VGE pro

UV DISINFECTION SOLUTIONS

EN

2021

VGE
UV-C AND FILTER EQUIPMENT

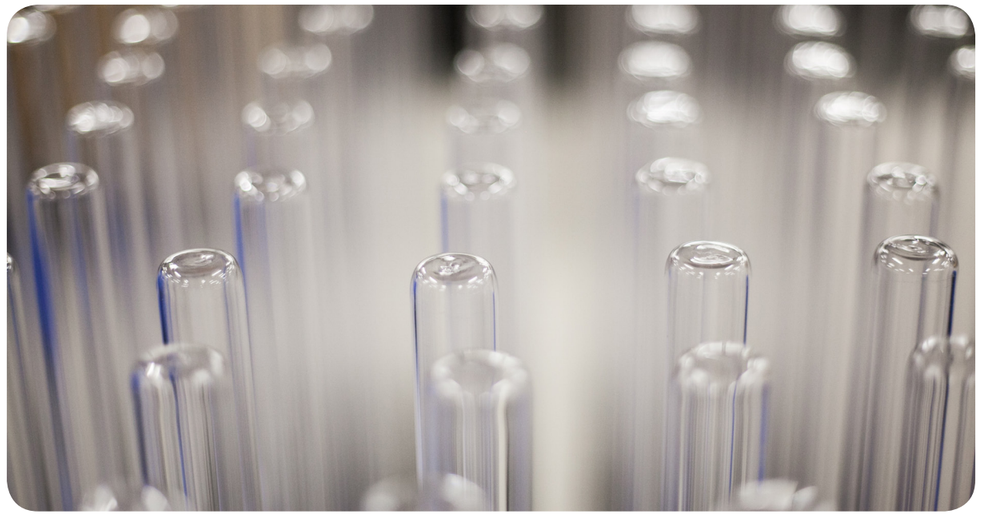
MEMBER OF Sinvest Group BV

MADE IN THE NETHERLANDS

Company Introduction

VGE B.V.

VGE B.V. is a prominent company focused on improving people's lives through timely innovations. As a manufacturer we provide high-quality UV-C equipment for the private, recreational and industrial sectors. As a manufacturer of a unique range of UV-C disinfection systems, we provide high-quality products and harmonious collaboration with customers from our premises at the Ekkersrijt industrial area in Son, the Netherlands. We're proud to be a part of Holland's top technology region, the Brainport 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.



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Member of the IUVA ENVAQUA

Professional disinfection systems

"We listen and co-operate to deliver just what you need"

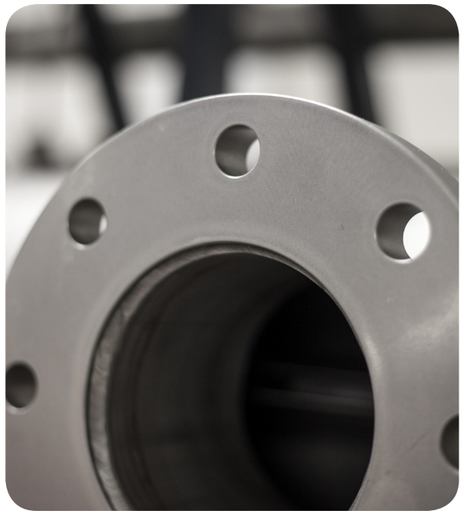
Sustainable developments in the field of water, air and surface disinfection are an important topic worldwide. As a manufacturer of professional UV-C equipment VGE B.V. is well aware of this. We are therefore focused on new, sustainable developments, solutions and technologies. We do this by combining our passion for technology and our knowledge of UV-C disinfection, resulting in top-quality products and innovations. We are focused on delivering the right disinfeciton solution for our customers, wheter it is our standard range units or a custom build solution.

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, air or surfaces. VGE Pro UV-C disinfection systems are the finishing touch when it comes to disinfection; they have the ability to keep the water, air and surfaces 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.

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 (re)placement 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.



"We are experts in custom build disinfection solutions"

UV solutions water

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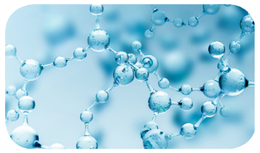

Advanced Oxidation Processes (AOP)

AOP can be used for oxidizing organic and inorganic materials in water where UV radiation or chemicals alone are not effective enough. With an AOP, micropollutants such as medicine residues and pesticides, can be efficiently reduced or even removed from the water. (Waste) water flows are created in industry that must not be discharged into the sewer without treatment. With a pretreatment the micro-pollutants can be oxidized with an AOP so that the purified water can be discharged normally. For example, waste water can be treated before it can be piled into the waste water discharge.

Water reservoir

Many sectors use buffer tanks in which water is stored in reservoirs. This water can stand still for a long time, giving micro-organisms the opportunity to grow. By treating the water with a VGE Pro UV system, the water is disinfected. UV-C radiation inactivates microorganisms and ensures that the water can be used safely. Water towers are used by companies to always have enough water and / or water pressure. In these tanks, a biofilm can form on the walls that affects the quality of the water. By installing a VGE Pro UV-C disinfection system, the growth of biofilm can be inhibited or even prevented. UV inactivates microorganisms and thus disinfects the water.

