

# DISINFECTION OF AIR AND SURFACES WITH ULTRAVIOLET RADIATION





# LIT

Scientific and Production Company LIT was established in 1991 and ranks among the world's top three leaders in developing and manufacturing ultraviolet systems for water, air, and surface disinfection. Currently, LIT operates a manufacturing facility in Dolgoprudny, Moscow Region, and maintains representative offices in other countries, which handle promotion, sales, and customer service. Traditionally, LIT prioritizes research on applying ultraviolet technologies across diverse industries.

Foundation of LIT:  
Established by a team of  
graduates from the Moscow  
Institute of Physics and  
Technology (MIPT), marking  
the beginning of UV system  
production in Moscow

**1991**



Launch of a line  
of UV equipment for air  
and surface disinfection

**2003**



Development of industrial  
UV systems for treating gas  
emissions

**2014**



LIT joins the EKS group

**2023**



**1995**

Launch of in-house  
production of a new  
generation of amalgam  
UV lamps



**2012-2022**

Establishment  
and operation  
of a factory  
in Germany



**2021**

Launch of a new plant  
in Dolgoprudny  
(Moscow Region)



PROJECTS

**14 000+**

IMPLEMENTED WORLDWIDE

COUNTRIES

**55**

USING LIT EQUIPMENT

MILLION

**60**

PEOPLE DRINK WATER DISINFECTED  
BY LIT EQUIPMENT

TYPES

**44**

UV UNITS HAVE PASSED  
BIOVALIDATION IN EUROPEAN AND  
AMERICAN CERTIFICATION CENTERS



# Strategic Partnership with the EKS Group

The EKS Group is a pivotal enterprise in the Russian economy and one of the largest multidisciplinary participants in the infrastructure construction market. With extensive experience in implementing various social infrastructure projects across Russia, the company plays a crucial role in realizing the country's priority national projects. The strategic direction of its activities is centered on the implementation of these projects, including the national project "Healthcare." The company possesses high competencies and operates its own Medical Technology and Equipment Department, which is involved in equipping healthcare facilities.

Following the signing of the strategic partnership agreement with LIT, the group gained significant momentum in the development and implementation of social infrastructure projects.

BILLION RUB

30

MEDICAL EQUIPMENT  
CONTRACT PORTFOLIO FOR 2025

BILLION RUB

150

VALUE OF CURRENT HEALTHCARE  
FACILITY CONSTRUCTION CONTRACTS

**The EKS Group is among the top five  
contractors for medical projects in Russia\***

\* — Vademecum's analytical center ranking



Diagnostic and Treatment Building  
of the Krasnodar Regional Children's Clinical Hospital  
Location: Krasnodar



**SURGICAL BUILDING OF THE YAROSLAVL  
REGIONAL ONCOLOGY HOSPITAL\*\***

Location: Yaroslavl



**DIAGNOSTIC AND TREATMENT BUILDING  
OF CHILDREN'S CLINICAL HOSPITAL\*\***

Location: Krasnodar



**REGIONAL CHILDREN'S SURGICAL CENTER  
FOR INNOVATIVE TECHNOLOGIES\*\***

Location: Rostov-on-Don



**REGIONAL PERINATAL CENTER\*\***

Location: Tula, Donetsk

\*\* — The national project "Healthcare"



## Scientific Research Center

45+

ENGINEERING  
AND SCIENTIFIC STAFF

9

PHDS

2

PROFESSORS



RUSSIAN FEDERATION  
GOVERNMENT PRIZE  
IN SCIENCE  
AND TECHNOLOGY  
(2000)



RUSSIAN FEDERATION  
GOVERNMENT PRIZE  
IN SCIENCE  
AND TECHNOLOGY  
(2023)

## R&D Directions

- UV sources
- Air and surface treatment and disinfection systems
- Potable and wastewater treatment and disinfection systems
- Aerodynamics and hydrodynamics
- Photooxidation and photocatalysis
- Nanocoatings

PATENT

50+

PROTECTED BY LIT

SCIENTIFIC PUBLICATIONS

300+

BELONGS TO LIT



# Full-Cycle Production

## ■ Area of UV Equipment Application

Our product lines are designed to meet a wide range of ultraviolet needs, from disinfection to innovative photocatalytic techniques

## ■ Customized Equipment

Alongside our standard products, we specialize in manufacturing equipment that is uniquely tailored to address the specific needs and operating conditions of each customer

## ■ In-House UV Lamp Production

Our equipment features our proprietary low-pressure amalgam lamps, which are mercury-free and offer high efficiency. Each lamp undergoes rigorous multi-stage testing during production to ensure optimal performance

## ■ Comprehensive Approach

We provide a full-cycle service that includes technological inspections of facilities, pre-project development, installation supervision, commissioning, component supply, and both warranty and post-warranty support

