Spektron UV Series

SHINING NEW LIGHT ON DRINKING WATER DISINFECTION

WEDECO

a xylem brand

Let’s disinfect drinking water, no matter what.

Featuring highly efficient UV lamps and advanced flow distribution technology, the Spektron series is a cost effective, reliable solution for drinking water plants.

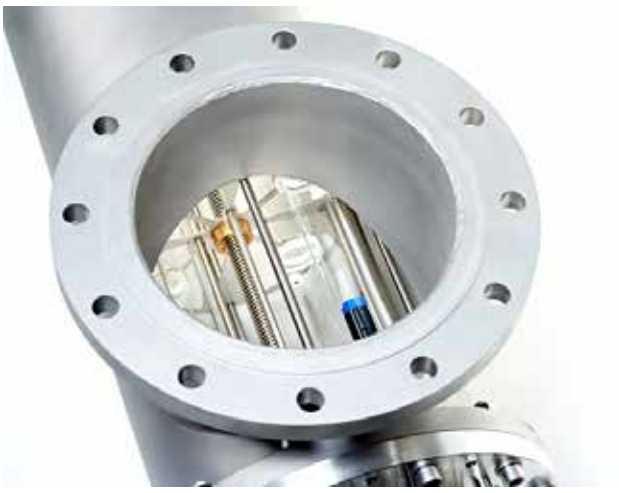
» **Wide array of applications** from domestic water supply and industrial uses to large municipal water plants with a capacity of more than 4,000 m3/h (25 MGD) per unit

» **Certified and validated disinfection performance** according to Austrian ÖNORM, German DVGW directives, and US EPA´s UV Disinfection Guidance Manual (UVDGM)

» **Low energy consumption** with low-pressure high-output amalgam lamps and optimized hydraulic conditions. Additional 20% energy savings are possible with the latest Ecoray® UV lamps and ballasts and OptiDose UV dose pacing for Spektron ‘e’ units

» **Excellent performance monitoring** by latest sensor technology and sophisticated control system

» **Easy installation** with multiple flange and mounting options no matter what inlet piping conditions

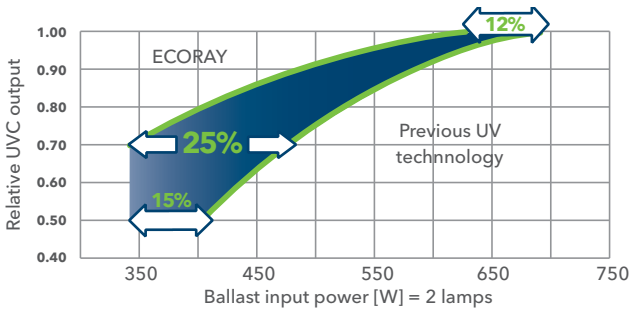


The optional chemical-free wiping system of Spektron ‘e’ units maximizes efficiency and reduces manual cleaning needs with poor drinking water qualities as low as 70% UV transmittance (UVT)

Wedeco Ecoray technology
Wedeco Ecoray technology perfectly matches UV lamps and ballast to deliver the highest efficiency, longer lamp life, shorter warm-up time and excellent dimming mode properties to the job.

Ecoray lamp and ballast technology gives higher relative UVC output than conventional low-pressure, amalgam UV lamps when operated in dimmed mode. By automatically dimming the lamps to match the dosage you need, you save energy from improved efficiency during the majority of operating conditions.

The Ecoray 600 watt (W) lamps offer the additional benefit of reduced lamp count by up to 60 percent, resulting in low life cycle costs and easy maintenance. Thanks to reduced mercury content, Ecoray lamps are also more stable and sustainable - an environmentally friendly feature of Spektron 'e' units that can help reduce your carbon footprint.



Water disinfection by means of UV technology is the process of inactivating microorganisms due to partial photo oxidation of the organism's DNA. UV radiation alters the DNA in the cells and stops their ability to reproduce. More than 99.99 % of all pathogens can be rendered harmless in a fraction of a second.