Water reuse

Due to increasing water scarcity and sustainability, the need to reuse water is becoming more crucial. In order to comply with the guidelines, it is necessary for companies to set up their water treatment system as efficiently as possible so that water wastage is prevented. A VGE Pro UV system can play a major role in this by disinfecting the water so that it can be safely reused. Wastewater goes through several steps in a water purification system before it meets drinking water quality again. Disinfection with chemicals is possible, but not a sustainable choice. Disinfection by-products can be harmful to human and animal health. A VGE Pro UV system at the end of the water treatment installation is a safer and more durable solution.

Rainwater collection

The weather is getting more and more extreme. Longer periods of drought and heavy rain showers alternate. Rainwater is collected to be able to use it again at a later time. The collected rainwater often remains in a reservoir for a longer period of time. During this period of inactivity, microorganisms are given time to multiply and contaminate the water. Before the water can be used, it must first be purified and disinfected. A VGE Pro UV system disinfects the water reliably and efficiently by inactivating micro-organisms.

Pool water

Swimming pool water must comply with the guidelines at all times to guarantee the safety and health of visitors and staff. By installing a VGE Pro UV system in the water treatment system, this can be met. There are a number of well-known irritations at swimming pools: red eyes, irritation to the skin and respiratory tract and of course the unpleasant (typical) swimming pool odor caused by chloramines. These irritations are often caused by using chemical disinfectants. By using a UV system, these irritations can be reduced or in some cases even completely counteracted.

Low transmittance

It is possible that the water is of poor quality due to solid and / or dissolved substances, which causes the UV-C radiation to be absorbed by the water quite quickly. The UV radiation can therefore penetrate poorly into the water. In this case, a low UV-C transmission is mentioned. Despite a low UV-C transmission due to solutes, a VGE Pro UV system can be used successfully, provided it is properly sized. In order to achieve reliable disinfection with water with a (very) low transmission, we work with a specially developed UV system with a thin water layer. VGE Pro disinfection systems for low transmission can also be used for processes that require a high UV dose, such as AOP oxidation.

Drinking water

Drinking water is used in all kinds of application areas and must always meet the required specifications. In all cases, pathogenic microorganisms can spread through drinking water and cause contamination. VGE Pro offers UV disinfection systems for microbiologically reliable and safe drinking water. In contrast to some chemical disinfectants, microorganisms are not resistant to UV radiation. For example, pathogens such as Cryptosporidium and Giardia lamblia can be inactivated to prevent contamination.

UV solutions water

Legionella prevention

The legionella bacteria is a major problem for human safety. The pathogenic bacterium spreads through water mist and can thus infect the respiratory tract. This is a common problem for all business sectors and the recreational sector. Water mist is more common than expected; such as showering, a jacuzzi, spraying a hockey field or golf course and don't forget a fountain. Because the legionella bacteria are naturally in the water, the risk of contamination always remains. Installing a VGE Pro UV system as a gatekeeper (Point Of Entrance) can reduce the risk of legionella contamination.

Circulation water

Circulating water involves processes in which water is continuously circulated. During this circulation process, the water can become contaminated with organic material, which can lead to the development of (micro) biology in the water. Circulation water must continuously meet process-dependent quality standards, which can be endangered by micro-organisms that can be harmful to both the process and the water treatment system. A VGE Pro UV-C system inactivates these microorganisms, without leaving a residue. Due to this powerful form of disinfection, the development of biofilm, and the micro-organisms present in it, can be counteracted and in some cases even stopped.

Corrosive water

There are various sectors where corrosive water is used. The water treatment system must be resistant to this water. Because there is a chance that corrosive water can also attack stainless steel irradiation chambers, VGE Pro offers a UV-C system series that are equipped with an irradiation chamber of High Density Polyethylene (HDPE). This offers a sustainable way of treating and disinfecting water. For example, it is possible to disinfect salt water in swimming pools when using salt electrolysis. Water that is taken from the sea for cooling water or fish farms can also be disinfected with an HDPE chamber.

UV solutions

Surface disinfection

Surface disinfection by means of UV can be applied in many sectors. Think, for example, of disinfecting stables within livestock farming or disinfecting packaging within the food industry. UV-C systems are also increasingly used in office buildings. Desks, banisters or door handles can be disinfected with UV radiation. This radiation causes microorganisms to be inactivated and can thus prevent contamination. Because the radiation, unlike some chemical disinfectants, is not selective, bacteria, viruses, fungi, yeasts, protozoa and algae can be inactivated. UV-C disinfection can mainly be applied to smooth surfaces. This is due to the fact that rough or porous surfaces can create a shadow effect from the UV radiation. As a result, microorganisms in these shadow areas are not irradiated.

Air disinfection

Disinfecting the air with a VGE Pro UV system can prevent contamination. A UV-C disinfection system can be easily installed in an air treatment system of office buildings, large distribution halls or processing areas. These air treatment systems often circulate the air, causing a continuous spread of (pathogenic) microorganisms. For example, viruses in aerosols can spread through the air for many meters. The air is disinfected by installing a UV system from VGE Pro. This provides safe air to work in.

Custom build

Together with the customer, we always look for the best UV disinfection solution. In most cases this is a standard UV system from the VGE Pro UV series, but in some cases it can also mean customization. There will always be applications for which a specific UV solution is sought. Based on our knowledge and experience, we look for a system that meets the requirements. Here you can choose, for example, a different design of the irradiation chamber, more or less UV lamps or perhaps a different control system. We are flexible and like to think along. Calculations are performed on the basis of the customer's data to obtain the best advice. Customization is possible for both water, air and surface disinfection applications.

