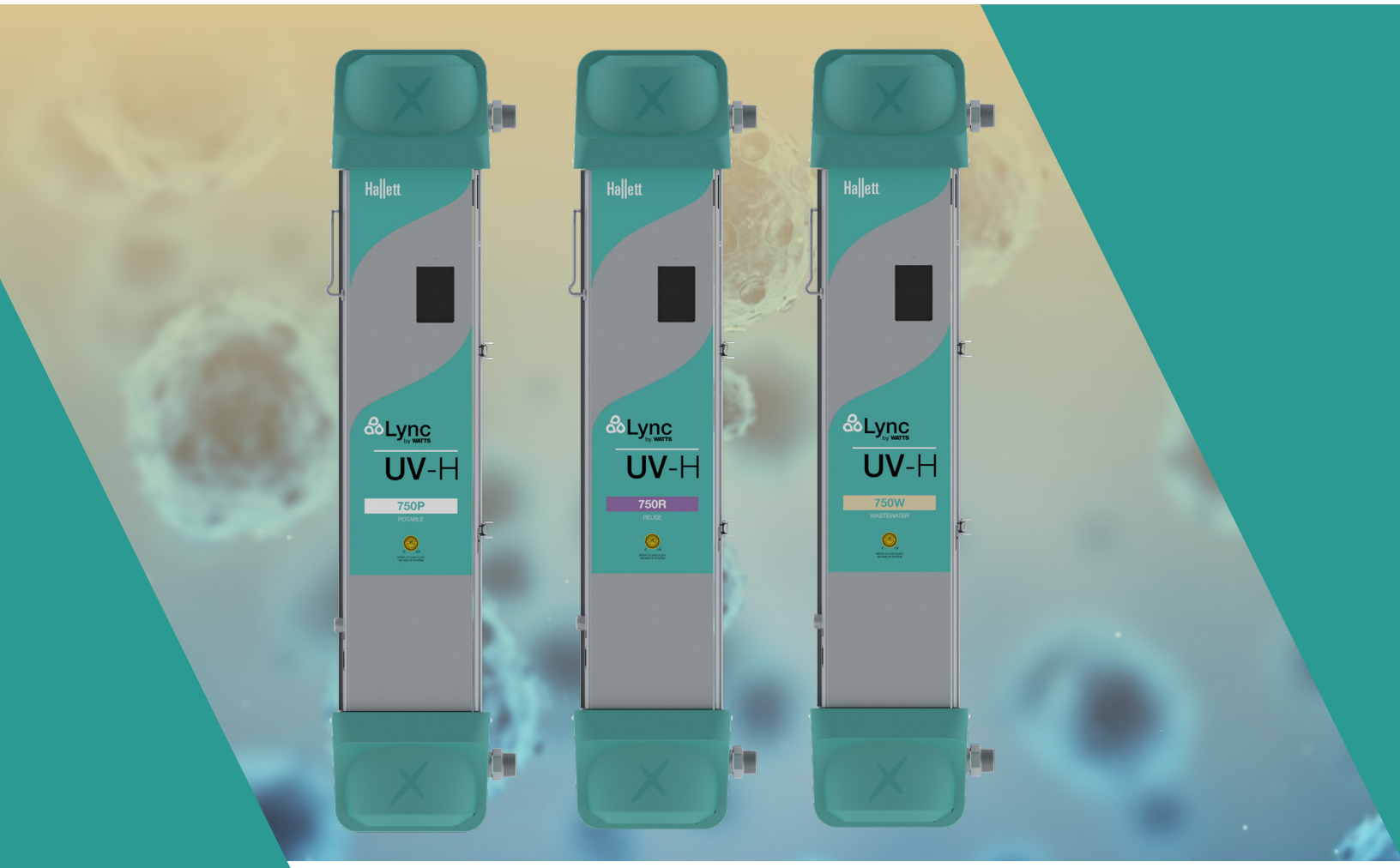
# UV-H

## UV Disinfection Solution




Potable | Reuse | Wastewater

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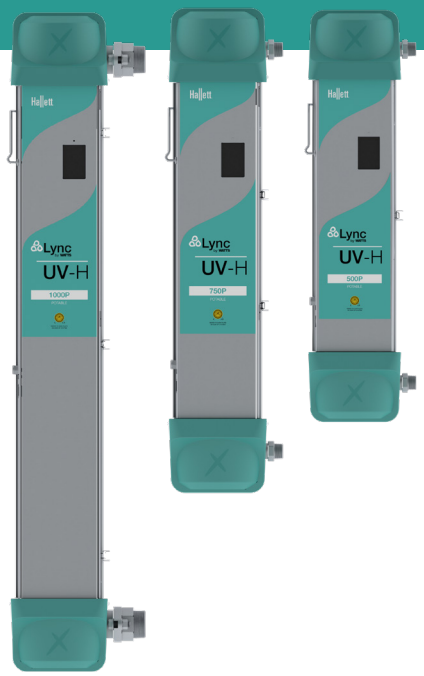
Lync® by WATTS

# An Advanced UV Disinfection Solution




Lync's UV-H provides an advanced, effective, and virtually maintenance-free UV light disinfection solution to treat inlet water to mitigate the presence of many waterborne pathogens and the buildup of biofilm to protect building occupant health and improve the longevity of the water system.

The proprietary reactor design, built-in automatic self-cleaning wipers, and easily replaceable lamps set Lync UV-H apart in terms of both disinfection performance and ease of maintenance.

Through a state-of-the-art 360-degree UV light emission provided by Crossfire™ Technology and a two-lamp design, the reactor significantly reduces microorganisms being blocked from the UV light by particles. UV-H remains effective at hardness levels as high as 50 grains per gallon and iron levels up to 3 mg/L.

High performance in low UVT conditions

Virtually maintenance-free design

Easy lamp replacement and minimal downtime

Smart sensors for real-time monitoring

## Potable Applications

UV-H is available in five models for potable water applications, such as drinking water systems and domestic hot water systems, ranging from 37 GPM to 100 GPM.

## Reuse and Rainwater Applications

UV-H meets the disinfection requirements for safe water conservation and reuse programs to support sustainable environmental practices for buildings and industries. Or make the most of seasonal wet weather with a rainwater disinfection systems for rooftop and runoff water harvesting for a variety of reuses including toilet flushing, washing and irrigation. It is available in three models from 37 GPM to 100 GPM.

