

# AQUAFIDES



[www.aquafides.com](http://www.aquafides.com)

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# AQUAFIDES

## The Company

As a European and independent medium-sized company, AQUAFIDES puts its customers at the center of its activities. AQUAFIDES has a long-term strategy that is oriented to the needs of our customers. Quality, sustainability and flexibility towards customer requests lie at the forefront of this strategy.

The name **AQUAFIDES** stands for:

**AQUA** = Water

**FI** = Filtration

**DES** = Disinfection

**FIDES** (lat.) = Trust, loyalty, reliability

Innovation, coupled with the decades of experience in the water treatment industry held by the employees and management, as well as our own in-house development and production, ensure products and services of the highest quality.

Our product lines meet the requirements of most applications.

In addition, the ability to develop non-standard solutions allows AQUAFIDES to meet customers individual requests with tailor made solutions.

### **AQUAFIDES offers its customers:**

- UV-Disinfection systems
- Tailor made systems for customer specific applications
- Spare parts for our Aquafides UV systems as well as for other UV brands
- Own production of UV lamps
- Support, service and maintenance of UV systems from all key European manufacturer

### **AQUAFIDES offers UV-Disinfection systems for the following applications:**

- Municipal water supply
  - Private water supply
  - Process water industry
  - Wastewater industry
  - Pharmaceutical industry
  - Snow making systems
  - Beverage and food industry (Sugar syrup)
  - Rental systems
  - Aquaculture / Fish farms
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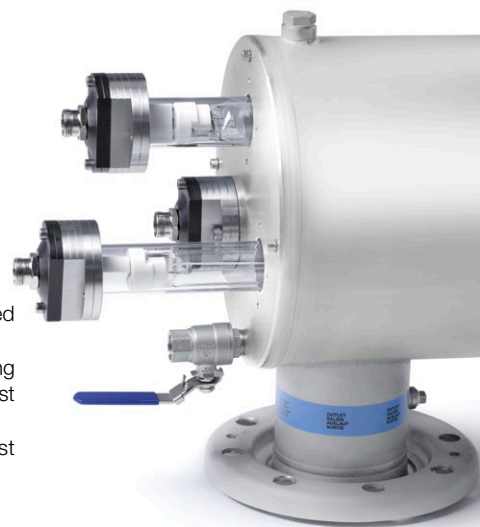
## AQUAFIDES UV-Disinfection Systems

The successful development of our UV disinfection systems is built on decades of experience garnered from our customers, service technicians, sales representatives and developers from various fields of study.

Optimal compact size, low energy consumption, ease of maintenance, durability and high reliability are just some of the most essential

requirements that AQUAFIDES has implemented in its UV disinfection systems.

Our UV disinfection systems for municipal drinking water supply are fully certified based on the latest European standards covering flows from 1 m<sup>3</sup>/h to 400 m<sup>3</sup>/h thus fulfilling even the most challenging requirements.



## AQUAFIDES Services

Our highly specialized AQUAFIDES team consists exclusively of employees with decades of experience in water treatment as well as UV disinfection equipment from various manufacturers. In this way we are able to offer exceptional quality of service, covering other UV manufacturers equipment as well.

Thus, AQUAFIDES is able to offer its customers, from a single source, everything related to UV disinfection as well as the servicing of existing systems. Besides from production of its own products, AQUAFIDES also specialises in providing service, maintenance and equivalent spare parts for most manufacturers makes and models.

Avail and convince yourself of the AQUAFIDES service quality.

The operation of water treatment plants and equipment requires the highest level of reliability 365 days a year, 24 hours a day. Competent and fair advice for our customers, often together with consulting, planning and engineering firms, provides a solid basis for joint cooperation.

AQUAFIDES commissions all UV equipment with specially trained staff. In this way, AQUAFIDES can guarantee that all UV systems are correctly and optimally integrated into the water supply system.

AQUAFIDES attaches great importance to a long-term relationship with its customers.

Preventive maintenance, as well as efficient repairs and emergency response services help ensure that the water treatment system is always available and can sustain the requirements placed on them. AQUAFIDES is ready and willing to take on these tasks, both for customers with AQUAFIDES systems and for customers with systems from other manufacturers.

AQUAFIDES service contracts guarantee customers access to all necessary resources, spare parts and specialist advice at all times and all this at optimum conditions.

### AQUAFIDES services:

- System sizing
- Consultation
- Site Inspection
- Commissioning
- Maintenance
- Service
- Repairs
- Emergency services
- 24h service



## AQUAFIDES Lamps and Spare Parts

AQUAFIDES develops and produces its own products. In this way, AQUAFIDES is always able to guarantee the quality of its products as well as to tailor-make non-standard solutions for customers with special, individual needs.





