AQUAFINE

LOGICTM Series

System of choice for meeting rigid quality standards in Industrial applications



/Water Confidence[™]





A Robust, Versatile and Cost-effective UV System. Proven Low-Pressure, High-Output Amalgam Lamp Technology.

The system of choice for meeting the rigid quality standards of the Recreational Water, Life Sciences and Food & Beverage markets. Featuring the industry's most advanced low-pressure, high-output (LPHO) amalgam lamp technology. The Aquafine Logic Series consists of a comprehensive list of standard features with a 316L stainless steel treatment chamber and a UL TYPE 12 Painted Mild steel control cabinet featuring a microprocessor-based controller. The L-shaped reactor design was developed using advanced computer modeling, resulting in 40% greater hydraulic efficiency than conventional systems.

The compact size maximizes installation flexibility and preserves floor space with the ability to mount in line, horizontally or vertically. Singleended lamps and quartz sleeves allow fast lamp change-outs, and features an optional manual or automated sleeve cleaning system that can be operated while the reactor is online. Each system undergoes rigorous quality checks and electronic functionality and hydrostatic pressure testing before leaving our facility.

Ultraviolet (UV) Technology in Your Treatment Process

Ultraviolet (UV) light is a versatile, reliable, chemical-free approach to address numerous requirements in industrial water treatment.

UV for Broad-based Disinfection

- Inactivates bacteria, viruses and chlorine-resistant protozoa
- 254 nm UV penetrates the cell wall of microorganisms, attacking DNA genetic material and preventing replication
- Chemical-free process; No carcinogenic disinfection by-products are created, and no transportation, storage or handling of toxic or corrosive chemicals is necessary

UV for Ozone Destruction

- Residual ozone (0₃) is efficiently removed by UV at a wavelength of 254 nm
- Ozone absorbs the UV energy and quickly breaks down to dissolved oxygen (O_2)
- Typically 1.0 ppm of ozone can be reduced to less than 0.1 ppm with a UV dosage of 90 mJ/cm²

UV for Chlorine Reduction

- Free chlorine residuals up to 2.0 ppm can be successfully destroyed by the application of UV light
- Reduces carcinogenic by-products and is a environmentally-friendly form of disinfection
- Lower maintenance costs compared to carbon beds or chemical injections

The Benefits of UV Broad-spectrum, cost-effective protection that offers unparalleled safety

- Chemical-free way to safeguard water against harmful pathogens
- Widely accepted and endorsed worldwide for disinfection of drinking water
- Offers broad-spectrum protection against a wide range of pathogens, including bacteria, viruses, and chlorine-resistant protozoa
- Provides Cryptosporidium, Giardia and virus inactivation of up to 4-log (99.99%)
- Does not create disinfection by-products (DBPs) and does not affect taste
- At approximately 1/5th the cost of ozone disinfection and 1/10th the cost of membrane filtration, UV is the most cost-effective approach for multi-barrier treatment strategies



INDUSTRIES: Aquaculture, Food & Beverage, Life Sciences, Microelectronics, Recreational Waters FLOWRATES: 350-5895 GPM @ 95% UVT, 430-5895 GPM @ 99% UVT APPLICATIONS: Disinfection, Chlorine/Chloramine Destruction, Ozone Destruction DESIGN CAPABILITIES: Custom Configurations or Skid Capabilities



UV Sensor

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

UV Chamber

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

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.

Sleeve Wiping System

Optional manual or automatic systems available; both operate online, without interrupting disinfection. 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.

Control Panel (CP)

Painted Mild 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.



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.

Key Benefits Aquafine Logic

Assurance of NSF 61 and proven performance. 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 disinfecting.

Designed for maximum operating efficiency. High-efficiency, electronic lamp drivers ensure cost-effective operation. Our high-capacity models reduce operating costs and extends 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. Our systems include a Performance Guarantee and comprehensive protection for your investment.

Compact Chamber for Installation Flexibility

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

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
- "L-shaped" design is 40% more efficient than "U-shaped" systems
- 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 Aquafine Logic is extremely spaceefficient. Its compact footprint allows the system to be integrated into restrictive pipe galleries of water treatment facilities.