### Production Stages



LAMP  
PRODUCTION



MECHANICAL ASSEMBLY  
PRODUCTION



ELECTRICAL ASSEMBLY  
PRODUCTION

### Quality Control in Accordance with ISO 9001:2015

## ■ Incoming Inspection

We strictly inspect materials and components based on rigid regulations and procedures

## ■ Intermediate Operation Control

We carry out regulated inspections of each technological operation

## ■ Outgoing Inspection

The equipment and its components are tested under all permissible operating conditions: compliance with technical parameters, electrical safety, joint sealing, and proper operation of control systems

### STAFF

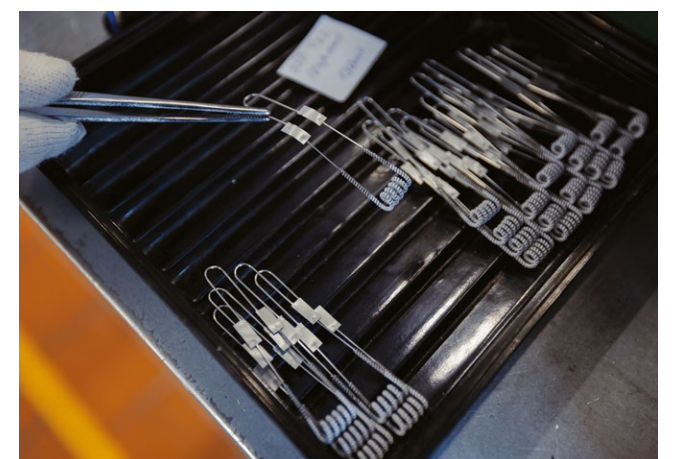
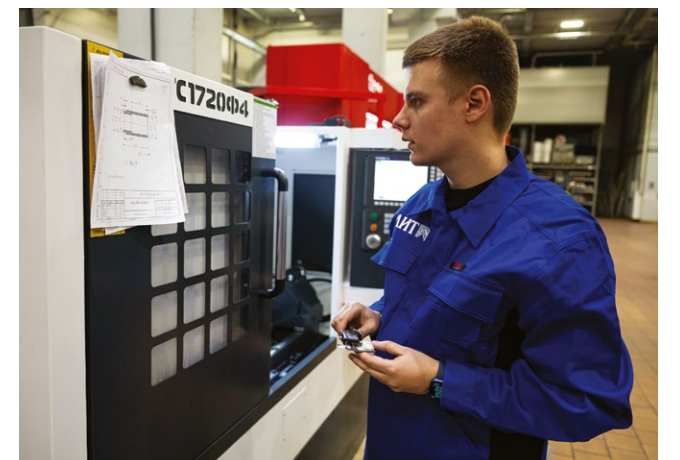
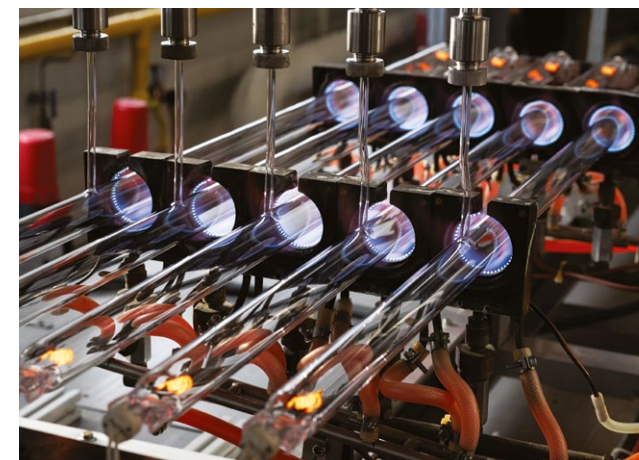
450+