## Wastewater Applications

Crossfire™ Technology enables the effective disinfection of domestic and industrial wastewaters with UV transmittance as low as 35%, minimizing pre-treatment requirements. It is available in three models from 40 GPM and up to 100 GPM.

# Protect Occupants, System, and the Environment

## Protect Building Occupants and Plumbing Equipment

With a UV-H system in place, buildings can sustainably and effectively mitigate health concerns related to Legionella bacteria in the water coming into the building. Lync UV-H can effectively inactivate 99.9999% of Legionella bacteria (6-log).

It also extends the life and operational efficiency of the water heating and plumbing system by mitigating risks of biofilm formation and microbiologically induced corrosion. The result can be decreased water heating and maintenance costs.

## Have Greater Peace of Mind

UV-H is packed with cutting-edge technologies to ensure a more effective disinfection of the inlet water. Through a 360-degree UV light emission provided by Crossfire™ Technology and a two-lamp design, the proprietary reactor of the UV-H system eliminates the risk of microorganisms being blocked from the UV light by solid particles.

This advanced design of the UV-H enables treating low-quality waters with hardness levels as high as 50 grains per gallon and iron levels up to 3 mg/L without the need to use softeners or other scale control solutions.

## Save on Maintenance Costs

The UV disinfection process entails no holding tank or moving parts and no chemicals to be bought continually, safely stored, and replaced.

Compared to most UV disinfection systems that require periodic maintenance, UV-H is engineered for trouble-free maintenance. Automatic self-cleaning wipers and built-in purging prevent fouling of the quartz sleeve by mineral scaling and biofilm, making it up to 10 times more effective than conventional UV systems in difficult water applications.

