

TROJANUVSWIFT®SC

Drinking Water Treatment

TROJAN UV®

Water Confidence®

MEDITECNA
Instrumentación | Proyectos | Servicios



Water Confidence for Communities Large & Small

UV light has been proven in installations around the world as an effective solution for treating *Cryptosporidium* and *Giardia*. UV is a simple and cost-effective solution that adds nothing to the water but UV light and does not create by-products.

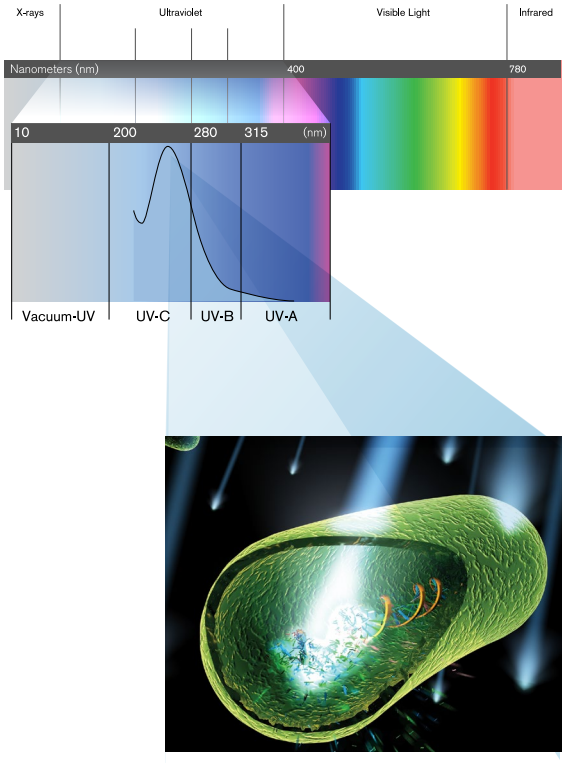
The TrojanUVSwift®SC is designed to treat flow rates of 20 gallons per minute (GPM) to 16 million gallons per day (MGD) or 4.5 to 2,525 m^3/hr. These compact UV systems offer communities an economical solution for drinking water treatment.

It's engineered and built to provide reliable performance, simplified maintenance, and reduced operating costs with innovative features like an optimized, "L-shaped" chamber, high-intensity amalgam lamps and optional automatic or manual sleeve wiping.

The Benefits of UV

A simple and cost-effective solution for drinking water treatment

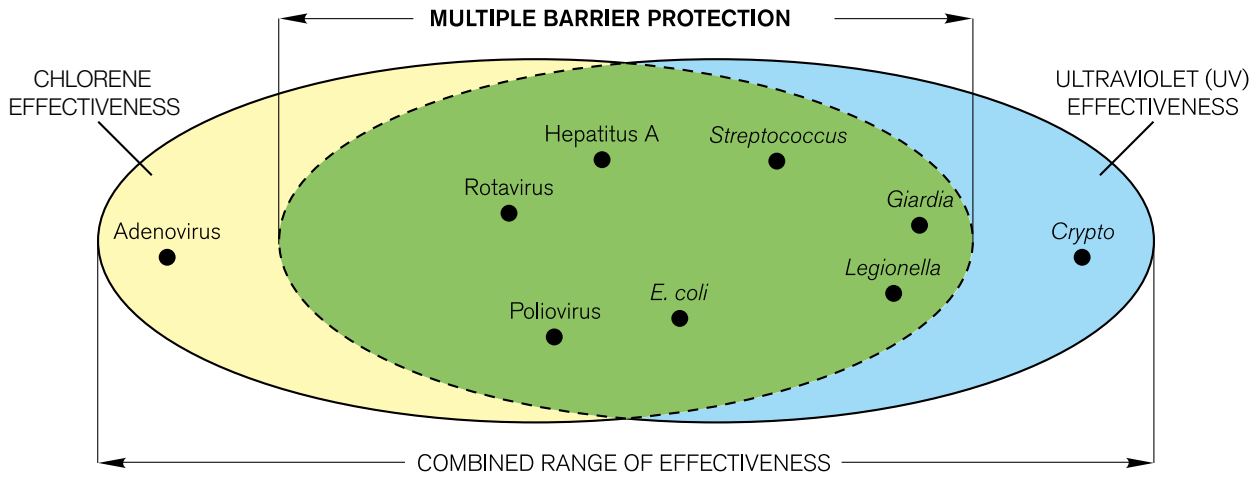
- Does not create by-products and does not affect taste
- UV is a cost-effective approach for multi-barrier treatment strategies
- User-friendly UV advanced oxidation systems combine UV light and an oxidant to break down MIB and geosmin, the chemical compounds responsible for T&O events, as well as, NDMA, 1,4-dioxane, TCE and PCE



UV light penetrates the cell wall of the microorganism and alters its DNA so it can no longer reproduce.

