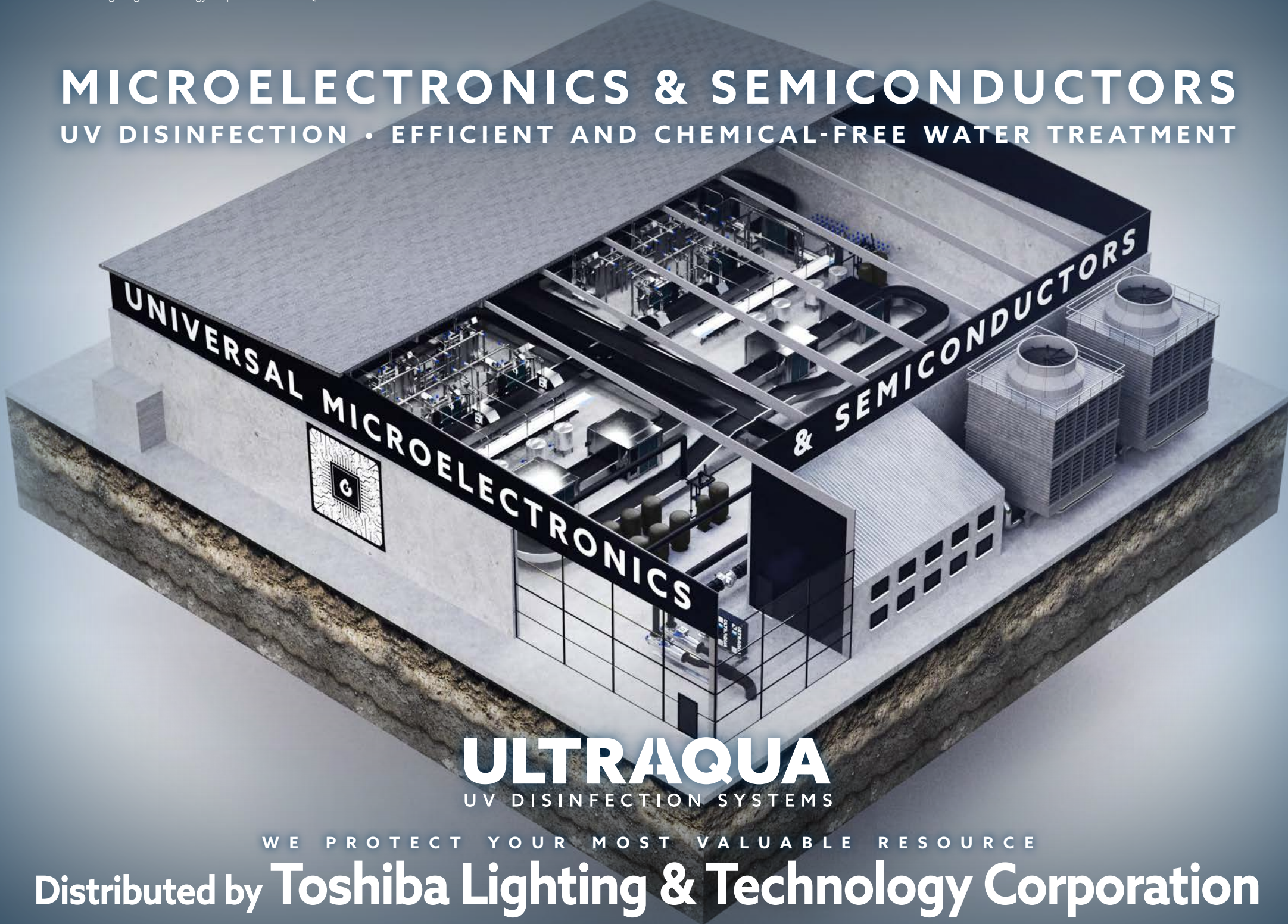


MICROELECTRONICS & SEMICONDUCTORS

UV DISINFECTION • EFFICIENT AND CHEMICAL-FREE WATER TREATMENT



ULTRAAQUA
UV DISINFECTION SYSTEMS

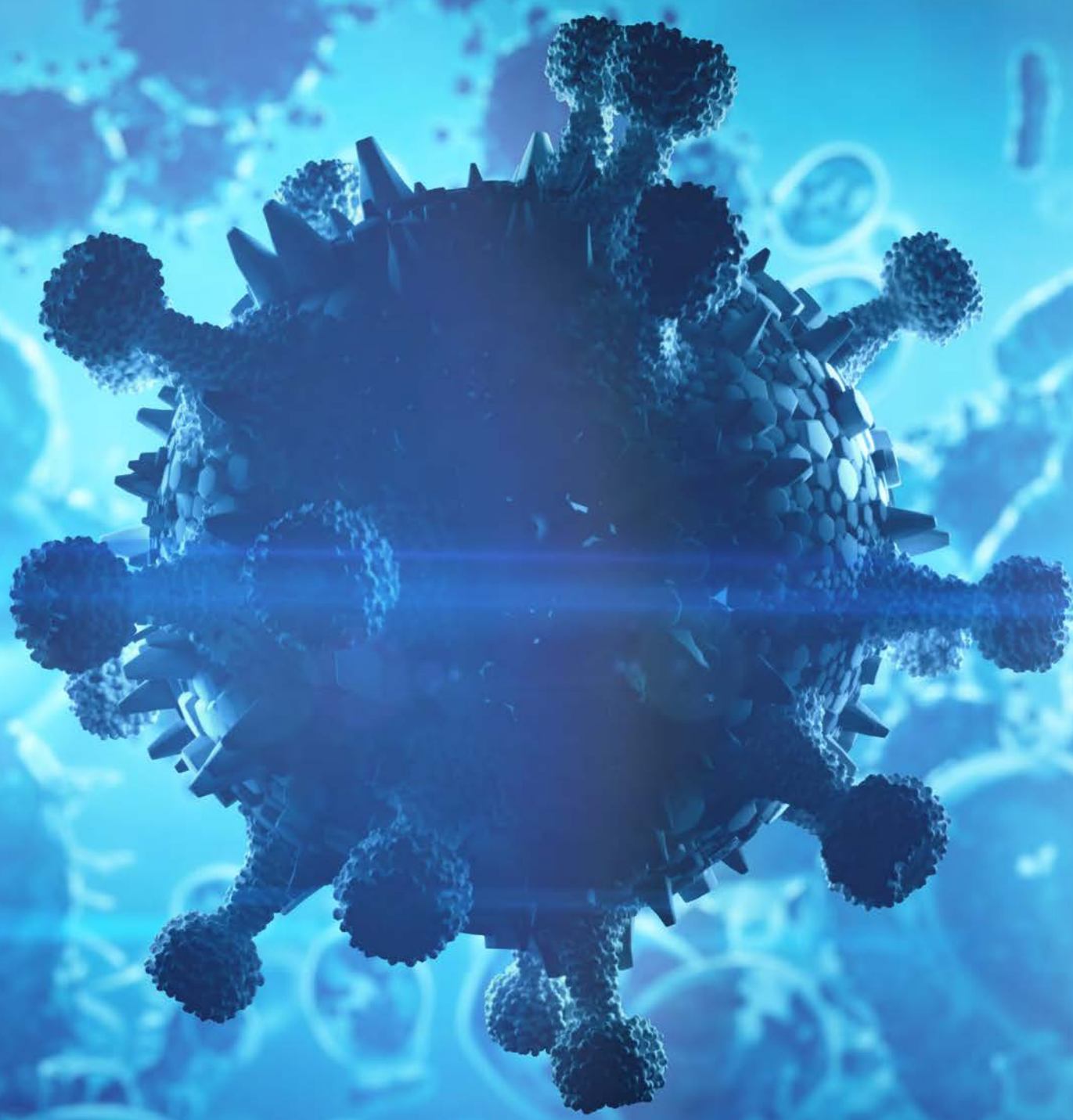
WE PROTECT YOUR MOST VALUABLE RESOURCE

Distributed by **Toshiba Lighting & Technology Corporation**



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.

ULTRAAQUA
UV DISINFECTION SYSTEMS



MICROELECTRONICS & SEMICONDUCTORS UV DISINFECTION

IN THE MICROELECTRONICS & SEMICONDUCTOR INDUSTRY, EVEN THE SMALLEST OF CONTAMINANTS - ORGANIC OR INORGANIC - CAN SERIOUSLY JEOPARDIZE THE QUALITY OF THE END-PRODUCT.

This sets high requirements for the applied Ultrapure Water (UPW), to avoid a negative impact on the used components.

UV technology is a favorable solution for ensuring high quality Ultrapure Water, as it is capable of controlling the Total Organic Carbon (TOC) levels in the water, ultimately reducing the risk of product circuit defects through more sustainable practices.

"Differently from Europe, the electronics and semiconductor industries play an important role in ASEAN's economic development. Customers in such industries always highly demand ultra-purified water (UPW) to facilitate the production of their valued products. UV technology is needed not only for effective disinfection, but also TOC removal as well. ULTRAAQUA has quickly become recognized in the Asian market as a competitive manufacturer of effective TOC removal solutions regarding life cycle cost."

