
DRINKING WATER
UV DISINFECTION • EFFICIENT AND CHEMICAL-FREE WATER TREATMENT
ULTRAQUA
UV DISINFECTION SYSTEMS
WE PROTECT YOUR MOST VALUABLE RESOURCE


KEEP YOUR WATER SAFE
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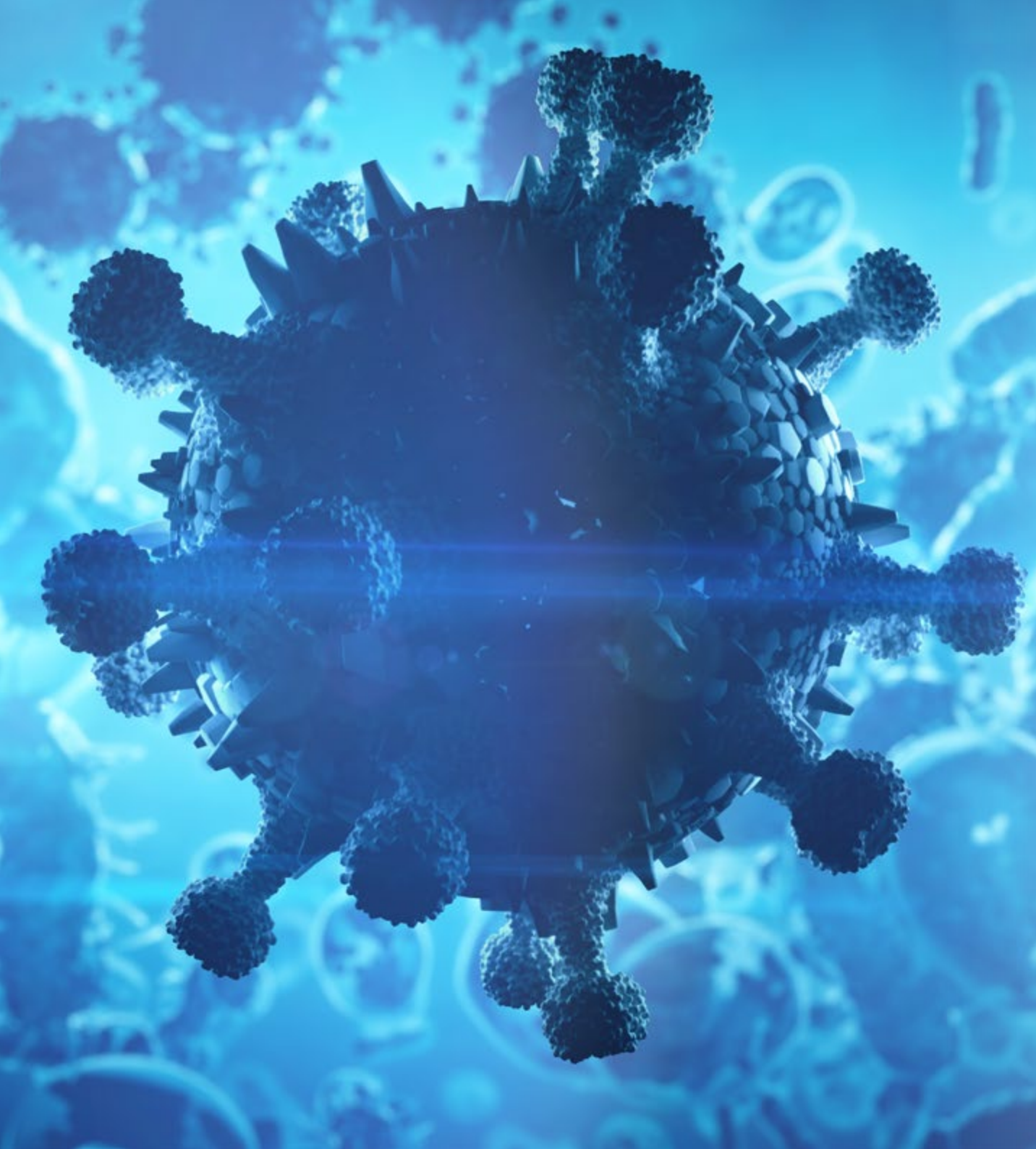
UV DISINFECTION SYSTEMS



CORE BENEFITS OF UV

ENSURING PROPER DRINKING WATER IS A VITAL STEP TO PROTECT THE PUBLIC HEALTH FROM DANGEROUS MICROORGANISMS.

