VGE pro

UV DISINFECTION SOLUTIONS

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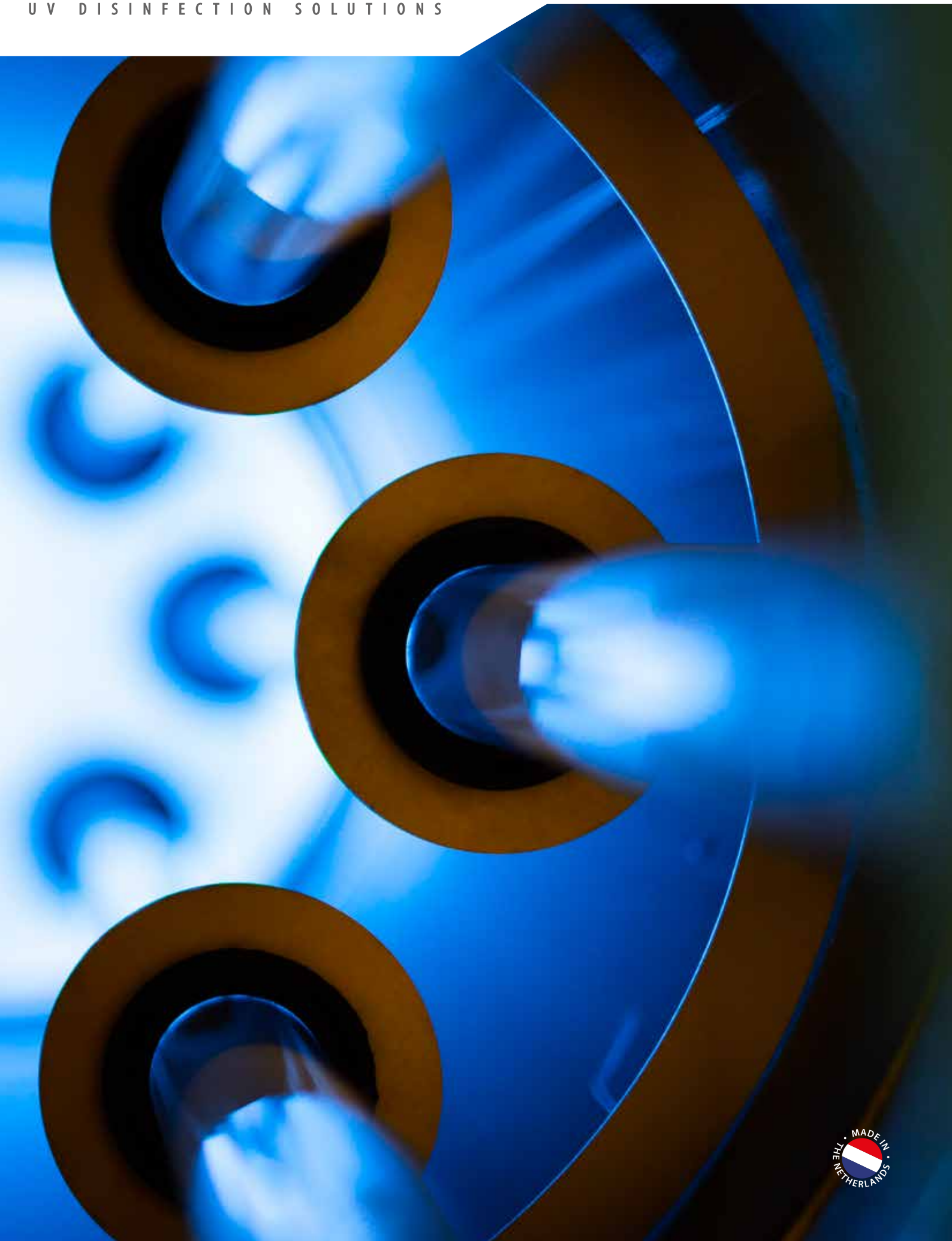


# COMPANY INTRODUCTION
## VGE B.V.

VGE B.V. is a prominent company focused on improving people's lives through timely innovations. As a manufacturer of a unique range of UV-C disinfection systems, we provide high-quality products in harmonious collaboration with our customers. We carry out our activities from our newly built facility in industry area Duin III Noord Schijndel the Netherlands.

