

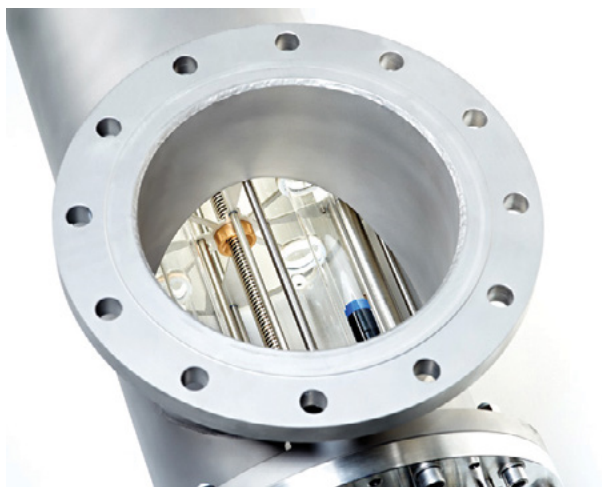
Spektron UV Series

SHINING NEW LIGHT ON DRINKING WATER DISINFECTION

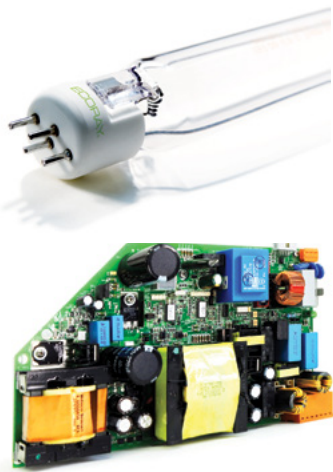
Let's disinfect drinking water, no matter what.

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 (Spectrotherm) 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 regardless of inlet piping conditions



The optional chemical-free wiping system of most (2e 5e and 10e are unwiped only) Spektron 'e' units maximizes efficiency and reduces manual cleaning needs with poor drinking water qualities as low as 70% UV transmittance (UVT)



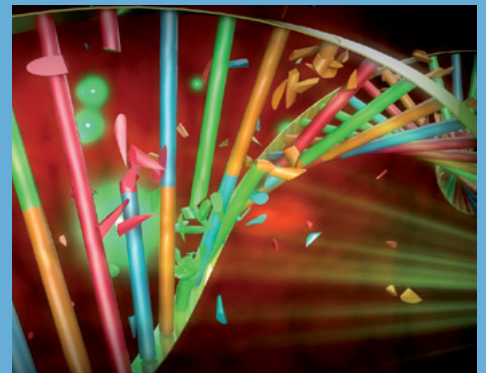
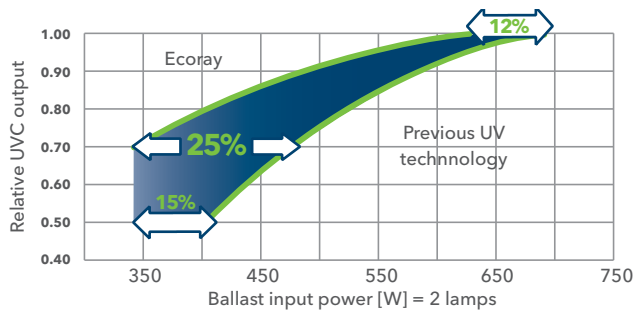
Wedeco Ecoray technology

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.



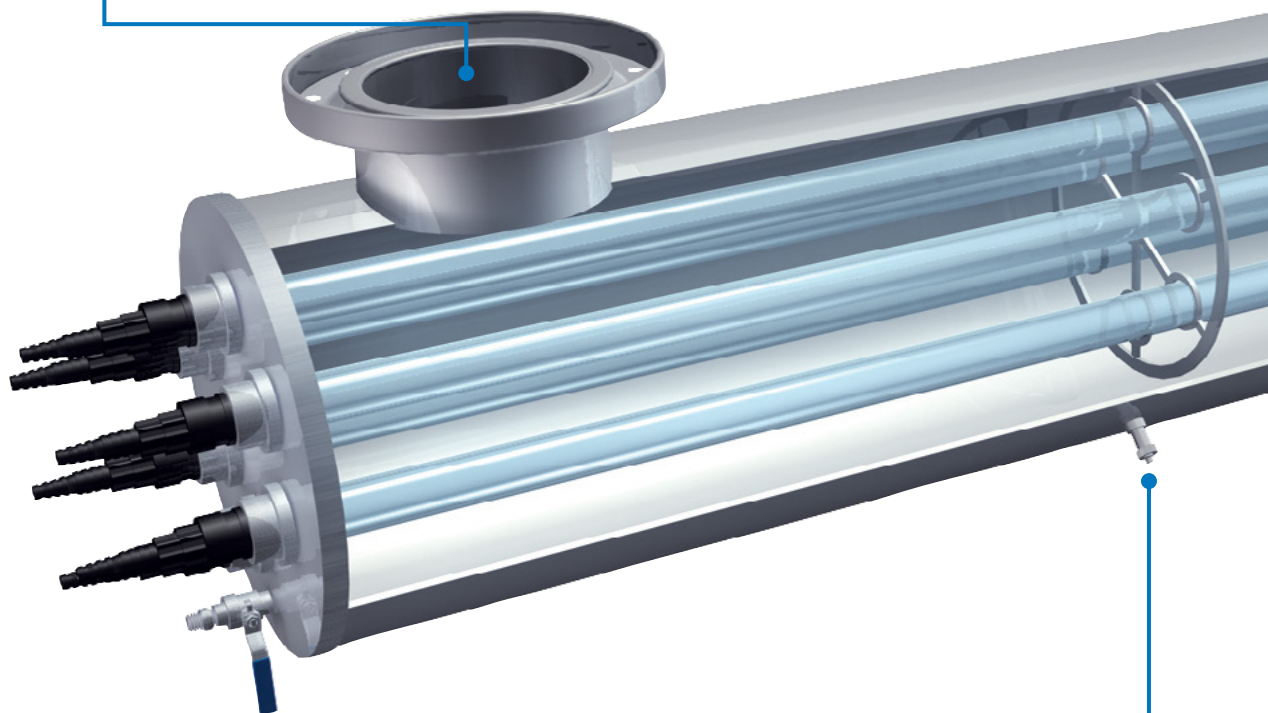
More features. Less compromises.



