OPEN CHANNEL (SS) SERIES

UV DISINFECTION • EFFICIENT AND CHEMICAL-FREE WATER TREATMENT

ULTRAQUA

UV DISINFECTION SYSTEMS

WE PROTECT YOUR MOST VALUABLE RESOURCE

Distributed by Toshiba Lighting & Technology Corporation

OPEN CHANNEL (SS) SERIES

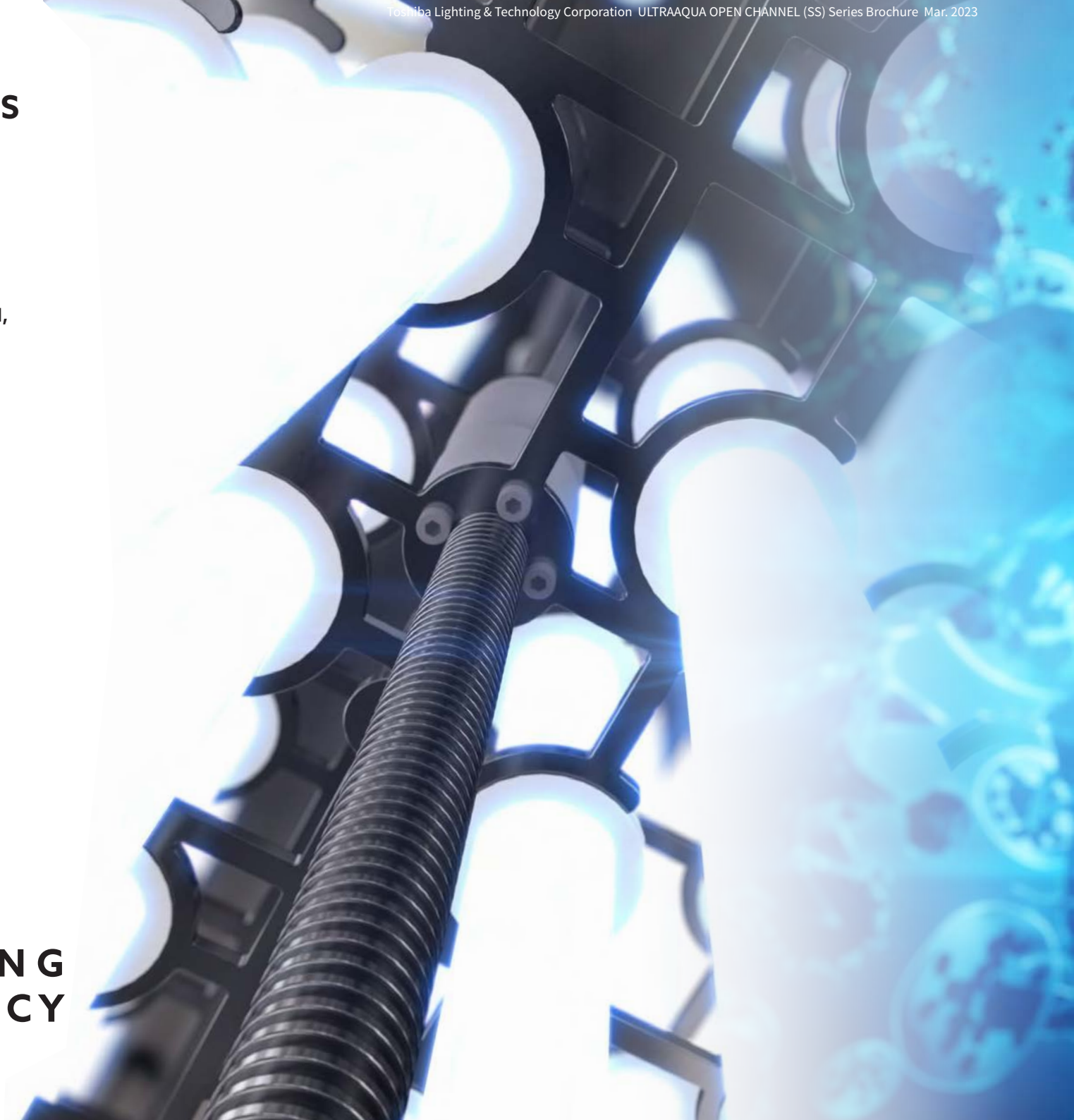
THE OPEN CHANNEL SERIES OFFERS SAFE, CHEMICAL-FREE DISINFECTION FOR A WIDE RANGE OF APPLICATIONS, AVAILABLE IN BOTH STAINLESS STEEL (SS) AND POLYPROPYLENE (PP).

