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PANSTADIA & ARENA MANAGEMENT

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Recovering from Covid-19

Motera Stadium

Globe Life Field

Playing surfaces in focus



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Turf protection opportunities are strong as stadiums plan for the future.

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UV-C LIGHT, BETTER INFECTION PREVENTION IN STADIUMS

A proven and validated disinfection technology is now available for universal application, as Martin Sembach of GoGaS explains.

Traditional disinfection methods are based on using liquids, both chemicals and bio degradable. With the awareness of COVID-19 and the need for a strategic response in infection prevention, it has rapidly become clear that applying more chemicals is partially solving the problem. On the other hand this generates a whole range of new problems, including a dramatic increase of usage of hazardous disinfection liquids, increase of risks for employees and visitors by poisoning aerosols, their spread in ventilation and aircon systems and equally bad, in the water system due to wrong and improper handling and application.

CAN STADIUM OPERATORS AFFORD NOT TO RESPOND?

The answer is simply no. However, operators are challenged with two major issues at the same time. One is the disinfection itself. The second, equal and to many even more important one, is to provide more confidence and a better feeling to the customers and visitors doing so in a transparent and sustainable way. It is more than clear to everybody, that this cannot be achieved by increasing the amount of chemicals applied, leaving the result of the process to the cleaning operator and keeping poisoning the environment. A much better strategic answer for fighting Covid-19 and all other potentially infecting pathogens is UV-C Lighting.



This technology solves both problems at the same time, assuring a medically approved and validated process.

BENEFIT OF UV-C

Other than with antibiotics, liquid disinfections and so on, infectious pathogens do not have any natural resistance against UV-C Light, since this wavelength is completely absorbed by the Earth's atmosphere. One strategic answer that uses exactly that problem and turns it into a strategic weapon against Corona and all other dangerous pathogens is the fully autonomous UV-C Disinfection robot that GoGaS provides to its customers. The Robot combines the latest UV-C disinfection technology, well tested and validated by leading independent institutions and hospitals, and combines it with the latest state of-the-art industrial robot platform. This combination allows the 24/7 reliable usage of UV-C technology which has been successfully used in hospitals around the world for several years.

The GoGaS solution tunes more than 90% of the UV-C energy at the ideal sweet spot of 254nm, controlled by intelligent software and other key parameters and destroys the DNA of bacteria, germs, moulds and viruses. Not just Covid-19. All this is electronically and digitally monitored, tracked and controlled. Each step and result is digitally available for analysis

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and reporting according to individual H&S Compliance Standards. The technique is completely environment friendly and disinfects both the air and all surfaces around in a 360° range during the same process.

While providing the best tool for better infection prevention in stadiums, it also allows the operators to share what they do in a digital way with their customers and visitors. It not only provides better infection prevention, it also takes the customers on a journey, allowing them to see and understand what happens. For the operator it further increases his own protection, documenting what he is doing and helping to increase revenue spend in the stadium, by increasing the level of confidence to all.

TOTAL LOWEST COST OF OWNERSHIP

As an example, with the amount of money annually spent for a VIP lounge in a stadium, the customer and their guests deserve the best level of protection and environmentally friendly solution they can get, at the same time. All in all, different studies and cost comparisons have clearly shown, that autonomous UV-C disinfection robots not only provide a great job giving customers a better and safer feeling, but all in all are clearly the total lowest cost of ownership response to a problem that will not just disappear by itself. ■



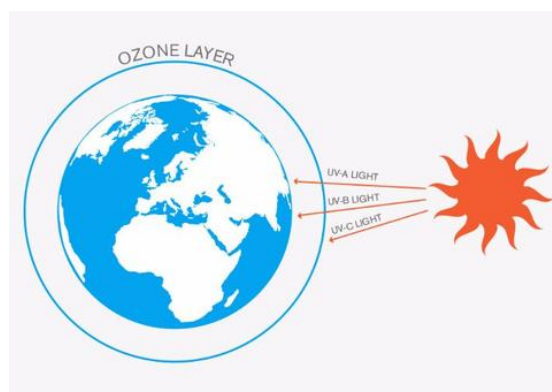
The Problem: Bacterias and Viruses incl. Corona
The Answer: The CAREtaker, UV-C Disinfection Robot



