

**NEW**



Approved and Certified according to DINORM

**LIT DUV-XA systems for potable water**

**UVLIT**  
EUROPE

*UV Disinfection for drinking and process water*



# LIT DUV-xA SYSTEMS

LIT is among the few leading companies in the UV disinfection market with access to in-house manufactured very powerful LPHO "Amalgam" lamps. These lamps, unique in their UV efficiency and stability over their life, have been developed in close harmony with the Moscow Institute of Physics and Technology (MIPT) and Philips Lighting.

LIT pressurized closed reactor DUV-xA systems, equipped with LPHO Amalgam lamps, are nowadays the product of choice for a variety of potable water applications. The DUV-xA series offer an environmentally friendly and effective disinfection solution, with unprecedented microbe inactivation, up to flow rates of 1000 m<sup>3</sup> per hour.



## APPLICATIONS

- Domestic and municipal water supplies
- Processing of food and beverages
- Hospitals
- Hotels and restaurants
- Pharmaceutical industries
- Electronic industries
- Aquaculture and fish farming
- Spa's and swimming pools
- Snow canons
- Offshore platforms

## DRINKING WATER DISINFECTION

Fresh water is certainly one of our most valuable resources. In order to destroy possible pathogenic contaminants, water must be disinfected. Traditional disinfection of drinking and process water with chlorine, chlorine dioxide and other chemical agents can result in trihalomethanes and other halogenated compounds which can be detrimental to health and environment.

UV disinfection is a purely physical process. It is a safe and cost-effective technology that efficiently inactivates all kinds of pathogenic microorganisms, with negligible disinfection by-products. UV radiation does not change the taste or smell of the water.

## UV DISINFECTION

Ultraviolet is accepted all over the world as a reliable, cost-effective and above all environmentally friendly water disinfection solution.

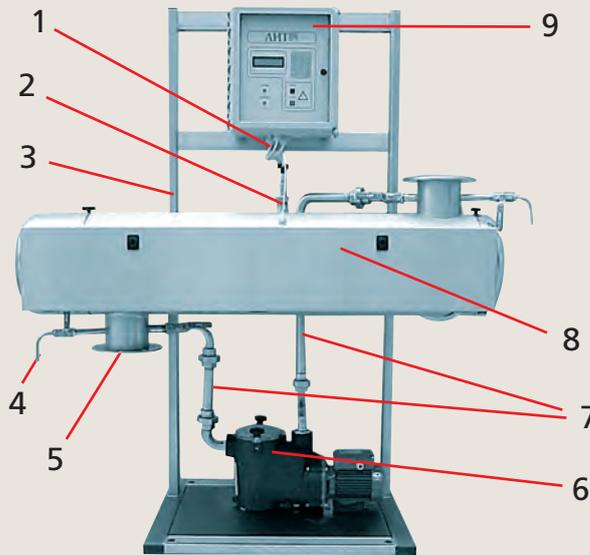
UV-C radiation destroys the genetic structure of microorganisms and inhibits their ability to multiply, rendering them harmless.

Bacteria, viruses and cysts in water, air and on surfaces are effectively inactivated. An important advantage of UV-C radiation is its ability to eliminate viruses permanently; this can not be done by conventional chlorination processes.



## UV DISINFECTION WITH DUV-xA SYSTEMS

1. Control cabinet can be located up to 50 m far from UV reactor
2. UV irradiation intensity sensor with port made of IP68 protection class. UV sensor gives 4-20 mA signal
3. Supporting frame for easy & compact mounting of equipment is available. Alternatively equipment can be fixed directly onto a wall with brackets
4. Sampler provides easy performance monitoring through bioassay
5. Disinfection chamber with UV lamps inside
6. Chemical cleaning pump with reservoir for cleaning solution inside
7. Pipes for cleaning system connection
8. Ballast cabinet has electronic ballasts inside which allow to extend lamp life up to 14 000 hours and reduce power consumption
9. Control cabinet



### FEATURES AND BENEFITS

- **Chemical-free:** safe and environmentally friendly; no harmful by-products
- **LIT closed reactor technology:** reduced design and construction costs, simple operation and maintenance
- **LIT LPHO Amalgam lamp technology:** reduced power consumption, lowest operation and maintenance costs, small footprint
- **Sophisticated design concepts:** reliable in-activation of bacteria, viruses and parasites. Flexible, tailored to customer specifications
- **Accurate LIT UV sensors:** exact dose monitoring and pacing
- **Bioassay validation:** no theoretical calculations but physical verification of system performance, certified by ÖVGW (Ö-Norm M5873-1)
- **Mechanical and chemical cleaning options:** eliminate organic and inorganic fouling of quartz tubes for a consistent disinfection performance. Operator-friendly!

