SHRIMP & PRAWN

UV DISINFECTION • EFFICIENT AND CHEMICAL-FREE WATER TREATMENT

ULTRAQUA
UV DISINFECTION SYSTEMS

WE PROTECT YOUR MOST VALUABLE RESOURCE

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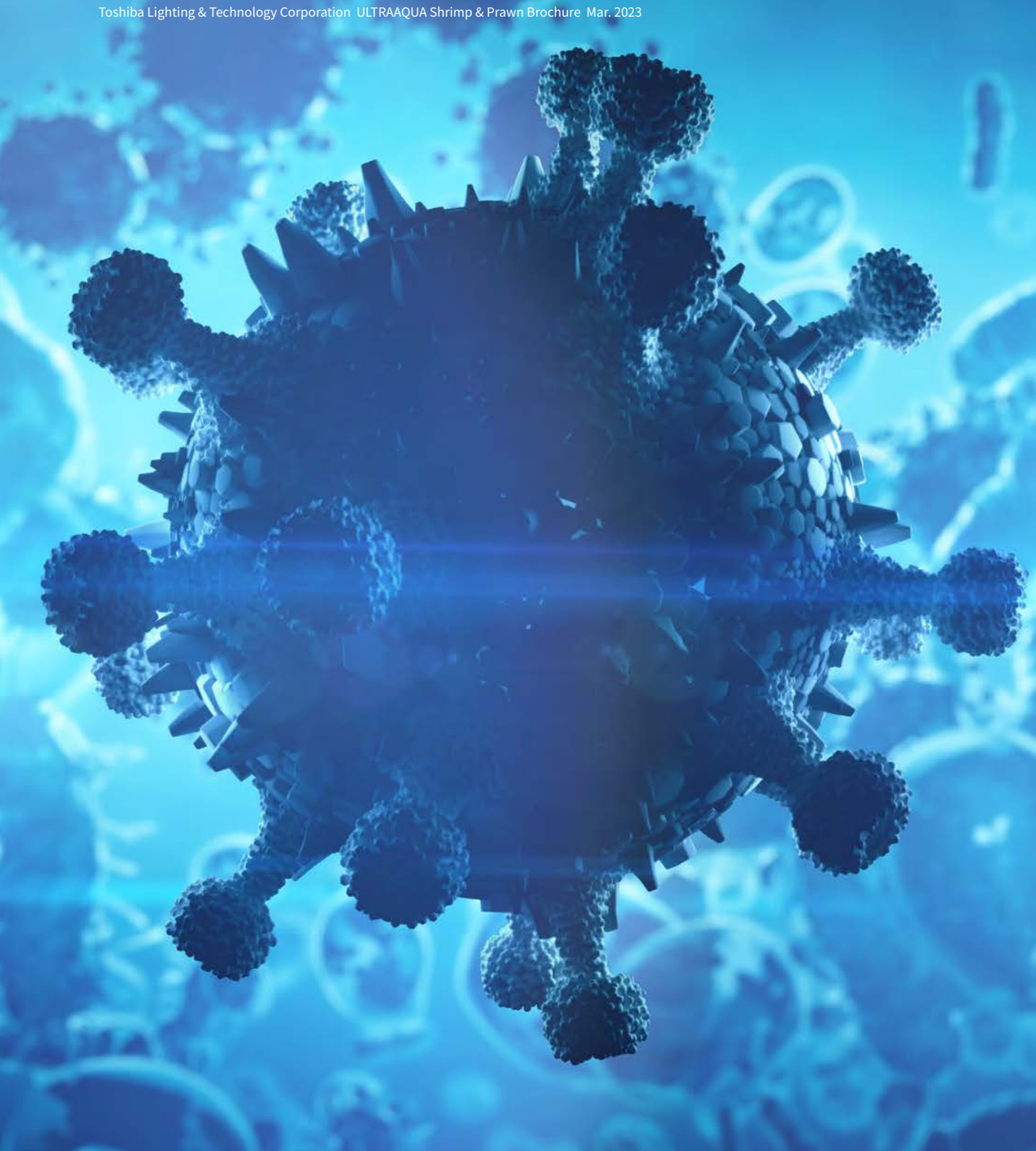
KEEP YOUR WATER SAFE
ULTRAAQUA
UV DISINFECTION SYSTEMS



CORE BENEFITS OF UV

UV TECHNOLOGY IS A GLOBALLY ACCEPTED SOLUTION FOR WATER DISINFECTION, EFFECTIVELY INACTIVATING BACTERIA, VIRUSES, AND PROTOZOA.