Benefits of a Multiple Barrier Treatment Approach

- UV offers a cost-effective, secondary barrier of protection to treat *Cryptosporidium* and *Giardia* in drinking water.



TROJAN UVSWIFT® SC

Designed for efficient performance

Amalgam Lamps

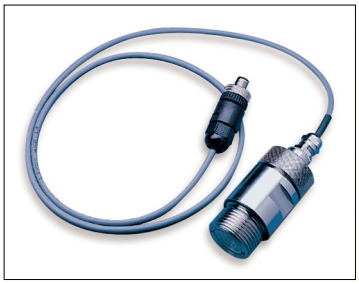
Utilizes high-output amalgam lamps. Each is located within its own protective quartz sleeve and supported by a removable, sleeve holder assembly. Designed for easy lamp replacement.

UV Chamber

Type 316L stainless steel. Chamber configurations are available with multiple inlet/outlet diameters. Rated to 150 PSI (10 BAR) with an optional rating of 232 PSI (16 BAR). A drain port is located opposite the outlet flange.

Control Panel (CP)

Epoxy-painted, carbon steel cabinet is designed for indoor, wall-mount installation. Houses a microprocessor-based controller with input/output (I/O) connection points, and electronic power supplies. Distributes power to the UV chamber as well as the UV sensor and optional automatic wiping system. UV intensity, lamp elapsed time and lamp status are continuously monitored and displayed on the operator interface, located on the control panel door.



UV Sensor

Highly accurate, DVGW-approved, photodiode sensor monitors UV output within the chamber. Mounted within the sensor port on the side wall for easy access.

Sleeve Wiping System

Optional manual or automatic systems available; both operate online, without interrupting treatment. Fluorocarbon wipers are mounted in stainless steel yoke around the quartz sleeve of each lamp. The manual system is driven by hand using an external handle. The automatic system allows cleaning at preset intervals using a motor-driven wiper assembly.



Remote Monitoring & Control

Robust microprocessor-based controller provides standard I/O signals for on/off control from a remote location. Programmable digital and analog I/O capabilities can generate unique alarms for individual applications, and send signals to operate valves and pumps. All units feature optional SCADA communication via Modbus, Modbus TCP/IP, EtherNet/IP and PROFINET. D-Series systems offer dose pacing to minimize energy use while maintaining required dose.

Key Benefits

TrojanUVSwiftSC

Proven performance. Validated through microbial testing. Through this testing, performance data has been generated for UV dose delivery to inactivate *Cryptosporidium*, *Giardia*, and *Adenovirus*.

Certified to NSF/ANSI/CAN 61 & 372. Meets the stringent standards of NSF International.

Compact footprint for installation flexibility. Can handle maximum flow capacity in minimal space. Its compact design allows it to be installed vertically or horizontally in restrictive spaces, thereby lowering installation costs. Where approved by local regulators, the system can even be installed immediately after a 90° elbow and other upstream piping configurations.

Fewer lamps required to treat a given flow. High-intensity amalgam lamps minimizes the lamps, seals, and maintenance to meet dose delivery requirements.

Sleeve wiping system reduces maintenance costs. Can be equipped with a highly-effective manual or fully automated sleeve wiping system to minimize the frequency and costs of cleaning. Both options work while the UV unit is online and operating.

Designed for maximum operating efficiency. High-efficiency, electronic ballasts ensure cost-effective operation. Our high-capacity D-Series models can be equipped with optional dose pacing that adjusts lamp output to match dose to actual treatment requirements – minimizing operating costs and extending lamp life.

Local service. Global support. Our comprehensive network of certified service providers offers ongoing maintenance programs and fast response for service and spare parts.