The demand for cost-efficient solutions to provide clean drinking water are at an all-time high and will only increase in the future. UV disinfection solves this safety challenge, being able to meet the strictest requirements regarding bacteria and virus protection.

Heavily chlorinated drinking water has proven to lead to several health complications such as respiratory diseases. While chlorine has proven to be ineffective against Cryptosporidium and Giardia, UV is able to inactivate these pathogens easily with very low doses. This means that UV treatment is capable of inactivating all bacteria, viruses, molds, and spores that may be present in the drinking water.

Operational efficiency is one of the core drivers within the drinking water market. Many facilities and organizations now invest on new assets that yields return on investment based on their operational savings. This has led to manufacturing having to detail their whole life costs over 20 years. Choosing UV as the disinfection method ensures optimal CAPEX and OPEX compared to its alternatives, making UV the best solution for a wide range of installations.

ULTRAAQUA UV disinfection systems are easy to install, maintain and thoroughly cost-optimized. The third-party approvals for performance and quality ensures complete peace of mind, employing the best available solution for complete biosecurity.

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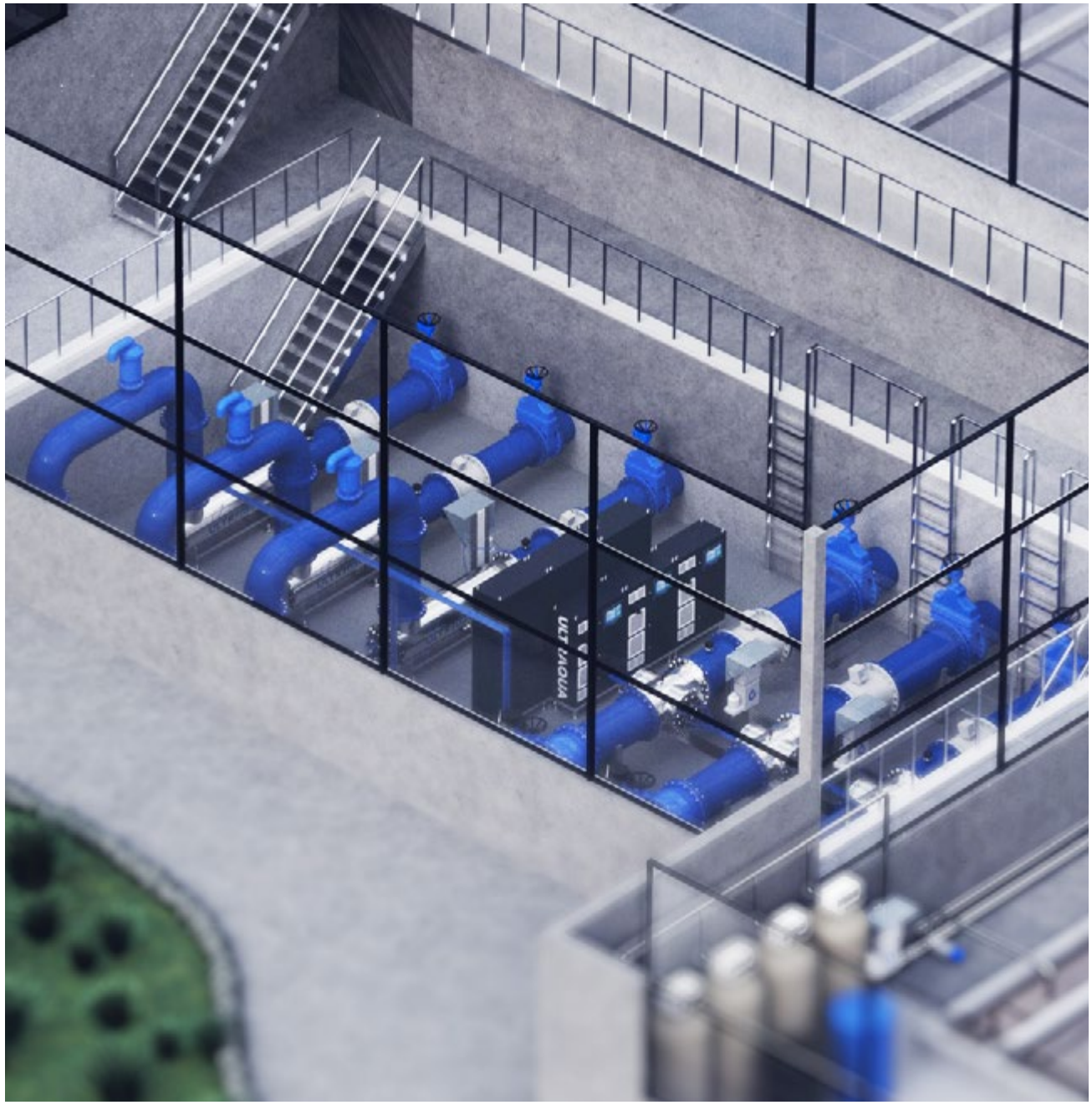
UV DISINFECTION SYSTEMS