Air and Surface Disinfection
Clinically tested and approved

uvd@gogas.com

Impact of UV and UV-C Light for Disinfection

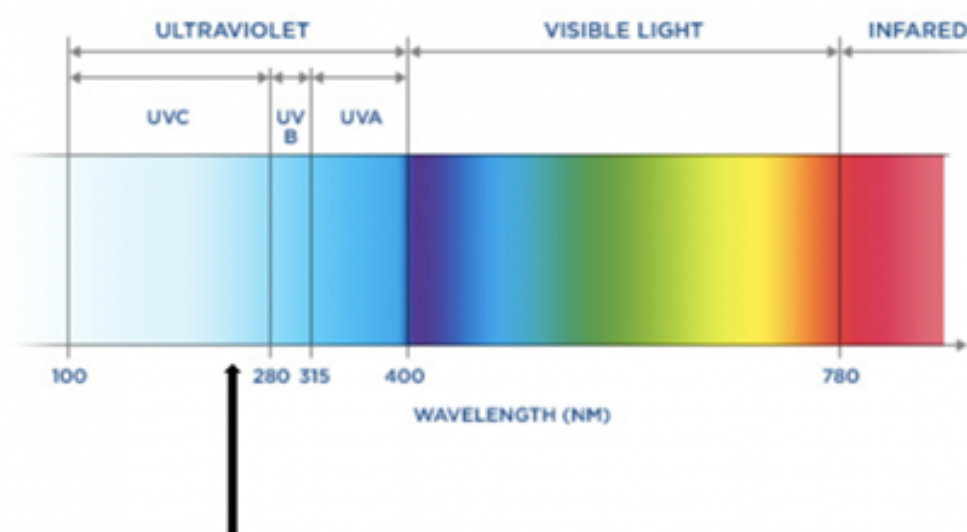


Microorganisms do not have a **natural** resistance against **UV-C Light**

The sun emits UV-A, UV-B and UV-C Light. UV-A and a small portion of UV-B find its way through the atmosphere and reaches the surface. UV-C is fully absorbed and reflected by the atmosphere. Hence, Microorganisms have not developed a natural resistance against UV-C Light.

UV-C Light, applied in a very specific wavelength is a proven methodology to successfully disinfect and destroy the DNA of Bacterias, Germs, Mold and Viruses at the same time.

Impact of UV and UV-C Light for Disinfection



UVGI Disinfection Method applying UV-C Light using a [wavelength of 254nm](#)

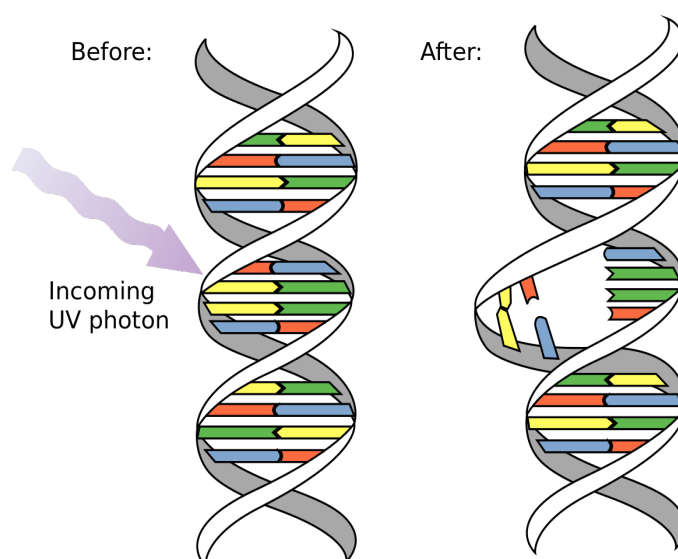
Alcoholic/chemical disinfection methods are inactivating Bacteria and others. They do not necessarily destroy their DNA. Depending on their environment, temperature, humidity and other parameters, they may be able to survive, reactivate and reproduce themselves.