Featured applications

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Horticulture

Clean water is of great importance to cultivate healthy crops. A UV-C system from VGE Pro inactivates bacteria, viruses and fungi such as Pythium and Fusarium, without leaving any residue in the water. This makes irrigation even more sustainable.

UV-C ensures a safe crop

Various harmful micro-organisms grow in the closed circuit of a horticulture. These move mostly via water. When irrigating crops, water seeps back into a tank. This tank stores the drain water so that it can be reused. This water should be treated by a VGE Pro UV system before use to counteract pathogens that can attack the crop.

Aquaculture

A VGE Pro UV system ensures the water quality and makes sure of clean and safe water. The radiation inactivates infectious pathogens which can cause harm to the fish. This ensures healthy fish and a lower amount of medication in the water.

UV-C is sustainable and effective

Pathogens are a torment in fish farming and aquariums and are often controlled with antibiotics. This has a negative effect on the quality of the water. Pollution, food residues and fish excrement that serve as a breeding ground for bacteria affect the quality level of the water and thus the environment of fish. VGE Pro UV disinfection is a safe and reliable form of water treatment for this.

Swimming pool and spa

VGE Pro UV systems disinfect the water and inactivates even chlorine resistant microorganisms. In addition, a VGE Pro UV system can limit the use of chlorine and other chemicals. Besides disinfection, it can also break down chloramines. This removes the unpleasant odor of bound chlorine (chloramine) and helps prevent red eyes and irritation to the skin and respiratory tract.

Disinfection and degradation of chloramine

UV radiation damages the DNA of bacteria, viruses and other pathogens. This ensures that (chlorine-resistant) microorganisms become inactive and can no longer multiply. VGE pro uses both low pressure and medium pressure UV lamps for this. With a low-pressure UV lamp, water can be disinfected efficiently and reliably. The medium pressure UV lamps are very suitable for disinfection, but can also be used to break down chloramines.

Drinking water

VGE Pro guarantees high water quality through reliable water treatment with UV-C radiation. A VGE Pro UV disinfection system provides microbiologically reliable and safe drinking water, by inactivating micro-organisms.

No chemicals

Pathogens make water unsuitable for consumption, which can be made safe by chemicals such as chlorine. Pathogenic microorganisms, such as Cryptosporidium and Giardia lamblia, have a high resistance to chemical disinfectants. In contrast to these chemicals, UV disinfection causes the microorganisms to be inactivated. When treating drinking water with UV radiation, no pathogenic disinfection by-products (DBP) are formed, which can occur during chemical disinfection of the water.

Datacenters and utilities

Legionella can cause a major problem within cooling towers, data centers and utilities. UV-C disinfection can be used to counteract this. UV radiation inactivates microorganisms. In this way, water, air and surfaces can be tackled and both legionella and biofilm can be controlled.

Stagnant water

When water is standing still for a longer time (for instance if an office building is closed) it causes the growth of micro-organisms, including Legionella. This supports the growth of microorganisms, including legionella. By using a VGE Pro UV-C system, employees in large office buildings and logistics centers can drink and shower safely. Water in fountains must also be disinfected, as legionella spreads through the water mist. VGE Pro offers a wide range of UV-C systems for this.

Intensive livestock farming

Cows and pigs consume an enormous amount of water and thus need access to a large amount of water that is safe to consume. To further prevent diseases and (cross) contamination, air and surrounding surfaces should also be properly disinfected. VGE Pro UV-C guarantees the quality of a livestock farm, both via water, air and surface.

UV-C for the welfare of a livestock farm

The welfare of animals in a livestock farm is strongly related to the quality of the drinking water. Contaminated (drinking) water contains many germs and other microorganisms that are not conducive to the health of the livestock. Disinfection with UV ensures that the drinking water is always of high quality. The radiation inactivates the microorganisms without leaving any residue, resulting in clean and safe drinking water. A completely safe and sustainable way of water disinfection.

Featured applications

Maritime

Water tanks can be a source of pathogens, such as the legionella bacteria. To guarantee the safety of guests and staff, it is important to treat the water with a disinfection system. UV-C radiation inactivates microorganisms and thus fights legionella. In addition, it is the perfect solution to disinfect wastewater before it ends up in the ocean.

Clean wastewater

Within the shipping industry, there are strict regulations for the discharge of waste water into the ocean. These requirements can be met by installing a VGE Pro UV-C disinfection system. The UV radiation treats the water in the final process and thus ensures that it can be discharged into the ocean free of harmful microorganisms.

Food and proces industry

Water quality is very important to guarantee food safety. UV-C disinfection inactivates pathogenic micro-organisms and thus guarantees safety. In addition, a VGE Pro UV system also makes it possible to reuse water. This saves costs and increases the sustainability of an organization. Apart from water treatment, UV can also be used to disinfect surfaces, such as the conveyor belt for products or packaging.