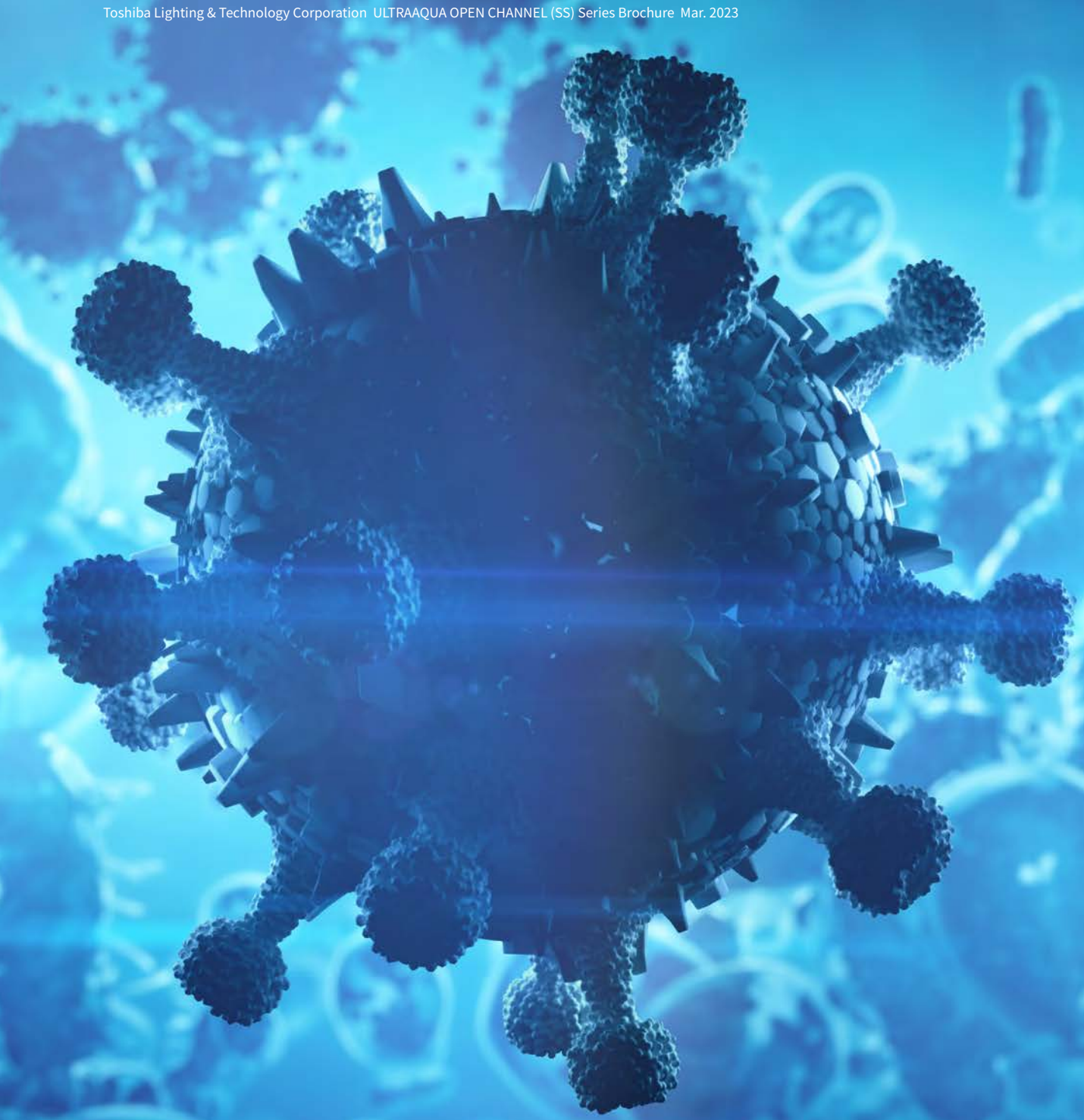
THE SYSTEMS CAN BE CUSTOMIZED TO FIT INTO VIRTUALLY ANY CHANNEL DIMENSION, IN VERTICAL OR INCLINED DESIGN.

