







PROFESSIONAL ROOM STERILIZERS

Sterilisation by ozone and UV-C radiation with particle filtration in one unit.





TECHNOLOGY



ROOM STERILIZERS VS

These are innovative room disinfection devices with an additional air filtration function, which use UV-C sources with the wavelength of the most effective in the fight against microorganisms, and efficient ozone generators that enable a quick and effective disinfection process at even hard-to-reach places. They are available in several versions differing in the power of the UV-C source used, the efficiency of the ozone generator and the airflow efficiency. The series include the models: VS-450, VS-600, VS-900, VS-1200, VS-1500 and VS-1800.



UV-C RADIATION

The high-performance lamp system between the filters emits UV-C radiation with wavelength of 253.7 nm. UV-C radiation causes irreversible damage to the DNA and RNA of microorganisms (bacteria, viruses, molds, fungi) leading to their neutralization \[13] \[14]. This means that after passing through the channel, the air contains a significantly reduced amount of active microorganisms. Thanks to the special closed disinfection channel construction, the emitted high-energy UV-C radiation does not leave the interior of the unit, which allows for safe operation of the sterilizer in this mode in rooms where people are present.



OZONE GENERATOR

In the intensive disinfection mode, the device produces ozone, which has strong oxidizing properties - including the destruction of structures of living organisms [6] [7] [8] [9] [11] [12]. Ozone also has the ability to neutralize all kinds of odors. Thanks to the high performance of the ozone generators used in the unit, the speed and efficiency of this method of decontamination with STERYLIS sterilizers is extremely high. The total sterilization of the rooms is usually completed in about 4 hours, and the whole process is controlled by a controller measuring the ozone concentration generated in the room in real time. Intelligent control of the ozone process ensures not only the highest sterilization efficiency but also the safety of the entire process. The safe concentration of ozone is possible thanks to the function of its destruction after the sterilization process. Thanks to the gaseous form of the ozone generated, not only the air in the room is completely sterilized, but also all the objects in the room that ozone can reach during the decontamination process.



Double Filtration

STERYLIS sterilizers have 2-stage air filtration (pre-filter and exhaust filter). High-quality filter media with electrostatic properties are capable of trapping even microscopic dirt particles. The use of an antibacterial system based on an odorless, non-toxic and invisible to the human eye coating applied to the filter medium allows to remove harmful allergens and bacteria from the air. This technology makes the STERYLIS sterilizers, in addition to their disinfection and sterilization functions, extremely effective also in cleaning air from particulate matter.

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PROFESSIONAL ROOM STERILIZERS



UNIT FOR EVERYONE

LIGHT AND SOUND SIGNALIZATION indicates that the unit is in the room sterilization cycle with ozone.

ERGONOMIC GRIP

THE SIGNAL LAMP

signals a user-safe ozone concentration in the air after the ozone cycle.

LEDS SIGNALING

individual modes of unit operation

LEDS ALERTING

about the need to perform operations or failures of individual sterilization systems

MAIN SWITCH

CARTRIDGE FILTERS

easy to replace

THE CONTROLLER WITH OZONE SENSOR

manages the operation of the unit and analyzes the ozone concentration in the room

FEET OR CASTORS

depending on the model



Signal and warning lights and acoustic signals generated by the device inform the user about the sterilization mode activated and the safe or excessive level of ozone concentration in the room. Whenever the device detects that the concentration limit has been exceeded, it adjusts its own performance while ensuring maximum safety.



Intelligent air sterilizers provide maximum comfort. They inform the user of the need to replace filters, of the need to replace UV-C lamps if their service life is exceeded or if they burn out, and of damage to other components, e.g. one of the ozone generators, if such damage occurs. This is by far the highest level of self-diagnosis in such units.



