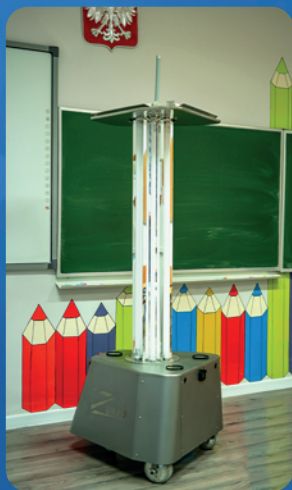


RobUV

RobUV Robot for disinfection and inactivation of bacteria, viruses and pathogens with UV-C radiation



To meet the needs of effective decontamination associated with the COVID-19 pandemic outbreak, **ZURAD Sp. z o. o.**, which is part of the **Polish Armaments Group**, in cooperation with the Innovation and Technology Institute of the Białystok University of Technology offers several products for decontamination designed to fight bacteria, viruses and pathogens with UV-C radiation, including Rob UV-C.



Description of the solution

RobUV is a mobile UV module based on UV-C emitters designed for combating biological weapons, including decontamination. The effect of its operation is the destruction of DNA and RNA of living organisms (bacteria, fungi, microorganisms, viruses) on any washable and non-washable surfaces exposed to high-energy UV-C radiation (this is the method used to disinfect treatment rooms in hospitals).

The device is offered in a mobile (portable) version with equipment adjusted to the work ergonomics of potential users.

During the manufacturing process, the standards that are involved in the manufacture of military and medical equipment were applied. The device fulfils the requirements resulting from the applicable standards and conditions for obtaining certification. All structural elements are resistant to UV-C radiation. Moreover, the device is resistant to vibrations, impacts and other operating and environmental conditions. Safety systems ensure safe operation for the personnel because the device cannot be used in the direct presence of people, as UV-C radiation can cause skin and eye irritation. The device control method ensures safe operation for the personnel.

RobUV is remotely controlled and ensures a real-time view from the robot camera. The view is displayed on the tablet. Its compact design facilitates handling and control.

The device is battery-supplied with 230 V mains charging.

The decontamination time is included in **Appendix No. 1** (see: Appendix No. 1 – Clinical disinfection report).

The advantages of using the device



Disinfection with
UV-C radiation



Kills viruses,
pathogens and
bacteria



Confirmed
inactivation



Disinfection of rooms,
documents and objects



Easy to move



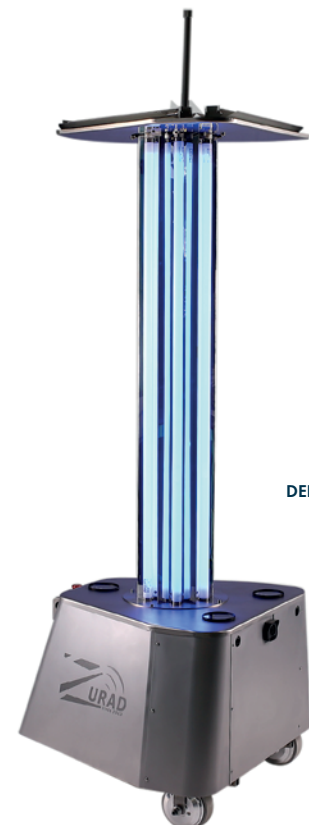
Remote
control



Disinfection time
from 5 to 30 minutes

Technical parameters

Radiation range	From 200 nm to 280 nm (peak 254 nm)
Power of UV-C emitters	500 W
Operating voltage	24 VDC
Autonomous operating time	up to 3 hours
Distance from the illuminated surface	up to 2 meters
Decontamination level	up to 99,90 %
Durability of UV-C emitters	up to 9000 hours



CERTIFICATE



DEFENDER 2020
AWARD



MADE IN
POLAND

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Extract from the clinical disinfection report

Appendix 1

The report will be made available in its entirety to users. The tables below show that RobUV is highly effective against fighting other biological hazards besides SARS-CoV-2.

The bactericidal effectiveness of Hyper Light has been verified by independent certified laboratories and clinically confirmed by hospitals, where its ability to effectively eliminate pathogens has been demonstrated in the hospital environment and reduce the incidence of contact infections between patients and healthcare workers.

Hyper Light can kill 99.99 % to 99.9999 % of microorganisms (such as multi-drug resistant organisms MRSA, MDRAB, MDRPA, VRE), bacterial spores of *C. difficile*, fungi, viruses (H1N1, influenza B, enteroviruses) within a radius of 2.7 to 3 meters in 5 to 15 minutes. During clinical experiments in the general ward, Hyper Light operating for a total time of 15 minutes reduced almost 100 % of microorganisms on the most frequently touched surfaces.

Bactericidal effectiveness of Hyper Light (Unit: CFU) Extract from the laboratory tests.

Pathogens	Before treatment	Exposure 5 min	Exposure 10 min	Exposure 15 min
Bacteria [1]				
<i>S. aureus</i>	3.3×10^6	1.1×10^2	2.4×10	< 1
<i>E. faecalis</i>	8.4×10^6	1.2×10^5	2.8×10^2	< 1
<i>E. coli</i>	5.8×10^6	1.8×10^2	<1	< 1
<i>K. pneumoniae</i>	8.5×10^6	2.2×10	<1	< 1
<i>A. baumannii</i>	1.1×10^7	4.0×10^3	2.2×10	< 1
<i>P. aeruginosa</i>	3.4×10^6	<1	<1	< 1
<i>M. abscessus</i> [2]	9.2×10^8	2.0×10^5	1.6×10^4	4.0×10^2
Bacterial spores [1]				
<i>C. difficile</i>	2.9×10^6	5	<1	< 1
MDRO [2]				
MRSA	1.0×10^9	4.8×10^3	2.6×10^3	8.0×10^2
MDRAB	1.1×10^8	4.2×10^3	4.0×10^2	< 1
MDRPA	8.2×10^8	3.0×10^3	6.0×10^2	2.0×10^2
VRE	2.8×10^7	8.0×10^5	6.0×10^2	2.0×10^2
Fungi [1]				
<i>A. brasiliensis</i>	5.3×10^6	5.3×10^3	<1	< 1
Viruses [3]				
H1N1	1.0×10^8	5.0×10^2	6.0×10	< 1
Influenza B	1.0×10^8	4.0×10^2	1.5×10	< 1
Enterovirus	1.0×10^8	4.0×10^3	5.0×10^2	2

[1] SGS Taiwan Ltd., 254 UVC Disinfection Robot System Antimicrobial activity test (2015)

[2] Yang J-H, et al., Effectiveness of an ultraviolet-C disinfection system for reduction of healthcare-associated pathogens, *Journal of Microbiology, Immunology and Infection* (2017)

[3] Chang Gung University Emerging Viral infections Research Center, Antiviral mechanism study for 254 UVC Disinfection Robot System (2015)