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

Due to recent developments, UV disinfection is now an effective alternative in a wide range of water qualities and applications. Improved technological and design configurations have made UV a viable OPEX and CAPEX solution for disinfection processes as well as in more advanced applications such as Advanced Oxidation Processes (AOP).

Choosing UV as the disinfection method ensures optimal CAPEX and OPEX conditions 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 ensure complete peace of mind, employing the best available solution for complete biosecurity.

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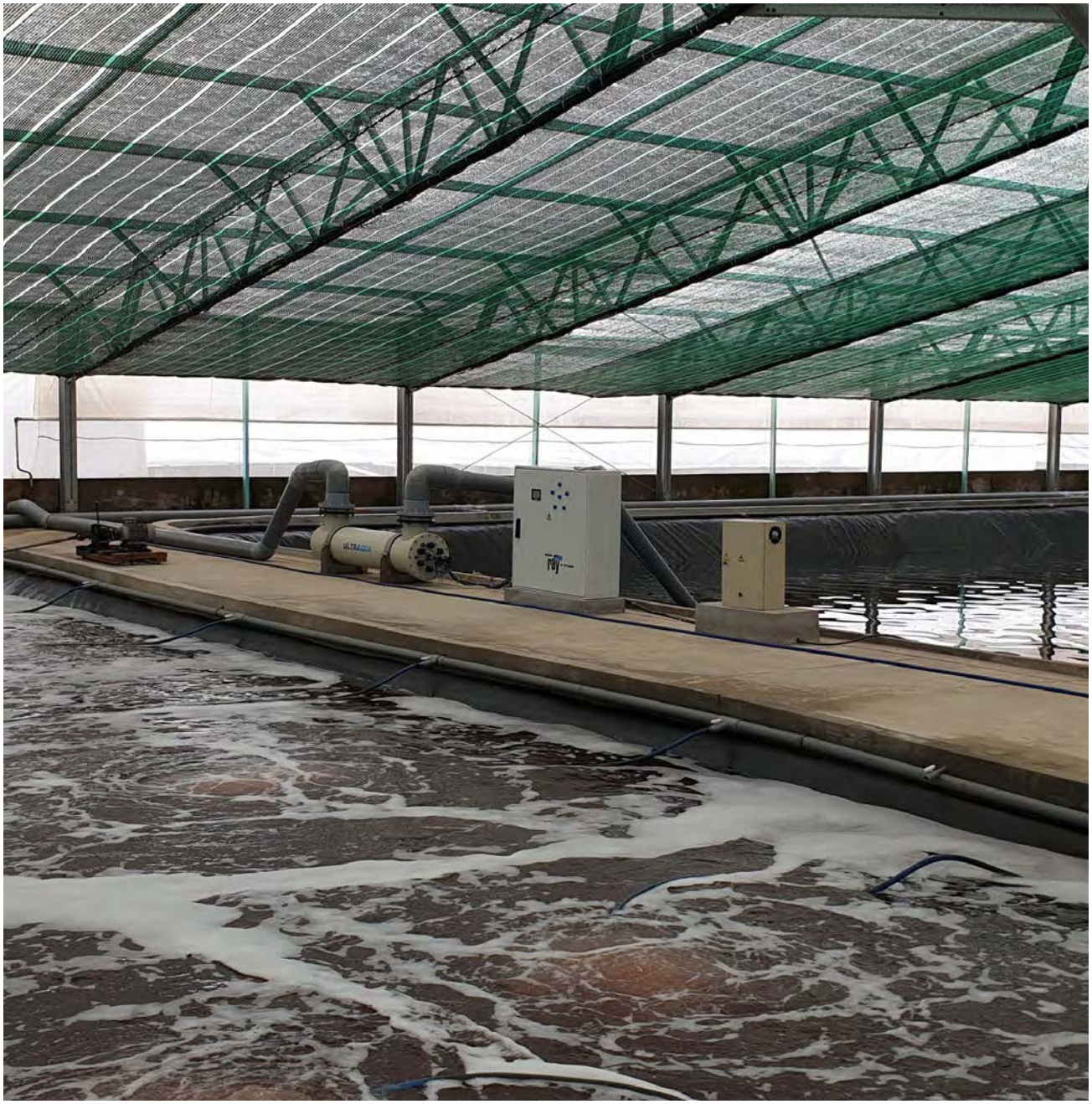