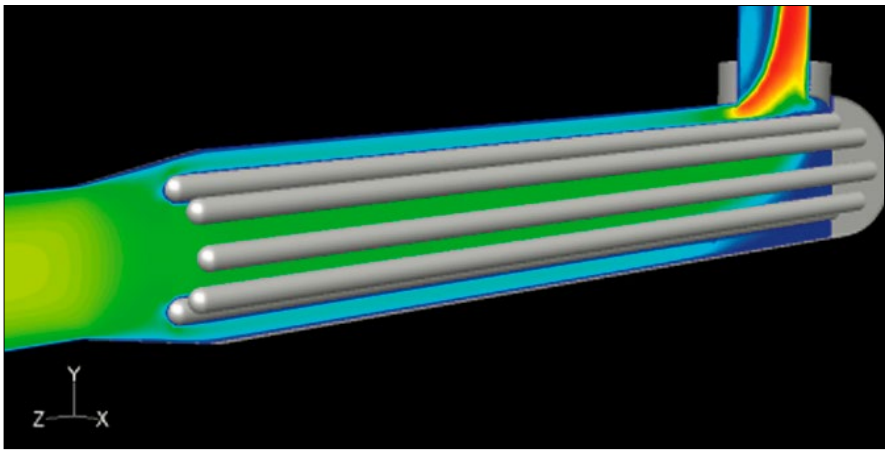
Guaranteed performance and comprehensive warranty. TrojanUV systems include a Lifetime Performance Guarantee* and comprehensive warranties for systems and parts.

Compact Chamber for Installation Flexibility

Efficient, cost-saving design can be installed vertically or horizontally

Benefits:

- Compact footprint simplifies installation and minimizes related capital costs – making it ideal for retrofit applications into existing water treatment plants
- Engineered to fit into restrictive pipe galleries
- Lamps and sleeves are fully serviceable from one side – allowing the system to be installed tight to walls, other equipment or piping
- Validated with a 90° elbow installed immediately before the chamber to ensure consistent dose delivery – even under challenging hydraulic conditions created by upstream piping
- Low head loss design simplifies integration into existing processes, and minimizes the need for additional pumps and their associated capital and operating costs
- Wall-mounted control panel can be located up to 82' (25 m) from the chamber



The highly efficient "L-shaped" design and low-pressure, high-output (LPHO) amalgam lamps result in an extremely compact footprint.







Developed using advanced Computational Fluid Dynamic (CFD) modeling, and incorporating high-output amalgam lamps, the TrojanUVSwiftSC is extremely space-efficient. Its compact footprint allows the system to be integrated into restrictive pipe galleries of water treatment facilities.

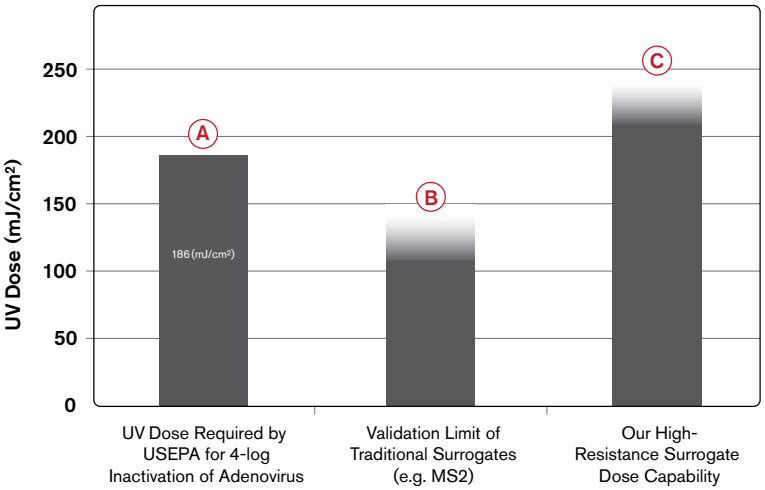
Industry-Leading Bioassay Validations

Validation testing to world standards

Benefits:

- D-Series Units validated in accordance with USEPA 2006 Guidance Manual
  - Use of multiple surrogate organisms (T1, T7 and MS2 allows tailoring of UV dose to that of the target organism (*Cryptosporidium*)
  - Validations performed under worst-case hydraulics – with a 90° elbow at the inlet
- UV for Adenovirus Treatment
  - Cutting-edge validation for TrojanUVSwiftSC D-Series chambers demonstrates doses sufficient for 4-log inactivation of adenovirus with a single unit
- All TrojanUVSwiftSC units are bioassay tested according to German DVGW standards
- Bioassay validations eliminate the use of theoretical calculations which can significantly overstate dose (see **Figure 2**).

Figure 1. A UV dose of 186 mJ/cm² is required by the USEPA for 4-log treatment of Adenovirus (column A). Traditional surrogates, such as MS2, aren't resistant enough for UV to demonstrate inactivation of 4-log Adenovirus (column B). To overcome this challenge, a high-resistance surrogate was used to validate to the doses required for 4-log Adenovirus inactivation (column C).