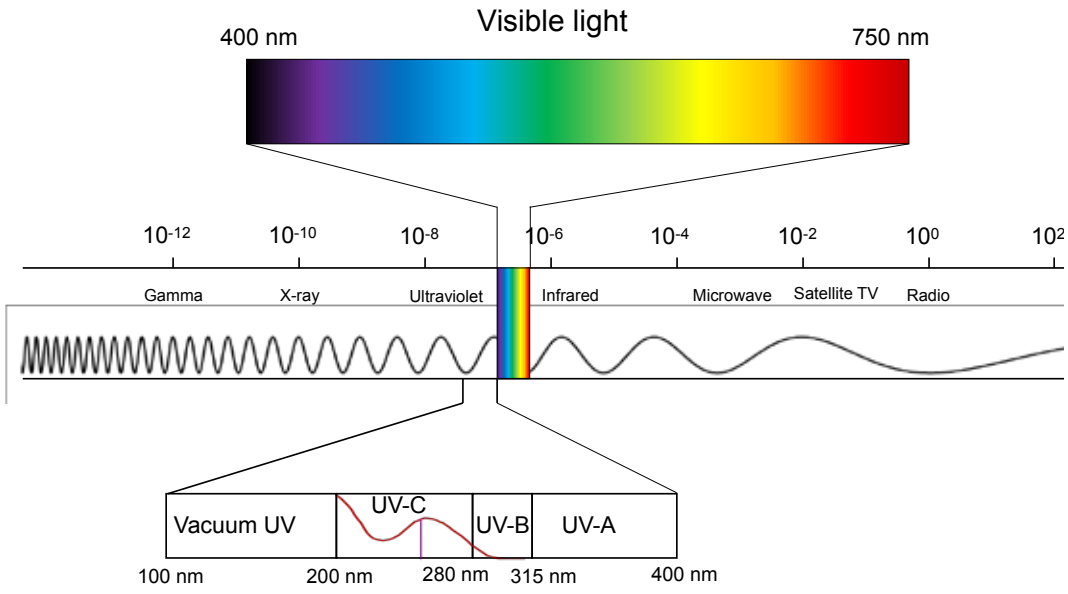
We are proud to be a part of the Netherlands' top technology region. We regularly introduce new products and we continuously improve our existing products. Environmental friendliness and saving energy are major points of interest at VGE B.V. Years of experience (since 1982) have resulted in technically advanced products that are used in more than 70 countries around the globe.

### VGE Pro UV Disinfection Solutions

The VGE Pro product range consists of a complete range of industrial UV-C disinfection systems. The units provide a reliable and efficient disinfection of your water. VGE Pro UV-C disinfection systems are the finishing touch when it comes to disinfection;  they have the ability to keep the water free of bacteria, viruses,protozoa, algae and fungi.

It is essential that the UV-C disinfection system seamlessly connects to the design and the components used in the installation. By choosing VGE Pro, you choose guaranteed quality for a fair price.

# UV-C TREATMENT
## ELECTROMAGNETIC SPECTRUM




UV radiation can be divided in four main categories, UV-A, UV-B, UV-C and Vacuum UV. The UV-C spectrum (200 to 280 nanometers) is the most lethal range of wavelengths for microorganisms. UV-C radiation has the ability to cause permanent damage to microorganisms. Each type of microorganism requires a specific UV-C radiation exposure rate to successfully complete the disinfection process. The targeted microorganism must be directly exposed to the UV-C radiation long enough for the radiation to penetrate the microorganism's cell wall. However, it takes only a fraction of a second for UV-C radiation rays to inactivate waterborne microorganisms by breaking through the microorganism's cell wall and damaging their DNA. This often totally destroys the organism, or at the very least will impair its ability to reproduce.

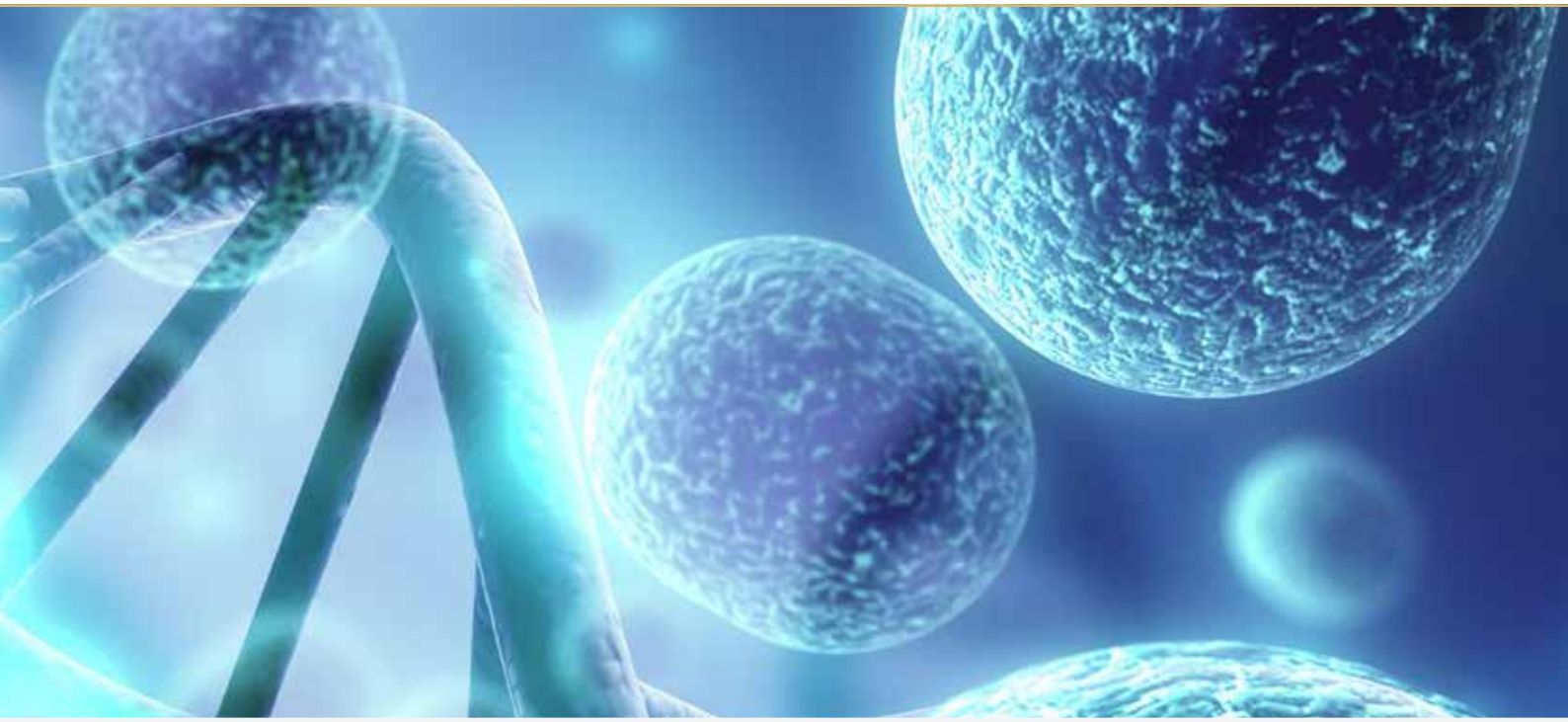
# UV SOLUTIONS IN
## FEATURED APPLICATIONS