# UVC Disinfection

## UV-A:

Spontaneous and rapid tanning of the skin, but does not last very long. The skin does not build up a protective layer.

## UV-B:

Stronger than UV-A, responsible for the natural sunscreen of the skin. The skin callous thickens and the self-protection of the skin is increased by a factor of 5. As a second protective mechanism, melanin is increasingly produced, which accumulates in the skin surface. The more that is stored, the more tan one gets.

## UV-C:

If the high-energy UVC rays hit the unprotected skin, severe burns can occur within a short time.

## Physical characteristics

UV rays are high-energy electromagnetic rays that occur in the natural spectrum of the radiation emitted by the sun.

## Working principal of UV-C Disinfection

UVC disinfection is a purely physical process that mimics the same natural occurring process from the sun. The principal disinfecting effect of ultraviolet (UVC) rays on microorganisms is based on the action of the high-energy UVC light with the peak being achieved at a wavelength of 254 nm (nanometers).

The DNA (genetic information carriers) of the microorganisms, bacteria and viruses present in the water are damaged by the high energy of the UVC radiation, which effectively inactivates the microorganisms. UVC light thus inactivates disease-causing microorganisms within seconds and prevents their further reproduction and multiplication. Drinking water was first disinfected using UVC irradiation as far back as 100 years ago. However, this process was displaced by chlorination due to chlorination being much cheaper. Chlorine was therefore the most important disinfection method for decades. However, the discovery of the formation of organohalogen compounds and other DBPs (Disinfection by Product) associated with chlorination in the presence of organic water constituents, has led to a decreasing public acceptance of chemicals in the food chain, and pushed the search for an alternative disinfection method.

This led back to UV-C disinfection. The disinfection of drinking water using ultraviolet light in the UVC range comes closest, of all disinfection methods, to meeting the requirements for disinfecting untreated water, especially since it does not change the natural taste and the mineral composition of the water.



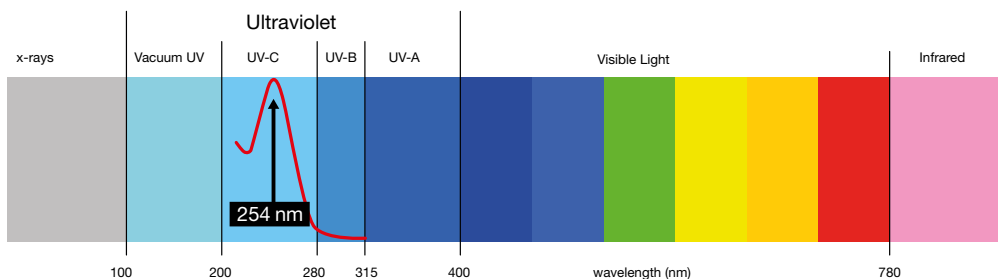
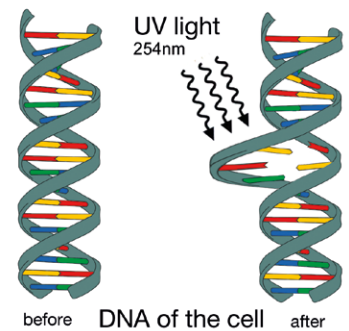
AQUAFIDES Multi-lamp systems 3 AF400 T



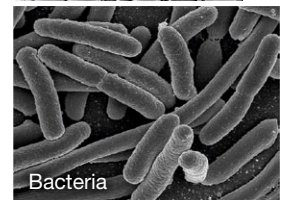


## Effect of UVC Light:

The effect of UV light on microorganisms is due to the high-energy of UVC light. The DNA (deoxyribonucleic acid = genetic information carrier) of the bacteria and viruses present in the water are damaged by the UV-C rays. The light penetrates through the cell wall into the microorganism and causes a reaction with the DNA of the cell, breaking up the carbon bonds within the DNA strands. This occurs in a matter of seconds, leading to the inactivation of the microorganisms. This disrupts the metabolism of the cell as well as its reproduction capabilities.



The most effective wavelength for inactivating microorganisms is achieved with UV-C light of 254 nm. The plotted line is the cell deactivation as a function of the specific wavelength. In the spectral line of 254 nm, the activity curve of inactivation of cells and viruses is at its peak.