EMPLOYEES

### MILLION UNITS

1+

AMALGAM UV LAMPS PRODUCED





# Significant Achievements of the Company



2004-2008

**COMMISSIONING OF THE WORLD'S LARGEST UV WATER DISINFECTION COMPLEX, CONSISTING OF 9 UV STATIONS**

Capacity: 79.2 to 418.4 MGD each

Location: St. Petersburg



2008

**COMMISSIONING OF THE LARGEST UV WATER DISINFECTION COMPLEX IN THE EU**

Capacity: 158.5 MGD

Location: Budapest



2017

**COMMISSIONING OF A UV STATION FOR WASTEWATER REUSE**

Capacity: 206 MGD

Location: Beijing



2022

**LAUNCH OF THE UV STATION AT VIENNA'S MAIN WATER SUPPLY PLANT**

Capacity: 63.4 MGD

Location: Vienna



2012-2013

**LAUNCH OF THE WORLD'S LARGEST UV DISINFECTION STATION FOR WASTEWATER TREATMENT AT KURYANOVSKAYA TREATMENT PLANT**

Capacity: 825.5 MGD

Location: Moscow



2014

**LAUNCH OF THE FIRST LIT UV WASTEWATER DISINFECTION STATION IN HANOI**

Capacity: 10.5 MGD

Location: Hanoi



2018-2021

**LAUNCH OF 4 UV STATIONS IN BERLIN'S WATER SUPPLY SYSTEM**

Capacity: up to 18.5 MGD each

Location: Berlin



2023

**COMPLETION OF COMMISSIONING WORKS FOR THE UV STATION AT TEHRAN'S MUNICIPAL WASTEWATER TREATMENT PLANT**

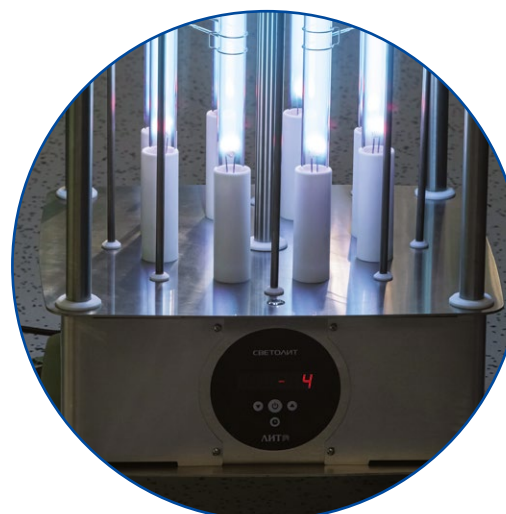
Capacity: 137.4 MGD

Location: Tehran



# Application in Medical Organizations

- **Moscow City Hospital No. 52**  
*Moscow*
- **Moscow City S.S. Yudin Hospital**  
*Moscow*
- **Moscow City Z.A. Bashlyaeva Hospital**  
*Moscow*
- **Moscow City Morozov Children's Hospital**  
*Moscow*
- **Moscow City N.V. Sklifosovsky Research Institute of Emergency Medicine**  
*Moscow*
- **Moscow City N.I. Pirogov Medical University Hospital**  
*Moscow*
- **Moscow City Hospital No. 85**  
*Moscow*
- **Central Union Hospital of the Russian Federation**  
*Moscow*
- **Moscow City "RZD-Medicine" Central Clinical Hospital**  
*Moscow*
- **Moscow City Cancer Hospital No. 62**  
*Moscow*
- **Moscow City Hospital No. 9**  
*Moscow*
- **Moscow City S.S. Yudin Hospital Oncology Center**  
*Moscow*
- **Clinical Hospital of the President of the Russian Federation Administration**
- **Donetsk Republic Perinatal Center named after Professor W.K. Chayka**  
*Donetsk*
- **Penza Region N.N. Burdenko Clinical Hospital**  
*Penza*
- **Penza City Hospital No. 6**  
*Penza*
- **Kazan City Clinical Hospital No. 7**  
*Kazan*
- **Samara Region V.D. Seredavina Clinical Hospital**  
*Samara*
- **Mari El Republic Yoshkar-Ola City Clinical Hospital**  
*Yoshkar-Ola*
- **Novosibirsk Region State Clinical Hospital** больница  
*Novosibirsk*
- **Russian Ministry of Defense 1477 Military Medical Center**  
*Vladivostok*



PROJECT IMPLEMENTATION  
UNDER THE NATIONAL  
PROJECT «HEALTHCARE»