### Horticulture:

In the field of horticulture, maintaining clean water is essential for cultivating healthy crops. A UV-C system from VGE Pro plays a crucial role in this process by inactivating harmful bacteria, viruses, and fungi, including Pythium and Fusarium, without leaving any residue in the water. In closed irrigation systems, where water often circulates, pathogens can easily spread through the water. When this water is reused for crop irrigation, it must be treated with a VGE Pro UV system to eliminate potential threats to plant health and ensure a safe growing environment.

### Aquaculture:

In aquaculture, a VGE Pro UV system is employed to maintain water quality and ensure the health of aquatic life. This system effectively inactivates infectious pathogens that can harm fish, leading to healthier fish and a reduced need for medications. Pathogens are a common issue in fish farming and aquariums and are often controlled with antibiotics, which can negatively affect water quality. Pollution, food residues, and fish waste create a breeding ground for bacteria, impacting the overall quality of the water and the well-being of the fish.



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## Swimming Pool and Spa:

VGE Pro UV systems are used to disinfect pool water effectively, even against chlorine-resistant microorganisms. These systems not only ensure the water is safe but also reduce the reliance on chlorine and other chemicals. In addition to disinfection, VGE Pro UV systems can break down chloramines, eliminating the unpleasant odor often associated with chlorinated pool water and preventing issues like red eyes, skin irritation, and respiratory tract discomfort.

## Drinking Water:

Guaranteeing high-quality drinking water is a priority across various sectors, and VGE Pro UV disinfection systems play a crucial role in achieving this goal. By inactivating microorganisms using UV-C radiation, these systems ensure the microbiological safety of drinking water. Unlike some chemical disinfectants, microorganisms are not resistant to UV radiation. For instance, pathogens such as Cryptosporidium and Giardia lamblia can be effectively inactivated, preventing contamination without the use of harmful chemicals.

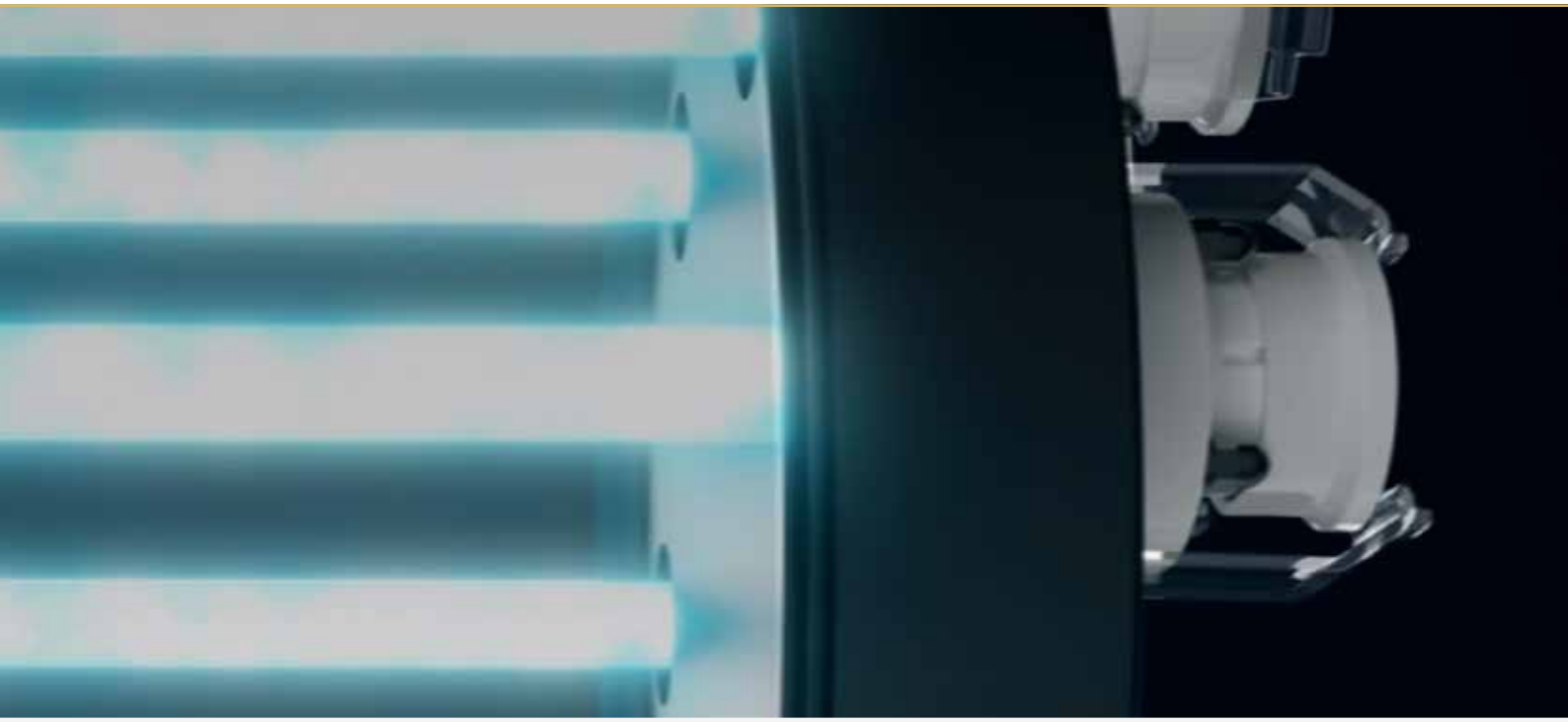
# UV SOLUTIONS IN
## FEATURED APPLICATIONS