The UVGI (Ultraviolet Germicidal Irradiation) method uses UV-C light in a very specific wavelength to both disinfect and destroy the DNA of Bacteria and other Microorganisms. Applying UV-C using UVGI, they are losing the ability to reactivate and reproduce themselves.

Well established and proven Method

This methodology is well proven since many years and successfully applied to many stationary processes in the F&B, Pharmaceutical, Healthcare and other industries.

Impact of UV and UV-C Light for Disinfection



UVGI Disinfection applying UV-C Light at 254nm Wavelength

Important! To successfully disinfect and destroy the DNA of Bacteria and others, only a very specific section of the UV-C bandwidth around 254nm can be used. Simply speaking all other UV light is just light and has basically no impact. The CAREtaker therefore applies its light energy into exactly this specific UV-C bandwidth to disinfect and to destroy the DNA of Bacteria, Germs, Molds and Viruses at the same time.

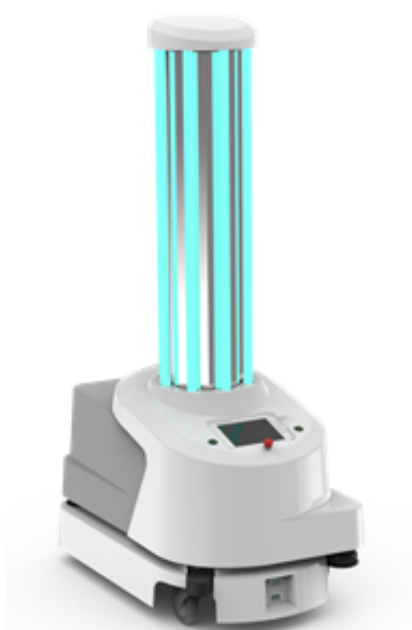
The function, impact and positive results applying the CAREtaker has been tested by independent studies and is clinically proven.

The CAREtaker is used to disinfect Air and Surfaces at the same time, applying UV-C light in a 360° coverage to disinfect and destroy the DNA, such as SARS, MERS, INFLUENZA, MRSA, CORONA,...

All tests done applying the international NFT72-281 Test setup
Ref. LOG Table 1-7, complete range

UV-C Disinfection – Air- and Surface

Model - CAREtaker



CAREtaker Function

The CAREtaker is based on a well proven industrial robot platform, combined with the latest state of the art UV-C disinfection technology. This allows a secure and save operation of the CAREtaker in a broad range of different situations and environment, not only in the health and medical segment, but also across industrial and other environments in a 24/7 application.

The CAREtaker applies the UV-C light, using a precise wavelenght of around 254nm with a > 90% efficiency, only a very small fraction of the energy is seen as light. With a reach of 360° the CAREtaker disinfects Air and Surfaces up to around 250cm from floor level in one cycle at the same time and destroys the DNA of the Bacterias and others.

This save and environment friendly method makes the CAREtaker the ideal system accom-
plishing disinfection and Health & Safety Compliance at the same time.

The CAREtaker can easily be operated manually, semi automatic or in a full predefined autonomous mode.