Constant water quality

For products that largely consist of water or, for example, are often washed during the process, it is necessary that the water quality meets all requirements. Think for example of water used in soft drinks, for the brewing process of beer or washing water when vegetables and fruits are processed. A water treatment with UV-C disinfection ensures that the quality of the water is constantly guaranteed. It is also very suitable to treat water before it is reused. The water is disinfected after use, making it free of pathogenic microorganisms and thus safe for reuse. This prevents water wastage and can reduce water costs.

AOP UV System

Advanced Oxidation Processes (AOP): are chemical treatments methods to reduce organic and inorganic components from water via oxidation. AOP uses the oxidative power of the hydroxyl radical (•OH), which has the second best oxidation potential and is the strongest oxidiser that can be used in water. The •OH radical, which can be generated by combining UV-C radiation with f.i. H_2O_2 or ozone, can be used to reduce or eliminate micropollutants (bio-, pesticides, pharmaceutical residuals, heavy metals, etc.) in your water. The process converts the contaminant materials to a large extent in stable compounds such as water, carbon dioxide and salts, i.e they are mineralized. In general, when used in the correct way, AOP can significantly reduce the COD and TOC levels in your water. In general it is advised to apply the AOP as a final treatment step in a water treatment system so that all natural present scavengers of the hydroxyl radical are reduced as much as possible, especially bicarbonate ions (HCO_3) are a strong •OH scavenger.

Possible AOP applications

Although there are many applications for AOP, three types of AOP applications provide effective treatment and are cost effective when compared to other technologies, being:

- Micropollutant treatment;
- Treatment of taste-and-odour compounds;
- Recycled water treatment.

VGE B.V. has a modular system in its extensive portfolio which can handle any flow no matter the water quality. In some cases, depending on the pollutant, UV-radiation can oxidize undesired components from your water directly without any additive, this process is called photolysis which also can be realised with our modular UV system.

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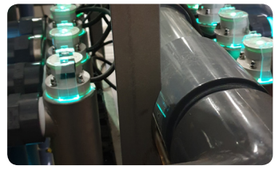
VGE Pro Low Pressure UV systems

Benefits INOX UV

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



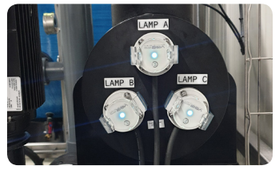
Model	Shape	Max. Pressure [bar]	Capacity[1] [m³/h]	N. of lamps	Power [kW]
40-76	L	6	3	1 x 40 W	0,05
75-76	L	6	6	1 x 75 W	0,08
140-76	U	6	12	1 x 140 W	0,16
200-76	U	6	17	1 x 200 W	0,23
75-114	U	6	10	1 x 75 W	0,08
140-114	U	6	20	1 x 140 W	0,16
200-154	U	6	38	1 x 200 W	0,23
420-168	U	6	78	3 x 140 W	0,47
400-204	U	6	92	2 x 200 W	0,45
600-219	U	6	140	3 x 200 W	0,68
975-306	L	6	306	3 x 325 W	1,11
1950-306	L	6	600	6 x 325 W	2,21

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

Benefits HDPE UV

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 radiation resistant
- Suitable for corrosive water
- Easy to install
- Leak tested



Model	Shape	Max. Pressure [bar]	Capacity[1] [m³/h]	N. of lamps	Power [kW]
75-110	U	6	10	1 x 75 W	0,08
140-110	U	6	17	1 x 140 W	0,16
200-110	U	6	23	1 x 200 W	0,23
200-160	U	6	35	1 x 200 W	0,23
400-200	U	6	83	2 x 200 W	0,45
600-225	U	6	124	3 x 200 W	0,68
975-315	U	4	278	3 x 325 W	1,11
1950-315	U	4	544	6 x 325 W	2,21

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

VGE Pro Low Pressure UV systems

VGE Pro UV-C control units

The INOX and HDPE UV systems can both be controlled by the same control units. Besides that, they are both equipped with our patented Smart Pin Technology. And last of all, you can add a UV or temperature sensor to the UV systems.

Smart Pin Technology (SPT)

The VGE Pro UV-C Disinfection 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.

Benefits SPT

- Prevents the release of harmful UV-C radiation
- Changing the UV-C lamp with water in the system
- Resistant to corrosion
- Splash proof
- Visual inspection for operation of the lamp
- Clamping system for optimal seal function
- Lamp replacement without tools

VGE Pro UV-C control units

Each VGE Pro UV-C disinfection system is equipped with a control units. There are several options which can be combined with a suitable VGE Pro unit and several other options like a temperature sensor and a flow switch. See page 20 - 21 for all of our control units.

UV-C & temperature sensor

VGE Pro UV-C units can be equipped with a UV-C & temperature sensor. These digital sensors can be delivered in teflon (only the UV-C sensor), HDPE (only the temperature sensor) or stainless steel. The VGE Pro control monitors are designed to work with these UV-C & temperature sensors.

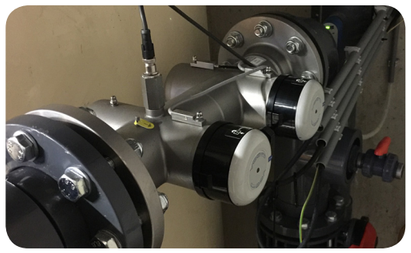
Installations

VGE Pro Medium Pressure UV systems

Benefits Medium Pressure UV

The VGE Pro product range has low pressure and medium pressure UV lamp based systems. The medium pressure UV lamps emit a wide spectrum of Ultraviolet (UV) light which not only gives very good disinfection results but is also excellent for photolysis applications like the reduction of chloramine in pool applications. The single ended lamp in combination with the S.B.T. (Single-end Bayonet Technology) and the on-chamber visual lamp status indication makes the systems extremely user friendly. We offer four different systems with medium pressure UV lamps: MultiMax, 600-85 Compact, 600-85 Comfort and the 1200-85.

