



UV-C-DESINFECTION ROBOT

[HERO21]

CLEANEST GERMAN ENGINEERING

A COMPANY ON THE PATH OF INNOVATION

The ICA Group is an owner-managed medium-sized company with reputed engineering expertise that has also been active in the healthcare and pharmaceutical sector since 2019. We offer our customers individual consultation as well as customized solutions and support beyond the purchase and product installation.

HERO21

Developed in 2019, the HERO21 is a scientifically grounded UV-C disinfection robot, which was developed, validated and tested together with the Ruhr University Bochum. With the HERO21, ICA presents a disinfection robot of the most advanced technology, with which users can easily meet challenges regarding responsibility, quality, and reliability. The HERO21 offers autonomous, documentable, reproducible, and efficient disinfection performance while maintaining sustainability.

FROM LABORATORY TO PRACTISE

- Basic physical examinations using spectroscopy in a certified genetics laboratory for the optimal development of the UV-C lamps used.
- The selected UV-C lamps performed convincingly during efficiency testing in the laboratory.
- Proofs of efficacy with highly resistant endospore-forming bacteria (*B. subtilis*). Due to the autonomous movements of the robot, a reduction in contamination is achievable even in hard-to-reach areas.

- The robot's disinfection performance was proven in four different certified S1 and S2 gene laboratories.
- 40% more germs than before are disinfected through the use of the HERO21 as a supporting disinfection measure, according to evaluations by the Ruhr-Universität Bochum.



MICROBIOLOGICAL EXAMINATION

Ruhr University Bochum determined the following results for B.subtilis in the fundamental investigations (distance between lamps and germ carrier = 1 m):

Logstages / reduction in %	Disinfection time (in s)
Log 1 / 90%	5.9 s
Log 3 / 99,9%	17.7 s
Log 5 / 99,999%	29.5 s

Determination for other germs
(based on the fundamental investigations)

Germ	Disinfection time (reduction by 5 logos)
E. coli	7.5 s
S. aureus	12 s
B. tuberculia	24.5 s

UV-C VS. CONTAMINATION RISKS

Cleanroom productions require a high level of responsibility for quality and hygiene, as inadequate or insufficient disinfection can lead to interruptions in production processes, resulting in significant costs. To protect the employees and maintain consistently high production quality, a reproducibly high level of disinfection quality is therefore essential.

CONVENTIONAL METHODS DO NOT ADEQUATELY ADDRESS THE PROBLEM

Manual disinfection often fails to fully cover all surfaces requiring disinfection, resulting in an inability to ensure sufficient disinfection of surfaces but also room air or enclosed spaces. Disinfection using hydrogen peroxide, on the other hand, involves significant preparation and post-processing efforts, leading to longer downtimes in cleanroom productions.

UV-C radiation has been successfully utilized for several decades in drinking water treatment and the industrial production of food. In the fight against viruses and bacteria, this method has decisive arguments: UV-C radiation penetrates to the genetic material of bacteria, fungi, or viruses, hindering reproduction by damaging DNA or RNA. Numerous studies have proven the effectiveness and provided the radiation doses required to inactivate viruses such as the SARS-CoV-2 pathogen.

HERO21: TECHNICAL SPECIFICATIONS

Size W*H*D	55 cm x 155 cm x 70 cm
Operating locations	Laboratories, cleanroom productions, hospitals, hotels, restaurants etc.
Safety	Multi-level safety system, including shut-down when the door is opened. Person and object detection using laser sensors
Speed	1 m/s
Disinfection time	10-15minutes per 25 m ²
Disinfection cover	360°
Operating time	3,5 h
Navigation	Free navigation, HERO21 scans the room independently and saves room data
Connectivity	LTE / 5G Wi-fi / LAN / RS-232
Configuration	8 UV-C lamp, 254 nm

ADVANTAGES AT A GLANCE

- Accelerated disinfection process
- Increasing the quality of disinfection
- Expansion of the disinfection area including floors, walls, ceilings and ambient air
- Reproducible and documentable disinfection process
- Plug and play solution with intuitive operation via app
- Simple integration into existing workflows and environments without any additional adaptation effort



Have we sparked your interest?

We welcome you to reach out and schedule a consultation
at your convenience, without any obligation:

Theodoros Iskenteridis | Sales Engineer

Mobile: +49 151 643 405 46

E-Mail: vertrieb.health@ica.de



Ongoing commissioning
process



Katholisches Klinikum Bochum



Our partners:

