VAN REMMEN
UV Technology

Validated *series* & **Certified** *series*

When certainty counts

Effective disinfection

The Validated and Certified series stand for certainty. Certainty of effective water disinfection, in water sources with a high degree of light transmittance. These validated and certified UV disinfection systems are ideal for organisations that want drinking or industrial water of the highest quality.

Why the Validated and Certified series?

The Validated and Certified series are specially designed to effectively disinfect water with good light transmittance (80 to 99%). This ensures microbiologically safe water that meets the strictest quality requirements, such as for drinking water. By combining low-pressure lighting with a unique, privately developed Flow Management System (FMS), we provide a system that ensures every UV-C beam's effectiveness and prevents any drop from escaping. This results in reliable disinfection and optimal energy consumption.

Validated series

The Validated series consists of validated UV disinfection systems for water with a high transmission value (light transmittance). The series has been microbiologically validated. This means that we have tested the performance of the system using microorganisms. These tests demonstrate that Validated systems are able to effectively disinfect large amounts of water for a long time. This provides users with savings due to less investment and lower operating costs, including lower energy consumption, low maintenance and replacement intervals.

Thanks to the KIWA ATA certificate, the Validated series is suitable for the drinking water market. The end user may choose between a disinfection energy dosage of 300 or 400J/m^2. Depending on the transmittance of the water, capacities of 0.6 to 148 m^3/hour can be selected for the Validated series.

Validated Series features:

- Validation in accordance with NEN-EN 14897
- KIWA ATA Certificate
- Dosage of 300 J/m^2 or 400 J/m^2
- Large range with capacities from 0.6 up to 148 m^3/hour

Certified series

The Certified series can be applied when high-quality water and certification is required. This series complies with all current laws and regulations established to ensure high-quality water. The series is certified in accordance with CEN EN 14897:2006. This CEN protocol is based on the ÖNORM M 5873-1 and is similar to the US-EPA 2003 and DVGW. A Certified unit always includes a ÖNORM UV sensor. This series is also certified by the Norwegian Insti-

The Certified series can be applied when additional certainty of performance and certification is required.

tution of Public Health (NIPH). All reactors in the Certified series are validated and the emitted UV dosage has been checked under operating conditions. By linking the actual measured UV intensity to the actual measured flow, one can determine the actual UV dosage. If this UV dosage is insufficient, the process may be adjusted by increasing or decreasing the flow. This will result in the correct UV dosage. If this cannot be achieved by adjusting the flow, the system will be interrupted and the water flow will be shut down, ensuring that not a single drop of water passes through the system without the required UV dosage.
Due to its KIWA ATA Certificate, the series has also been approved for the drinking water market. As standard, the Certified series is based on a dosage of 400J/m² and you can opt for capacities of 3.6 to 134 m³/hour.

Certified Series features:

- Validation in accordance with NEN-EN 14897
- ÖNORM M 5873-1
- KIWA ATA Certificate
- Dosage of 400J/m²
- Range with capacities from 3.6 up to 134 m³/hour

The Certified series systems are fully equipped to ensure certainty of performance. There is constant monitoring of the UV-C light intensity by means of an ÖNORM sensor (W/m²) and an alarm feature in case of a too low intensity. The Validated series can be expanded with a UV or temperature sensor.

The control unit of both the Certified as the Validated series provides insight into the system performance and monitors operation with various alarm features. They are characterised by its user-friendliness and level of support. The system records the operating hours of lamps and uses an alarm feature to report when the burning hours (are about to be) reached.

It is also possible to customise both series. Several options are available, such as a vent, drain valve, temperature sensor or blow-down valve. Finally, the system can also be made to comply with the ATEX regulations. The chamber of the Validated series can be made of plastic and the system can be equipped with an automatic or manual wiper system for cleaning the quartz tube.

Total cost of ownership

Sustainability is in our DNA. For this reason, we use materials with a long service life and continually work on the energy efficiency of our systems. The Certified and Validated series are designed to use as little energy as possible to achieve the best possible result. This provides our customers with the most efficient and effective solution in terms of UV, a low total cost of ownership and fast payback times. Our systems offer the following benefits:

- **30 to 40% more energy-efficient than other UV systems**
- **Optimal dosage distribution thanks to our Flow Management System**
- **Chemical-free control of organisms**
- **Low maintenance interval**

Applications

From our customers...

V-series

Crystal clear and safe fountain water

On behalf of the municipality of Hoogeveen, John Oomkes of Fonteintechniek Gruppen was assigned with the job of beautifying the entrance of shopping centre 't Kruis in Hoogeveen with fountains. The main objective of this project was to provide clear and safe fountain water. The application of UV disinfection proved to be ideal for this. 'Sand filters in combination with UV allow us to achieve our goal', says John.

In the past, chemicals were sometimes added, but nowadays this is no longer applied due to safety concerns. As basin volumes increase here is a growing need for crystal-clear water of the highest hygiene quality. The Van Remmen UV Technology systems play an important role because the disinfecting process of the UV light ensures that the fountain water is both safe and perfectly clear.

C-series

Treatment of process water during production processes.

Water is used for all kinds of applications, being also an important source for the production of beverages. More often tap water or well water is used as a basic ingredient. To ensure this water meets the high requirements, it is treated with a UV-C disinfection system which brings and maintains the water microbiologically at a safe level. The Certified series is a suitable system for this application due to the European certification and the use of an absolute UV sensor that monitors the performance.

UV disinfection

UV-C disinfection is an environmentally friendly technology that is used to disinfect water, air and surfaces. This technology does not use chemicals and the treated product is not affected.

About UV-C

UV-C light is electromagnetic radiation that cannot be observed with the naked eye. Microorganisms absorb UV-C light, which causes the radiation to penetrate the microorganism's cell. Inside, the DNA compounds are then broken down. The hereditary properties of the cell change, making the microorganisms unable to multiply and causing the organism to die.