HOSPITALS IN RUSSIA

# 100+

USE LIT UV EQUIPMENT  
FOR HAI CONTROL

# UV Disinfection Technology

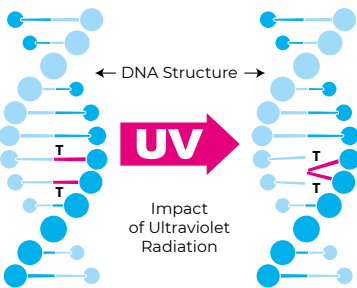
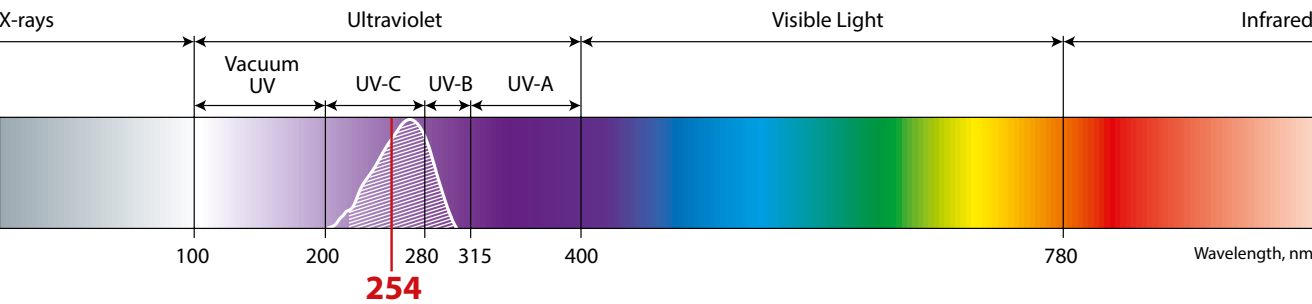
- UV disinfection technology relies on the germicidal properties of ultraviolet radiation, making it highly effective for disinfecting water, air, and surfaces
- Ultraviolet radiation is a type of electromagnetic radiation that lies between X-rays and visible light (wavelength range: 100 to 400 nm)

The UV-C band is known as the germicidal band due to its high disinfection efficiency against a wide range of microorganisms

The peak wavelength for germicidal sensitivity is 265 nm

The emission wavelength of low-pressure UV lamps in the UV-C band is 254 nm

## Ultraviolet in the Electromagnetic Spectrum



### Mechanism of UV Disinfection

UV irradiation is a physical disinfection method based on photochemical reactions that cause irreversible damage to DNA and RNA. As a result, microorganisms lose their ability to reproduce — this process is known as inactivation.

UV disinfection technology can be applied in both water and wastewater treatment, as well as for the disinfection of air and surfaces.

## UV Dose Requirements for Different Microorganisms (99.9% Disinfection Efficiency), mJ/cm²

<i>Salmonella sp.</i>	6 - 15	<i>Bacillus subtilis</i>	11
<i>Staphylococcus aureus</i>	6,6	<i>Mycobacterium terrae</i>	16
<i>Staphylococcus epidermidis</i>	6,6	<i>Klebsiella pneumoniae</i>	17,5
<i>Escherichia coli</i>	6,6	<i>Saccharomyces (Saccharomyces sp.)</i>	17,6
Influenza virus	6,6	<i>Poliovirus</i>	21
MRSA	8,8	<i>Rotavirus</i>	24
<i>Mycobacterium tuberculosis</i>	10	<i>Penicillium (Penicillium sp.)</i>	22 - 26
<i>Acinetobacter baumannii</i>	10	SARS-CoV-2 (COVID-19)	25*
<i>Pseudomonas aeruginosa</i>	10,5	TMC	25
VRE	11	<i>Candida albicans</i>	30

\* According to the Temporary Guidelines of the Russian Ministry of Health «Prevention, Diagnosis, and Treatment of Novel Coronavirus Infection (COVID-19)» (Version 18, October 26, 2023), the UV dose required for inactivation of SARS-CoV-2 (COVID-19) is 25 mJ/cm² (99.9% disinfection efficiency).

# What if the UV dose is insufficient?



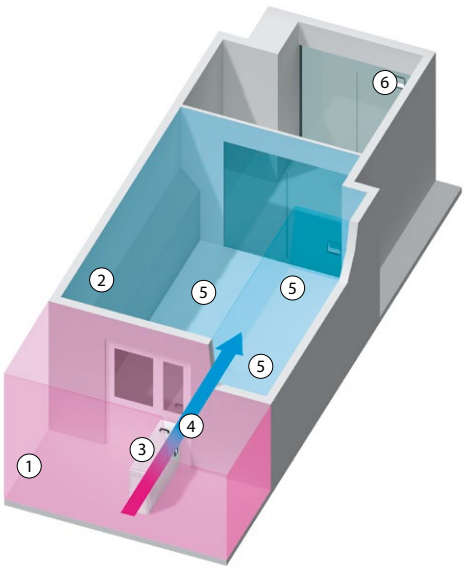
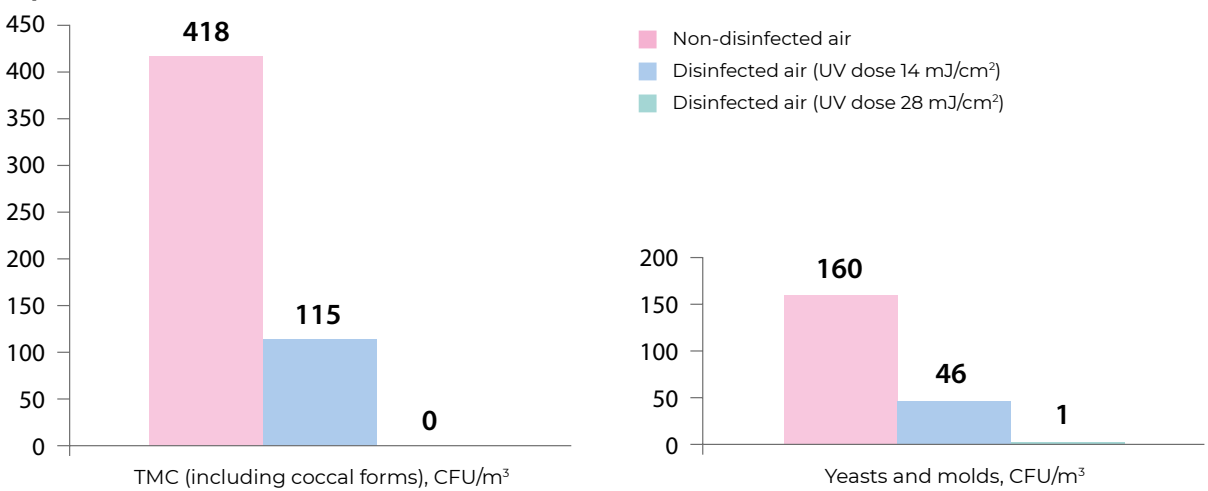
## Study on the Effectiveness of UV Recirculators