UV disinfection has been proven effective against all pathogens, including parasites (e.g. *Cryptosporidium* and *Giardia*), bacteria (e.g. *E. coli, Salmonella* Typhi, *Vibrio cholerae*, *Pseudomonas aeruginosa*) and viruses (e.g. Poliovirus, Norovirus and Rotavirus) without affecting the taste or odor of the water.

UV technology is safer for your employees, your community, and the environment. UV disinfection eliminates the risks associated with on-site storing and handling of hazardous chemicals, keeping your treatment plant and the surrounding community protected from accidental leaks.

UV inactivates up to 4-log of pathogens without adding harmful chemicals to the water and prevents by-product formation such as Trihalomethanes (THMs) or Haloacetic acids (HAAs) formed by chlorination.

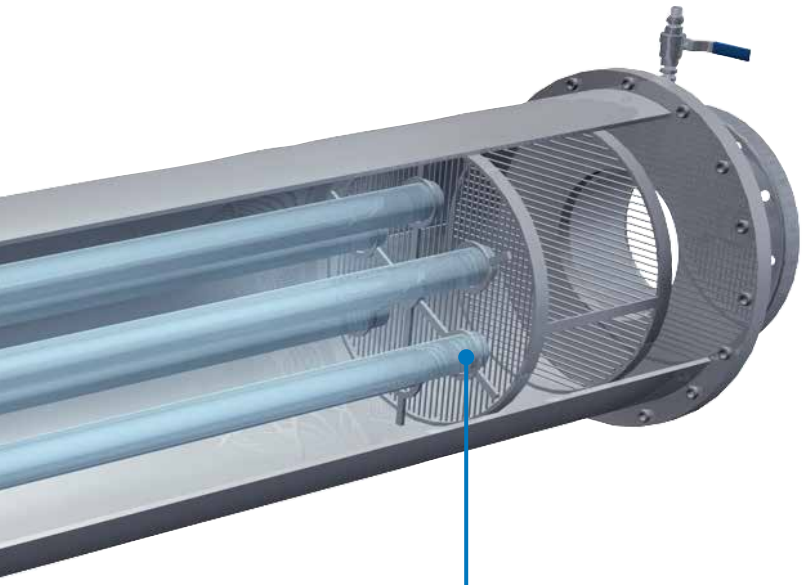
More features.
Less compromises.

Irradiation chamber
The UV lamps are installed parallel to the flow in quartz glass tubes. The water runs past the quartz tubing and is irradiated by the UV light.

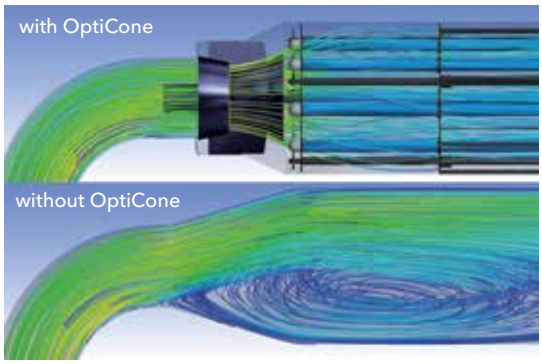
Multiple flange options make the systems a good fit for a wide range of flow rates and installation requirements.

Leading sensor technology
The UV performance is continuously monitored by an ÖNORM compliant UV sensor that fulfils reference sensor requirements.
The sensor also contributes to the OptiDose UV dose pacing which modulates UV lamp output to the actual level needed to meet the UV dose required (option for Spektron ‘e’ units). This avoids over dosage and reduces overall operating cost without compromising disinfection performance.

Ballast & control cabinet
The control cabinet houses the ballast cards and monitoring and control features. Customer interface signals allow for remote diagnostics and control. Spektron units are equipped with the unique EcoTouch controller featuring an easy-to-use operator touch panel that unifies all sensor signals, SCADA connectivity, and OptiDose closed loop control to maximize operator usability.