FLEXIBLE INSTALLATION

UV DISINFECTION SYSTEMS CAN BE USED IN A NUMBER OF WAYS WITHIN THE DRINKING WATER PROCESS, DEPENDING ON THE DEFINED DISINFECTION POLICY.

With the support of a well-designed disinfection policy and network, UV can be used as a primary disinfection barrier. In this case, the bias of the disinfection is placed on the UV system with a small residual of chemical disinfection being dosed into the water at the treatment outlet when the flow enters the distribution network, potentially removing the need for contact tanks entirely. This approach can significantly reduce the plant's overall operational costs as well as result in improved performance.

The second option is to use UV as a part of the multibarrier disinfection policy that uses UV to target specific pathogens, being impossible or too expensive for other technologies to achieve. This could be the use of UV as an exclusive barrier for cryptosporidium, which other technologies such as chlorination have been proven to be inefficient against.



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NORWAY, DRINKING WATER FACILITY

DRINKING WATER FACILITY WITH A PUMPING CAPACITY OF 900.000 LITERS PER HOUR.

FINLAND, DRINKING WATER FACILITY

MUNICIPAL DRINKING WATER DISINFECTION IN FINLAND

DENMARK, DRINKING WATER FACILITY

MUNICIPAL DRINKING WATER DISINFECTION IN THE DANISH CITY HEDENSTED

CUSTOMIZED SOLUTIONS

ULTRAAQUA EMPLOYS AN ENTIRE DEPARTMENT OF ENGINEERS WHO ARE SPECIALIZED IN THE DESIGN AND CONSTRUCTION OF UV SYSTEMS.

Multiple years of experience within relevant applications, makes it possible to alter and adjust any standard UV system to accommodate the specific requirements.

The customization requirements can vary from adjustments such as reactor shape or flange size, to adding new advanced features. This makes the ULTRAAQUA design department function as a consulting agency, working towards an optimized customized solution. This means that we can ensure on site validation to various standards, fitting your exact requirements.

The following possibilities are available for all customized UV units:

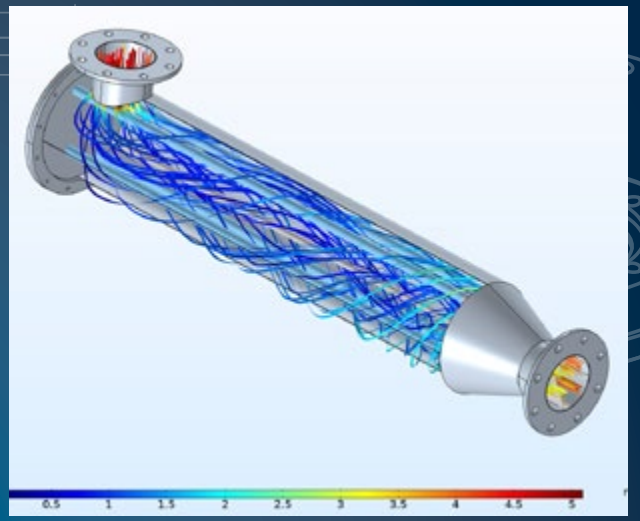
Customized services

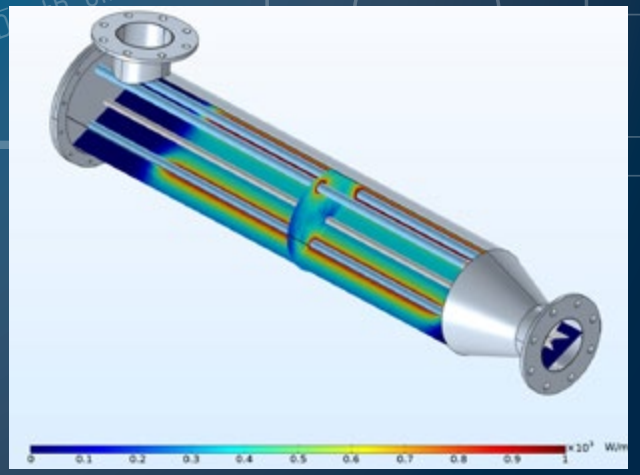
- Integrated CFD Analysis
- Particle tracing modeling analysis
- Determining fluence rate
- Physical testing
- Onsite validation testing
- Advanced UV disinfection support

Customized products

- Custom UV systems for advanced applications
- Packaged plant equipment
  - Including mobile treatment container
  - Skid packages

Comprehensive technical knowledge makes the engineers able to assist with installation details such as weir design, water level flow control devices, and many other project-specific matters.





ADVANCED SOLUTIONS FOR TASTE & ODOR ISSUES

AS WATER BECOMES INCREASINGLY SCARCE, COMPANIES ARE NOW FORCED TO USE LESS STABLE SOURCES FOR DRINKING WATER PRODUCTION.

This has induced an increase in issues with MIB and Geosmin contamination, which is also present in even more well-regulated water sources. MIB and Geosmin contamination can be caused simply by the natural presence of the compounds, or as a result of Cyanobacteria Algae blooms. The biggest issue with drinking water that is contaminated by MIB or Geosmin is the change of taste and smell, making the water taste musty or earthy. Very low limits are required for humans to detect a change in the waters taste and odor properties.

This unwanted taste and smell is often the primary cause of customer complaints, both by residential customers and business customers who might use the water for other processes.

ULTRAAQUA has developed a range of Advanced Oxidation solutions, which are specifically developed to accommodate this issue, breaking down and removing micro pollutants which is key to removing MIB and Geosmin issues.

The combination of UV photolysis and a suitable catalyst causes hydroxyl radicals (-OH) to be created which have a highly reactive disposition to oxidizing organic compounds such as MIB and Geosmin.

If you are experiencing issues within your drinking water process, ULTRAAQUA is able to support you from the very beginning of problem identification to pilot study through implementing the solution.

R&D CAPACITIES

SINCE 1996, THE R&D DEPARTMENT HAS BEEN THE BACKBONE OF ULTRAAQUA.

Employing the brightest industry specialists with great diversity for continuous innovation has been vital to the success of the company.

The ULTRAAQUA R&D department conducts, supports, and pioneers some of the latest developmental work within the water industry. These projects are often done in collaboration with specialists from municipalities, universities, top tier consultancies and international companies. The projects are primarily focused on developing unique and advanced chemical free disinfection solution for some of the worlds most complex water quality problems.

The comprehensive in-house testing area facilitates optimal conditions for research, development, and innovation. With the ability to run full scale pilot trials and a 40 ft research container to support local testing combined with cutting edge engineering, makes us confident that ULTRAAQUA is the right partner for your organization.