SIMPLE OPERATION

The controller the unit is equipped with is intuitive, functional and very simple to use. The operating modes are changed by means of a mode selection buttons. Signal lights visible from a distance allow you to conveniently assess from a distance which operating mode the device is currently in; safety messages are signaled in the same way. The panel is also equipped with lights displaying alerts concerning the necessity of unit maintenance, including signaling the necessity of filter replacement. Along with acoustic signaling, the flashing signal lamp visible from a distance provide safety in sterilization mode. These are just some of its functions.



SILENT OPERATION

By changing the operating mode to "UV-C disinfection SILENT MODE", the unit switches to low fan speed operation and starts quiet operation in disinfection mode. From now on, the user's peaceful sleep with the simultaneous operation of the sterilizer is not at risk.

HOW THE UV-C DISINFECTION **TECHNOLOGY WORKS PATHOGENS**



The cleaned air is returned to the room through a second outlet filter.



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WHAT A FULL CYCLE OF **OZONE STERILIZATION** LOOKS LIKE





UV-C RADIATION DOSE GENERATED BY THE UNIT DURING DISINFECTION

The degree of deactivation of pathogens with ultraviolet radiation directly depends on the dose of this UV-C radiation. The UV-C dose is the product of the irradiance [I] and the exposure time [t].

Therefore: DOSE = I x t

The UV-C radiation dose is expressed in joules per square meter [J/m²].







UV-C RADIATION DOSE REQUIRED TO NEUTRALIZE THE PATHOGEN

The UV-C radiation dose required for a 99.9% pathogen reduction is shown in the table. The exemplary data given are collected from scientific publications and research on ultraviolet light sterilization technology from around the world. [1][2][3][4][5][8][10][12]

BACTERIA	[J/m²]
Agrobacterium Lumefaciens	85
Acinetobacter	14
Bacillus Anthracis	87
Bacillus Anthracis Spores BaciHus Megatherium Sp. (Veg)	462
Bacillus Megatherium Sp. (Veg)	<u>25</u> 52
Bacillus Paratyphosus	61
Bacillus Subtilis	110
Bacillus Subtilis Spores	220
Bordetella pertussis	63
Clostridium Tetani	231
Clostridium Botulinum	112
Corynebacterium Diphtheriae	65
Dysentery Bacilli	42
Eberthella Typhosa	41
Enterobacter cloacae	64
Enterococcus	28
Escerichia Coll	86
Haemophilus influenzae	19
Haemophilus parainfluenzae	77
Klebsiella pneumoniae	52
Legionella pneumophila	11
Legionella Dumoffill	55
Legionella Gormanil	49
Legionella Micdadei	31
Legionella Longbeachae	29
Leglonella Pneumophfla	27
Leptospiracanicola - Infectious Jaundice Leptospira Interrogans	80
Micrococcus Candidus	123
Micrococcus Sphaeroides	154
Mycobacterlum Tuberculosis	100
Neisseria Catarrhalis	85
Phytomonas Tumefaciens	105
Proteus Vulgaris	39
Pseudomonas Aeruginosa	66
Pseudomonas Fluorescens	76
Rhodospirillum Rubrum	61
Salmonella Enteritidis	100
Salmonella Paratyphi	152
Salmonella Species	70
Salmonella Typhimurium	105
Salmonella Typhosa	264
Salmonella	61.6
Sarcina Lutea	42
Serratia Marcescens	34
Shigella Dysenteriae-Dysentery	34
Shigella Flexneri-Dysentery	70
Shigella Paradysenteriae Shigella Sonnei	85
Spirillum Rubrum	<u>66</u> 61.6
Staphlylococcus Albus	57.2
Staphlylococcus Aureus	66
Staphlylococcus Epidermidis	58
Streptococcus Faecaila	100
Streptococcus Hemolyticus	55
Streptococcus Lactis	88
Streptococcus Pyrogenes	42
Streptococcus Salivarius	42
Streptococcus Viridans	38
Typhoid Fever	41
Vibrio Comma (Cholera)	65
Vibrio Cholerae	65

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MOLDS

[J/m²]