SHRIMP & PRAWN UV DISINFECTION

THE SHRIMP FARMING INDUSTRY HAS SEEN MASSIVE GROWTH IN THE PAST FEW DECADES.

The increased demand and production volumes have caused increased stocking densities, resulting in a growth of contamination and fatal diseases. As adding more nutrients to the diet does not solve the problem, but rather increases the risk for further contamination, the most effective disease control solution has proven to be upgraded water biosecurity. This is especially critical for the hatcheries and nurseries, as proper rearing at the early stages results in an increase of shrimp survival rates in the later stages.

UV disinfection is the most efficient and sustainable water disinfection solution to ensure water biosecurity in this regard. This is due to not creating any chemical by-products while efficiently inactivating all common shrimp diseases such as White Spot Syndrome (WSSV), Vibrio, EMS, and Mortality Syndrome (EHP).

The UV systems from ULTRAAQUA are ideal for intake, process, and discharge water, which has led shrimp farmers all over the globe to experience better feed conversion ratios, a significant reduction of antibiotic use, and improved survival rate across all steps of shrimp rearing. Being able to address these critical factors for maximized yield and cost-efficiency, makes us the preferred supplier within the Shrimp & Prawn industry.

SHRIMP FARM, NIGERIA

SHRIMP FARM WITH A TOTAL PRODUCTION CAPACITY OF 1,200 TONS PER YEAR.

SHRIMP FARM, VIETNAM

POLYPROPYLENE UV SYSTEMS FOR ONE OF THE WORLD'S LARGEST SHRIMP FARMS.

SHRIMP FARM, AUSTRIA

SUSTAINABLE SHRIMP RAS FACILITY PRODUCING EXCLUSIVE HIGH-QUALITY SHRIMP.

See more cases: www.ultraaqua.com/cases

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 adjust any standard UV system to accommodate specific requirements.

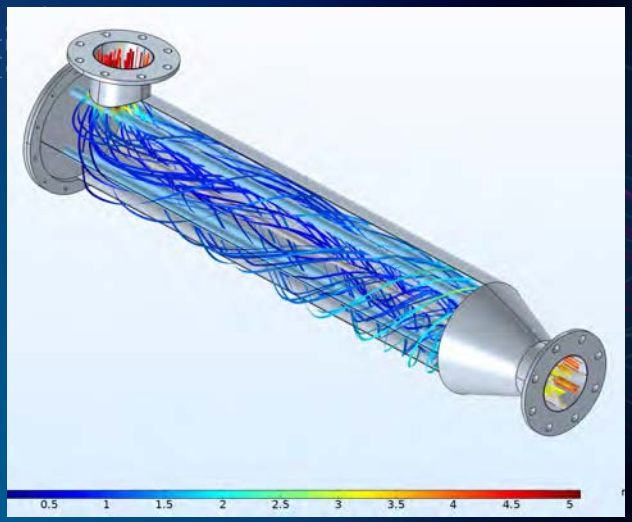
The customization requirements can vary from adjustments such as reactor shape or flange size, to adding new advanced features. This makes the ULTRAAQUA design department function as a consulting agency, working towards an optimized customized solution. This means that we can ensure on site validation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

