





PROFESSIONAL ROOM STERILIZERS

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





TECHNOLOGY



ULTRA ROOM STERILIZERS

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: ULTRA-220, ULTRA-330, ULTRA-440, ULTRA-550.

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 the air after passing through the channel 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 spread outside 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.



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.

INTUITIVE AND CONVENIENT



PROFESSIONAL ROOM STERILIZERS



- **1. LIGHT AND SOUND SIGNALLING** indicates that the unit is in the room sterilization cycle with ozone.
- 2. ERGONOMIC HANDLES
- 3. CONTROL PANEL
- 4. MAIN SWITCH
- 5. CARTRIDGE FILTERS easy to replace

6. CONTROLLER WITH OZONE SENSOR manages the operation of the device and analyzes the concentration of ozone in the room

7. BACKLIT PANEL gently pulsating blue light

8. CASTORS



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. A simple and intuitive control panel makes it easy to select the operating mode. The new sterilization mode controller allows you to choose between automatic operation and operation with predefined settings for sterilization time and ozone concentration, it is also possible to program and select own operation mode. The displays inform the user about the ozone concentration and process parameters. They indicate the need to replace filters, the need to replace UV-C lamps if their service life is exceeded or if they burn out, and 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 has displays indicating the current ozone concentration, time to process completion, in case of delayed activation, operating modes or selected program, maintenance alerts for the device, including signaling the need to replace filters. 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 TECHNOLOGY WORKS FOR PATHOGENS





WHAT A FULL CYCLE OF OZONE STERILIZATION LOOKS LIKE





UV-C RADIATION DOSE

GENERATED BY THE EQUIPMENT 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 [1] and the exposure time [t].

Therefore: DOSE = I x t

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

The average dose of UV-C radiation generated at one passage of air through the full volume of the disinfection chamber



STERYLIS unit model		ULTRA-220	ULTRA-330	ULTRA-440	ULTRA-550
Operation mode	Average dose [J/m²]	144	221	105	104
UV-C disinfection (silent)	Efficiency [m ³ /h]	170	185	580	680
Operation mode	Average dose [J/m ²]	106	141	90	79
Disinfection UV-C	Efficiency [m³/h]	230	290	680	900







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]

and the second	BACTERIA	[J/m²]
Agrob	acterium Lumefaciens	85
	obacter	14
	is Anthracis	87
	is Anthracis Spores	462
	us Megatherium Sp. (Veg)	25
	ıs Megatherium Sp. (Spores) ıs Paratyphosus	<u>52</u> 61
	is Subtilis	110
	is Subtilis Spores	220
Borde	tella pertussis	63
	idium Tetani	231
	idium Botulinum	112
Coryn	ebacterium Diphtheriae	65
	tery Bacilli	42
Eberth	nella Typhosa	41
Entero	bacter cloacae	64
Entero	DCOCCUS	28
	chia Coll	86
	ophilus influenzae	19
	ophilus parainfluenzae	77
	ella pneumoniae	52
	nella pneumophila	11
	nella Dumoffill	55
	nella Gormanil nella Micdadei	<u>49</u> 31
	nella Longbeachae	29
	nella Pneumophfla	27
	spiracanicola – Infectious Jaundice	60
	spira Interrogans	80
	coccus Candidus	123
	coccus Sphaeroides	154
	pacterlum Tuberculosis	100
Neisse	eria Catarrhalis	85
Phyto	monas Tumefaciens	105
	ıs Vulgaris	39
	omonas Aeruginosa	66
	omonas Fluorescens	76
	ospirillum Rubrum	61
	nella Enteritidis	100
	nella Paratyphi	152
	nella Species	70
	nella Typhimurium nella Typhosa	<u>105</u> 264
Salmo		61.6
	a Lutea	42
	ia Marcescens	34
	la Dysenteriae-Dysentery	34
	la Flexneri-Dysentery	70
	la Paradysenteriae	85
	la Sonnei	66
	ım Rubrum	61.6
Staph	lylococcus Albus	57.2
	lylococcus Aureus	66
	lylococcus Epidermidis	58
	ococcus Faecaila	100
	ococcus Hemolyticus	55
	ococcus Lactis	88
	ococcus Pyrogenes	42
	ococcus Salivarius	42
	ococcus Viridans id Fever	<u>38</u> 41
	Comma (Cholera)	65
Vihrio	Cholerae	65



[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



PROTOZOANS

[J/m²]

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



VIRUSES

[J/m²]