Optimized hydraulics for every installation
Optimal disinfection results require uniform velocities throughout the reactor chamber. The Wedeco flow distribution concept is the result of intensive development work using complex Computational Fluid Dynamics (CFD) simulations. The OptiCone flow diverter ensures optimal disinfection performance independent of the inlet situation, while also maintaining low water head loss.



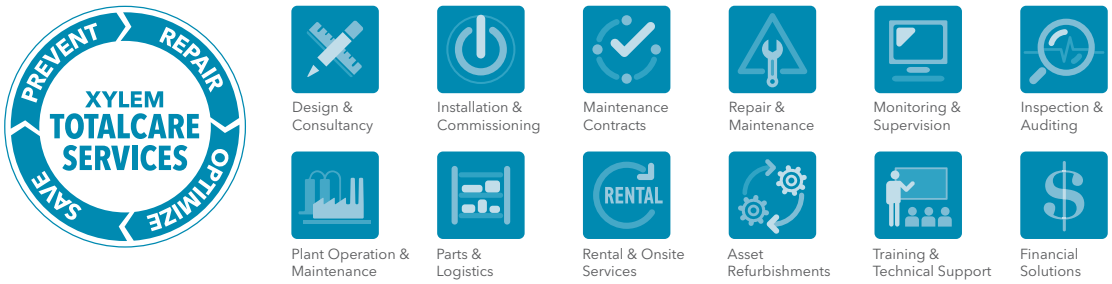
Know-how in treatment technology.

You can rely on the know-how of our engineers and technicians to help you choose the right system for your needs. All recommendations for the design of your system are based on many years of experience, complex calculation methods, and take account of local validation and certification standards.

Our broad knowledge and unrivalled expertise in the field of disinfection along with our full range of highly developed Wedeco UV systems make Xylem a reliable partner for the application of UV technology in the treatment of drinking water.

TotalCare Services
Our global network of local service centers and partners offer comprehensive service to support secure, efficient and reliable operation. Our first priority is to support you and to maintain your systems for the duration of their service life. This is reflected in our solutions, which include proactive maintenance activities, thereby increasing the reliability of your UV system and optimizing its energy consumption.

Two Spektron 650e UV disinfection systems.



Xylem TotalCare is a comprehensive, integrated portfolio of services designed to ensure that your water and wastewater equipment keeps running at its best. Our team of knowledgeable and highly skilled technicians pride themselves on their ability to help customers optimize their operations by providing the right solution every time.

Technical Data.

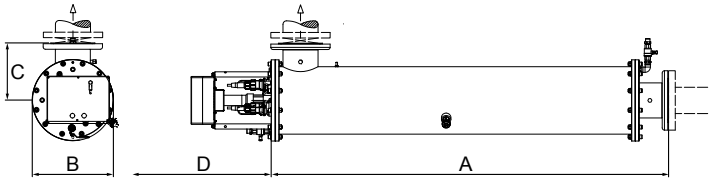
Model #	3	6	15	25	30e	50e	90e	180e	250e	350e	650e	900e	2000e	4000e
UV transmittance range in % (1cm)	70 - 98													
Maximum flow rate (m^3/h / MGD) *	2.9 / 0.02	6.6 / 0.04	20 / 0.13	36.8 / 0.23	49 / 0.31	101 / 0.64	152 / 0.96	223 / 1.41	390 / 2.47	670 / 4.25	1247 / 7.9	1795 / 11.38	2100 / 13.3	4156 / 29
DVGW certification	Yes				No	Yes								
ÖNORM certified & validated	Yes											No		
UVDGM validated	No								Yes					

UV Lamps and Monitoring System														
Lamp technology	Spektrotherm				Ecoray low-pressure high-output									
Power per lamp (W)	40	70	210	300	290		230	290					600	
Number of lamps	1				2	3		4	6	8	12		24	
Lamp certification	3rd party on aging and UV-C output													
UV intensity monitoring	Germicidal, ÖNORM compliant													
Individual lamp monitoring	Yes													