KEY HIGHLIGHTS

- ULTRATHERM™ lamp Lifetime 16,000-hours
- Optimal design for high disinfection performance.
- Easy maintenance and installation
- Easily integrated in complex environments
- Complete control with ULTRATOUCH™ control cabinets
- Automated ULTRAWIPER™ quartz cleaning with tailored brush heads

MARKET LEADING ENERGY EFFICIENCY





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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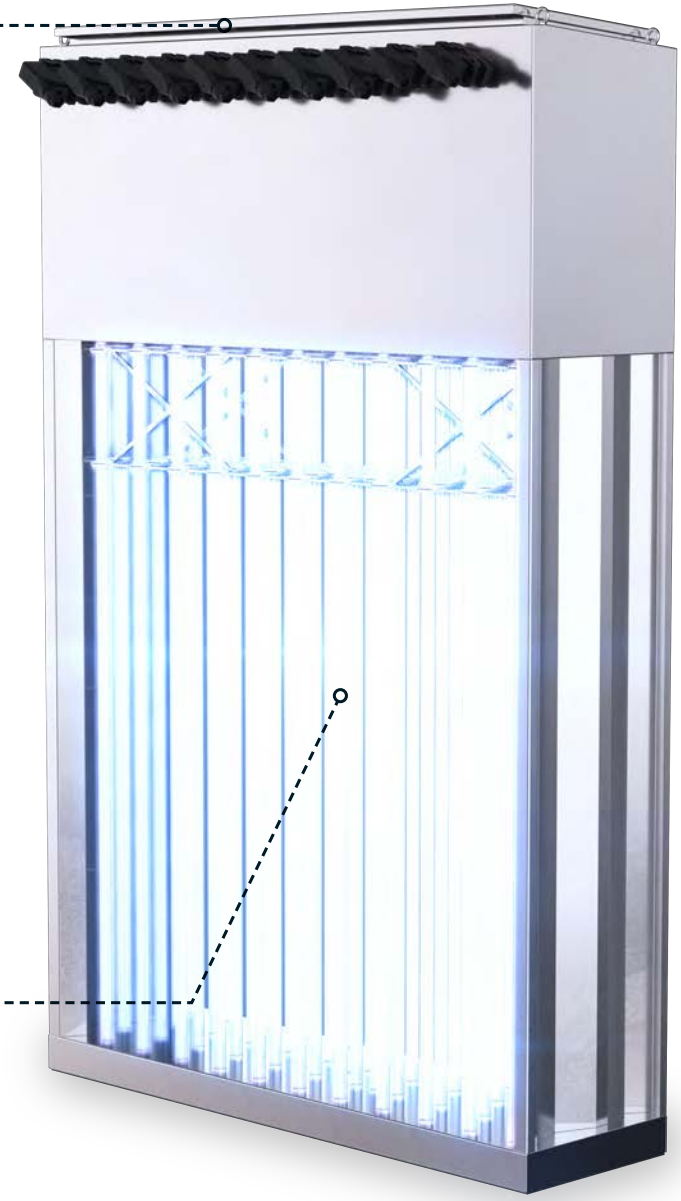
EXCELLENT INSTALLATION CONDITIONS

The innovative lamp bank design with its safe top compartment provides exceptional operational convenience, especially for large-scale projects with multiple lamp bank installations. This allows for retrofitting in various channel depths and widths, as well as being available for wall mount installation.