### CERTIFICATION

LIT DUV-xA equipment is certified to ÖVGW (ÖNORM M5873-1), the globally accepted quality standard for UV disinfection of potable water. The real UV dose of 400 J/m<sup>3</sup> is verified by extensive tests, determining the true bacterial reduction.

### DESIGN

LIT DUV-xA systems are designed and manufactured according to international standards, using the highest quality materials and components for a safe, economical treatment of liquids with high UV transmittance. The hydraulically optimally designed stainless steel reactor systems will guarantee excellent flow mixing for an efficient and reliable disinfection performance.

Light-weight and long-lasting electronic ballasts are installed to increase energy efficiency and lamp performance.

### UV LAMPS

Ultraviolet lamps are the heart and soul of every UV system. All LIT UV DUV-xA devices are equipped with modern industrially manufactured Low Pressure mercury High Output (LPHO) "Amalgam" germicidal lamps. These lamps, which are developed and produced by LIT Techno-logy, can be characterized by an extremely high UV output and superior energy efficiency. A unique internal coating limits the depreciation of UV output to maximum 20% at end-of-life. An effective disinfection performance is guaranteed during the entire operation period. Fewer lamps are required in a more compact space, reducing installation and operation costs.

### CONTROL SYSTEM

A PLC based control system continuously monitors the applied UV dose in the reactor. Each individual UV lamp is monitored for operating status and elapsed lamp hours. All operating data are available through the operator interface. The UV system can easily be integrated with the main control system of the treatment plant through various available field bus interfaces.





## DUV-xA series: TECHNICAL SPECIFICATIONS\*

Type	Number of lamps	Power consumption (kW)	Flange connection
DUV-1A/300	1	0,3	DN 50
DUV-2A/300	2	0,6	DN 50
DUV-3A/300	3	0,7	DN 150
DUV-4A/300	4	1,12	DN 150
DUV-5A/300	5	1,4	DN 150
DUV-7A/300	7	2,0	DN 150
DUV-12A/300	12	3,5	DN 250
DUV-18A/300	18	5,0	DN 300
DUV-36A/300	36	10,75	DN 400
DUV-2A/350	2	0,75	DN 100
DUV-4A/350	4	1,5	DN 150
DUV-5A/350	5	1,7	DN 200
DUV-7A/350T	7	2,45	DN 250
DUV-12A/350T	12	4,2	DN 400
DUV-18A/350	18	6,4	DN 400
DUV-36A/350	36	12,8	DN 400

\* DUV-xA units are available for flow rates up to 1050 m<sup>3</sup> per hour. For larger capacities, LIT UDW series are the perfect choice. Typical flow rates, which are depending on the kind of application, UV dose and water quality characteristics, are available on request.

### CLEANING SYSTEM

The LIT DUV-xA units can be equipped with chemical and/or mechanical cleaning systems. Organic and inorganic deposits are prevented from accumulating on the lamp protective quartz sleeves. Both concepts provide in-situ cleaning, without having to move the UV-lamp-modules from the reactor.

- **Chemical cleaning** technology uses a mild solution of oxalic or citric acid. The inner walls and all lamps in the system are cleaned simultaneously. During cleaning the UV system is isolated from the normal process.
- **Mechanical cleaning system** utilizes Teflon® wipers which are moving periodically along the quartz-sleeves without disrupting the disinfection process. The wiping frequency can be adjusted according to the project specific requirements. The mechanical cleaning system minimizes the manual labour required to operate the LIT DUV-xA UV systems

Both cleaning systems ensure the proper level of UV intensity to be applied to the fluid at all times. The choice between chemical and/or mechanical cleaning in a particular project will depend on the specific effluent characteristics, customer requirements and economical considerations.

### SERVICE

Special attention is paid to keep installation and maintenance of LIT UV equipment simple and easy. Maintenance is kept minimal through the use of first-class technology and engineering. LIT Europe b.v. can provide professional support during installation and start-up phases, including dedicated operator training courses.

For UV disinfection consultations or technical support including spare part supplies you may contact LIT Europe b.v. directly or involve your local LIT UV representative.



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