



DESI-RAY

UV-C LUMINAIRE 254

DATA SHEET

DESI-RAY AN INNOVATION.

Healthy, clean air to breathe and good light to live is an absolute necessity for people. This combination can be found in our new product DESI-RAY cleverly combined. It is becoming increasingly clear how important and how inevitable air purification using UV-C radiation in the 254-260nm range will become outside of an industrial application.

The use of high-energy UVC light to combat germs is scientifically well founded and is now experiencing a real renaissance due to the current worldwide pandemic! UV-C disinfection has been used successfully in the manufacturing and processing industry for over 80 years. The areas of application of drinking sewage systems, fish farming, the surfaces and, above all, in air disinfection and air purification are particularly worth mentioning here.

The photolytic effect of UV-C radiation in the range of 100–280 nm on the DNA & RNA of all kinds of germs has the consequence that their DNA or RNA is destroyed and these organisms can no longer reproduce and die. This effect has been clearly demonstrated in many laboratory tests and scientific studies and can be found in a variety of literature. There has already been multiple evidence that the RNA of the Covid-19 virus is also destroyed by UV-C light.

We have further interesting information on the subject of UV-C light and UV-C disinfection with various web links on UV-C Disinfection, the spread of aerosols in the room and medical reports on the subject on the last page summarized.

Our DESI-RAY is an effective combination of a UV-C recirculation module for disinfecting the room air and an LED ceiling light for room lighting. This space-saving unit for disinfection or disinfection of the room air enables uncomplicated use or installation in an existing grid ceiling. Alternatively, the device can also be easily suspended from any ceiling using a cable system. The electrical connection of the unit is usually made to the 230 Volt power supply in the ceiling. Disinfection or disinfection using UV-C light, which has long been used in industrial areas such as in the food industry and in drinking water treatment as standard, all work, living and living spaces of the people will be approached in large steps. The application outside of industrial cleaning, disinfection or disinfection will develop into a safety standard.

The field of application of such an air disinfection unit is practically endless: meeting and conference rooms, waiting areas, doctor's offices and their patient waiting rooms, counter rooms, kindergartens and schools, universities, hotels, hospitals but also supermarkets and airports. In all of these areas, it is very important for us as a person, visitor, customer, guest, employee and customer to be able to breathe clean air. Breathing air free from pathogens such as bacteria and viruses.

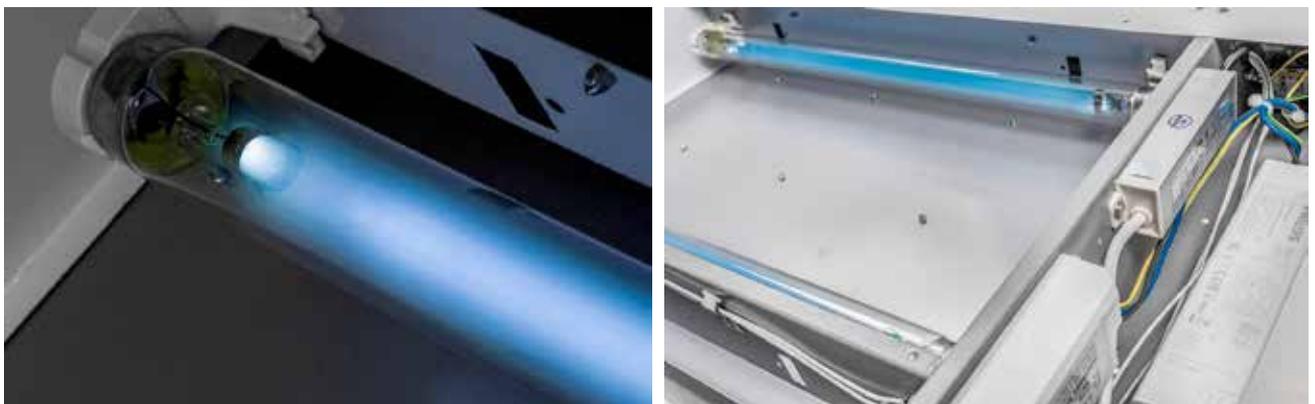
The current pandemic has shown several times the tragic role of the so-called aerosols in the air in the spread / transmission of infectious diseases. Especially in rooms with many people and poor air circulation, pathogens are distributed or spread extremely quickly via the air and then unfortunately we humans inhale them. Good breathing air is particularly important in rooms where there are already sick or weakened people. In addition, also the rooms that we as a person do not like to enter with a good feeling because we feel the subject of a possible infection. In the first row, all of our health facilities are very understandable for all of us. Health facilities such as doctor's offices and their patient waiting rooms, hospitals, patient rooms and also all nursing facilities.