Conducting bioassays is the only reliable method to confirm the UV dose provided. In collaboration with the Federal State Budgetary Institution «Centre for Strategic Planning and Management of Biomedical Health Risks» of the Federal Medical Biological Agency of Russia, we conducted a study to assess the effectiveness of various UV recirculator doses.

### Study Design

The initial environment, designated as «dirty,» was an office space. The experimental environment was a room treated with open UV irradiation until no total microbial colony count (TMC) or fungi were detected in control samples. Air from the initial environment was supplied to the experimental environment through a UV recirculator, which operated in two modes, delivering different UV doses. Samples were collected in triplicate within the experimental environment, adhering to the guidelines outlined in MUK 4.2.2942-11 and R 3.5.1904-04.

## Experimental Results



- 1 Initial environment
- 2 Experimental environment
- 3 UV recirculator
- 4 Air supply through the UV recirculator
- 5 Sampling points
- 6 Air exhaust check valve

## Conclusion

Administering a UV dose of at least 25 mJ/cm² achieves a disinfection efficiency of 99.9% in a single pass through the UV recirculator. In contrast, low UV doses (14 mJ/cm² and below) merely reduce the colony count by 3-4 times, which is clearly inadequate.

The experimental data are consistent with the Temporary Guidelines of the Russian Ministry of Health, «Prevention, Diagnosis, and Treatment of Novel Coronavirus Infection (COVID-19)» (Version 18, dated October 26, 2023).

“ For air disinfection in the presence of people, closed-type UV bactericidal recirculators with high UV doses (not less than 25 mJ/cm²) and sufficient capacity (ensuring at least 4 air changes per hour) should be used ”



# Air Recirculators AEROLIT™

UV Air Disinfection in Occupied Indoor Spaces



AEROLIT 270

AEROLIT 500-1

AEROLIT 500-2



	AEROLIT 270	AEROLIT 500-1	AEROLIT 500-2
Specifications			
Airflow (m³/h)	270	500	500
UV Dose (≥ mJ/cm²)	25	25	25
Recommended Room Area (at 4 air changes per hour, m²)	23	42	42
Noise Level (Mode 1/2, dB)	39	32/40	32/40
Maximum Power Consumption (W)	240	565	565
Weight (kg)	45	85	85
Dimensions (L×W×H, mm)	613×280×1006	637×405×1255	637×405×1255
Russian Ministry of Health Registration Number	Nº RZN 2021/14826	Nº RZN 2021/14826	Nº RZN 2021/14826
Features			
Installation Type	Wall-mounted	Mobile	Mobile
Air Filter Class	G3+F5	G4+F5	G4+F5
Automatic UV Lamp Monitoring System	+	+	+
Automatic Filter Clogging Monitoring System	+	+	+
Touch Control Panel	+	+	+
Casing Material	Coated steel	Coated steel	Coated steel

### Key Features of AEROLIT Recirculators

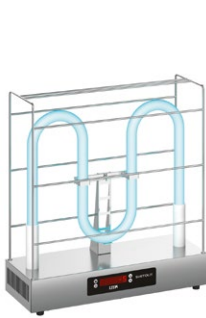
- **High UV Dose.** AEROLIT units provide a UV dose of at least 25 mJ/cm², ensuring effective inactivation of a wide range of microorganisms. Air disinfection efficiency reaches 99.9% (based on TMC indicator).
- **High Airflow Capacity.** High airflow ensures sufficient air exchange rates, which is critical for rapid and efficient air disinfection in occupied spaces.
- **No UV Leakage.** AEROLIT's design ensures that UV radiation does not escape the unit, making it safe for humans, animals, and plants.
- **Low Noise Operation.** Low noise levels make it suitable for all types of rooms, including surgery theatres and hospital wards.
- **Safe and Eco-Friendly.** Uses ozone-free amalgam UV lamps, ensuring safe and pollution-free operation.