OPTIMIZED FOR MAXIMUM EFFICIENCY

The CFD optimized crossline lamp arrangement ensures ultimate pathogen exposure with minimized energy requirements. The safe top compartment significantly reduces the maintenance requirements, as it can be done while the UV system is submerged.



COMPLETE CONTROL WITH ULTRATOUCH™ CONTROL CABINETS

The market leading ULTRATOUCH™ PLC is the very latest in control and touch-screen HMI technology. Full data logging provides complete control to the operator, on site or remotely.

The PLC controls are easily integrated into SCADA layouts, and can be modified by our in-house software engineers.

AUTOMATIC DOSE PACING

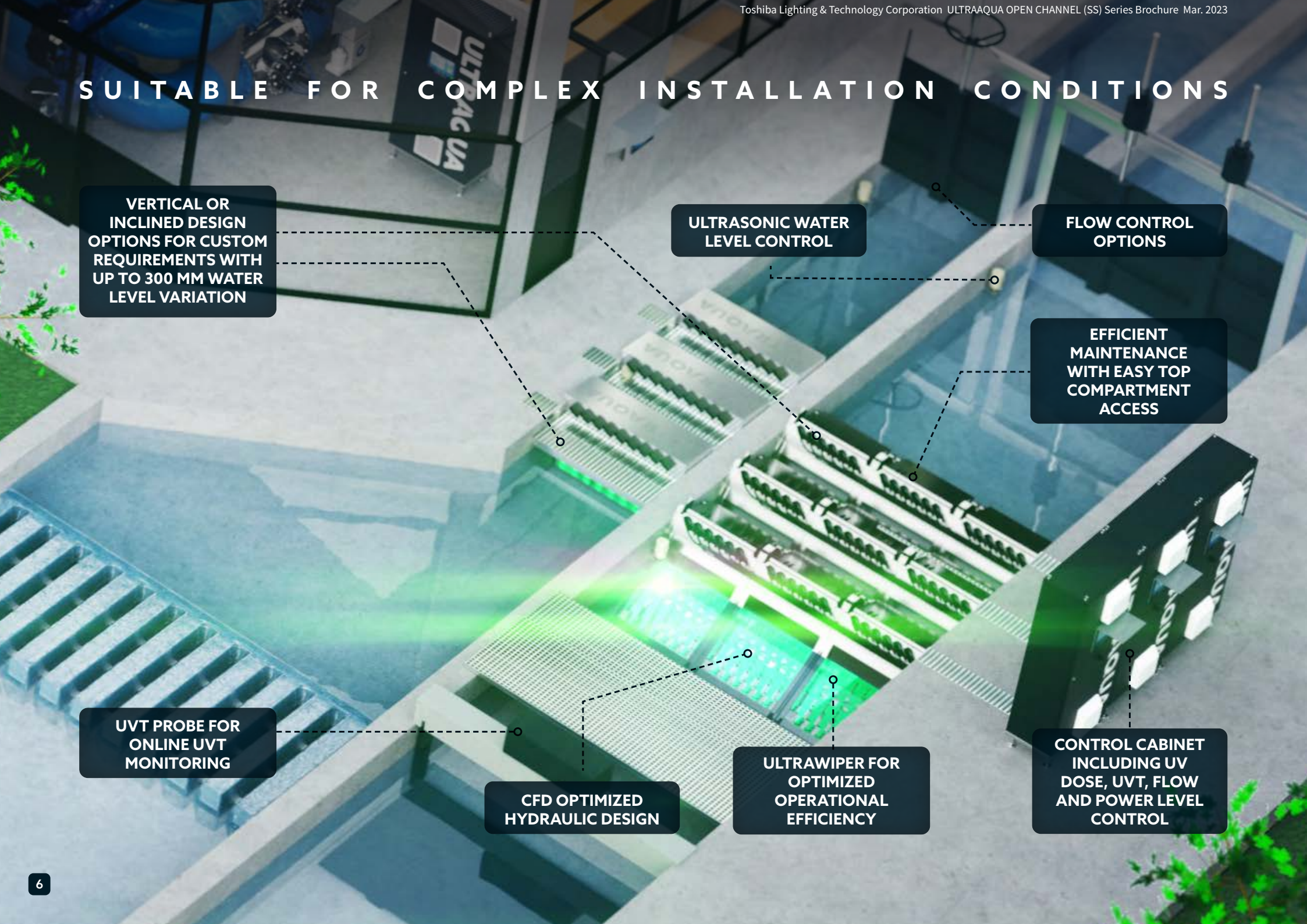
The automatic dose pacing ensures optimized efficiency by reducing power consumption while ensuring a stable dose under operation. The ability to control the power increments ensures that issues related to overdosing and temperature issues are well mitigated.