- Compact design
- Cross flow irradiation chamber design with low pressure loss
- Easy to (re)place single ended lamp
- Effective chloramine reduction



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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

- Easy to (re)place
- Visual lamp indication in the lamp head
- Fast lamp (re)placement without tools
- Long lamp life

VGE Pro UV-C control units

The VGE Pro Medium Pressure 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. The compact is a basic controller equipped with a LED lamp life indicator.
The comfort controller is suitable for the 600-85 and 1200-85 medium pressure units. It is compatible with a UV sensor, temperature sensor and can be controlled by a ModBus. The controller is available in different languages.

UV-C & temperature sensor

VGE Pro UV-C units can be equipped with a UV-C & temperature sensor. These digital sensors can be delivered in teflon (only the UV-C sensor) or stainless steel. The VGE Pro control monitors are designed to work with these UV-C & temperature sensors.

Model	Shape	Max. Pressure [bar]	Capacity[1] [m³/h]	N. of lamps	Power [kW]
MultiMax	I	10	13	1x 400 W	0,43
600-85	I	10	19	1 x 600 W	0,66
1200-85	I	10	39	2 x 600 W	1,33

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

VGE Pro Immersion UV systems

Benefits Immersion UV

No pressure loss is a great advantage of the VGE Pro Immersion series, because the UV-C lamps are integrated into your water system without a housing.

The fixtures are made of high quality stainless steel. The immersion units are designed for a working pressure of 6 bar which results in an installation depth of 60 metre. The system can operate fully submerged. The VGE Pro UV-C INOX Immersion units are equipped with a 9 metre long cable which can easily be connected to the control panel. The cable glands with strain relief protect the cable against kinks which improves the durability.

The VGE Pro UV-C Immersion system can be delivered with several UV-C lamps, varying in power from 40 Watt up to 325 Watt. The lamp is installed in a protective quartz sleeve and can withstand vibrations and strong water flows. The UV-C lamps are based on amalgam lamp technology with a lamplife of 16.000 hours. This results in low maintenance costs.

- No pressure loss
- 9 Metre long cable
- Easy to install
- Withstands vibrations and strong water flows

Mounting/connection flange and brackets

The VGE Pro UV-C Immersion systems can be used in filter tanks and containers without introducing extra resistance of headloss. A special mounting and connection flange is available for installing a system in the wall of a tank or container, the wall thickness doesn't matter.

Brackets

Special stainless steel mounting brackets are available for an easy and stable installation of the VGE Pro UV-C Immersion units. The brackets can be used for horizontal and vertical installation inside a tank or container. By installing multiple brackets on a frame the unit can also be immersed in a channel.

VGE Pro UV-C control units

Each VGE Pro UV-C disinfection system is equipped with a control cabinet. Depending on the requirements the suited control unit can be selected in combination with a treatment chamber and selected options.

Fixture and lamp

The fixture is made out of stainless steel 316L which allows the use in multiple applications. Because of the grip surface on the operating parts no tools are required for installation or service, all can be done by hand.

Lamp

The VGE Pro UV-C Immersion system can be delivered with several UV-C lamps, varying in power from 40 watt up to 325 watt. The lamp is installed in a protective quartz sleeve and can withstand vibrations and strong water flows. The UV-C lamps are based on amalgam lamp technology with a lamplife of 16.000 hours. This results in low maintenance costs.

VGE Pro UV-C control units

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For the VGE Pro UV-C systems 6 different control units are available, knowing: Basic, Control Timer, Control Monitor, Control Monitor Plus, Compact controller and Comfort controller.

The Basic version is suited with an electronic ballast to drive the lamp(s). Standard the power supply of the UV-C lamps is realized by electronic ballasts which drive the lamps with a much higher frequency (over 30.000 Hz) compared to conventional electromagnetic ballasts (50/60 Hz). This has the following advantages:

- Higher ballast efficiency, so less heat production
- Longer lamp life of the UV-C lamps
- Higher UV-C lamp efficiency
- Direct start, no conventional ignitor required

The Control Timer has a LED display for showing the operational lamp hours. The maximum number of burning hours are displayed when the system is started. After this the display counts down to 0, at which time the lamp must be replaced.

Hour counter

If a UV-C lamp is in operation natural aging of the lamp will take place which results in a reduction of UV-C radiation and disinfection capacity. Therefore it is important to replace a UV-C lamp in time. An operational hours counter is a useful tool to make sure that you change the UV-C lamp on time and keep up a reliable UV-C disinfection of your water.

The Control Monitor has a colour display and an optional UV sensor can be connected for monitoring the treatment process.
Several ways of communication with a control unit are available such as: analog 4 - 20 mA signal, via potential free contacts and of course via the HMI. By using these options the control of your disinfection process is easy and efficient.