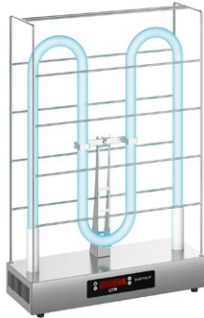


# Open-Type UV Disinfection Units SVETOLIT™

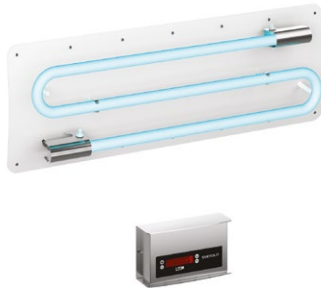
UV Disinfection of Air and Surfaces in Indoor Spaces  
(for Unoccupied Environments)



SVETOLIT-150



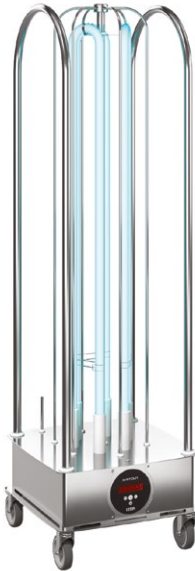
SVETOLIT-220



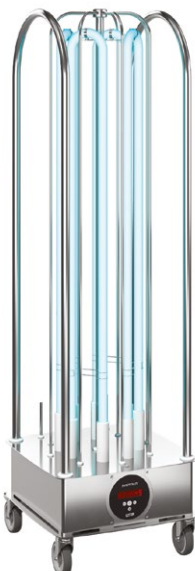
SVETOLIT-240M1/M2



SVETOLIT-450M2



SVETOLIT-720M2



SVETOLIT-960M2

Specifications												
<b>S. aureus inactivation rate 99.9%</b> Processing time Processing radius	5 min	10 min	5 min	10 min	5 min	10 min	5 min	10 min	5 min	10 min	5 min	10 min
	2 m	3,5 m										
<b>TMC inactivation rate 99,9%</b> Processing time Processing radius	5 min	10 min	5 min	10 min	5 min	10 min	5 min	10 min	5 min	10 min	5 min	10 min
	1 m	1,6 m										
Power consumption, maximum, W	450		660		680		1250		1890		2400	
Russian Ministry of Health Registration Number	№ RZN 2021/14658		№ RZN 2021/14658		№ RZN 2024/22354		№ RZN 2024/22354		№ RZN 2024/22354		№ RZN 2024/22354	
UV System Type	Mobile		Mobile		Wall-mounted		Mobile		Mobile		Mobile	
Control panel	+		+		-/+		+		+		+	
Weight, maximum, kg	6,4		7,4		10/10 и 2		30		34		36	
Dimensions, L×W×H, mm	508×180×531		508×180×745		930x172x321 и 250x77x146		515x470x1170		515x470x1626		515x470x1626	

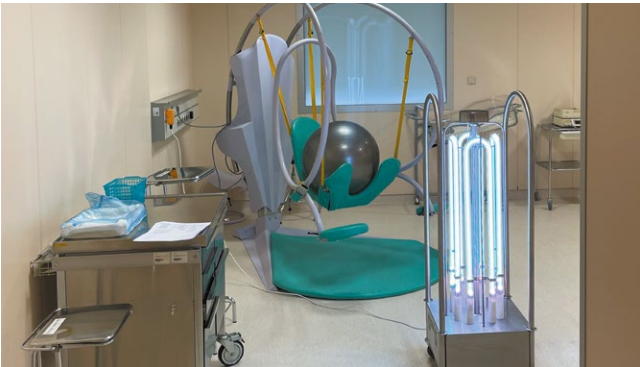
## Applications of SVETOLIT UV Disinfection Units

- Emergency Disinfection: For Class 1 and 2 cleanrooms (e.g., between surgeries, invasive procedures, and examinations of potentially infected patients).
- Healthcare-Associated Infection (HAI) Prevention: Suitable for various medical institutions and rooms of all cleanliness classes.
- Preventive Disinfection: For production and administrative premises.



