

UV Disinfection Systems – LBX Series

Environmentally friendly disinfection for liquids with low UV transmittance



WEDECO LBX UV-System with electrical cabinet and automatic wiping system

Background: Installation of LBX units for waste water disinfection in Cassano, Italy

ADVANTAGES

- Max. disinfection performance at low UV transmittance
- Effective, environmentally friendly inactivation of harmful bacteria, viruses, yeasts and parasites
- No toxic by-products (e.g. THM by using chlorination)
- Compact design
- Superior UV lamp technology
- Automatic quartz sleeve wiping system available
- Vario system for continuously adjustable control of the UV output (Spekthrotherm®HP lamp)
- Continuous system monitoring using a highly selective calibrated UV sensor

The LBX series fulfils all the requirements for safe, economical and environmentally friendly disinfection of liquids with low UV transmittance:

- Waste water / grey water
- Drinking water
- Process water
- Sugar syrup

The LBX series combines the WEDECO Spekthrotherm®HP UV lamp with a hydraulically optimised reactor chamber. In order to effectively treat liquids with a low UV transmittance, the lamps are positioned very close to one another in a so-called “thin-film” design. Electronic ballasts configured specifically for the Spekthrotherm®HP UV lamps are used to increase efficiency and lamp lifetime. The result is an extremely compact design, improved economy and maximum disinfection performance even for challenging liquids of lower quality.



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WEDECO LBX system components



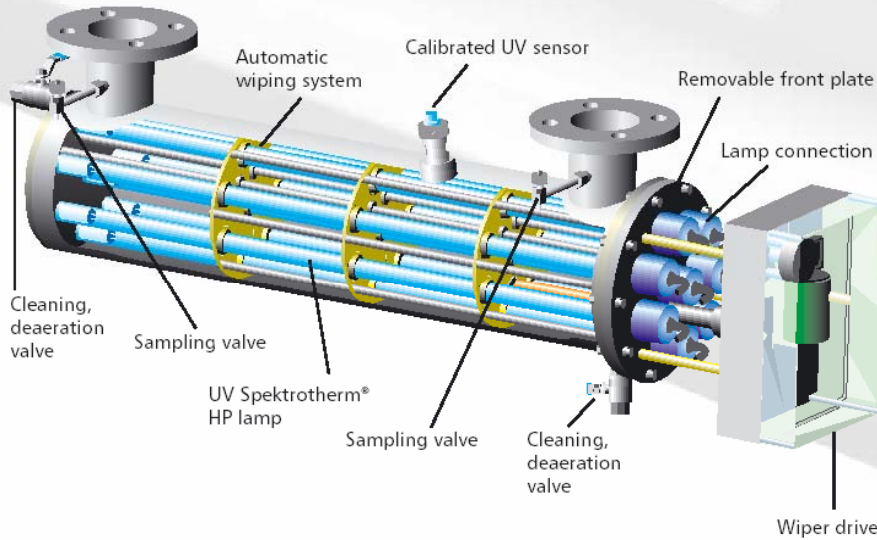
The new spectrum emission controller (SEC) handles all control and monitoring functions



The stable, calibrated UV sensor, conforming to DVGW and ÖNORM, is an extremely precise measuring instrument



The new automatic wiping system saves maintenance time and cost. This option is available for all LBX units



Control cabinet with customer interface



Electronic ballasts ensure that the Spektrotherm®HP UV lamps operate cost-effectively and reliably



Individual quality checks of each Spektrotherm® HP lamp. WEDECO is the only UV manufacturer worldwide with its own lamp production and development



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UV dose control with the WEDECO Vario system

ADVANTAGES

The WEDECO Vario system offers the following:

- Constant UV dose irrespective of changes in water quality or flow
- Fully automatic PLC control and visualisation
- Maximum disinfection reliability
- Optimisation of energy costs
- Longer lamp life
- Easy operation and monitoring
- Continuous output regulation of the Spektrotherm®HP lamp (for models LBX 90 and larger)



Low flow rate and/or improved water quality automatically reduce UV radiation intensity



High flow rate and/or poor water quality automatically increase UV radiation intensity

WEDECO LBX systems can be equipped with a fully-automatic dose control. This unique feature of WEDECO technology enables the output to be exactly adjusted to the water quality and flow. Performance and efficiency are improved by avoiding conditions of performance shortcomings (i.e. low dose) and of waste of energy (i.e. excessive dose).