### Data Centers and Utilities buildings:

Legionella can pose a significant problem in cooling towers, data centers, and utilities. VGE Pro UV-C disinfection systems are used to combat this issue. UV radiation inactivates microorganisms, ensuring the safety of water and effectively controlling both legionella and biofilm. In stagnant water situations, such as when office buildings are closed, VGE Pro UV-C systems prevent the growth of microorganisms like legionella, ensuring safe drinking and showering for employees. VGE Pro offers a wide range of UV-C systems to address various applications and water quality needs.

### Intensive Livestock Farming:

In intensive livestock farming, water quality is vital to the well-being of animals. Cows and pigs consume substantial amounts of water, making it essential to provide safe drinking water and maintain hygiene in the environment. VGE Pro UV-C systems ensure high water quality by inactivating microorganisms without leaving any residues. By disinfecting the water, the risk of disease transmission is reduced, and the welfare of livestock is enhanced. Clean and safe drinking water is a sustainable way to promote animal health in livestock farming.



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## Maritime:

Water tanks in maritime environments can harbor pathogens such as legionella bacteria, posing risks to guests and staff. VGE Pro UV-C disinfection systems are utilized to treat water and eliminate these microorganisms, providing safe and clean water for consumption. Furthermore, these systems are effective in disinfecting wastewater before it is discharged into the ocean, ensuring compliance with strict regulations in the shipping industry.

## Food and Process Industry:

Maintaining water quality is essential for food safety in the food and process industry. VGE Pro UV-C disinfection inactivates pathogenic microorganisms, ensuring product safety and reducing the risk of contamination. These UV systems also allow for water reuse, which not only saves costs but also increases sustainability. Additionally, UV disinfection can be applied to disinfect surfaces, such as conveyor belts and packaging, further enhancing hygiene in food processing and ensuring the quality of products. It's an effective way to meet quality standards and maintain the safety of water used in various food and beverage processes.

# CUSTOM MADE UV SYSTEMS
## FOR TAILOR MADE SOLUTIONS

Our experienced team leverages their knowledge and expertise to provide you with a solution that not only meets your needs but also exceeds your expectations. We are not just flexible; we are your partner in UV disinfection solutions!

### Custom solutions

At our company, we understand that each UV disinfection challenge is unique. We work closely with you to create the ideal solution. While our VGE Pro UV series offers outstanding standard systems for a wide range of applications, we recognize that sometimes a customized approach is the key to success.

Whether it's adapting the design of the irradiation chamber, adjusting the number of UV lamps, or fine-tuning the control system, we are here to make it happen. Your requirements and preferences are at the heart of our process.


# PROFESSIONAL
## DISINFECTION SYSTEMS

### What makes the VGE Pro UV-C systems unique?

- VGE Pro UV-C units are equipped with a 316L stainless steel reactor or a high quality HDPE reactor.
- Lamp can be replaced while unit is pressurised.
- Each unit is equipped with transparent parts to monitor the UV-C lamp.
- VGE Pro units can be equipped with a UV-C sensor and/or temperature sensor.
- VGE Pro units are equipped with the unique Smart Pin Technology (SPT) (patented technology) or Single-end Bayonet Technology (SBT) for easy and safe lamp (re)placement without disconnecting the electrical connection.
- Low pressure amalgam lamps for high performance levels.
- Extreme high quality lamps with a lifetime up to 16,000 hours!
- Single systems can handle flows ranging from 0,5 $m^3/h$ up to 550 $m^3/h$.
- Customization of the device to your own specifications possible.