**Wachira Pintong,
Nam Solutions and Technologies Co., LTD.**

ULTRAAQUA

SERVICE & SUPPORT

ULTRAAQUA IS A GLOBAL COMPANY OFFERING WORLDWIDE SERVICE AND SUPPORT, WITH ITS HEAD OFFICE BASED IN DENMARK.

With operations in over 120 countries and an install base of 10.000 systems, ULTRAAQUA is able to offer extensive support regarding installation and maintenance with its wide-ranging network of regional offices.

The technical support team in our head office provides 24-hour remote service upon agreement, ensuring that potential emergencies are avoided.

At ULTRAAQUA, we wish to provide a complete product experience for our customers, from the very start of determining requirements to ongoing operational maintenance. This means that our responsibility does not stop after the UV system reaches its destination. By establishing a close collaboration with all clients, a streamlined process is effectively ensured throughout all post-installation activities.

Our support services include, but are not limited to:

- 🔧 General technical support
- 🔧 Spare part ordering and shipping services
- 🔧 Commissioning
- 🔧 On-site training
- 🔧 On-site technical support

If needed, qualified engineers are available for on-site training and technical support, being able to assist in setting up the entire system. Extensive information and technical knowledge is always provided, to ensure maximum performance and system reliability.

SEMICONDUCTOR FACTORY IN ISRAEL

LOCATED IN ISRAEL, A GLOBAL MANUFACTURER OF SEMICONDUCTOR COMPONENTS NEEDED TO BUILD A FULLY SANITARY ULTRAPURE WATER (UPW) LOOP.

As the manufacturing process of the semiconductor industry requires ultrapure water at nearly every step of the production process, high standards were required to avoid any negative impact on the internal components.

To keep the highest level of purity for all contaminant types such as organic and inorganic compounds, the client needed a fully sanitary ultrapure water (UPW) loop, with the purpose of reducing the amount of Total Organic Carbon (TOC) in the applied water.

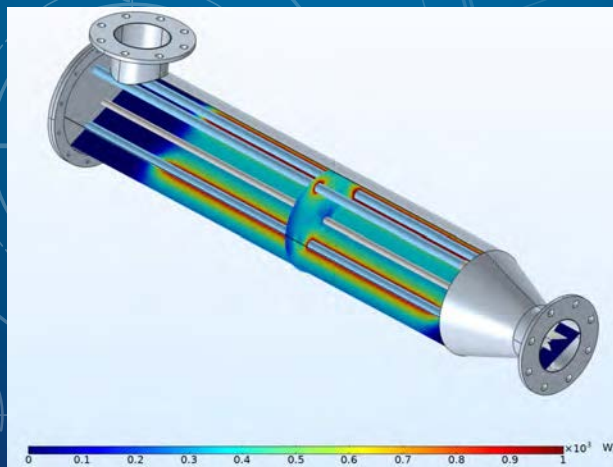
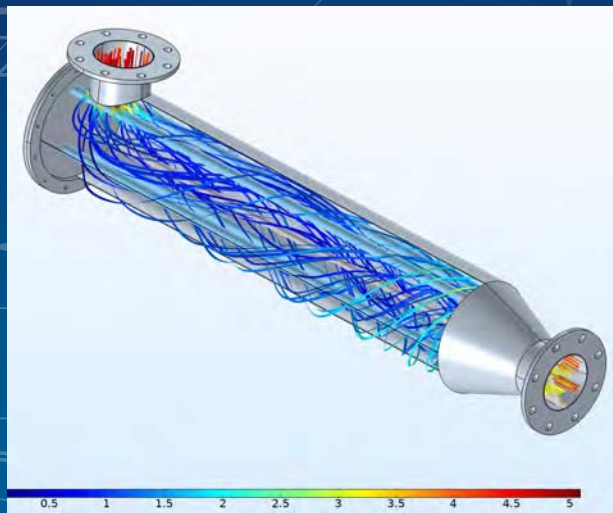
Two ULTRAAQUA UV systems were installed at the facility. The systems are active on the loop line, with one at the exit of the pumps, and the other on the return line to the storage tank.

A MR1-75SS UV system is installed on the supply line after the pumps, and a MR1-200SS TOC with UV sensor is installed on the return line just before the storage. The TOC unit utilizes vacuum UV lamps which are operating at 185nm.

The loop is PP piping, circulating 18 megaohm water prepared by UF RODP EDI into a PP storage and around through a MB polisher, with a controlled total flow rate of 5 m³/h.



A-A (1:1)



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.

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.

ULTRAAQUA
UV DISINFECTION SYSTEMS





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.

ULTRAAQUA
UV DISINFECTION SYSTEMS

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.



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.



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



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.



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.