This ultimately allows ULTRAAQUA to position itself amongst the industry leaders within UV disinfection, supplying customers with the best available solutions.

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COMPANY HISTORY

ULTRAAQUA IS AN INTERNATIONAL MANUFACTURER OF ADVANCED UV WATER DISINFECTION SYSTEMS FOR A WIDE RANGE OF WATER TREATMENT APPLICATIONS.

The company was founded in 1996 by two Danish scientists, with the mission of solving the increasing global water safety challenges, by combining extensive research, innovation, and technology. Today, more than 10.000 UV disinfection systems have been supplied worldwide, to help create a more sustainable world.

ULTRAAQUA operates through a carefully selected partner network, with activity in more than 120 countries. The partner network has been key to the success of ULTRAAQUA, making it possible to deliver cutting-edge UV disinfection systems across the globe.

Continuous research and innovation activities have made it possible to maintain the position of delivering cutting-edge solutions to clients with diverse requirements in different applications.

Global experience combined with advanced knowledge of dealing with varying customer requirements, ensures an optimal solution to accommodate every client. Combined with a dedicated support experience, a streamlined operational process is guaranteed.

The validity, experience, and trustworthiness are proven through our wide range of acquired certificates, patents, and trademarks.

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TECHNOLOGY OVERVIEW & VALIDATIONS

THE UV SYSTEMS OF ULTRAAQUA HAS UNDERGONE EXTENSIVE TESTING AND PASSED THE WORLD'S MOST RIGOROUS TESTS FOR VALIDATION AND APPROVAL BY RECOGNIZED LEADING CERTIFICATE PROVIDERS.

This means that reliable and thoroughly tested solutions are guaranteed.

ÖNORM M 5873-1

The SSV Drinking Water Series has been validated by the internationally recognized Austrian standard – **ÖNORM M 5873-1**. This allows the SSV series to offer ultimate security for drinking water disinfection.

DVGW

The **DVGW certification** assures that critical technical requirements are met regarding hygiene, safety, and general functionality. DVGW is an unbiased technical-scientific association based in Germany, specialized in gas and water industries.

AMS

The **AMS (Analog Mixed Signal) verification** ensures that the electronic components are compliant with the latest industry-standard, allowing smooth and quick signal transmission among the electrical components used in data tracking and storage.

ETV

The **ETV-EU verification** is a third-party validation of new innovative environmental technologies, ensuring product credibility for the buyer.

FHI

The **NIPH (Norwegian Institute of Public Health) type approval** ensures that all UV disinfection units meets the requirements for UV dosage. The approval means that ULTRAAQUA is able to distribute selected UV systems in Norway and The Faroe Islands.

Veterinærinstituttet
Norwegian Veterinary Institute

The **Norwegian Veterinary Institute (NVI)** is the national leading center of expertise in biosecurity for fish and land animals. The ULTRABARRIER™ series has been officially approved by the NVI for intake water disinfection in the Norwegian aquaculture industry.