VGE pro
UV DISINFECTION SOLUTIONS

# INOX LOW PRESSURE
## UV LAMP SYSTEMS

### Benefits INOX UV systems

The high quality 316L stainless steel reactor of the VGE Pro INOX series have been designed to perform. After the high quality welding process the units are leak tested. They get a pickling and passivation treatment which drastically improves the corrosion resistance and lifetime of the unit. Another last treatment with glass pearls (shot peening) gives the units a nice, matt grey surface.

- High corrosion resistance
- Leak tested
- Easy to install
- UV radiation reflection

### Technical specifications

| Model | Connection | Capacity[1] [m³/h] | Number of lamps | Power (kW) |
|---|---|---|---|---|
| 40-76 | 1″ | 3 | 1 x 40 W | 0.05 |
| 75-76 | 3/4″ | 6 | 1 x 75 W | 0.08 |
| 140-76 | 1 1/2″ | 12 | 1 x 140 W | 0.16 |
| 200-76 | 2″ | 17 | 1 x 200 W | 0.23 |
| 75-114 | 2″ | 10 | 1 x 75 W | 0.08 |
| 140-114 | 2″ | 20 | 1 x 140 W | 0.16 |
| 200-154 | DN65 | 38 | 1 x 200 W | 0.23 |
| 420-168 | 3″ | 78 | 3 x 140 W | 0.47 |
| 400-204 | DN100 | 92 | 2 x 200 W | 0.45 |
| 600-219 | DN125 | 140 | 3 x 200 W | 0.68 |
| 975-306 | DN250 | 306 | 3 x 325 W | 1.11 |
| 1950-306 | DN250 | 600 | 6 x 325 W | 2.21 |

[1] Capacity based on 400 J/m², T10 mm @ 254 nm = 98 %, MPSSM-average intensity (max. flow of 3 m/s not included)

# HDPE LOW PRESSURE
## UV LAMP SYSTEMS

### Benefits HDPE UV lamp systems

The high quality HDPE reactors of VGE Pro HDPE series have been designed to treat highly corrosive water. Besides that, HDPE is resistant to aggressive UV radiation. They are suited for all kinds of disinfection and UV-C treatment applications and can even be used for the production of ultrapure water, semiconductor-, pharmaceutical- and cosmetic industry.

- UV-C radiation resistant
- Suitable for corrosive water
- Easy to install

### Technical specifications

| Model | Connection | Capacity[1] [m³/h] | Number of lamps | Power (kW) |
|---|---|---|---|---|
| 75-110 | 2" | 10 | 1 x 75 W | 0.08 |
| 140-110 | 2" | 17 | 1 x 140 W | 0.16 |
| 200-110 | 2" | 23 | 1 x 200 W | 0.23 |
| 200-160 | DN65 | 35 | 1 x 200 W | 0.23 |
| 400-200 | DN100 | 83 | 2 x 200 W | 0.45 |
| 600-225 | DN125 | 124 | 3 x 200 W | 0.68 |
| 975-315 | DN250 | 278 | 3 x 325 W | 1.11 |
| 1950-315 | DN250 | 544 | 6 x 325 W | 2.21 |

[1] Capacity based on 400 J/m², T10 mm @ 254 nm = 98 %, MPSSM-average intensity (max. flow of 3 m/s not included)

# INOX MEDIUM PRESSURE
## UV LAMPS SYSTEMS

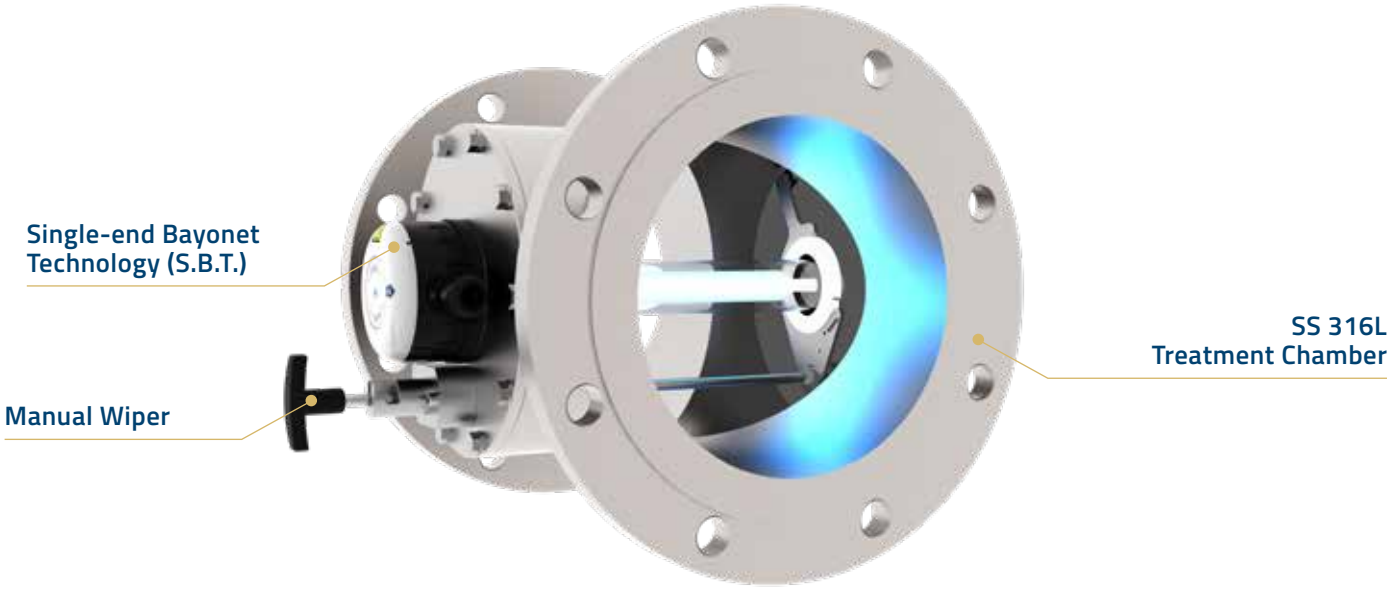
### Advantages of medium pressure UV lamps

