

WEDECO · OPEN-CHANNEL UV DISINFECTION FOR WASTEWATER AND REUSE

WEDECO TAK 55

Modular open-channel UV system for municipal wastewater and reuse, from 500 m³/h to very large plants with thousands of lamps.



Overview

WEDECO TAK 55 is a modular UV system installed in the effluent channel of a wastewater treatment plant. Its lamp modules, with Ecoray lamps arranged parallel to the flow, are built up into banks and channels to suit practically any flow, from small plants to very large ones. The system is validated to both NWRI and the US EPA UVDGM and has California Title 22 approval for water reuse. A validated dose design fits the system to the water quality, operating conditions and discharge limits of each site.

Ozone UV Solutions supplies TAK 55 systems as an authorised WEDECO reseller and supports them locally: sizing, installation, commissioning, servicing, lamps and spare parts.

Key features

- Validated to the US EPA UVDGM (2006), the IUVA protocol (2011) and NWRI guidelines (2003/2012), including California Title 22 acceptance
- Ecoray low-pressure high-output amalgam lamps, 50–100% power, rated lamp life up to 14,000 hours
- OptiDose dose control with an ÖNORM-certified UV intensity sensor built into the module
- Fully automatic, chemical-free wiping with PTFE wiper rings; wiping frequency adjustable to the effluent
- Customisable layout: channel size, number of channels and banks, lamps per module and lamp spacing
- Ballasts in separate control cabinets away from the channel; EcoTouch or PLC control with SCADA communication

Design and operation

Lamp modules

The modules are hydraulically optimised and packed with a compact lamp arrangement, giving high UV power in a small space and secure performance even at high flows and low UV transmittance. One connector carries power, sensor signals and compressed air for the wiper and releases quickly for maintenance. Lifting a module out of the channel switches its lamps off automatically.

Lamps, ballasts and dose

Ecoray lamps emit at 254 nm and run between 50% and 100% power on matched electronic ballasts. In dimmed mode they save up to 20% energy on average and use up to 80% less mercury than the previous lamp generation. OptiDose measures flow, UVT and UV intensity in real time and sets power to the minimum needed for the dose.

Hydraulics and water level

Baffle plates upstream of the UV banks spread the flow evenly across the lamps and protect them from solids. Motorised penstocks with level sensors, or fixed weirs, hold a constant water level with low head loss and without the wave build-up that flap gates can cause.

Maintenance

Lamps, quartz sleeves and wiper rings are changed with a clip mechanism, without special tools and without dismantling the module. Modules lift out individually with a lift, or a whole bank at once in a bank magazine [option]. Electronics are in separate cabinets with front access [cooling for hot climates].



Typical applications

- Final disinfection of primary, secondary or tertiary municipal wastewater
- Water reuse, including California Title 22 applications
- Large and very large treatment plants, built up channel by channel
- Aquaculture water

Supplied and supported by Ozone UV Solutions

System selection and UV dose sizing · Installation and commissioning · PLC/SCADA integration · Planned servicing and lamp changes · Genuine WEDECO lamps, spare parts and consumables · 24/7 technical support line
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Model selection

TAK 55 is designed for each plant rather than chosen from fixed models. The system is sized with a validated dose design to your flow, water quality and discharge requirements, so it is neither over- nor undersized. These are the elements we configure:

System configuration

Design element	Options
Channels	Number of channels, channel width and depth to suit the site
UV banks	Number of banks per channel; standby capacity if required
UV modules	Number and arrangement of modules; number of lamps per module
Lamp spacing	Several spacing options to suit the water quality
Water level control	Motorised penstocks with level sensors, or fixed weirs
Module handling	Individual lifting, or [bank magazine for a whole bank]
Control cabinets	Separate cabinets for ballasts and controls · [cooling system]

Options are shown in [square brackets]. TAK 55 serves flows from about 500 m³/h (3 MGD) to well over 100 MGD (15,800 m³/h).

Common specifications

UV LAMPS & MONITORING	
Lamp type	Ecoray low-pressure high-output (LPHO) amalgam, 254 nm
Rated lamp life	Up to 14,000 hours
Power control	Electronic Ecoray ballasts, continuously variable 50–100%
UV monitoring	Calibrated UV intensity sensor, ÖNORM certified, integrated in the module and cleaned automatically
Dose control	OptiDose: real-time flow, UVT and UV intensity
Validation	US EPA UVDGM (2006) · IUVA protocol (2011) · NWRI (2003/2012), Title 22 acceptance
UV MODULES & CHANNEL	
Installation	Concrete open channel, lamps parallel to the flow
Sleeve cleaning	Fully automatic, pneumatic, PTFE wiper rings, chemical-free; adjustable frequency
Module connection	Single quick-release connector: power, sensor signals, compressed air
Operator safety	Trigger switch turns the lamps off when a module is removed
Flow and level	Baffle plates upstream · motorised penstocks or fixed weirs downstream
CONTROL CABINET	
Controller	EcoTouch or PLC · local or remote monitoring
Outputs / SCADA	SCADA communication; data acquisition and transmission to client specification
Cabinets	Separate from the channel, front access · [cooling system for heavy load or hot ambient conditions]

Request sizing or a quote

Send us your peak and average flow, effluent UV transmittance, the required dose or discharge standard and your channel layout. We will size the TAK 55 system and quote supply, installation and ongoing service. We also service existing TAK 55 installations.

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Specifications subject to change without notice.