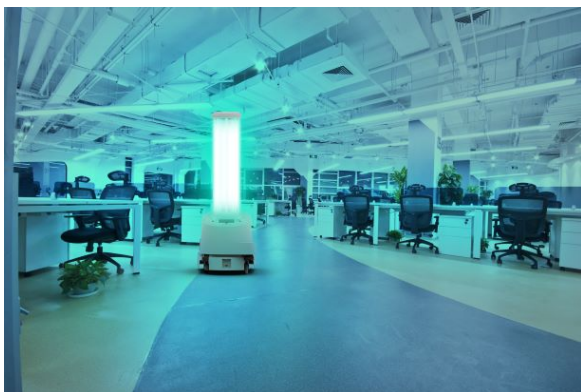
UV-C Dinsinfection – Air- and Surface Model - CAREtaker



Stationary and mobile Application easy to move around

- Offices, Administration, Service Buildings
- Meeting- and Conference Rooms
- Receptions, and Counters
- Production, Logistiscs, Warehousing
- Kitchens, Canteens, Restaurants
- Sanitary, lockers and Social facilities
- Medical, Clinical, Laboratories
- Pharmaceutical, Chemical production and labs
- Exhibition and Conference Centers
- Airports, Trainstations, Metros, Lounges
- Trains, Subways, Ferries, Cruise ships
- Retail, Shopping Malls
- Hotels, Residences, Appartments, Care Centers
- Sport Facilities, Stadiums, Gyms
- Schools, Kindergardens, Social Centers
- Barracks, Dormitories
- Cinemas, Theaters, Concert Halls

UV-C Dinsinfection – Air- and Surface Model - CAREtaker



During operation in Open Plan Offices and
Production Facility

UV-C Desinfektionsroboter – Luft- und Flächendesinfektion

Modell - CAREtaker

More Application Examples during operation



Airports



Retail



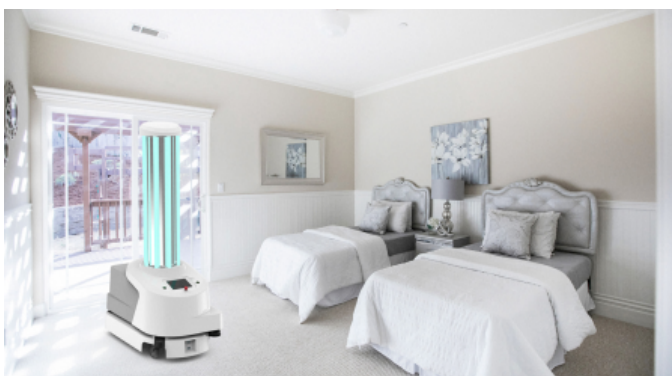
Sanitary

UV-C Dinsinfection – Air- and Surface Model - CAREtaker

Examples variety of Applications



Lounges



Hotels



Sportcenters



Retail & Logistics

UV-C Dinsinfection – Air- and Surface Model - CAREtaker

Examples variety of Applications



Trains/Subways



Exh. Halls



Airports/Train Stations



Offices, Labs



Production

UV-C Dinsinfection – Air- and Surface

Model - CAREtaker



Key Facts and Application Datas

- Clinically tested and approved, fully certified system
- Disinfects and destroys the DNA of Bacterias, Germs, Molds, Viruses at the same time
- Manual, semi automatic, full automatic operation
- Easy use and control
- Developed and verified in close cooperation with hospitals and official authorities
- Easy integration in Health & Safety Compliance Systems and daily routines
- Covers all 7 LOG levels (medically defined) 99.999999%
- 360° coverage of air and surfaces, integrated camera and sensor control
- Automatic Shut of and Safety mode
- Easy selection of mode, intensity and duration, easy to replicate
- Automatic data collection and data analysis, IT integration (ISO/QS)
- Clear, error free setup, procedures and cycles, repeatable for clear and save operation
- Accuracy +/-50mm
- Automatic Charging incl. Docking Option and Home Function
- UV Tube lifetime 12.000 hours with same set