VGE Pro's product range includes systems based on both low pressure and medium pressure UV lamps. Medium pressure UV lamps emit a broad spectrum of ultraviolet (UV) radiation, providing excellent disinfection results and being well-suited for photolysis applications, such as reducing chloramine in pool applications. The single-ended lamp, combined with the Single-end Bayonet Technology (S.B.T.) and the visual lamp indicator on the chamber, makes VGE Pro UV systems extremely user-friendly. For optimal results, optional mechanical cleaning is available to address against fouling of quartz sleeve(s) and UV sensors.

### Technical specifications

| Model | Connection | Capacity[1] [m³/h] | Number of lamps | Power (kW) |
|---|---|---|---|---|
| MultiMax | 2" | 13 | 1 x 400 W | 0.43 |
| 600-85 | DN80 | 19 | 1 x 600 W | 0.66 |
| 1000-106 | DN100 | 41 | 1 x 1000 W | 1.30 |
| 1500-170 | DN150 | 107 | 1 x 1500 W | 1.83 |
| 2000-219 | DN200 | 178 | 1 x 2000 W | 2.36 |
| 2500-256 | DN250 | 257 | 1 x 2500 W | 2.88 |
| 3000-326 | DN300 | 362 | 1 x 3000 W | 3.41 |

[1] Capacity based on 400 J/m², T10 mm @ 254 nm = 98 %, MPSSM-average intensity (max. flow of 3 m/s not included)




## Features

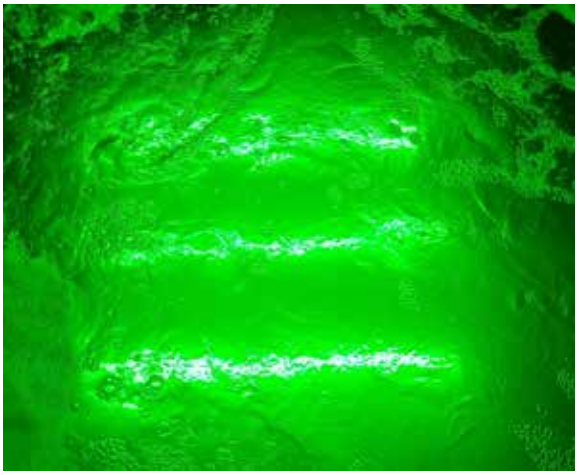
- Cross-flow stainless steel (SS 316L) treatment chamber design with low pressure loss
- Easy-to-install single-ended lamp
- Flange range from DN80 to DN350
- Medium pressure UV lamps ranging from 400 W to 3500 W
- Compact design for high water flow rates
- Visual lamp indicator in the lamp head
- Electronic lamp power supply
- Internal treatment chamber with an RA 0.8 µm finish