Aspergillus Amstelodami	770
Aspergillus Flavus	990
Aspergillus Glaucus	880
Mucor Mucedo	770
Mucor Racemosus (A & B)	352
Oospora Lactis	110
Penicillium Chrysogenum	560
Penicillium Digitatum	880
Penicillium Expansum	220
Penicillium Roqueforti	264
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PROTOZOANS

VIRUSES

[J/m²]

Chlorella Volgaris (atgae)	220
E. Hystolytica	840
Nematode Eggs	400



[J/m²]

Adenovirus	45
Bacterlophage (E.Coli)	66
Coronavirus (SARS)	18
SARS Coronavirus CoV-P9	40
Murine Coronavirus (MHV)	103
SARS Coronavirus (Hanoi)	134
SARS Coronavirus (Urbani)	241
Coxsackievirus	63
Infectious Hepatitis	80
Influenza	34
Measles virus	22
Mumps virus	30
Norwalk virus	198
Parainfluenza virus	21
Parvovirus B19	25
Poliovirus	210
Reovirus	158
Rhinovirus	162
Rotavirus	240
RSV	25
Rubella virus	622
VZV (Varicella surrogate k)	18
Variola	240

FUNGI

[J/m²]

Aspergillus spores	258
Baker's Yeast	88
Blastomyces dermatitidis spores	140
Brewer's Yeast	66
Common Yeast Cake	132
Cryptococcus neoformans spores	138
Fusarium spores	269
Mucor spores	228
Rhizopus spores	267
Saccharomyces Cereisiae	132
Saccharomyces Ellipsoideus	132
Saccharomyces Sp.	176

HOW THE OZONE **PROCESS IN STERILIZED ROOMS** LOOKS LIKE





Key

 T_s - time to reach the sterilizing ozone concentration (default 5 ppm)

 T_{o} - supervised by the controller, required time of the sterilization process depending on the achieved ozone concentration T_{p} - supervised by the controller, supported by an ozone destructor, time of the process of returning to a safe ozone concentration

Application range in sterilization mode (O₃)

MODEL	RECOMMENDED STERILIZED CUBIC CAPACITY (in ozonization mode) [m ³]	MAXIMUM STERILIZED CUBIC CAPACITY (in ozonization mode) [m ³]
STERYLIS VS-450	450	3,400
STERYLIS VS-600	600	5,000
STERYLIS VS-900	900	6,800
STERYLIS VS-1200	1200	10,000
STERYLIS VS-1500	1500	11500
STERYLIS VS-1800	1800	13500

Chart of ozone sterilization time depending on the volume of the room to be sterilized



PLACES OF APPLICATION

PRACTICALLY IN EVERY ROOM!

STERYLIS VS devices are adapted to every type of room and to different cubic capacities. Their power and performance allows them to be adjusted to operate both during the day and at night (night mode - silent). They are characterized by many advantages, such as safety, convenient usage / service / and simple operation.





VS-450



Recommended CUBIC CAPACITY of the sterilized room

450 m³

WORK MODES:



Disinfection No and the second se UV-C

UV-C disinfection silent mode







TECHNICAL SPECIFICATIONS:

MODE – STERILIZATION O ₃ + UV-C	
Recommended maximum cubic capacity of the sterilized room (to achieve 5 ppm O_3)	450 m ³
Ozone generator capacity	30,000 mg/h
Fan capacity Sterilization mode O ₃ +UV-C	265 m³/h
Noise level – sterilization mode O_3 +UV-C	53 dB(A)
STANDARD MODE – UV-C DISINFECTION	
Initial maximum UV-C radiation dose	112 J/m ²
Average UV-C radiation dose	19 J/m²
Fan performance UV-C disinfection mode	220 m³/h
Noise level – disinfection mode UV-C	50 dB(A)
SILENT MODE – UV-C DISINFECTION	
Initial maximum UV-C radiation dose	149 J/m²
Average UV-C radiation dose	26 J/m²
Fan performance UV-C disinfection mode (silent)	165 m³/h
Noise level – disinfection mode UV-C (silent)	45 dB(A)
FILTRATION MODE	
Fan capacity in filter mode	220 m³/h
Noise level – filtering mode	50 dB(A)
UV lamp	YES