LAMP LIFETIME 16,000hours
The integrated ULTRATHERM™ lamps offer the very latest low pressure Amalgam UV lamp technology, being optimized for energy efficiency and robustness.

CUSTOMIZABLE FOR VIRTUALLY ANY REQUIREMENTS
The open channel systems allow a high level of construction versatility to treat flows of almost any size, with the inclined UV lamp bank design providing up to 30% more depth options.

CLEANING WITH TAILORED BRUSH HEADS
The automatic sleeve wiping mechanism keeps both the quartz sleeves and the UV sensor clean while preventing harsh fouling. Keeping the quartz sleeves clean at all times contributes to a consistent and stable disinfection process.

SUITABLE FOR COMPLEX INSTALLATION CONDITIONS



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.

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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
- Advanced 24-hour support upon agreement
- 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.

DATASHEET - OPEN CHANNEL

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

SYSTEM CHARACTERISTICS

LAMP CONFIGURATION	Vertical
MATERIAL	Electropolished SS 316L, Super Duplex
CONFIGURATION	Modular
PRESSURE RATING	Gravitational
FLOWRATES	5 m3/h (22 GPM) – 16 000 m3/h (100 MGD)
UV TRANSMISSION (UVT%)	20 – 100%
LAMP TYPE	ULTRATHERM™ Low-Pressure High Output (LPHO)
LAMP LIFETIME	16,000 hours

CONTROL CABINET CHARACTERISTICS

ENCLOSURE MATERIAL	Painted Steel, SS304, SS316L, GFRP
UV INTENSITY SENSOR	ÖNORM Certified, PTFE, 360 Degrees
SLEEVE WIPING	Automatic ULTRAWIPER™
SCADA CONNECTION	Profibus, Profinet, MODBUS TCP/IP
ENCLOSURE RATING	IP54, IP65
LAMP DRIVER TYPE	Electronic Variable Output
SYSTEM VOLTAGE	1x230V, 3x400V+N+Pe +/- 10%, 47-63Hz (Other Optional)
UV DOSE PACING	Standard

DATASHEET - INCLINED OPEN CHANNEL

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

SYSTEM CHARACTERISTICS

LAMP CONFIGURATION	Inclined
MATERIAL	Electropolished SS 316L, Super Duplex
CONFIGURATION	Modular
PRESSURE RATING	Gravitational
FLOWRATES	5 m3/h (22 GPM) – 16 000 m3/h (100 MGD)
UV TRANSMISSION (UVT%)	20 – 100%
LAMP TYPE	ULTRATHERM™ Low-Pressure High Output (LPHO)
LAMP LIFETIME	16,000 hours

CONTROL CABINET CHARACTERISTICS

ENCLOSURE MATERIAL	Painted Steel, SS304, SS316L, GFRP
UV INTENSITY SENSOR	ÖNORM Certified, PTFE, 360 Degrees
SLEEVE WIPING	Manual, Automatic ULTRAWIPER™
SCADA CONNECTION	Profibus, Profinet, MODBUS TCP/IP
ENCLOSURE RATING	IP54, IP65
LAMP DRIVER TYPE	Electronic Variable Output
SYSTEM VOLTAGE	1x230V, 3x400V+N+Pe +/- 10%, 47-63Hz (Other Optional)
UV DOSE PACING	Optional

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 has 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.

TECHNOLOGY OVERVIEW & VALIDATIONS

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.

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.

- 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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