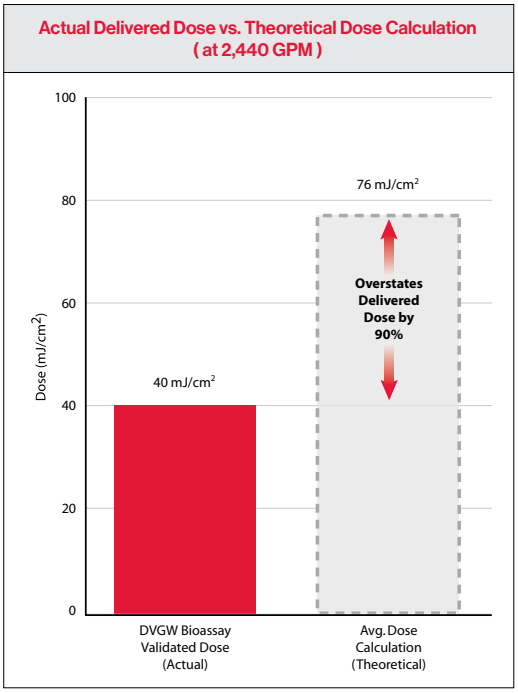


Figure 2. The graph to the left highlights an actual comparison of DVGW bioassay validation results with theoretical dose calculations for a TrojanUVSwiftSC at a flow rate of 2,440 GPM. The theoretical calculation overstates the delivered dose by 90%. Had a drinking water system been selected based on the results of the calculated dose, public safety could have been compromised.

Energy-Efficient, High-Output Amalgam Lamps

Reduces capital and O&M costs



Benefits:

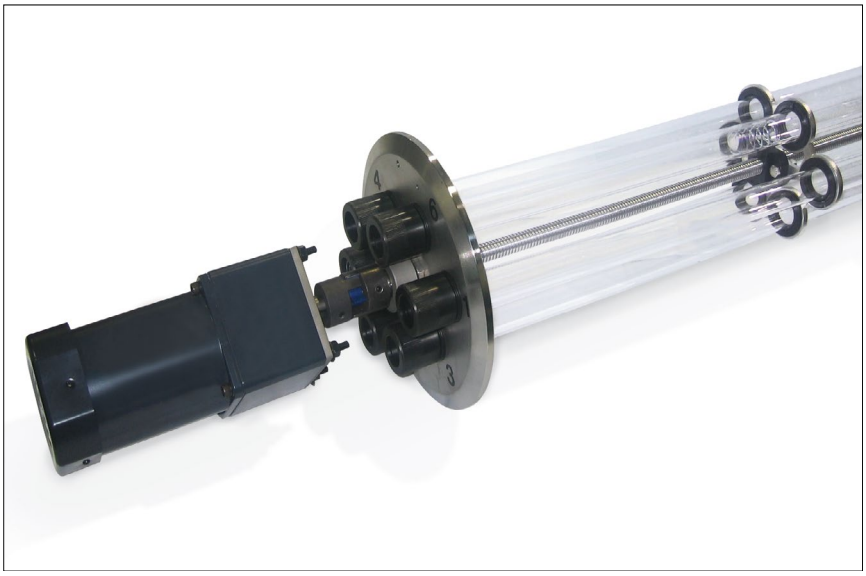
- Minimized lamp count enables chambers to be installed in tight spaces
- Reduced annual maintenance costs for lamp change-outs

Efficient, LPHO amalgam lamps allow TrojanUVSwiftSC systems to deliver the required UV dose with lower operating costs.



Robust Sleeve Wiping System

Optional manual or automatic wiping ensures consistent dose delivery



Benefits:

- Wiping system minimizes fouling of the quartz sleeves
- Ensures consistent UV dose delivery
- Operates online while the lamps are operating, reducing downtime
- Can be programmed to wipe lamp sleeves at preset intervals

The optional wiping system reduces maintenance costs. Operators have a choice of the manual system that is operated by hand, or motorized system (shown above) which can be programmed to wipe automatically at preset intervals.

User-Friendly Digital Controller

Intuitive system provides at-a-glance system status and allows remote operation



The TrojanUVSwiftSC controller and high-efficiency electronic ballasts have been proven in thousands of installations. The Control Panel features a user-friendly digital interface, and can be mounted up to 82 ft (25 m) from the chamber.