# IMMERSION
## UV LAMPS SYSTEMS

### Benefits Immersion UV

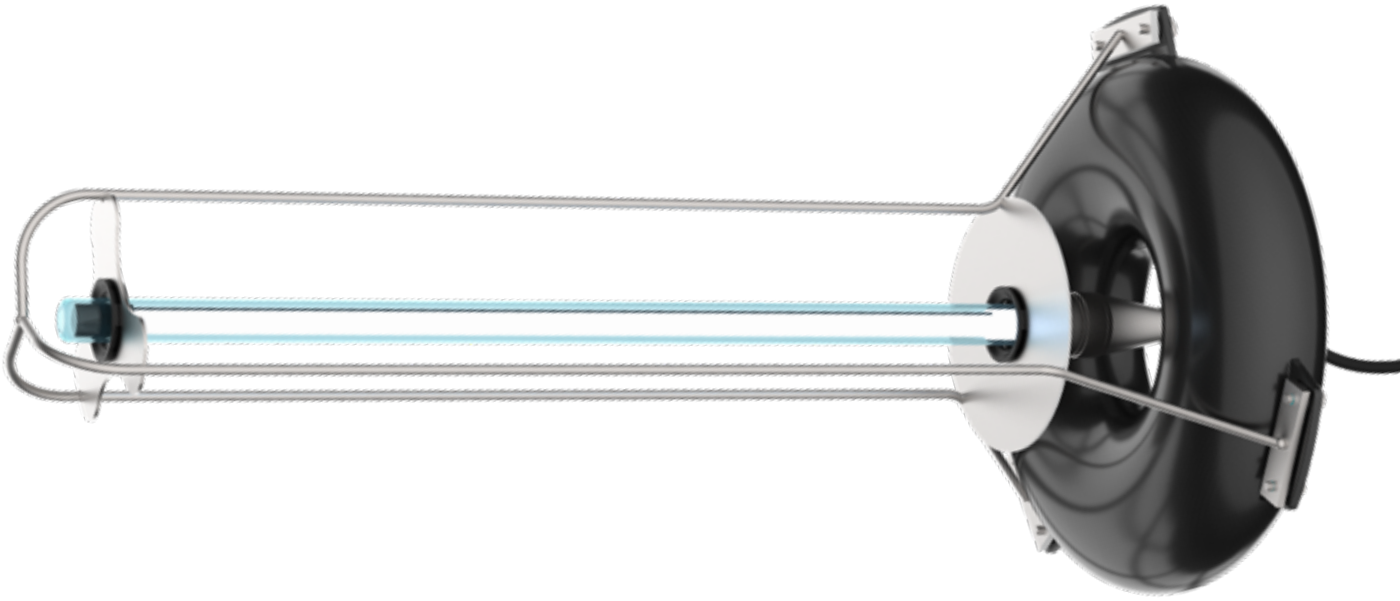
No pressure loss is a great advantage of the VGE Pro UV Immersion series, because these systems are integrated inside your water installation without an irradiation chamber. The fixtures are made of high-quality stainless steel or durable corrosion free PVC. The Immersion units are designed for a working pressure of 6 bar which results in an installation depth of 60 meter and can be fully submerged. They come standard with 9 meter long cables which increased flexibility in installation. The VGE Pro UV Immersion systems can be delivered with several UV-C lamps, up to 325W and up to 16.000 lamp life hours.

Benefits:
No pressure loss
9 Meter long cable
Easy to install
Withstands vibrations and strong water flows



### Technical specifications

| Model | Number of lamps | Power (kW) |
|---|---|---|
| 40 | 1 x 40 W | 0.05 |
| 75 | 1 x 75 W | 0.08 |
| 80 | 1 x 80 W | 0.09 |
| 130 | 1 x 130 W | 0.17 |
| 200 | 1 x 200 W | 0.23 |
| 325 | 1 x 325 W | 0.37 |



# INOX IMMERSION FLOAT
## UV LAMPS SYSTEMS

### Benefits INOX Float UV

The INOX Float has a floating cushion on the top with which the unit can be placed in the water. Due to the unique way of installation, this works perfectly with fixed or changing water levels. The combination of a floating cushion and the VGE Pro UV INOX Immersion is a perfect solution against viruses, bacteria, algae and bio film in tanks. The ultraviolet radiation deactivates the microorganisms present, which means that the quality of the water is constantly guaranteed. The VGE Pro UV INOX Float units are equipped with a 9 meter long cable that can be easily connected to the control panel.

Fixed or changing water levels.

- Easy installation
- 9 meter long cable
- Varying in power from 40 W to 200 W

### Technical specifications

| Model | Number of lamps | Power (kW) |
|---|---|---|
| 40 | 1 x 40 W | 0.05 |
| 75 | 1 x 75 W | 0.08 |
| 80 | 1 x 80 W | 0.09 |
| 130 | 1 x 130 W | 0.17 |
| 200 | 1 x 200 W | 0.23 |
| 325 | 1 x 325 W | 0.37 |


# MEDIUM AND LOW PRESSURE
## UV LAMPS

### Medium Pressure Single-end Bayonet Technology (SBT)

The lamp base is equipped with a bayonet technology closure. The lamp itself is single-ended which not only makes it easy to install and replace but also requires service space at only one side of the irradiation chamber.

**Benefits SBT & SPT:**

- Visual lamp indication in the lamp head
- Fast lamp (re)placement without tools when system is pressurized
- Long lamp life
- Prevents the release of harmful UV-C radiation
- Resistant to corrosion

### Low Pressure Smart Pin Technology (SPT)

The VGE Pro low pressure UV systems are equipped with the unique Smart Pin Technology (SPT). This innovative system is a reliable way to integrate the UV-C lamp(s) in a safe, efficient and smart way in a reactor. The SPT makes it possible to replace the lamp safely, even when the system is filled with water and pressurized.

# UV-C
## CONTROL UNIT SYSTEMS

### UV control units for medium pressure systems

The VGE Pro Medium Pressure lamp UV systems can be controlled by two different systems: the Compact and Comfort controller.

- **The Compact** controller is suitable for the Multimax and 600-85 medium pressure units and is a basic controller with a LED lamp life indicator.
- **The Comfort** controller is suitable for the 600-85 up to 3000-326 medium pressure lamp units.

### UV control units for low pressure systems

For the VGE pro UV systems based on low pressure UV lamps four different types of control units are available:

- **Basic**, high frequency and high efficiency lamp driver functionality;
- **Control Timer**, as Basic with LED display for lamplife indication;
- **Control Monitor**, as Control Timer with 2 line multicolour LCD display for lamplife indication, on/off counter and for UV intensity monitoring;
- **Control Monitor Plus**, as Control Monitor with 4 line display and full process control include water/chamber temperature measuring and control.