The monitor can measure the UV-C intensity inside the treatment chamber by adding a UV sensor. Depending on the application a certain UV-C intensity must be realized for a reliable disinfection result.
A flowswitch can be connected to switch off the UV-C system when there is no water flow through the treatment chamber. This to prevent mailfunctioning of the system.

The Control Monitor Plus is a complete controller and multilingual. A UV sensor, temperature sensor and a flowswitch can be connected. The control unit has alarm and warning functions built-in.

When there is no flow or water in the treatment chamber when the lamp is switched on, the temperature in the chamber can reach a dangerous level. By choosing the optional temperature sensor in combination with the Control Monitor Plus the temperature inside the treatment chamber is monitored. If the limit is reached the system will be switched off and an alarm will be activated.

The Compact controller is a basic controller, suitable for a MultiMax or 600-85 Medium Pressure unit. It's equipped with a LED lamp life indication.

Depending on the life of the lamp, the LED shows a different color. Green means that the lamp is still burning properly. Flashing red means the lamp will need to be replaced soon. With a red LED light, it means that the lamp must be replaced immediately.

Overview VGE Pro products and applications

VGE PRO INOX

Model	Reactor shape	Max. pressure [bar]	Connection	Capacity [1] [m³/h]	Quality water [2] Good	Medium	Bad	Aquaculture	Agri- & Horticulture	Food & Process industry	Drinking water	Swimming ponds	Swimming pool & Spa
400-54	Z	6	1"	18		✓	✓		✓	✓			
40-76	L	6	3/4"	3	✓	✓		✓	✓	✓	✓	✓	✓
75-76	L	6	3/4"	6		✓			✓	✓		✓	
140-76	U	6	2"	12	✓	✓		✓	✓	✓	✓	✓	✓
200-76	U	6	2"	17	✓	✓		✓	✓	✓	✓	✓	✓
75-114	U	6	2"	10	✓	✓		✓	✓	✓	✓	✓	✓
140-114	U	6	2"	20	✓	✓		✓	✓	✓	✓	✓	✓
200-154	U	6	DN65	38	✓			✓		✓	✓		✓
420-168	U	6	3"	78	✓	✓		✓	✓	✓	✓	✓	✓
400-204	U	6	DN100	92	✓			✓		✓	✓	✓	✓
600-219	U	6	DN125	140	✓			✓		✓	✓	✓	✓
975-306	L	6	DN250	306	✓			✓		✓	✓	✓	✓
1950-306	L	6	DN250	600	✓			✓		✓	✓	✓	✓

VGE PRO HDPE

75-110	U	6	2"	10	✓	✓		✓	✓	✓		✓	✓
140-110	U	6	2"	17	✓	✓		✓	✓	✓		✓	✓
200-110	U	6	2"	23	✓	✓		✓	✓	✓		✓	✓
200-160	U	6	DN65	35	✓	✓		✓	✓	✓		✓	✓
400-200	U	6	DN100	83	✓			✓		✓		✓	✓
600-225	U	6	DN125	124	✓			✓		✓		✓	✓
975-315	U	2	DN250	278	✓			✓		✓		✓	✓
1950-315	U	2	DN250	544	✓	✓		✓		✓		✓	✓

VGE PRO INOX 3S/3L

3S	L	6	3/4"	2,7	✓	✓		✓	✓			✓	✓
3L	L	6	3/4"	5,7	✓	✓		✓	✓			✓	✓

VGE PRO UV INOX MP

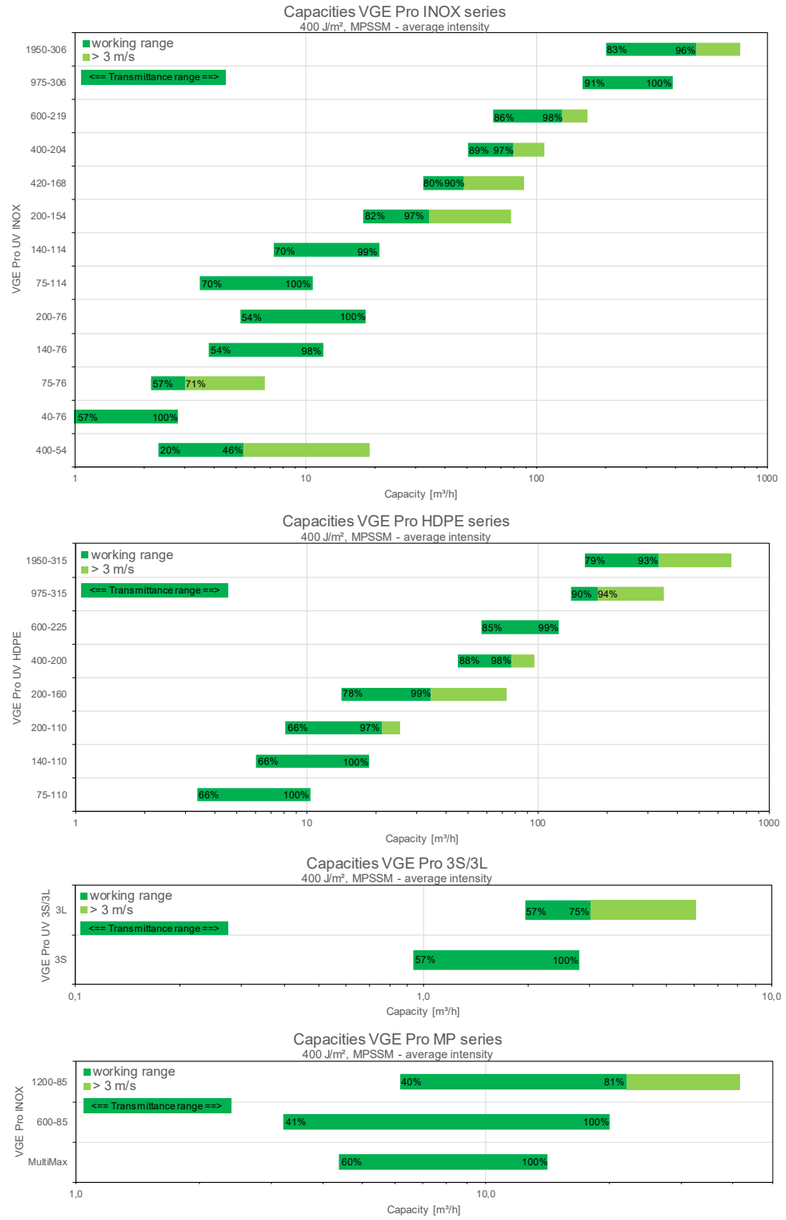
MultiMax	I	10	2"	13,3	✓	✓		✓	✓	✓	✓	✓	✓
600-85	I	10	DN80	18,7	✓	✓	✓	✓	✓	✓	✓	✓	✓
1200-85	I	10	DN80	38,5	✓	✓	✓	✓	✓	✓	✓	✓	✓