The UV lamps are placed in the front cabinet to make replacing them a simple task and to eliminate the need for maintenance clearance at top and bottom of the system for instant space savings.

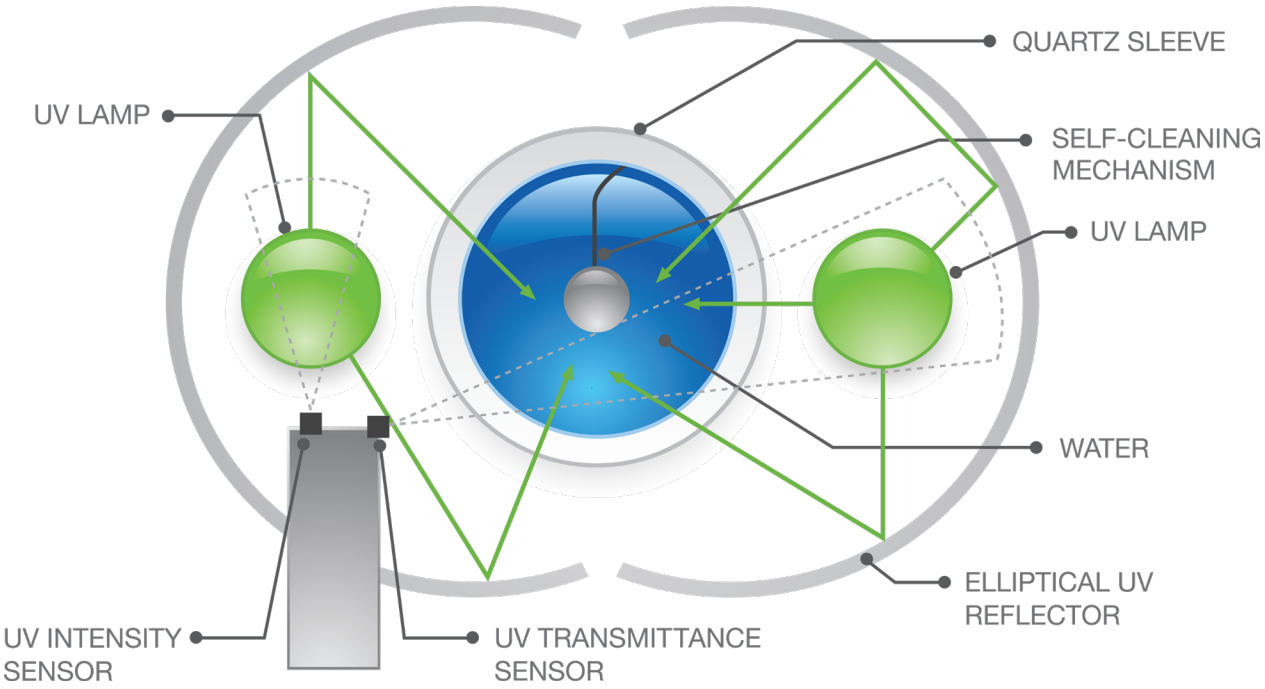
## Reduce Environmental Impact

Unlike chemical-based disinfection processes, UV light is a physical process entirely. It is highly effective, non-toxic, and produces no harmful byproducts that can reach the wastewater.

## Install in Multiple Applications

UV-H is available in a range of models to treat water at various flow demand and for a variety of application types from potable to reuse (rainwater) and wastewater.

# Crossfire™ Technology Delivers Superior Water Disinfection




**360° Coverage.** UV-H delivers a sterilizing dose of UV radiation from 360 degrees to overcome shadowing and reliably disinfect water with UVT as low as 35%. Conventional systems require a minimum 75% UVT. In potable water applications this may eliminate the need for water softeners, saving time, money and eliminating salt from drinking water.