Dosage

The sensitivity of microorganisms for UV-C light is dependent on their structure (nucleus, cell wall, pigments, etc.) The dosage (J/m^2) is established on the basis of this sensitivity. In other words, each micro-organism has its own specific disinfectant dosage.

Transmission value

One of the most important aspects of disinfecting with UV-C is the light transmittance of the liquid being treated, also referred to as transmission. The UV-C light must be able to penetrate the fluid in order to reach the microorganism, even further away from the light source. When the transmission is high, the light penetrates deeply into the liquid. When the transmission is low, it is easily absorbed and less effective. Transmission is usually depicted in percentages and measured over a distance of 10 mm (T10) or 50 mm (T50). The transmission of a liquid is impossible to see with the naked eye.

V-series

UV sensor

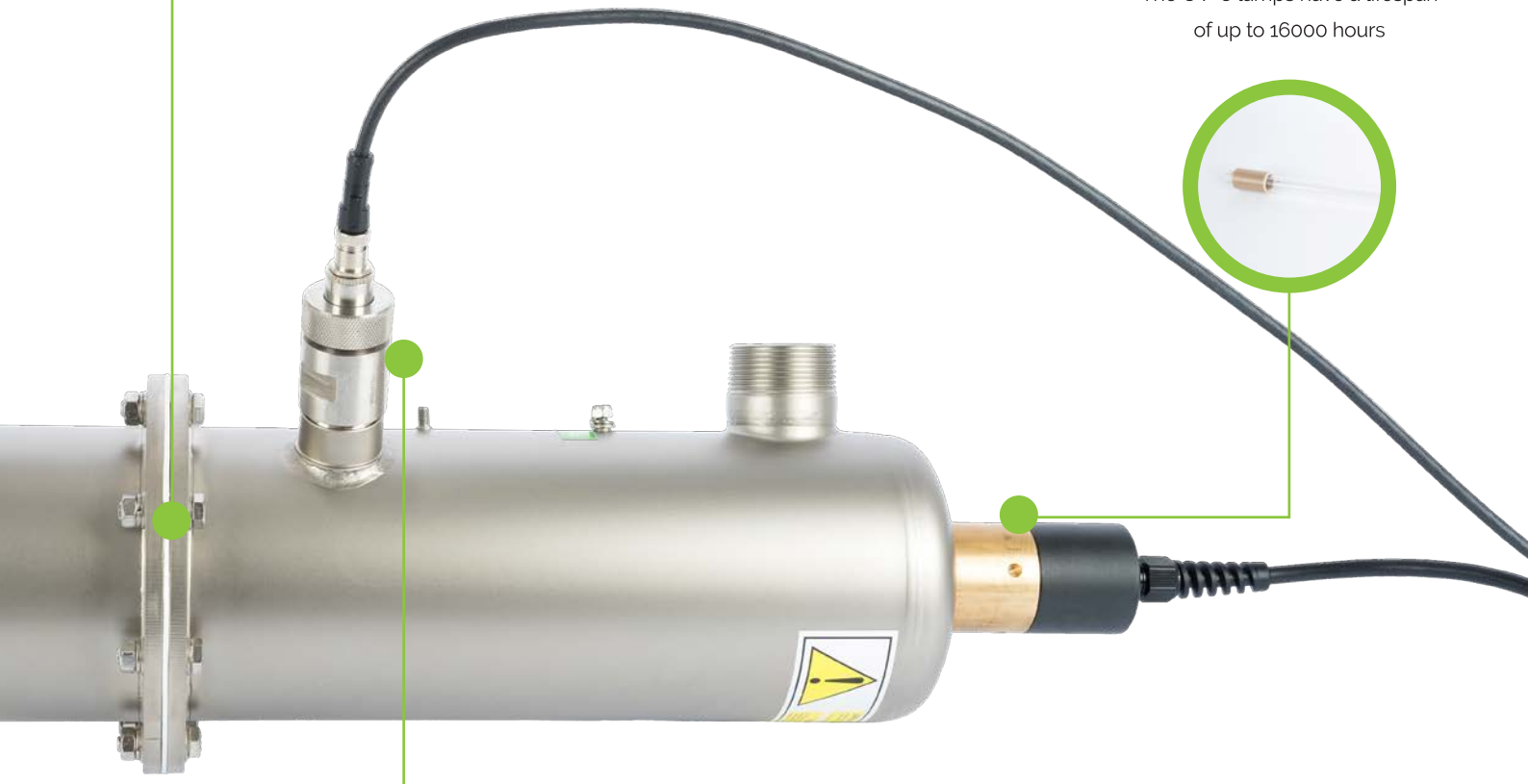
When certainty counts

Flow Management System (FMS)

For optimal dosage distribution

UV-C Lamps

The UV-C lamps have a lifespan of up to 16000 hours



C-series

ÖNORM UV sensor

Van Remmen UV Technology

Van Remmen UV Technology is a designer and supplier of sustainable UV disinfection systems for liquids and surfaces. Our great passion for the profession is the major strength of our company. In order to ensure our systems are most effective, we test and validate our UV equipment with microorganisms. We look beyond current standards and offer optimal solutions. Based on this idea, we have been developing systems that are both effective and highly energy-efficient for over 18 years now.

We focus on organisations that seek the most effective means of disinfecting liquids, air and surfaces. With our Validated and Certified series, we provide solutions for disinfecting water with a high transmittance. The Certified series is officially certified and the Validated series has been validated in accordance with the European Standard for UV Systems, the EN 14897:2006+A1:2007 with the description: 'Water conditioning equipment inside buildings – Devices using mercury low-pressure ultraviolet radiators.'

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