[1] Capacity based on 400 J/m², $T_{10\,mm}$ @ 254 nm = 98 %, MPSSM-average intensity (max. flow of 3 m/s not included)

[2] Water quality based on water transmission, $T_{10\,mm}$ @ 254 nm: Good = 100 % - 80 %, Medium = 80 % - 50 %, Bad < 50 %

Capacity VGE Pro series

The diagrams give an impression of the working range of the listed VGE Pro UV-C systems. Within the specified quantity and quality range (capacity and transmittance of the water) a reliable disinfection of the water with an UV-C dose of 400 J/m² is realized. For other UV-C dosages, transmittances or flow rates please contact us for a specific specialized advice.



An UV-C dose of 400 J/m² equals 40 mJ/cm² and the transmittance of the water is measured with UV-C light (254 nm) through 10 mm of water.

Combinations of VGE Pro reactors and controllers

VGE PRO INOX

Reactor	Basic	Control Timer	Control Monitor	Control Monitor Plus
400-54 *	-	-	-	-
40-76	✓	✓	✓	-
75-76	✓	✓	✓	-
140-76	✓	✓	✓	✓
200-76	✓	-	✓	✓
75-114	✓	✓	✓	-
140-114	✓	✓	✓	✓
200-154	✓	-	✓	✓
420-168	✓	-	✓	✓
400-204	✓	-	-	✓
600-219	✓	-	-	✓
975-306	✓	-	-	✓
1950-306	✓	-	-	✓

* Always a customized solution

VGE PRO UV INOX IMMERSION

Immersion unit	Basic	Control Timer	Control Monitor	Control Monitor Plus
40	✓	✓	✓	-
75	✓	✓	✓	-
80	✓	✓	✓	-
130	✓	✓	✓	✓
200	✓	-	✓	✓
325	✓	-	-	✓

VGE PRO HDPE

Reactor	Basic	Control Timer	Control Monitor	Control Monitor Plus
75-110	✓	✓	✓	✓
140-110	✓	✓	✓	✓
200-110	✓	-	✓	✓
200-160	✓	-	✓	✓
400-200	✓	-	-	✓
600-225	✓	-	-	✓
975-315	✓	-	-	✓
1950-315	✓	-	-	✓

VGE PRO INOX MP

Reactor	Compact controller	Comfort controller
MultiMax	✓	-
600-85	✓	✓
1200-85	-	✓

VGE PRO INOX 3S/3L

Reactor	Basic	Control Timer	Control Monitor	Control Monitor Plus
3S	-	✓	-	-
3L	-	✓	-	-

Basic: Lamp power supply
Control Timer: Lamp power supply, LED display indicating remaining lamp lifetime
Control Monitor: Lamp power supply, basic control functions, optional UV sensor
Control Monitor Plus: Lamp power supply, extensive control functions, optional UV sensor, optional temperature monitoring
Compact controller: Lamp power supply, LED lamp life indication
Comfort controller: Lamp power supply, LED lamp life indication, optional UV sensor, optional temperature sensor, optional ModBus

More information at page 10 and 11.