UV Reactor														
Protection class	IP 65				IP 65 / NEMA 4X									
Flow diverter	Integrated				OptiCone									
Cleaning system	Manual				Automatic, mechanical (optional)									
Reactor material	Stainless steel 1.4404 / 1.4435 (ASTM 316L)													
Flange sizes (DN / ANSI)	1 1/2"	2"	65	80	80/3"	100/4"	125/5"	150/6"	200/8" 300/12"	250/10" 350/14"	300/12" 450/18"	350/14" 500/20"	500/20"	700/28"
Dimensions (A) (mm / Inch) **	650 / 25,6	1000 / 39,4	1340 / 52,8	1660 / 63,4	1660 / 65,4	1665 / 65,6	1607 / 63,3	2010 / 79,1	2061 / 81,1	2283 / 89,9	2501 / 98,5	2389 / 94,1	2711 / 106,7	2732 / 107,6
Dimensions (B) (mm / Inch) **	168 / 6,6	168 / 6,6	168 / 6,6	168 / 6,6	210 / 8,3	278 / 10,9	390 / 15,4	390 / 15,4	470 / 18,5	525 / 20,7	725 / 28,5	725 / 28,5	883 / 34,8	1093 / 43,0
Dimensions (C) (mm / Inch) **	125 / 4,9	125 / 4,9	170 / 6,7	175 / 6,9	175 / 6,9	227 / 8,9	275 / 10,8	275 / 10,8	340 / 13,4	353 / 13,9	450 / 17,7	470 / 18,5	580 / 22,8	777 / 30,6
Dimensions (D) (mm / Inch) **	600 / 23,6	950 / 37,4	1380 / 54,3	1640 / 64,6	1800 / 70,9	1800 / 70,9	1500 / 59,1	1800 / 70,9	2100 / 82,7	2300 / 90,6	2300 / 90,6	2300 / 90,6	2300 / 90,6	2300 / 90,6
Maximum operating pressure (bar/PSI) ***	10 / 145													

UV System Control Cabinet														
Ballast type	Electronic, constant output (100% power)				Electronic, high-efficiency, variable output (50 to 100% power)									
Controller	EcoTouch				EcoTouch or PLC									
Materials of construction	Painted sheet steel or Stainless steel													
Electrical standards	CE				CE, UL, cUL									
Common outputs	System Status, Lamp Status, Alarm Messages, Process Values													
Scada communication	Yes (option)													
Protection class	IP 54				IP 54 / cUL Type 12 (Type 4X optional)									
Supply voltage	For models 30e-250e: CE: 230V +/- 10%, 50 Hz (L,N,PE (GND)) UL/cUL: 120/240V +/- 10%, 60Hz (L,N,PE (GND)) For models 3-25: CE: 230V +/- 10%, 50 Hz (L,N,PE (GND))									CE: 400/230 +/- 10%, 50 Hz (TN-S Net) UL/cUL: 480/277 +/- 10%, 60 Hz (5 Wire WYE; L1,L2,L3,N,PE (GND))				
Power consumption (kW) approx.	0.055	0.09	0.42	0.53	0.53	0.85	1.0	1.18	1.5	2.2	2.8	4.0	8.4	16.6

* At 98% UVT, 400 J/m² EOL (end of lamplife)
** Vessel dimensions are approximate and will differ depending on flange size
*** Additional pressures available



Xylem |'zīləm|

1) The tissue in plants that brings water upward from the roots
2) A leading global water technology company

We're a global team unified in a common purpose: creating innovative solutions to meet our world's water needs. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. We move, treat, analyze, and return water to the environment, and we help people use water efficiently, in their homes, buildings, factories and farms. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise, backed by a legacy of innovation.

For more information on how Xylem can help you, go to xyleminc.com

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Let's Solve Water

Xylem, Inc.
14125 South Bridge Circle
Charlotte, NC 28273
Tel 704.409.9700
Fax 704.295.9080
855-XYL-H2O1 (855-995-4261)
www.xylem.com/treatment

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