UV-C Dinsinfection – Air- and Surface

Model - CAREtaker



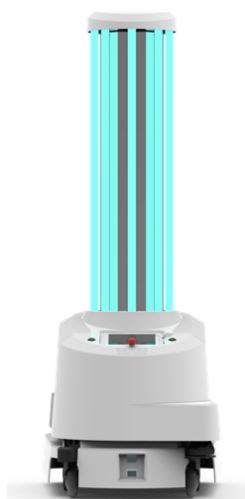
Save, Repeatable, Environment friendly

- Operation 100% repeatable and documented
- Disinfects Air and Surfaces in one cycle, destroys DNS structures
- Save and secure validation and data transfer (H&S Compliant)
- No hazardouz or environmental dangerous disinfection liquids
- No risk of poisoning People, Air, Water
- No Aerosols and other poising particles
- No risk is storing, doses, applying or disposing
- No need for separate storage, hazardous material
- No known impact to surfaces, plastics, colors and others
- No negative CO2 impact
- No Allergies



UV-C Dinsinfection – Air- and Surface

Model - CAREtaker



Model and Technical Specifications

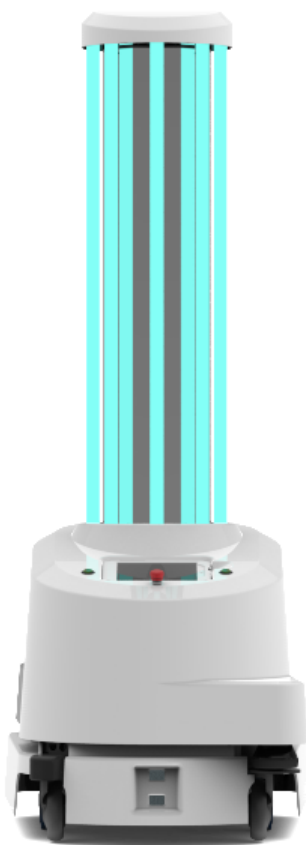
Model	CAREtaker
Dimensions	L: 93 x W:66 x H:171cm (Height H&S compliant)
Weight	140 Kg (Total incl. Batteries)
Floor clearance	1,5cm
Operation duration	2-2,5 hours per charging
Charging time	4 hours web fully empty
Coverage	360°
Reach	appr. 8.000-10.000m ² on charging cycle
Connectivity	Wireless (Wi-Fi based, DUAL) Bluetooth, USB, Ethernet
Speed	5,4 km/h (max.) /1,5 Meter/Sec.
Wavelength	254nm (UV-C)
Charging Current	220-240 VAC / 50Hz, 6A
Safety	Software & Sensors, automatic off function
Certification	CE, TÜV Rheinland

Common Disinfection and Sterilization Methods

Disinfects	Manual	Spray	UV-C Light 254nm	Sterilization
1 Bactrias	●	●	●	●
2 Germs	●	●	●	●
3 Molds	●	●	●	●
4 Viruses	●	●	●	●
5 MRSA	●	●	●	●
Destroys DNA 1-5	●	●	●	●
360°	●	●	●	●
Air and Surface	●	●	●	●
Automatic Mode	●	●	●	●
H&S Compliant	●	●	●	●
Duration	●	●	●	●
Risks and Danger				
Hazardous	●	●	●	●
Poisoning	●	●	●	●
Storing	●	●	●	●
Applying	●	●	●	●
Dosage	●	●	●	●
Validation	●	●	●	●
Color Impact	●	●	●	●
Surface Impact	●	●	●	●
Air/Water Impact	●	●	●	●
CO2 Impact	●	●	●	●
Allergies	●	●	●	●

UV-C Disinfection – Air- and Surface

Model - CAREtaker



Contact

GoGaS Goch GmbH & Co. KG
Zum Ihnedieck 18
D-44265 Dortmund
Germany

Tel: +49 231 46505 937
Email: uvd@gogas.com
www.gogas.com

GoGaS CAREtaker = Model B from its partner UVD Robots
For further information, pricing, delivery times, please contact us via uvd@gogas.com