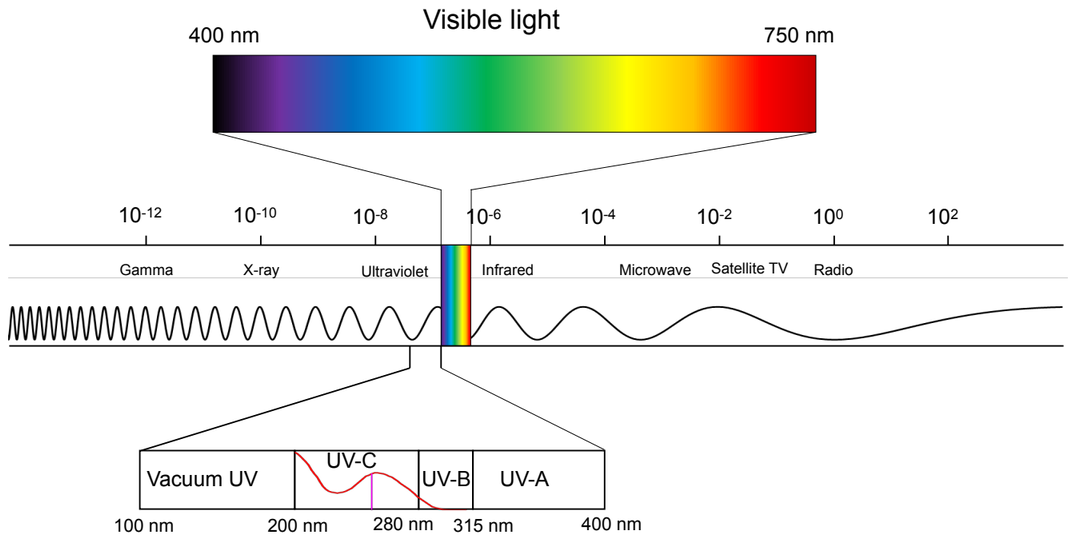
MORE INFORMATION

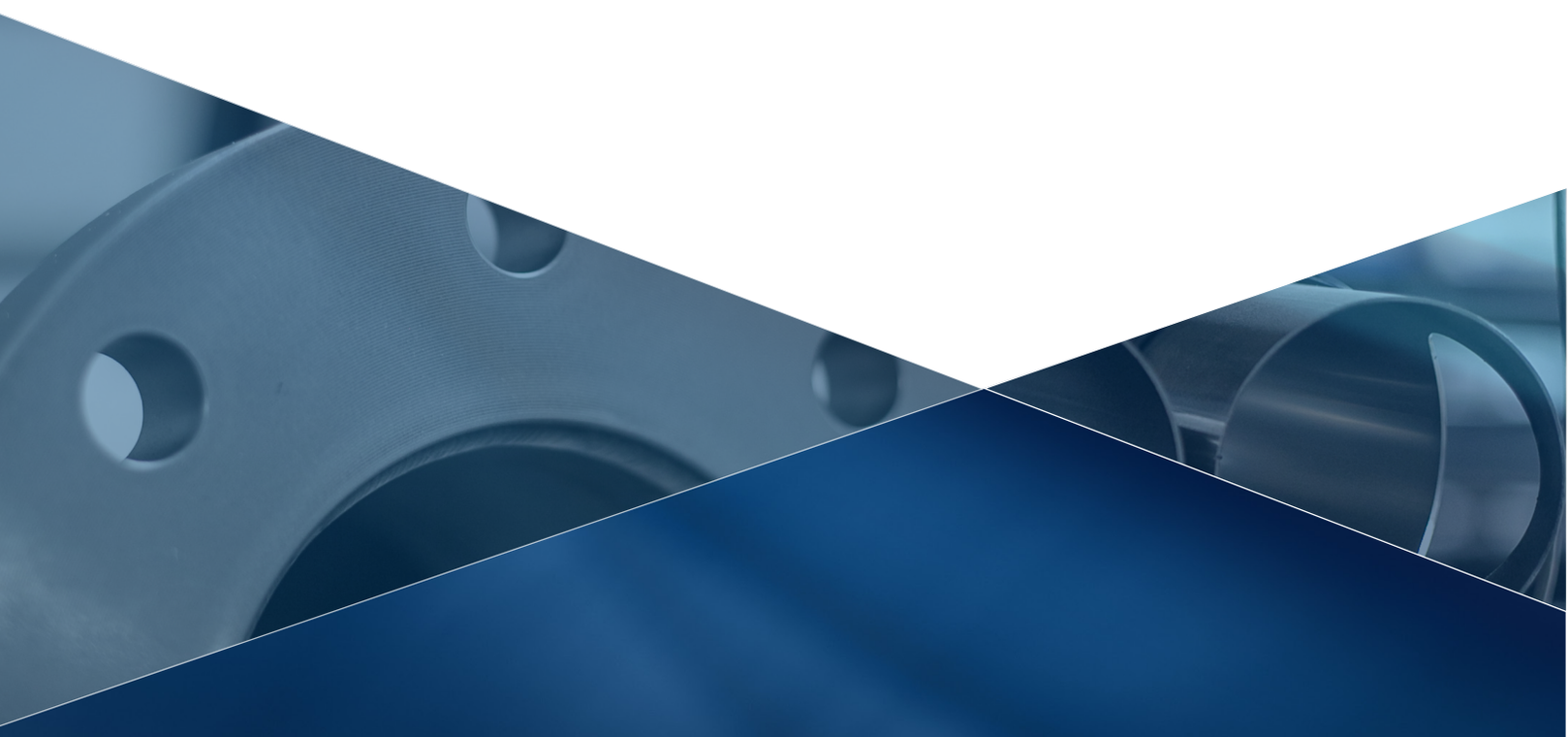
Visit www.vgepro.com or contact our product specialists at +31 (0)499 461099

UV-C Treatment

UV light 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 light 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 light 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.

Electromagnetic spectrum





VGE pro
UV DISINFECTION SOLUTIONS

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