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700±10



UV-C sterilization λ	\ = 253.7 nm
of UV lamps	54 W
lamps	9,000 ł
light source	14.4 W
r	YES
ation sensor	YES
r	YES
	2-stage
	Radia
	enclosed
	flowtype
	YES
of operation YES (control of sterilization time accord ozone concentration	ling to actua ion readings
	YES
unter YES (signaling the r of filters and L	
230 \	V (AC), 50 Hz
	2.0 A
	470 W
gth	3 m / 10 m ³
W x D) 700) x 360 x 275
	18 kg
metal, pov	wder-coated
s/handles han	dle/castors
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Recommended **CUBIC CAPACITY** of the sterilized room

600 m³

WORK MODES:



Disinfection No and the second se UV-C

UV-C







TECHNICAL SPECIFICATIONS:

MODE – STERILIZATION O ₃ + UV-C	
Recommended maximum cubic capacity of the sterilized room (to achieve 5 ppm O_3)	600 m ³
Ozone generator capacity	45,000 mg/h
Fan capacity Sterilization mode O ₃ +UV-C	220 m³/h
Noise level – sterilization mode 0 ₃ +UV-C	55 dB(A)
STANDARD MODE – UV-C DISINFECTION	
Initial maximum UV-C radiation dose	180 J/m ²
Average UV-C radiation dose	40 J/m ²
Fan performance UV-C disinfection mode	200 m³/h
Noise level – disinfection mode UV-C	51 dB(A)
SILENT MODE – UV-C DISINFECTION	
Initial maximum UV-C radiation dose	232 J/m ²
Average UV-C radiation dose	51 J/m²
Fan performance UV-C disinfection mode (silent)	155 m³/h
Noise level – disinfection mode UV-C (silent)	46 dB(A)
FILTRATION MODE	
Fan capacity in filter mode	200 m³/h
Noise level – filtering mode	51 dB(A)
UV lamp	YES



Type lamps UV	UV-C sterilization λ = 253.7 nm
Electrical power of UV lamps	100 W
Durability of UV lamps	9,000 h
Power of the UV light source	30 W
Ozone generator	YES
Ozone concentration sensor	YES
Ozone destructor	YES
Air filtering	2-stage
Fan type	Radial
Fan engine	enclosed
Туре	flowtype
Controller	YES
Automatic mode of operation	YES (control of sterilization time according to actual ozone concentration readings)
Self-diagnosis	YES
Working time counter	YES (signaling the replacement of filters and UV radiators)
Power supply	230 V (AC), 50 Hz
Rated current	2.9 A
Rated power	670 W
Power cable length	3 m / 10 m*
Dimensions (H x W x D)	950 x 360 x 275
Net weight	20 kg
Type of housing	metal, powder-coated
Transport wheels/handles	handle/castors*
Additional functions	signaling safe and excessive ozone levels, detachable power cord



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Recommended **CUBIC CAPACITY** of the sterilized room

900 m³

WORK MODES:



Disinfection UV-C

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TECHNICAL SPECIFICATIONS:

MODE – STERILIZATION 0 ₃ + UV-C	
Recommended maximum cubic capacity of the sterilized room (to achieve 5 ppm O_3)	900 m³
Ozone generator capacity	60,000 mg/h
Fan capacity Sterilization mode O ₃ +UV-C	390 m³/h
Noise level – sterilization mode O ₃ +UV-C	54 dB(A)
STANDARD MODE – UV-C DISINFECTION	
Initial maximum UV-C radiation dose	296 J/m²
Average UV-C radiation dose	57 J/m²
Fan performance UV-C disinfection mode	270 m³/h
Noise level – disinfection mode UV-C	49 dB(A)
SILENT MODE – UV-C DISINFECTION	
Initial maximum UV-C radiation dose	443 J/m ²
Average UV-C radiation dose	85 J/m²
Fan performance UV-C disinfection mode (silent)	180 m³/h
Noise level – disinfection mode UV-C (silent)	43 dB(A)
FILTRATION MODE	
Fan capacity in filter mode	270 m³/h
Noise level – filtering mode	49 dB(A)