**Self-Cleaning.** Minerals and biofilm can build up on the quartz tube, reducing the disinfection dose and causing alarms. UV-H features automatic mechanical self-cleaning quartz to effectively prevent quartz fouling and eliminate the need for harsh chemical cleaning of the quartz sleeve.

**Smart Sensors.** Multiple smart sensors continually monitor UV dose, transmittance, and lamp intensity in real time to eliminate false alarms and minimize downtime. Stay informed through onboard data logging with optional 4-20 mA and Modbus outputs, visual and audible alarms for event notifications, and self-diagnostic troubleshooting.

**Safe and Easy Maintenance.** Air-mounted lamps located in the reactor chamber rather than in the wetted quartz sleeve makes replacement quick and simple with no risk of breaking the quartz. Safety is further enhanced by electrical, mechanical, and thermal safeguards that control contact with potentially harmful elements during maintenance and repairs.

**Low Operating Costs.** Quality components like durable anodized aluminum casings and long-lasting LPHO lamps mean that parts do not need replacing often. The design cuts down on recurring operating costs like manual chemical cleaning, time-consuming lamp changes, and quartz replacement caused by accidental breakage during maintenance.

# Solving Common UV Disinfection Challenges

## Shadowing

Shadowing occurs when sediments, minerals and other solids and chemicals block the UV lights from reaching pathogens in the treated water. UV-H delivers a sterilizing dose of UV radiation from 360 degrees to overcome shadowing and reliably disinfect water with UVT as low as 35%.

## Hard Water and Softeners

Water softeners are often used to pre-treat the inlet water in cases where the water is hard. UV-H remains effective at hardness levels as high as 50 grains per gallon and iron levels up to 3 mg/L. This may reduce or entirely eliminate the need for water softeners in some applications.

## Cold Water

Very cold water causes lamps in conventional systems to over-cool, resulting in a drop in UV output and triggering alarms. Crossfire™ Technology uses air-mounted lamps with optional heating to keep the system operating effectively for air and water temperatures as low as 34°F (1°C).

## Low-Flow and Overheating

Conventional systems rely on flowing water to prevent heat build-up from UV lamps. In no-flow and low-flow situations, the lamps can overheat, lose output, and trigger alarms. Crossfire™ Technology uses continuous forced-air cooling of lamps in the UV reactor chamber to prevent overheating.

## Frequent Maintenance

Fouling of the quartz sleeve is common in many UV disinfection systems and the only way to pre-empt it is regular maintenance to clean the quartz tube using acid. UV-H features an automatic wiper mechanism that continuously cleans the quartz, and dual sensors for smarter alarming.

# Benefit From the Triple Effects of UV Disinfection

## Legionella Mitigation

Legionella is the leading cause of waterborne disease outbreaks in the United States, according to the Centers for Disease Control (CDC). These outbreaks cost facility owners more than $1 billion annually, on average and the problem is becoming more prevalent. UV-H mitigates such health concerns by being highly effective in inactivating Legionella bacteria at a minimum of 99.9999% (6-log) inactivation.

## System and Equipment Protection

Microbiologically induced corrosion caused by biofilm and pitting corrosion due to chlorine disinfectant usage can lead to failure of the water heating equipment. It may also reduce system efficiency, increase energy costs and cause sudden failure of the equipment or reduce its lifespan, requiring costly repairs and replacements.

UV-H not only aids in keeping building occupants safe from waterborne pathogens, but also provides value as an effective solution to protect the efficiency and lifespan of your water heating and wider plumbing system.

## Safer, Eco-Friendly Option

UV light disinfection requires no chemicals and produces no harmful byproducts that can reach the wastewater. For example, chlorination, an often-used disinfection method, comes with a significant negative environmental impact related to the natural environment and human health. This makes UV-H a much more sustainable, environmentally conscious, and healthy alternative to other disinfection methods.

CASE STUDY

## An End to Decades of Boil Water Advisories

For decades, a small village in Canada had been plagued by several, sometimes months-long, boil water advisories due to elevated ammonia concentrations in the water supply, which impeded the capability to achieve primary disinfection at a local water treatment plant.