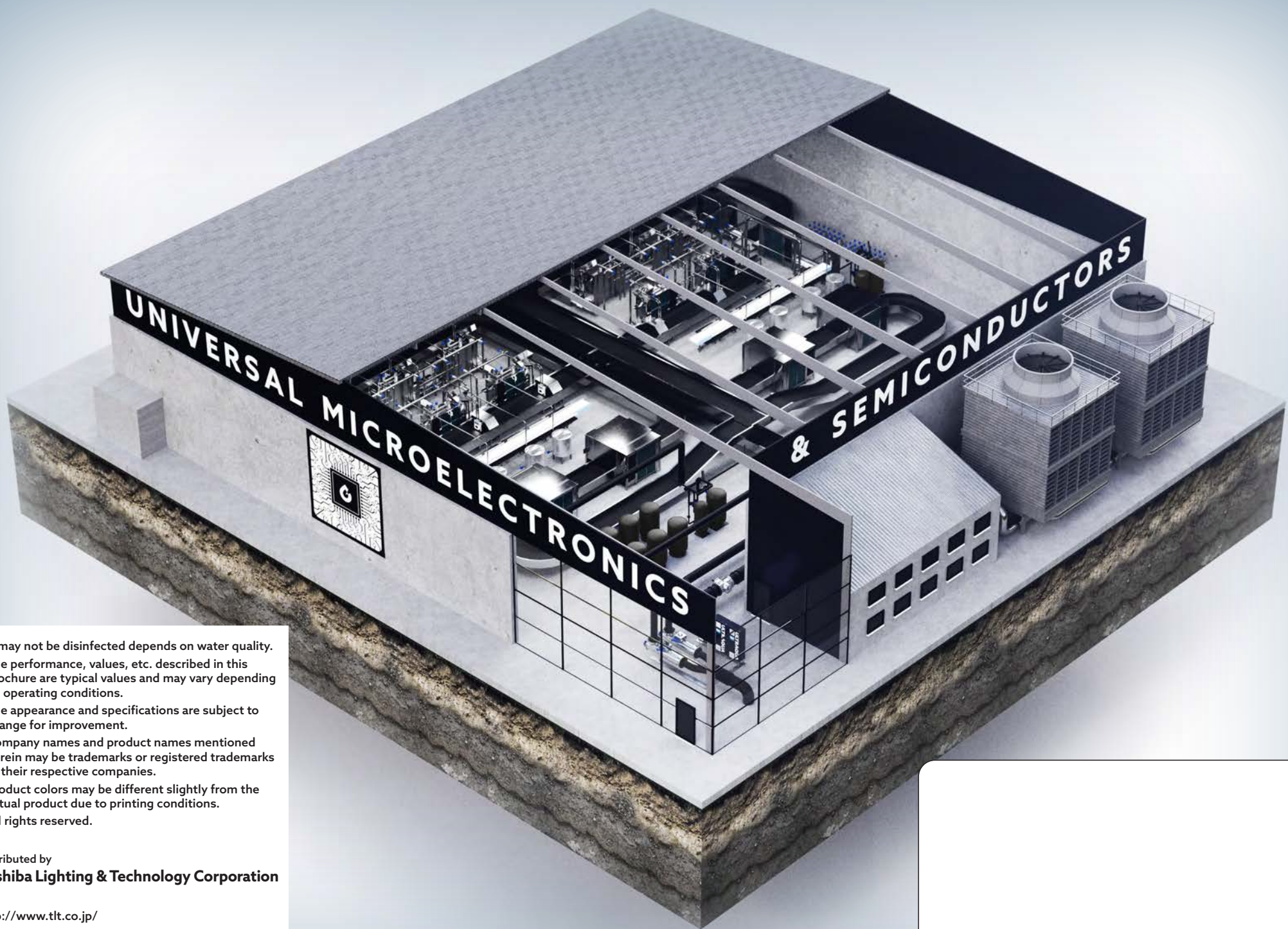
ULTRAAQUA
UV DISINFECTION SYSTEMS

PRODUCT OVERVIEW FOR MICROELECTRONICS & SEMICONDUCTORS

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



	TOC VUV SYSTEMS	LUVT LOW UVT
UV FUNCTION / APPLICATION	TOC DEGRADATION	DISINFECTION
LAMP TECHNOLOGY	LOW PRESSURE	
LAMP LIFETIME	12.000 HOURS	16.000 HOURS
REACTOR CONFIGURATION	U, L & Z SHAPE	L SHAPE
FLOW CAPACITY (SINGLE UNIT ONLY)	1 M3/H (4 GPM) – 500 M3/H (3,17 MGD)	5 M3/H (22 GPM) – 6.000 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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