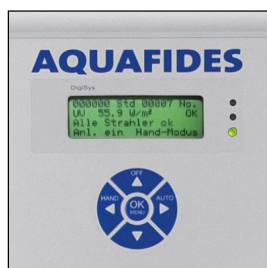


## Main features of UVC disinfection:

- No addition of chemicals
- Environmentally friendly, purely physical process
- No change of water constituents
- No formation of by-products and residues, in particular no formation of haloform
- Odorless and tasteless
- No formation of corrosive substances
- No risk of overdose
- Easy to use and minimal maintenance
- Tested and certified according to ÖVGW, DVGW, SVGW und ACS standards
- Highly cost efficient

# Advantages of the AQUAFIDES UV Disinfection Systems

AQUAFIDES offers a wide range of UV disinfection systems. From the single lamp systems for the treatment of domestic drinking water and smaller water suppliers, up to the multi-lamp systems for municipal and industrial water treatment (for flows of 1 m<sup>3</sup>/h to 400 m<sup>3</sup>/h certified). AQUAFIDES non-standard systems for special applications complete the product range.



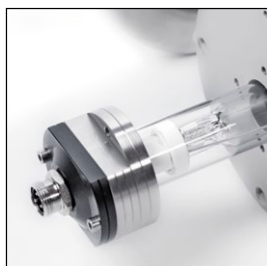
Multi-Colour Display for the visualization of the operating state



Digital sensor system with IP65 rated connectors



IP 65 rated connector plug



UV lamp power adaptation to operating conditions via variable control of lamp power

- Expert advice and maintenance  
through our specialists (decades of experience)
- Short reactor lengths  
(e.g. 1 AF300 T, approx. 20m<sup>3</sup> /h at 70% /10cm with only about 1.20m reactor height)
- Irradiation chamber is fully flushable  
removable flange plates on the bottom of the reactor
- Quartz tube (and lamps) installable from either side  
allows for flexible installation
- Type tested  
also for very bad UV transmission levels (e.g. 1 AF400 T up to 2% Tr 100mm @ 254nm)
- Flexible installation  
(horizontal, vertical, variable quartz tube installation, rotatable in 90 ° increments)
- Very low pressure loss  
(<0,05 bar)
- Irridiation chamber IP 65  
Design according to EN 13445
- Data logging function  
With integrated memory
- Data and Software updates  
Via USB port
- Maintenance Software  
and parameter settings via laptop and 5-button operation
- Multi-Colour Display  
for the visualization of the operating state
- UV lamp power adaptation to operating conditions  
Via variable control of lamp power
- Project specific control functions  
For example: Flowrate regulation depending on the water quality. UV lamp dimming with changing UV transmission levels. Other additional control functions on request

Certified according to:



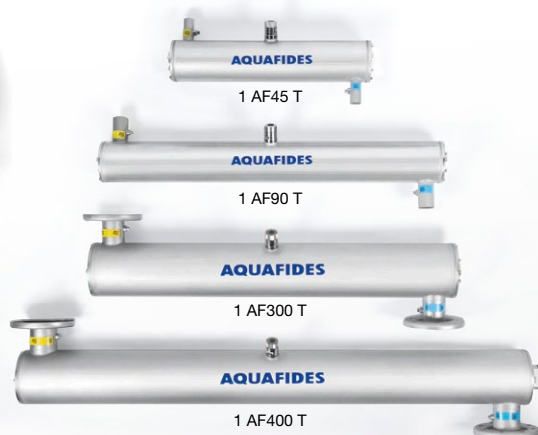
Approved by:



Norwegian Institute of Public Health



Digisys Compact  
Control System  
for single lamp systems



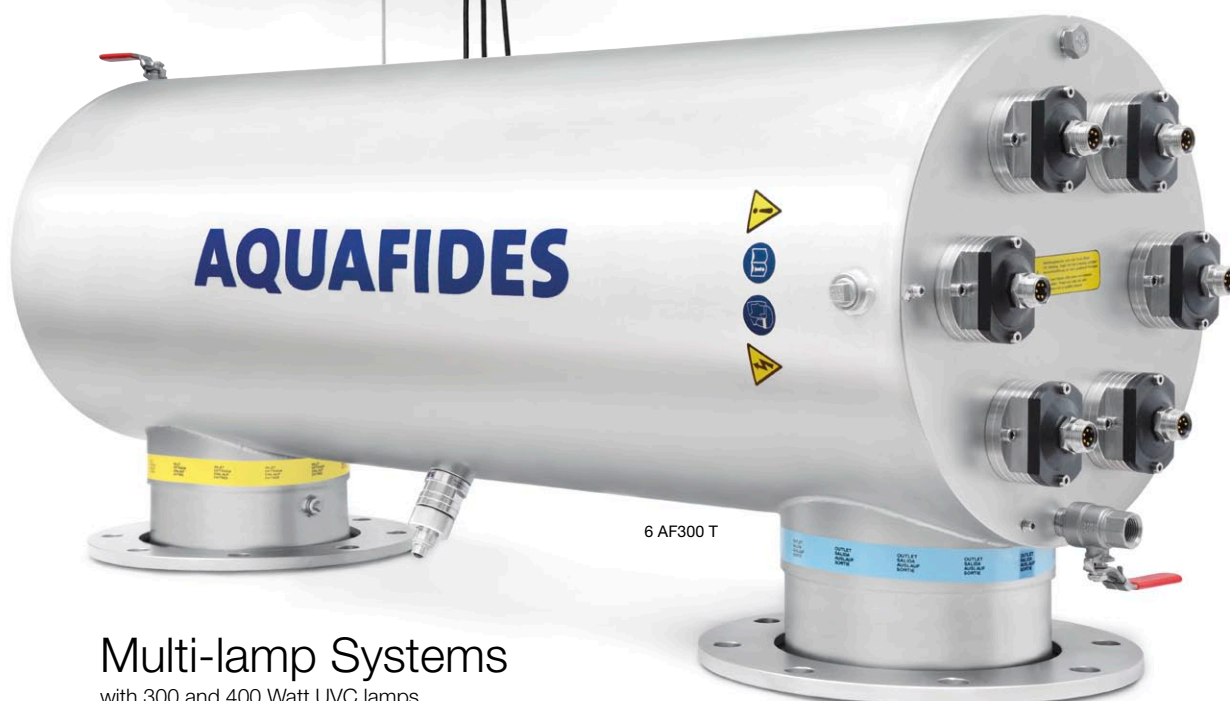
Single Lamp Systems  
with 45 – 400 Watt UVC lamps



## DigiSys Control System

For Multi-lamp systems

The AQUAFIDES DigiSys control allows  
for the comfortable and clear operation of  
all functions.



Multi-lamp Systems  
with 300 and 400 Watt UVC lamps

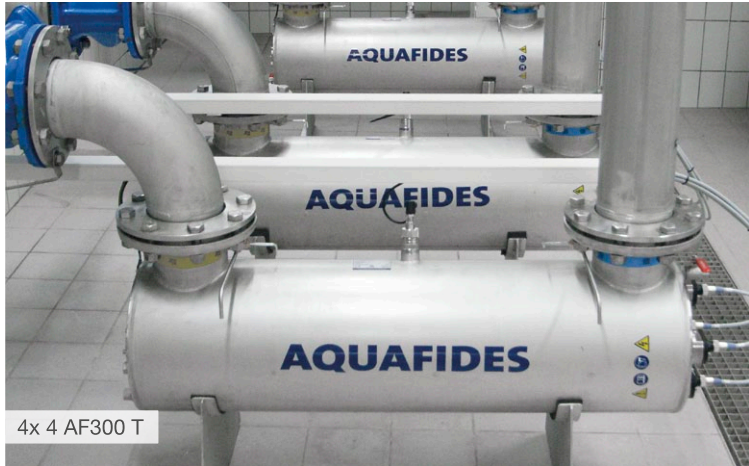




2x 6 AF400 T ATEX



6x 4 AF400 T



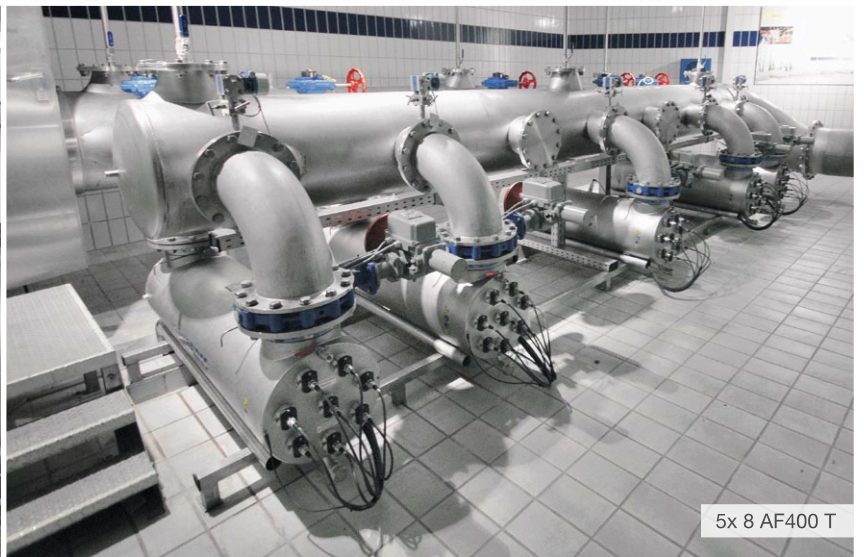
4x 4 AF300 T



2x 4 AF400 T



6x 8 AF400 T



5x 8 AF400 T

Certified according to:



Approved by:



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