## Features of SVETOLIT UV Disinfection Units

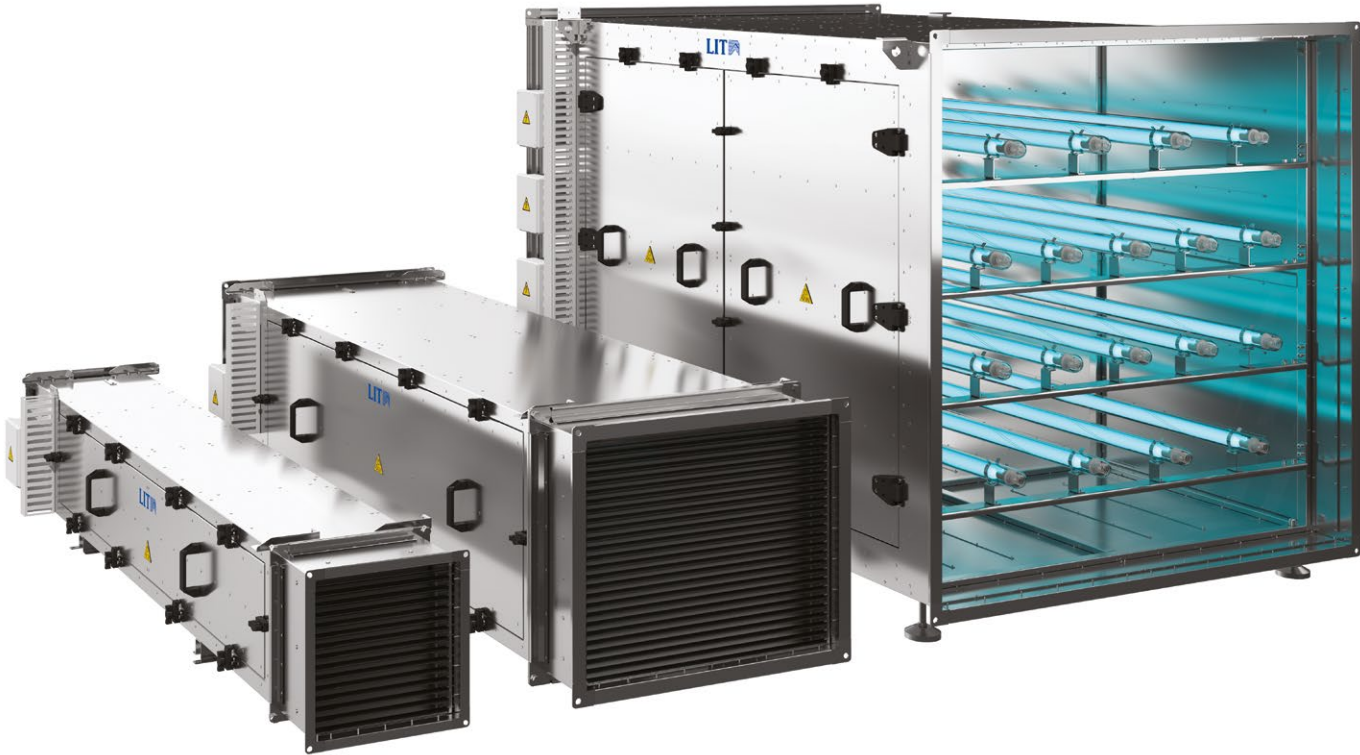
- Depending on room volume and unit power, irradiation time ranges from 5 to 30 minutes to achieve a UV dose of 25 mJ/cm² and a disinfection efficiency of 99.9% (based on TMC indicator)
- All units feature stainless steel casings resistant to UV radiation and compatible with chemical disinfectants
- Uses ozone-free amalgam UV lamps, ensuring safe and pollution-free operation





# Biocidal units MEGALIT™

Effective air disinfection using ultraviolet radiation in supply and exhaust ventilation and air conditioning systems



### Features of MEGALIT Disinfection Units

- **High-Efficiency Disinfection:** MEGALIT FS-1 series units provide a UV dose of at least 25 mJ/cm², ensuring effective inactivation of a wide range of microorganisms. Air disinfection efficiency reaches 99.9% (based on TMC indicator).
- **Wide Applicability:** Supports airflow velocities from 0.1 to 8 m/s and operating temperatures from 0 to +35 °C, making it suitable for main duct applications and other scenarios.
- **Advanced UV Light Source:** Uses FOTOTRON™ high-efficiency ozone-free amalgam lamps produced by LIT, featuring thermal stability and long lifespan.
- **Low Pressure Drop Design:** Pressure loss is less than 100 Pa, allowing easy integration into existing or newly designed ventilation systems without additional fan load.
- **High Energy Efficiency:** Utilizes patented high-reflectivity UV reflectors to significantly improve energy efficiency.
- **Comprehensive Disinfection Coverage:** All internal surfaces of the unit are exposed to high-intensity UV radiation, eliminating the risk of microbial survival and «burst» release.
- **Intelligent Control System:** Features automatic power adjustment, fault alarm, UV lamp status monitoring, and remote control capabilities.
- **Safe and Eco-Friendly:** Uses ozone-free amalgam UV lamps, ensuring safe and pollution-free operation.