# UV-C & TEMPERATURE
SENSOR

## UV-C and temperature sensor

VGE Pro UV-C units can be equipped with a UV-C & temperature sensor. The digital UV sensor provides an absolutely calibrated measurement value and is screwed into the irradiation chamber. The temperature sensor is either a "bold-on" sensor for stainless steel versions or made of HDPE inserted in the chamber for installation with HDPE UV systems. Every VGE Pro medium pressure UV lamp system is standard equipped with a thermal switch as extra security. The VGE Pro control monitors are designed to work with these UV-C and temperature sensors.

- **Bolt-on Temperature sensor**

- **HDPE Temperature sensor**

- **Teflon UV sensor**

- **SS 316L UV sensor**

# **OUR R&D** DEPARTMENT


## The heart of our innovative company is the R&D department

When looking for the most reliable and efficient method of water disinfection thorough testing is necessary. Collaborating closely with knowledge institutions, water authorities, and various organizations, our Research and Development department is dedicated to exploring innovative avenues for enhancing our UV-C systems, striving for increased efficiency and cost-effectiveness.

The R&D department of VGE consists of several specialists, providing key knowledge in de development of sustainable UV-C disinfection systems. Each system in development goes through complex testing procedures ensuring top-notch quality.

A VGE BRAND

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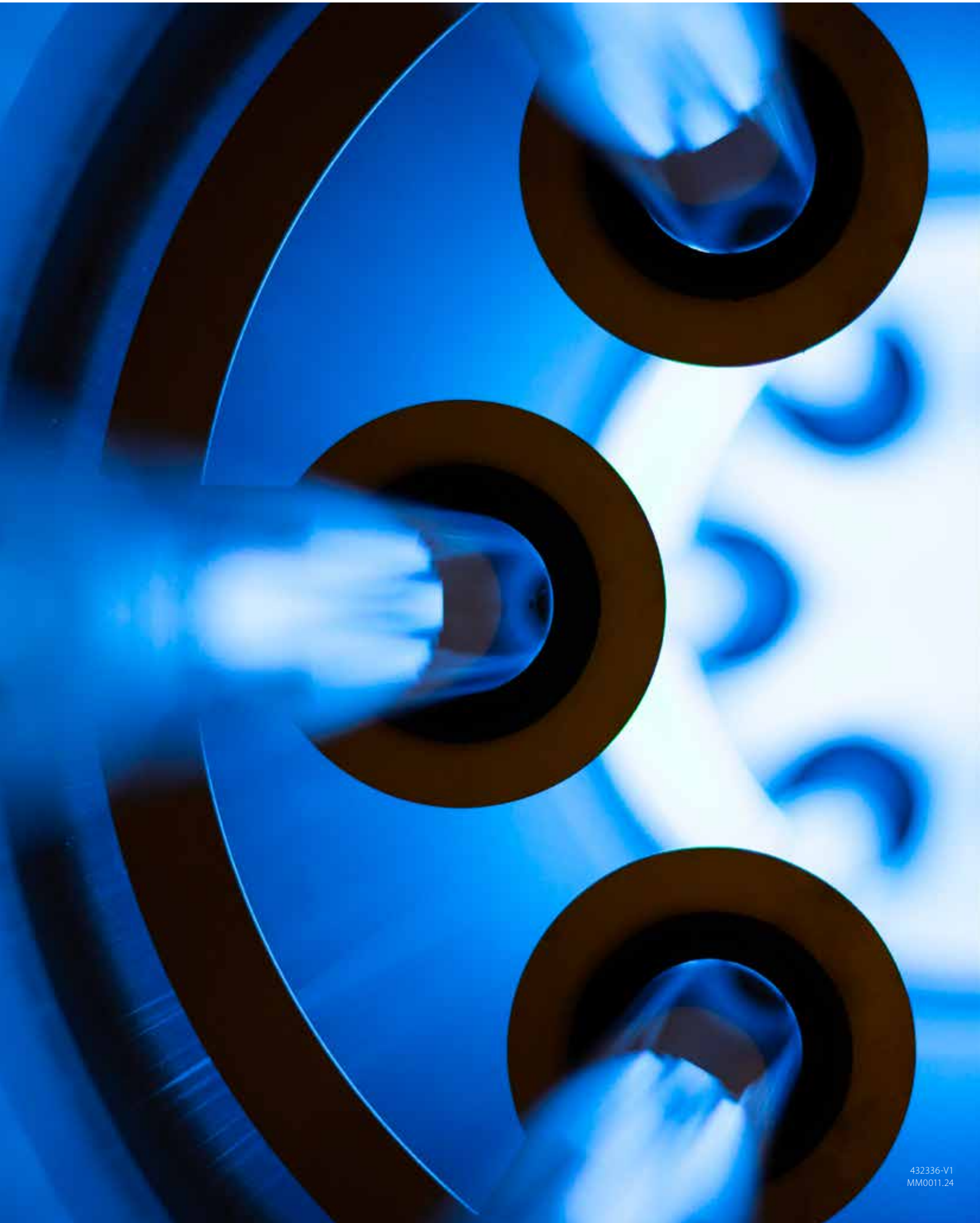

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