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.

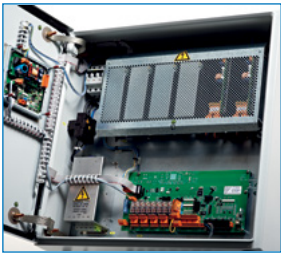
Multiple flange options make the systems a good fit for a wide range of flow rates and installation requirements.



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

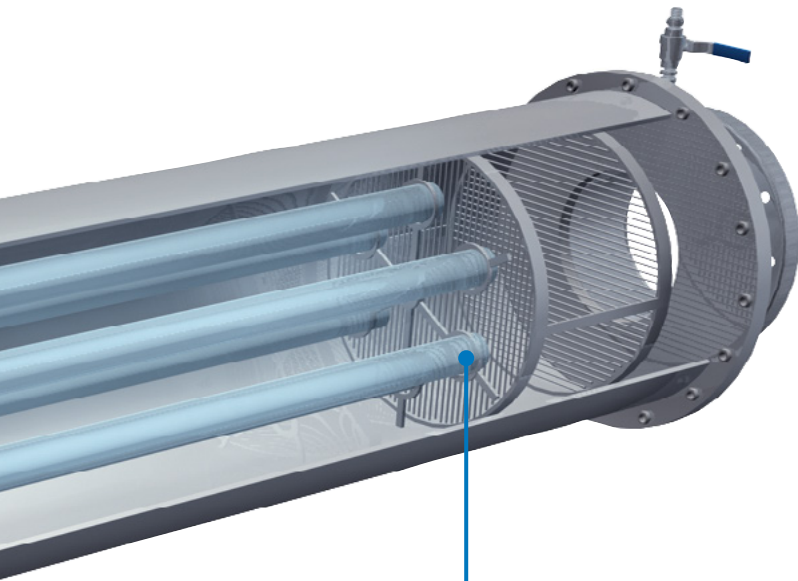
spacing which modulates UV lamp output to the actual level needed to meet the UV dose required (option for Spektron 'e' units). This avoids over dosage and reduces overall operating cost without compromising disinfection performance.



Ballast and control cabinet

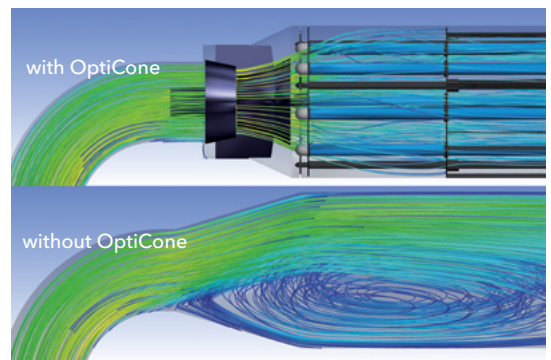
The control cabinet houses the ballast cards and monitoring and control features. Customer interface signals allow for remote diagnostics and control. Spektron units are equipped

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.



Technical Data.

Model #	2e	5e	10e	15	25	30e	50e	75e	90e	180e	250e	350e	650e	900e	2000e	4000e	
UV transmittance range in % (1cm)	70-98								60-98	70-98							
Maximum flow rate (m ³ /h / MGD) *	6.6/0.04	10/0.07	18/0.12	20/0.13	42/0.23	49/0.31	101/0.64	130/0.84	152/0.96	223/1.41	390/2.47	670/4.25	1,247/7.9	1,795/11.38	3,020/13.3	6,032/29	
DVGW certification	Yes					No			Yes								
ÖNORM certified & validated	Yes								No								
UVDGM validated	No										Yes						

UV Lamps and Monitoring System

Lamp technology	Ecoray low-pressure high-output			Spekthrotherm		Ecoray low-pressure high-output										
Power per lamp (W)	50	70	120	210	300	290			230	290						600
Number of lamps	1					1	3	4	3	4	6	8	12		24	
UV intensity monitoring	Germicidal, ÖNORM compliant															
Individual lamp monitoring	Yes															