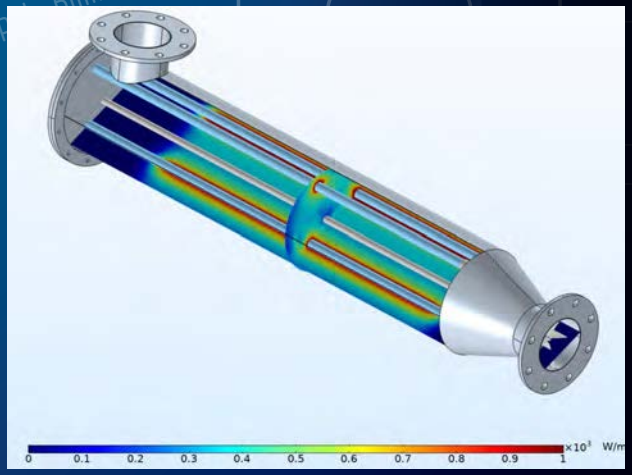
The following possibilities are available for all customized UV units:

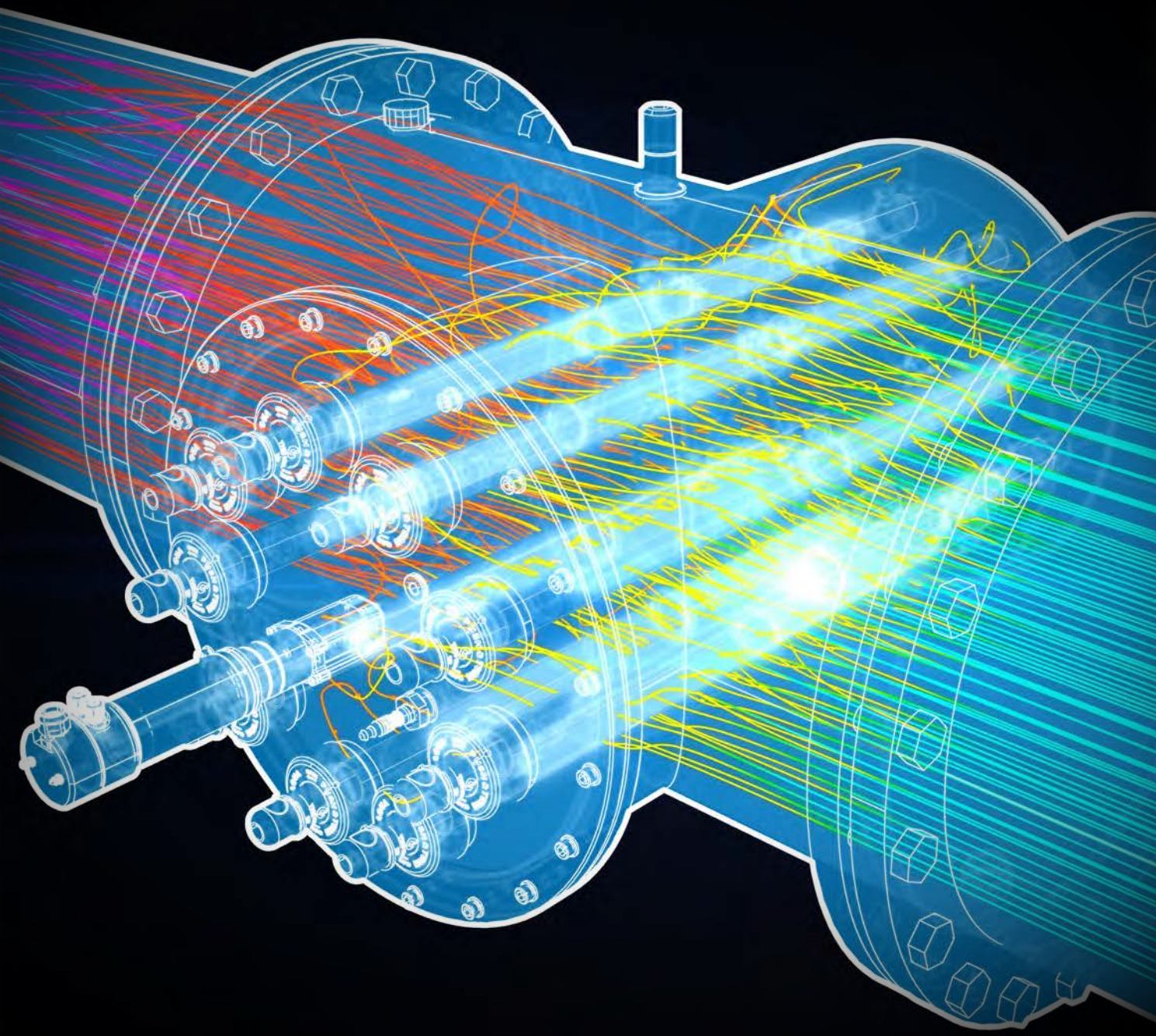
Customized services
- Integrated CFD Analysis
- Particle tracing modeling analysis
- Determining fluence rate
- Physical testing
- Onsite validation testing
- Advanced UV disinfection support