### Technical Specifications of MEGALIT FS-1 Series Disinfection Units

UV System Type	Airflow at ≥99.9% Disinfection Efficiency (m³/h)	Airflow Velocity (m/s)	Operating Temperature (°C)	Pressure Loss (Pa)	Number of Lamps	Rated power (kW)	Duct Section Size (mm)	Dimensions (L×W×H, mm)	Weight (≤ kg)
MEGALIT 200 FS-13	15 - 215	0.1 - 1.5	15 - 35	20	1	0.2	200x200	610x280x280	15
MEGALIT 400 FS-13	35 - 485	0.1 - 1.5	15 - 35	20	1	0.3	300x300	750x380x380	20
MEGALIT 600 FS-12	450 - 680	2 - 3.2	15 - 35	30	1	0.3	300x200	1120x420x270	30
MEGALIT 1000 FS-12	650 - 1050	2 - 3.2	15 - 35	30	1	0.3	300x300	1120x420x370	35
MEGALIT 1600 FS-11	650 - 1700	2 - 5.2	15 - 35	30	1	0.4	300x300	1520x420x370	42
MEGALIT 2200 FS-10	650 - 2500	2 - 8	0 - 35	100	1	0.55 - 0.7	300x300	1820x420x370	48
MEGALIT 3600 FS-10	1000 - 4000	2 - 8	0 - 35	100	2	0.96 - 1.2	400x350	1820x520x420	60
MEGALIT 4600 FS-10	1500 - 6000	2 - 8	0 - 35	100	3	1 - 1.7	600x350	1820x720x420	75
MEGALIT 7500 FS-10	2200 - 8500	2 - 8	0 - 35	100	5	2.15 - 2.7	600x500	1820x720x570	95
MEGALIT 12000 FS-10	3500 - 13800	2 - 8	0 - 35	100	6	2.5 - 3.2	800x600	1820x950x740	145
MEGALIT 17000 FS-10	5500 - 20000	2 - 8	0 - 35	100	10	4.3 - 5.4	900x800	1820x1050x940	190
MEGALIT 20000 FS-10	8000 - 31500	2 - 8	0 - 35	100	14	6 - 7.5	1100x1000	1820x1250x1140	210
MEGALIT 30000 FS-10	10500 - 41500	2 - 8	0 - 35	100	18	7.6 - 9.5	1200x1200	1820x1350x1340	240
MEGALIT 40000 FS-10	12000 - 48000	2 - 8	0 - 35	100	22	9.6 - 12	1400x1200	1820x1550x1340	280
MEGALIT 50000 FS-10	18500 - 73500	2 - 8	0 - 35	100	32	13.6 - 17	1600x1600	1820x1750x1740	340



# Laminar Flow Ceilings LITAERO™

Unidirectional supply of purified and disinfected air



LITAERO 3,6x2,6



LITAERO 2,0x1,8



LITAERO 2,6x1,8



LITAERO 1,8x1,0



LITAERO 1,2x0,6



LITAERO 0,6x0,6

### Features of LITAERO Laminar Flow Ceilings

- Classic air preparation technology for cleanrooms
- High-quality HEPA filters, bench-tested for performance
- Constructed from high-grade stainless steel
- Final air diffusers made from perforated polished stainless steel, resistant to disinfectants

### Model Specifications

Type	Ceiling Area (m²)	Height (mm)	Airflow at 0.25 m/s (m³/h)	Dimensions (L×W, mm)	Central Tunnel Availability	Filter class
LITAERO 0,6x0,6	0.36	400	320	743×700	No	H14
LITAERO 1,2x0,6	0.72		650	1400×700	No	H14
LITAERO 1,8x1,0	1.8		1600	1886×1100	No	H14
LITAERO 2,0x1,8	3.6		3200	2100×1900	No	H14
LITAERO 2,6x1,8	4.68		3850	2700×1900	Yes	H14
LITAERO 3,6x2,6	9.36		8100	3700×2700	Yes	H14
LITAERO 0,6x0,6 C	0.36	285	320	784×700	No	H14
LITAERO 1,2x0,6 C	0.72		650	1482×700	No	H14
LITAERO 1,8x1,0 C	1.8		1600	2082×1100	No	H14
LITAERO 2,0x1,8 C	3.6		3200	2282×2082	No	H14
LITAERO 2,6x1,8 C	4.68		3850	2882×2082	Yes	H14
LITAERO 3,6x2,6 C	9.36		8100	3882×2882	Yes	H14





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