UV lamp



YES



Type lamps UV	UV-C sterilization λ = 253.7 nm
Electrical power of UV lamps	150 W
Durability of UV lamps	9,000 h
Power of the UV light source	45 W
Ozone generator	YES
Ozone concentration sensor	YES
Ozone destructor	YES
Air filtering	2-stage
Fan type	Radia
Fan engine	enclosed
Туре	flowtype
Controller	YES
Automatic mode of operation	YES (control of sterilization time according to actual ozone concentration readings
Self-diagnosis	YES
Working time counter	YES (signaling the replacement of filters and UV radiators
Power supply	230 V (AC), 50 Hz
Rated current	3.8 A
Rated power	870 W
Power cable length	3 m / 10 m*
Dimensions (H x W x D)	1050 x 700 x 525
Net weight	35 kg
Type of housing	metal, powder-coated
Transport wheels/handles	transport wheels
Additional functions	signaling safe and excessive ozone levels, detachable power cord

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Recommended **CUBIC CAPACITY** of the sterilized room

1200 m³

WORK MODES:



Disinfection No and the second se UV-C

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TECHNICAL SPECIFICATIONS:

MODE – STERILIZATION 0 ₃ + UV-C	
Recommended maximum cubic capacity of the sterilized room (to achieve 5 ppm $O_{_3})$	1200 m³
Ozone generator capacity	90,000 mg/h
Fan capacity Sterilization mode O ₃ +UV-C	740 m³/h
Noise level – sterilization mode O ₃ +UV-C	56 dB(A)
STANDARD MODE – UV-C DISINFECTION	
Initial maximum UV-C radiation dose	151 J/m²
Average UV-C radiation dose	38 J/m²
Fan performance UV-C disinfection mode	520 m³/h
Noise level – disinfection mode UV-C	52 dB(A)
SILENT MODE – UV-C DISINFECTION	
Initial maximum UV-C radiation dose	262 J/m²
Average UV-C radiation dose	66 J/m²
Fan performance UV-C disinfection mode (silent)	300 m³/h
Noise level – disinfection mode UV-C (silent)	48 dB(A)
FILTRATION MODE	
Fan capacity in filter mode	520 m³/h
Noise level – filtering mode	52 dB(A)

UV lamp



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Type lamps UV	UV-C sterilization λ = 253.7 nm
Electrical power of UV lamps	200 W
Durability of UV lamps	9,000 h
Power of the UV light source	60 W
Ozone generator	YES
Ozone concentration sensor	YES
Ozone destructor	YES
Air filtering	2-stage
Fan type	Radia
Fan engine	enclosed
Туре	flowtype
Controller	YES
Automatic mode of operation	YES (control of sterilization time according to actua ozone concentration readings
Self-diagnosis	YES
Working time counter	YES (signaling the replacement of filters and UV radiators
Power supply	230 V (AC), 50 Hz
Rated current	5.8 A
Rated power	1,330 W
Power cable length	3 m / 10 m'
Dimensions (H x W x D)	1050 x 700 x 525
Net weight	38 kg
Type of housing	metal, powder-coated
Transport wheels/handles	transport wheels
Additional functions	signaling safe and excessive ozone levels detachable power core



YES

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Recommended **CUBIC CAPACITY** of the sterilized room

1500 m³

WORK MODES:



Disinfection UV-C

UV-C disinfection silent mode







TECHNICAL SPECIFICATIONS:

MODE – STERILIZATION 0 ₃ + UV-C	
Recommended maximum cubic capacity of the sterilized room (to achieve 5 ppm $O_{_3})$	1,500 m ³
Ozone generator capacity	105,000 mg/h
Fan capacity Sterilization mode O ₃ +UV-C	800 m³/h
Noise level – sterilization mode 0 ₃ +UV-C	64 dB(A)
STANDARD MODE – UV-C DISINFECTION	
Initial maximum UV-C radiation dose	415 J/m²
Average UV-C radiation dose	80 J/m²
Fan performance UV-C disinfection mode	600 m³/h
Noise level – disinfection mode UV-C	61 dB(A)
SILENT MODE – UV-C DISINFECTION	
Initial maximum UV-C radiation dose	478 J/m²
Average UV-C radiation dose	92 J/m²
Fan performance UV-C disinfection mode (silent)	520 m³/h
Noise level – disinfection mode UV-C (silent)	57 dB(A)
FILTRATION MODE	
Fan capacity in filter mode	600 m³/h
Noise level – filtering mode	61 dB(A)

UV lamp



Type lamps UV	UV-C sterilization λ = 253.7 nm
Electrical power of UV lamps	330 W
Durability of UV lamps	9,000 h
Power of the UV light source	118 W
Ozone generator	YES
Ozone concentration sensor	YES
Ozone destructor	YES
Air filtering	2-stage
Fan type	Radial
Fan engine	enclosed
Туре	flowtype
Controller	YES
Automatic mode of operation	YES (control of sterilization time according to actual ozone concentration readings)
Self-diagnosis	YES
Working time counter	YES (signaling the replacement filters and UV-radiators)
Power supply	230 V (AC), 50 Hz
Rated current	7.9 A
Rated power	1,810 W
Power cable length	3 m / 10 m*
Dimensions (H x W x D)	1450 x 700 x 735
Net weight	55 kg
Type of housing	metal, powder-coated
Transport wheels/handles	transport wheels
Additional functions	signaling safe and excessive ozone levels, detachable power cord



YES







Recommended **CUBIC CAPACITY** of the sterilized room



WORK MODES:





UV-C disinfection silent mode



Sterilization O₂ + UV-C (Auto)



TECHNICAL SPECIFICATIONS:

MODE – STERILIZATION 0 ₃ + UV-C	
Recommended maximum cubic capacity of the sterilized room (to achieve 5 ppm $O_{_3}$)	1,800 m³
Ozone generator capacity	120,000 mg/h
Fan capacity Sterilization mode O ₃ +UV-C	1,050 m³/h
Noise level – sterilization mode O ₃ +UV-C	58 dB(A)
STANDARD MODE – UV-C DISINFECTION	
Initial maximum UV-C radiation dose	305 J/m²
Average UV-C radiation dose	76 J/m²
Fan performance UV-C disinfection mode	800 m³/h
Noise level – disinfection mode UV-C	56 dB(A)
SILENT MODE – UV-C DISINFECTION	
Initial maximum UV-C radiation dose	394 J/m²
Average UV-C radiation dose	98 J/m²
Fan performance UV-C disinfection mode (silent)	620 m³/h
Noise level – disinfection mode UV-C (silent)	54 dB(A)
FILTRATION MODE	
Fan capacity in filter mode	800 m³/h
Noise level – filtering mode	56 dB(A)
UV lamp	YES





Type lamps UV	UV-C sterilization λ = 253.7 nm
Electrical power of UV lamps	440 W
Durability of UV lamps	9,000 h
Power of the UV light source	157 W
Ozone generator	YES
Ozone concentration sensor	YES
Ozone destructor	YES
Air filtering	2-stage
Fan type	Radial
Fan engine	enclosed
Туре	flowtype
Controller	YES
Automatic mode of operation	YES (control of sterilization time according to actual ozone concentration readings)
Self-diagnosis	YES
Working time counter	YES (signaling the replacement of filters and UV radiators)
Power supply	230 V (AC), 50 Hz
Rated current	9.6 A
Rated power	2,210 W
Power cable length	3 m / 10 m*
Dimensions (H x W x D)	1450 x 700 x 735
Net weight	60 kg
Type of housing	metal, powder-coated
Transport wheels/handles	transport wheels
Additional functions	signaling safe and excessive ozone levels, detachable power cord



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