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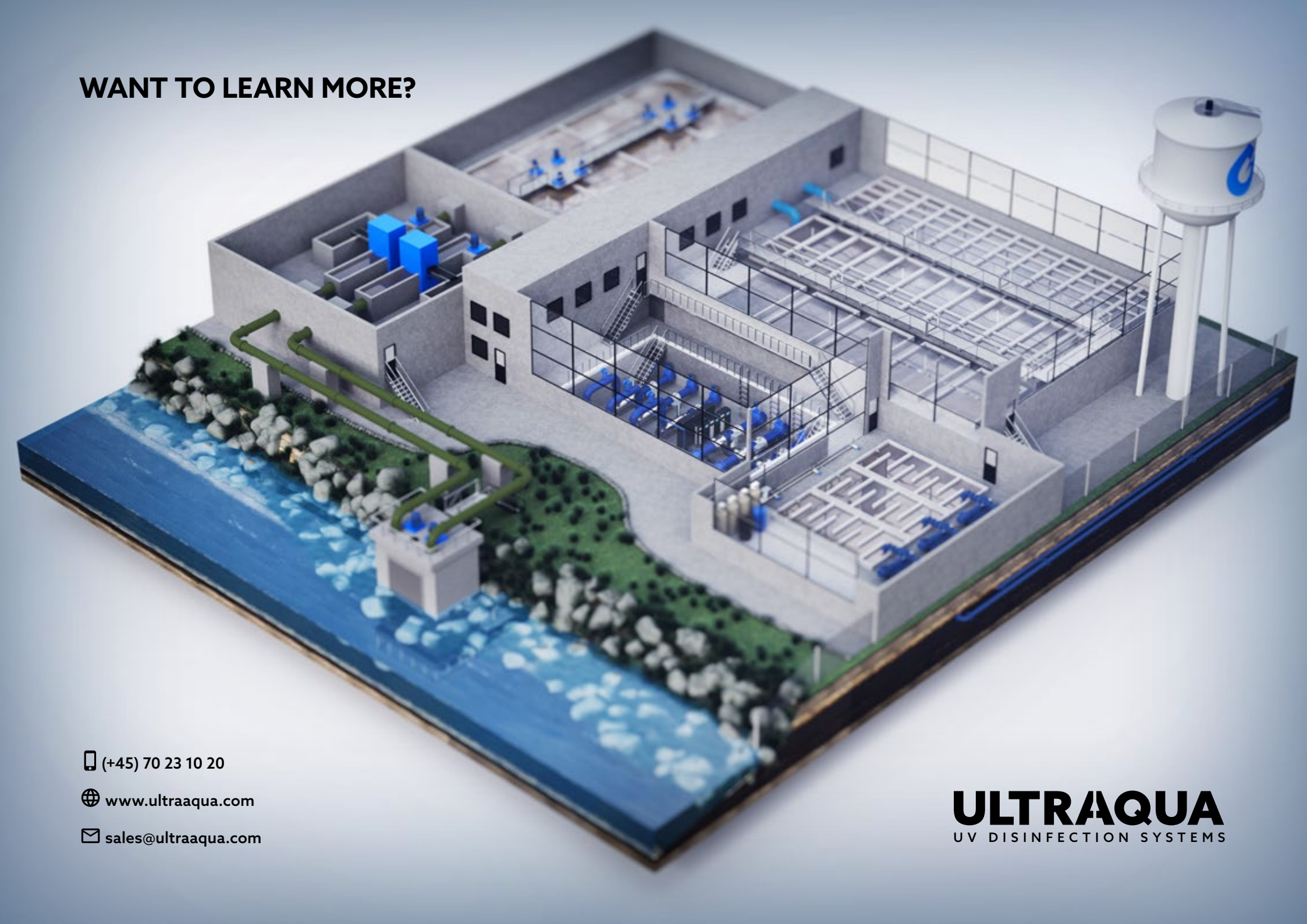
PRODUCT OVERVIEW FOR DRINKING WATER

EASY TO INSTALL, MAINTAIN, THOROUGHLY COST OPTIMIZED, AND CAPABLE OF MEETING THE STRICTEST DISINFECTION REQUIREMENTS.

	SSV DRINKING WATER SYSTEMS	MONORAY™	TOC VUV SYSTEMS	ULTRATRON™
UV FUNCTION	Validated disinfection	Disinfection/ Photocatalytic/AOP		Validated disinfection/ Photocatalytic/AOP
LAMP TECHNOLOGY	Low Pressure High Output			Medium Pressure
GUARANTEED LAMP LIFETIME	16.000 hours		12.000 hours	9.000 hours
EXPECTED LAMP LIFETIME	16.000 - 20.000 hours		12.000 - 15.000 hours	9.000 - 12.000 hours
REACTOR CONFIGURATION	L shape	U, L & Z shape		Inline
FLOW CAPACITY (SINGLE UNIT ONLY)	5 m3/h (22 GPM) – 2.000 m3/h (12,6 MGD)	5 m3/h (22 GPM) – 6.000 m3/h (38 MGD)	1 m3/h (4 GPM) – 500 m3/h (3,17 MGD)	11 m3/h (50 GPM) – 8.000 m3/h (50,7 MGD)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