Bacterlophage (E.Coli)66Coronavirus (SARS)18SARS Coronavirus CoV-P940Murine Coronavirus (WHV)103SARS Coronavirus (Hanoi)134SARS Coronavirus (Urbani)241Coxsackievirus63Infectious Hepatitis80Influenza34Measles virus22Mumps virus30Norwalk virus198Parainfluenza virus210Reovirus158Rhinovirus162Rotavirus25Rubella virus25Rubella virus25Rubella virus25Rubella virus25VZV (Varicella surrogate k)18Variola240	Adenovirus	45
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Rhinovirus162Rotavirus240RSV25Rubella virus622VZV (Varicella surrogate k)18	Poliovirus	210
Rotavirus240RSV25Rubella virus622VZV (Varicella surrogate k)18	Reovirus	158
RSV25Rubella virus622VZV (Varicella surrogate k)18	Rhinovirus	162
Rubella virus622VZV (Varicella surrogate k)18	Rotavirus	240
VZV (Varicella surrogate k) 18	RSV	25
	Rubella virus	622
Variola 240	VZV (Varicella surrogate k)	18
	Variola	240

•••• FUNGI

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

[J/m²]

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

Chart of the sterilization process in the room ppm T_{ς} T_{0} T Concentration [0₃] 100% t

 ${
m T_s}$ - 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_n - 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 (0,)

MODEL	RECOMMENDED STERILIZED CUBIC CAPACITY (in ozonization mode) [m ³]	MAXIMUM STERILIZED CUBIC CAPACITY (in ozonization mode) [m ³]
ULTRA 220	450	2,700
ULTRA 330	850	3,600
ULTRA 440	850	3,600
ULTRA 550	1,050	5,600

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



PLACES OF APPLICATION

PRACTICALLY IN EVERY ROOM!

STERYLIS ULTRA 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.







ULTRA-220



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Recommended **CUBIC CAPACITY** of the sterilized room

WORK MODES:



Store (Second Disinfection UV-C

450 m³

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	20,000 mg/h
Fan capacity Sterilization mode O ₃ +UV-C	290 m³/h
Noise level – sterilization mode O ₃ +UV-C	52 dB(A)
STANDARD MODE – UV-C DISINFECTION	
Initial maximum UV-C radiation dose	483 J/m ²
Average UV-C radiation dose	106 J/m ²
Fan performance UV-C disinfection mode	230 m³/h
Noise level – disinfection mode UV-C	50 dB(A)
SILENT MODE – UV-C DISINFECTION	
Initial maximum UV-C radiation dose	654 J/m²
Average UV-C radiation dose	144 J/m ²
Fan performance UV-C disinfection mode (silent)	170 m³/h
Noise level – disinfection mode UV-C (silent)	44 dB(A)
FILTRATION MODE	
Fan capacity in filter mode	230 m³/h
Noise level – filtering mode	50 dB(A)

UV	la	m	D
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Type lamps UV Electrical power of UV lamps Durability of UV lamps Power of the UV light source Ozone generator Ozone concentration sensor Ozone destructor Air filtering Fan type Fan engine Туре Controller Automatic mode of operation Pre-defined operating mode Self-diagnosis Working time counter Power supply Rated current Rated power Power cable length Dimensions (H x W x D) Net weight Type of housing Transport wheels/handles

Additional functions

YES







UV-C sterilization λ = 253.7 nm
220 W
9,000 h
78 W
YES
YES
YES
2-stage
Radial
enclosed
flowtype
YES
YES (control of sterilization time according to
actual ozone concentration readings) YES (supervised by the controller according to the user- -defined ozone concentration and sterilization time)
YES
YES (signaling the replacement of filters and UV radiators)
230 V (AC), 50 Hz
2.0 A
470 W
3 m / 10 m*
1490 x 700 x 760
26 kg
metal, powder-coated
transport wheels
signaling safe and excessive ozone levels, detachable power cord



ULTRA-330



Recommended **CUBIC CAPACITY** of the sterilized room

WORK MODES:





850 m³

UV-C 38 disinfection silent mode



Sterilization O₂ + UV-C (Auto)



TECHNICAL SPECIFICATIONS:

MODE – STERILIZATION O ₃ + UV-C	
Recommended maximum cubic capacity of the sterilized room (to achieve 5 ppm $O_{_3}$)	850 m ³
Ozone generator capacity	30,000 mg/h
Fan capacity Sterilization mode O ₃ +UV-C	410 m³/h
Noise level – sterilization mode O ₃ +UV-C	55 dB(A)
STANDARD MODE – UV-C DISINFECTION	
Initial maximum UV-C radiation dose	575 J/m ²
Average UV-C radiation dose	141 J/m ²
Fan performance UV-C disinfection mode	290 m³/h
Noise level – disinfection mode UV-C	49 dB(A)
SILENT MODE – UV-C DISINFECTION	
Initial maximum UV-C radiation dose	901 J/m ²
Average UV-C radiation dose	221 J/m ²
Fan performance UV-C disinfection mode (silent)	185 m³/h
Noise level – disinfection mode UV-C (silent)	33 dB(A)
FILTRATION MODE	
Fan capacity in filter mode	290 m³/h
Noise level – filtering mode	49 dB(A)