Benefits:

- Robust, microprocessor-based controller combines extensive functionality with an operator-friendly, digital interface
- Display provides at-a-glance, real-time system status information
- Programmable digital and analog I/O capabilities allow remote on/off control and alarm code differentiation for fast identification of changes in system status
- Optional dose pacing on high capacity D-Series systems minimizes energy use while maintaining required dose
- Optional Modbus, Modbus TCP/IP, EtherNet/IP and PROFINET protocols communicate with plant SCADA system for centralized monitoring of UV performance, lamp status, power levels and other parameters

Designed for Easy Maintenance

Operator-friendly design for easy routine maintenance



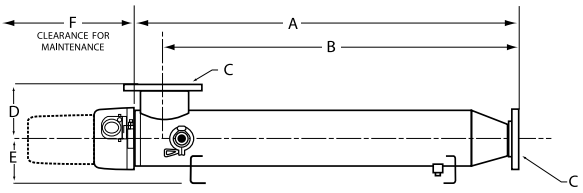
Routine maintenance procedures, including lamp change-outs and sensor calibration checks, are simple and require minimal time.

Benefits:

- Single-ended UV lamps simplify replacement
- Lamps require less than five minutes each to change – without tools
- Externally-mounted sensor allows easy access
- Optional automatic or manual sleeve wiping system reduces the frequency, inconvenience and cost of manual cleaning

System Specifications

Model #		B03	B04	B06	B08	D03	D06	D12	D18	D30
Validated Dose Range	DVGW (mJ/cm²)	40								
	EPA (mJ/cm²)	N/A				186				100
*UVT Range		Nominal Range of 80% to 98%				70% to 98%				
Water Temperature		1°C to 40°C (34°F to 104°F)								
UV Chamber										
Number of Lamps		3	4	6	8	3	6	12	18	30
Chamber Material		Type 316L Stainless Steel								
Mounting Feet (Brackets)		Optional				Standard				
Max Operating Pressure PSI (BAR) **Additional Pressures Available		150 (10)								
Chamber Weight (Dry) lbs (kg)		72 (33)	75 (34)	81 (37)	85 (39)	115 (52)	275 (125)	430 (195)	665 (301)	1,200 (545)
Chamber Weight (Wet) lbs (kg)		149 (68)	150 (68)	160 (73)	162 (85)	230 (104)	530 (240)	860 (390)	1400 (635)	2,250 (1,150)
Wiping System Available		Manual/Automatic				Automatic				
Control Panel										
Ballast Power Level		Electronic Constant Output (100%)				Electronic Variable Output (60% - 100%)				
Electrical - Voltages		208 or 240 V, single phase , 2 wire + gnd, 50/60 Hz L-L								
Control Panel Rating		Type 12 (IP54), Type 3R (IP24)	Type 12 (IP54), Type 3R (IP24), Type 4X (IP66)							
Material		Painted Mild Steel (Type 12) SS304 (1.4301 in Europe) (Type 3R & Type 4X)								
Inputs/Outputs		5 Analog In, 2 Discrete In, 4 Analog Out, 7 Discrete Out								
Instrumentation										
UV Sensors Per Chamber (DVGW / EPA) 1 per 10 lamps as per DVGW 1 per chamber as per EPA		1				1	1	2/1	2/1	3/1
Other										
Languages		Standard: English, French, Dutch, German, Spanish, Norwegian, Swedish, Italian								
Dimensions – Inches (cm)										
	without auto wiper A:	47 (119)	47 (119)	47 (119)	47 (119)	68 (173)	66 (170)	68 (173)	68 (173)	70 (178)
	B:	43 (109)	43 (109)	43 (109)	43 (109)	62 (157)	60 (152)	59 (150)	56 (142)	56 (142)
	Flange Size C:	4 (100DN)	4 (100DN)	6 (150DN)	6 (150DN)	6 (150DN)	8 (200DN)	12 (300DN)	16 (400DN)	20 (500DN)
	D:	8 (20)	8 (20)	8 (20)	8 (20)	8 (20)	11 (27)	14 (35)	17 (42)	21 (53)
	E:	7 (18)	7 (18)	7 (18)	7 (18)	7 (18)	9 (23)	12 (30)	15 (38)	18 (45)
	F:	60 (152)	60 (152)	60 (152)	60 (152)	70 (178)	70 (178)	70 (178)	70 (178)	70 (178)



*UVT range varies slightly by model #

** 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

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