Plant management identified a more sustainable, long-term, and cost-effective disinfection alternative to chlorine.
A UV disinfection system for potable water was proposed to the team as it could effectively provide primary disinfection of the source water regardless of the ammonia concentration, which would eliminate the need for superchlorination, saving money and preventing exceeding MULs.

Another major advantage of the UV disinfection system was its unique lamp and ballast technology that enables up to a dozen on/off cycles. This is particularly advantageous when water is treated intermittently as is often the case at smaller treatment plants. It reduces electricity consumption and extends lamp life, one of the very few ongoing costs associated with UV disinfection systems in general.

# Specifications and Dimensions

| Model | 500P | 500PN | 750P | 750PN | 1000P |
|---|---|---|---|---|---|
| Certification/Validation | NSF/ANSI/CAN 61 & NSF/ANSI/CAN 372 | | | | |
| | | NSF/ANSI 55-A | | NSF/ANSI 55-A | |
| Flow (single unit) | 37 GPM | 16.5 GPM | 40 GPM | 27.4 GPM | 100 GPM |
| UV dose (mJ/cm$^2$) | 40 (minimum) | | | | 16-200 |
| UV transmittance | 95%[1] | Min. 75% | 95%[1] | Min. 75% | 95% |
| Maximum Water Hardness | 50 gpg | | | | |
| Maximum Iron (in water) | 3 ppm | | | | |
| Air temperature | 34 - 104°F | | | | |
| Water temperature | 34 - 131°F | | | | |
| Water pressure | 5 - 100 psig | | | | |
| Relative humidity (air) | Max 70% | | | | |
| Max pressure drop | 10 psi | 22.7 psi[2] | 13 psi | 22.7 psi[2] | 5 psi |
| Dimensions | 36.5 (H) x 9.6 (W) x 8.6 in (D) | | | | |

| Model | 500R | 750R | 1000R |
|---|---|---|---|
| Max Flow (single unit)[1] | 37 GPM | 40 GPM | 100 GPM[1] |
| UV dose (mJ/cm$^2$) | 40 (minimum) | | 16 - 200 |
| UV transmittance | 95% | | |
| Max Water Hardness | 50 gpg | | |
| Max Iron (in water) | 3 ppm | | |
| Air temperature | 34 - 104°F | | |
| Water temperature | 34 - 131°F | | |
| Water pressure | 5 - 100 psig | | |
| Relative humidity (air) | Max 70% | | |
| Max pressure drop | 10 psi | 13 psi | 3 psi |
| Dimensions | 40.5 (H) x 9.6 (W) x 8.6 in (D) | | |

| Model | 500W | 750W | 1000W |
|---|---|---|---|
| Max Flow (single unit)[1] | 40 GPM | | 100 GPM[1] |
| UV dose (mJ/cm$^2$) | 30 (minimum) | | 16 - 200 |
| UV transmittance | 95% | | |
| Max Water Hardness | 50 gpg | | |
| Max Iron (in water) | 3 ppm | | |
| Air temperature | 34 - 104°F | | |
| Water temperature | 34 - 131°F | | |
| Water pressure | 5 - 100 psig | | |
| Relative humidity (air) | Max 70% | | |
| Max pressure drop | 12 psi | 13 psi | 3 psi |
| Dimensions | 55.8 (H) x 11.5 (W) x 8.6 in (D) | | |

For a full list of technical specifications, please refer to the technical data sheet for the specific UV-H solution or visit lyncbywatts.com/uv-h.

# Complete Engineered System Solutions

**Superior Safety. Maximum Efficiency. Improved Water Quality.**

Lync combines advanced technologies and innovative design with industry-leading manufacturing expertise to deliver complete, cost-effective commercial water technology system solutions from a single source.

Our fully assembled, integrated solutions provide your building with maximum efficiency, superior safety and improved water quality while minimizing planning, design and installation time to reduce costs and increase your return on investment.

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