Energy-Efficient, High-Output Amalgam Lamps

Fewer lamps reduces capital and O&M costs



Benefits:

- The Aquafine Logic requires 1/2 to 1/3 fewer lamps to deliver the required dose compared to traditional UV systems using low-pressure lamps
- With fewer lamps, the Aquafine Logic is very compact and can be installed in small spaces
- Fewer lamps means reduced annual maintenance costs for lamp change-outs





Robust Sleeve Wiping System

Optional manual or automatic wiping ensures consistent dose delivery



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.

* Image shown for illustration purposes only. See Aquafine or an Authorized Distributor for details.

Benefits:

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

User-Friendly Digital Controller

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



The Aquafine Logic 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 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



The Aquafine Logic design simplifies maintenance procedures. For example, lamp changeouts require no tools and take less than five minutes per lamp.

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Benefits:

- Single-ended UV lamps simplify replacement
- Lamps require less than five minutes each to change
- 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 #	03AS20	04AS20	03AL20	06AS20	04AL20	08AS20	08AL20	06AL30	12AL40	18AL40	18AL50
Disinfection @ 95% UVT GPM (m³/hr)	350 (80)	435 (99)	560 (130)	695 (160)	780 (177)	875 (200)	975 (221)	1670 (379)	3643 (828)	4005 (910)	5895 (1339)
Disinfection @ 99% UVT GPM (m³/hr)	430 (97)	435 (99)	690 (156)	835 (189)	935 (212)	975 (221)	975 (221)	1670 (379)	3700 (840)	4750 (1080)	5895 (1339)
Ozone Destruction @ 99% UVT GPM (m³/hr)	145 (32)	195 (44)	235 (53)	280 (63)	320 (72)	345 (78)	546 (124)	760 (173)	1772 (403)	2589 (588)	3253 (739)
Number of UV Lamps	3	4	3	6	4	8	8	6	12	18	18
UV Chamber											
Chamber Material	Type 316L Stainless Steel										
Max Operating Pressure PSI (BAR)	150 (10)										
Chamber Weight (Dry) lbs (kg)	34 (15)	72 (33)	75 (34)	81 (37)	85 (39)	115 (52)	275 (125)	430 (195)	665 (301)	400 (181)	1,200 (545)
Chamber Weight (Wet) lbs (kg)	65 (29)	149 (68)	150 (68)	160 (73)	162 (85)	230 (104)	530 (240)	860 (390)	1400 (635)	877 (398)	2,250 (1,150)
Wiping System Available	Manual or Automatic										
Inlet/Outlet Flange Inches (mm)	4 (102)	4 (102)	6 (152)	6 (152)	6 (152)	6 (152)	6 (152)	8 (203)	12 (305)	10 (254)	16 (406)
Controller											
Standard	UV Sensor w/4-20mA, Lamp Status Indicator, Lamp Out Alert Dry Contact, Temp. Switch, Running Time Indicator, Remote ON/OFF 24 V AC/DC										
Optional	Dose Display										
Control Panel											
Control Panel Rating	Type 12 (IP54), Type 3R (IP55), Type 4X (IP66)										
Material	Painted Mild Steel (Type 12), Painted Mild Steel (Type 3R), Stainless Steel 304 (Type 4X)										
Dimensions – Inches (cm)											
without auto wiper A:	33 (84)	47 (119)	47 (119)	47 (119)	47 (119)	68 (173)	66 (170)	68 (173)	68 (173)	67.25 (170.7)	70 (178)
B:	30 (75)	43 (109)	43 (109)	43 (109)	43 (109)	62 (157)	60 (152)	59 (150)	56 (142)	57 (144.8)	56 (142)
Flange Size C:	4 (102DN)	4 (102DN)	6 (152DN)	8 (203DN)	12 (305DN)	10 (256DN)	16 (406DN)				
D:	6 (15)	8 (20)	8 (20)	8 (20)	8 (20)	8 (20)	11 (27)	14 (35)	17 (42)	14 (35.6)	21 (53)
E:	6 (15)	7 (18)	7 (18)	7 (18)	7 (18)	7 (18)	9 (23)	12 (30)	15 (38)	12 (30.5)	18 (45)
F:	50 (127)	60 (152)	60 (152)	60 (152)	60 (152)	70 (178)	70 (178)	70 (178)	70 (178)	70 (178)	70 (178)

Dose Levels: * 30 mJ/cm² after 12,000 hours of operation. \pm 90 mJ/cm² after 12,000 hours of operation.







Aquafine is an ISO 9001 certified company. Aquafine equipment performance is guaranteed with the use of genuine OEM replacement parts.

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