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 control devices, and many other project-specific matters.







ADVANCED SOLUTIONS FOR GEOSMIN ISSUES

THROUGH DECADES IN THE AQUACULTURE INDUSTRY, THERE HAS BEEN A LACK OF SOLUTIONS TO CONTROL GEOSMIN ISSUES, WHICH HAS LED TO HIGH ECONOMIC LOSSES EVERY YEAR DUE TO PROLONGED PRODUCTION TIMES.

Geosmin and Methyl-Isoborneol (MIB) are naturally occurring compounds that are commonly found in the fish production of RAS. Both substances accumulate in the fat tissue of the fish which can lead to a muddy taste. This has made rejection of production output more common while inducing a need to off-flavor the fish in purge tanks, ultimately resulting in high economic losses.

The usual method to remove geosmin is by using large high-purity water tanks that are rich in oxygen. When putting the fish in the tanks, the geosmin from their bodies gets transferred to the water until it reaches equilibrium. However, this is a relatively costly method to ensure proper removal, as large quantities of pure water are required. Additionally, the purge process adds on average an extra 10 days of fish delivery time, required for the geosmin to be reduced to limits of 5ng/L.

The ULTRAAQUA UV research department has first-hand experience in solving and documenting geosmin control. Our R&D engineers and chemists have developed quantification tools to model and predict geosmin formation rates in RAS systems. The results of the different scenarios can then be used to make decisions regarding how to best implement a geosmin mitigation strategy.

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.

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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.

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.

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.

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.

ETV

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

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 SHRIMP & PRAWN

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

	OPEN CHANNEL SYSTEMS (PP)	NON-CORROSIVE PP SYSTEMS	NON-CORROSIVE PEHD SYSTEMS	ULTRABARRIER™ (PP)	LOW FLOWRATE PP SYSTEMS
UV FUNCTION / APPLICATION	DISINFECTION	DISINFECTION / DE-OZONATION		DISINFECTION	DISINFECTION / DE-OZONATION
LAMP TECHNOLOGY	LOW PRESSURE				
LAMP LIFETIME	16.000 HOURS				9.000 HOURS
REACTOR CONFIGURATION	OPEN CHANNEL - VERTICAL, INCLINED	U, L & Z SHAPE			
FLOW CAPACITY (SINGLE UNIT ONLY)	5 M3/H (22 GPM) – 8.000 M3/H (50,7 MGD)	5 M3/H (22 GPM) – 6.000 M3/H (38 MGD)	5 M3/H (22 GPM) – 3.000 M3/H (19 MGD)		1 M3/H (22 GPM) – 30 M3/H (38 MGD)

- It may not be disinfected depends on water quality.
- The performance, values, etc. described in this brochure are typical values and may vary depending on operating conditions.
- The appearance and specifications are subject to change for improvement.
- Company names and product names mentioned herein may be trademarks or registered trademarks of their respective companies.
- Product colors may be different slightly from the actual product due to printing conditions.
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