Wet Chamber Weight, lbs (kg)		230 (105)				877 (398)	
Power Distribution Center (PDC)							
Electrical Supply	Standard: Single phase, 2 wire + gnd, 50/60 Hz L-L	120V	N/A	N/A	N/A		
		208V	✓	✓	✓		
		240V	✓	✓	✓		
	3 Phase, 4 wire + gnd, 50/60 Hz	400/230V	N/A	N/A	✓		
Dimensions (H × W × D) inches (mm)	Type 12	30 × 16 × 10 (760 × 410 × 250)			36 × 30 × 10 (920 × 760 × 250)		
	Type 3R						
	Type 4X	30 × 24 × 10 (760 × 610 × 250)					
Material	Type 12	Painted Mild Steel					
	Type 3R	Painted Mild Steel					
	Type 4X	304 Stainless (1.4301 in Europe)					
Panel Rating		NEMA 12, 3R or 4X					
Network Interface		Modbus RTU RS485, Modbus TCP/IP, AB Ethernet I/P, ProfiNet					
System Control Center (SCC)							
Panel is Required/Optional		N/A (requires only PDC)					
Electrical		N/A (see PDC)					
Material	Type 12	Painted Mild Steel					
	Type 4X	Stainless(1.4301 in Europe)					
Panel Rating		N/A (see PDC)					
Typical Outputs Provided		Chamber status, common alarms and SCADA communication					
Network Interface		Modbus RTU RS485, Modbus TCP/IP, AB Ethernet I/P, ProfiNet					

\* When you use TrojanUV parts, we guarantee that your system will meet the treatment requirement specified at purchase, provided that the system's original design parameters haven't changed (e.g., flow rate, UV Transmittance) and maintenance is completed per the UV System O&M manual. Should you experience an issue, our Service Technicians will work with you to resolve it as fast as possible

To learn more about the brands and affiliates of Trojan Technologies, please visit [www.trojantechnologies.com](http://www.trojantechnologies.com)