UV Reactor

Protection class	IP 65					IP 65 / NEMA 4X		IP 54	IP 65 / NEMA 4X								
Flow diverter	Integrated							No	OptiCone								
Cleaning system	Manual					Automatic, mechanical (optional)											
Reactor material	Stainless steel 1.4404 / 1.4435 (ASTM 316L)																
Flange sizes (DN / ANSI)	40	50	65	65	80	80/3"	100/4"	150/na	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)**	430/16.9	520/20.5	770/30.3	1340/52.8	1660/63.4	1660/65.4	1665/65.6	1530/60.3	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)**	170/6.7	170/6.7	170/6.7	168/6.6	168/6.6	210/8.3	278/10.9	215/8.5	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)**	115/4.5	125/4.9	130/5.1	170/6.7	175/6.9	175/6.9	227/8.9	250/9.8	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)**	450/19.7	550/21.7	750/29.5	1380/54.3	1640/64.6	1800/70.9	1800/70.9	1700/67.0	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)***	16/232					10/145											

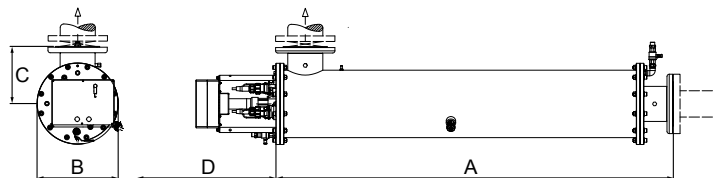
UV System Control Cabinet

Ballast type	Electronic, constant output (100% power)					Electronic, high-efficiency, variable output (50 to 100% power)											
Controller	EcoTouch					EcoTouch or PLC			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	EcoTouch or PLC																
Protection class	IP 65			IP 54		IP 54 / cUL Type 12 (Type 4X optional)											
Supply voltage	CE: 1 L/N/PE, 230V +/-10%, 50-60Hz(TNS net, TN-C net)					CE: 1 L/N/PE (GND), 230V +/-10%, 50-60Hz cUL: 1 L/N/PE (GND), 120V/240V +/-10%, 60Hz						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.	0.1	0.12	0.17	0.42	0.53	0.38	0.7	1.34	.78	1.03	1.34	2.2	2.8	4.0	7.6	15.1	

* At 98% UVT, 400 J/m² EOL (end of lamplife)

** Vessel dimensions are approximate and will differ depending on flange size

*** Additional pressures available



Model #	15i	30i	50i	90i
UV transmittance range in % (1cm)	70-98%			
Maximum flow rate (m ³ /h / MGD) *	29/ 0.19	48/ 0.31	101/ 0.66	152/ 0.99
DVGW certification	Based on DVGW-tested design			
ÖNORM certified & validated	No			
UVDGM validated	No			

UV Lamps and Monitoring System				
Lamp technology	Ecoray low-pressure high-output			
Power per lamp (W)	230	290	290	230
Number of lamps	1	1	2	3
UV intensity monitoring	Germicidal, ÖNORM compliant			
Individual lamp monitoring	Yes			

UV Reactor				
Protection class	IP 65			
Flow diverter	No			
Cleaning system	Manual			
Reactor material	Stainless steel 1.4404 / 1.4435 (ASTM 316L)			
Flange sizes (DN)	65	80	100	125
Dimensions (A) (mm / Inch) **	1340/ 52.8	1660/ 65.4	1660/ 65.4	1610/ 63.4
Dimensions (B) (mm / Inch) **	169/ 6.7	169/ 6.7	204/ 8.0	390/ 15.4
Dimensions (C) (mm / Inch) **	170/ 6.7	175/ 6.9	228/ 9.0	275/ 10.8
Dimensions (D) (mm / Inch) **	1380/ 54.4	1800/ 70.9	1800/ 70.9	1500/ 59.1
Maximum operating pressure (bar/PSI) ***	10/145			

UV System Control Cabinet				
Ballast type	Electronic, high-efficiency, variable output (50 to 100% power)			
Controller	EcoTouch			
Materials of construction	Stainless steel			
Electrical standards	CE			
Common outputs	System status, Lamp status, Alarm messages, Process values			
Scada communication	Yes			
Protection class	IP 65			
Supply voltage	230 V, 50-60 Hz, (TN-S net, TN-C net) L1, N, PE (GND)			
Power consumption (kW) approx.	0.35	0.38	0.7	0.78

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 and 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 disinfection 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 operations. 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 |'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 advanced technology solutions to the world's water challenges. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. Our products and services move, treat, analyze, monitor and return water to the environment, in public utility, industrial, residential and commercial building services, and agricultural settings. With its October 2016 acquisition of Sensus, Xylem added smart metering, network technologies and advanced data analytics for water, gas and electric utilities to its portfolio of solutions. 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 with a strong focus on developing comprehensive, sustainable solutions.

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



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www.bbtec.com.vn



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