The output of the Spektrotherm®HP lamp is continuously controlled, resulting in a substantial reduction in operating costs. The radiation intensity is measured at a representative point within the UV reactor and, together with a flow signal, regulates UV output at a pre-set level.

Technical data

Type	Flow rate approx.* (m ³ /h)	Flange connection	Power consumption (kW)	Reactor dimensions W x H x D (mm)
LBX 3	3	1 1/2"	0.10	935 x 135 x 100
LBX 10	12	DN 50	0.34	930 x 280 x 200
LBX 20	25	DN 80	0.60	930 x 323 x 245
LBX 33	34	DN 80	0.76	930 x 348 x 275
LBX 50	52	DN 100	1.10	930 x 398 x 315
LBX 90	87	DN 150	1.50	1,530 x 388 x 275
LBX 120	134	DN 150	2.30	1,530 x 428 x 315
LBX 200	230	DN 200	3.70	1,535 x 510 x 400
LBX 400	370	DN 250	5.90	1,535 x 585 x 470
LBX 550	580	DN 300	8.80	1,540 x 720 x 600
LBX 750	780	DN 400	11.60	2,400 x 825 x 700
LBX 1000	1,000	DN 400	14.50	2,400 x 895 x 770

* UV dose = 400 J/m² at the end of the lamp lifetime; estimated UV transmittance = 70% per 1cm .
Spektrotherm®HP lamps in models LBX 90 and larger. All specifications are subject to change without notice.



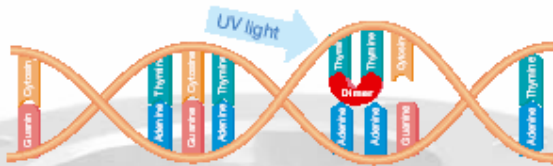
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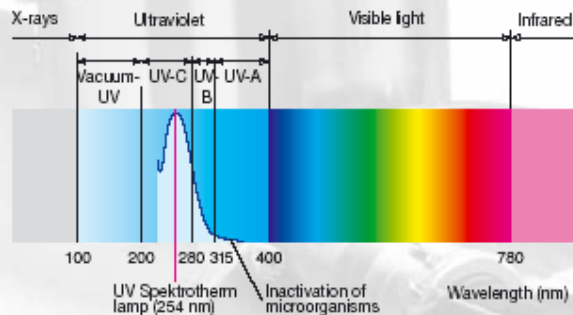
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Harmful microorganisms stand no chance



Ultraviolet light destroys microorganisms by changing their genetic information in the DNA.



Ultraviolet light is light with very high energy levels and a wavelength of 200-400 nm. One of the most effective wavelengths for disinfection is 254 nm.

Reliable disinfection at 254 nm

UV is now used worldwide to disinfect potable water. Countless water utilities and large cities already rely on UV to disinfect their drinking water. Pathogenic bacteria, viruses and parasites, e.g. Cryptosporidium and Giardia, are effectively inactivated by UV light. Disinfection with UV does not lead to the increased resistance associated with the use of antibiotics and, increasingly, chlorination. UV disinfection is being used successfully for groundwater, spring water, well water and surface water.

Inactivation of parasites (e.g. Cryptosporidia)

As extensive tests in Germany and the USA have proven, UV disinfection is the most effective method of inactivating dangerous parasites (Cryptosporidia, Giardia) in drinking water.

Comparison of the UV and chlorine disinfection procedures

Type	Pathogenic bacteria	Total micro-organism count	Viruses	Cryptosporidia Giardia	Possible harmful by-products
UV disinfection with low pressure lamps	++	+	+	++	None
Chlorination	+	+	+	-	THM, AOX, chlorite

++ = very effective + = effective - = hardly effective



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