UV lamp



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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)
Pre-defined operating mode	YES (supervised by the controller according to the user- -defined ozone concentration and sterilization time)
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)	1490 x 700 x 760
Net weight	36 kg
Type of housing	metal, powder-coated
Transport wheels/handles	transport wheels
Additional functions	signaling safe and excessive ozone levels, detachable power cord

YES









ULTRA-440 MODEL



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Recommended **CUBIC CAPACITY** of the sterilized room



WORK MODES:





UV-C 38 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)	850 m ³
Ozone generator capacity	30,000 mg/h
Fan capacity Sterilization mode O ₃ +UV-C	900 m³/h
Noise level – sterilization mode O ₃ +UV-C	61 dB(A)
STANDARD MODE – UV-C DISINFECTION	
Initial maximum UV-C radiation dose	359 J/m ²
Average UV-C radiation dose	90 J/m²
Fan performance UV-C disinfection mode	680 m³/h
Noise level – disinfection mode UV-C	58 dB(A)
SILENT MODE – UV-C DISINFECTION	
Initial maximum UV-C radiation dose	421 J/m²
Average UV-C radiation dose	105 J/m²
Fan performance UV-C disinfection mode (silent)	580 m³/h
Noise level – disinfection mode UV-C (silent)	55 dB(A)
FILTRATION MODE	
Fan capacity in filter mode	680 m³/h
Noise level – filtering mode	58 dB(A)





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)
Pre-defined operating mode	YES (supervised by the controller according to the user- -defined ozone concentration and sterilization time)
Self-diagnosis	YES
Working time counter	YES (signaling the replacement of filters and UV radiators)
Power supply	230 V (AC), 50 Hz
Rated current	3.5 A
Rated power	810 W
Power cable length	3 m / 10 m*
Dimensions (H x W x D)	1490 x 700 x 760
Net weight	48 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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YES







ULTRA-550



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Recommended **CUBIC CAPACITY** of the sterilized room



WORK MODES:





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 0 ₃)	1,050 m³
Ozone generator capacity	40,000 mg/h
Fan capacity Sterilization mode O ₃ +UV-C	1,180 m³/h
Noise level – sterilization mode O ₃ +UV-C	57 dB(A)
STANDARD MODE – UV-C DISINFECTION	
Initial maximum UV-C radiation dose	266 J/m ²
Average UV-C radiation dose	79 J/m²
Fan performance UV-C disinfection mode	900 m³/h
Noise level – disinfection mode UV-C	54 dB(A)
SILENT MODE – UV-C DISINFECTION	
Initial maximum UV-C radiation dose	352 J/m ²
Average UV-C radiation dose	104 J/m ²
Fan performance UV-C disinfection mode (silent)	680 m³/h
Noise level – disinfection mode UV-C (silent)	52 dB(A)
FILTRATION MODE	
Fan capacity in filter mode	900 m³/h
Noise level – filtering mode	54 dB(A)





Type lamps UV Electrical power of UV lamps Durability of UV lamps Power of the UV light source Ozone generator Ozone concentration sensor Ozone destructor Air filtering Fan type Fan engine Туре Controller Automatic mode of operation Pre-defined operating mode Self-diagnosis Working time counter Power supply Rated current Rated power Power cable length Dimensions (H x W x D) Net weight Type of housing Transport wheels/handles Additional functions

YES





UV-C sterilization λ = 253.7 nm 550 W 9,000 h 196 W YES YES YES 2-stage
9,000 h 196 W YES YES YES 2-stage
196 W YES YES YES 2-stage
YES YES YES 2-stage
YES YES 2-stage
YES 2-stage
2-stage
5
5
Radial
enclosed
flowtype
YES
YES (control of sterilization time according to actual ozone concentration readings) YES (supervised by the controller according to the user-
-defined ozone concentration and sterilization time)
YES
YES (signaling the replacement of filters and UV radiators)
230 V (AC), 50 Hz
4.4 A
1,010 W
3 m / 10 m*
1490 x 700 x 760
55 kg
metal, powder-coated
transport wheels
signaling safe and excessive ozone levels, detachable power cord

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PROFESSIONAL ROOM STERILIZERS



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