Another aspect should also be considered. UV-C air disinfection is a useful precaution not only in times of epidemics or pandemics, in order to minimize or even prevent infection and spread. Even during the typical cold seasons, such a system can significantly minimize the risk of infection. Especially in rooms with high public traffic and often poor ventilation, such as in the aforementioned offices, conference rooms, classrooms, hotels, restaurants, banks, authorities, educational institutions, passenger transport and sports rooms, you should urgently invest in improving the indoor air. Air conditioning systems, which often make people ill, have become an absolute must in the building today. There are hardly any meaningful thoughts about breathing air outside of a normal or standard air circulation which we all use to know!

In the interest of all persons who are in rooms and based on the self-understanding of the duty of care, a UV-C air disinfection module should be part of the basic equipment of the named rooms. The great benefit of a well-planned installation is the health of all people who stay, work or live there. It is clearly a matter of reducing airborne diseases and the associated costly illness-related failures. Last but not least, the cost of a big lockdown!

So it was almost a banal idea to design a device that primarily creates a much better healthy indoor air and also brings LED lighting into it. Especially in locations, a large and complex air cleaning is not possible without enormous effort or can be retrofitted, the device can be easily installed on or in the ceiling as shown in advance. Rooms with little space or little space also benefit in particular from the possible installation situation of such an air disinfection device in the ceiling area. Our DESI-RAY is the optimal and above all a practical combination of UV-C air disinfection and an LED ceiling light. Unfortunately, more than 50% of room lighting is still operated with outdated, energy-intensive lamps today. Room lighting with modern LED technology also saves and reduces energy costs. Another side effect is the reduction in CO2 emissions associated with energy savings.

All in all, there are good and sensible arguments for investing in our DESI-RAY UV-C recirculating air disinfection module and LED ceiling light package.



- In technical figures and in the process you can describe DESI-RAY as follows -

UV-C 254nm circulating air disinfection module = Effective (up to 99.4%) elimination of viruses and bacteria as well as fungal spore control in the ambient air. Thanks to the encapsulated housing, DESI-RAY allows the constant presence of people in the room despite the hard UV radiation. Energy and CO2 saving > 70%, office LED ceiling people with > 100 lumens per watt.

UV-C lamps (T8 UV-C tubes) from a well-known manufacturer are installed in the UV-C circulating air disinfection module. 2 x 15 watt T8 UV-C 254 nm tubes are used here. These tubes emit light with a wavelength of 254 nm, which is almost due to the maximum effectiveness of 260 nm for destroying DNA & RNA or killing pathogens.

The light output or light output in the UV-C range is 44% of the total output. The radiation that forms ozone is decoupled and the UV-C unit is also OZONE-free. The device or the UVC housing module for air purification or room air disinfection is constructed in such a way that the contaminated room air is sucked into the device via two small noiseless fans on one side and flows into the light-tight UV-C module via air baffles and swirls there. The two 360 ° UV-C tubes installed there then ensure that the pathogens are safely killed off by the energetically highly effective during the flow-through process UV-C light spectrum.

The sterilized air then flows back into the room air on the opposite side of the device. With this arrangement, additional air circulation in the room is achieved. Our DESI-RAY unit enables you to create an optimal air atmosphere in the room and to maintain this room air situation. A device processes a good 50 cubic meters of air per hour and disinfects the air with up to 99.4% of all pathogens, germs, bacteria, viruses and fungi. As an assumption about the area or square meter, a DESI-RAY is used on about 30 square meters.

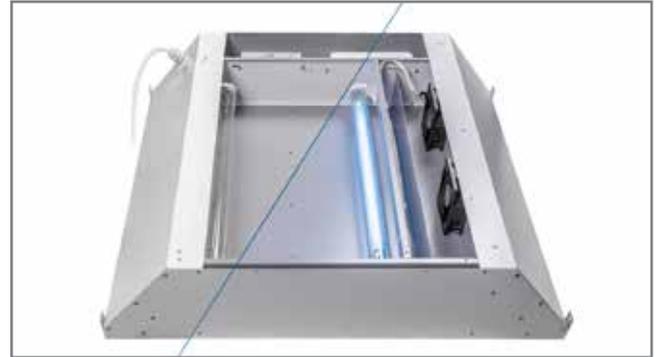
As a lighting module, we use energy-efficient LED lamps in the lighting module. The color rendering index (Ra value) is > 80. The LEDs have an energy efficiency of > 100 lumens / watt. Finally a better light representation in addition to the LED lamps is ensured by the application of some kind of diffusors or spreading discs.

Services

- LEDs from NICHIA, OSRAM, CREE
- High efficiency, more than 110 lm / W
- Built-in module for air disinfection
- UV lamps without ozone formation
- An effective solution to fight viruses
- Safe for the view
- High color rendering index > 80
- Good price

Used for disinfection and lighting

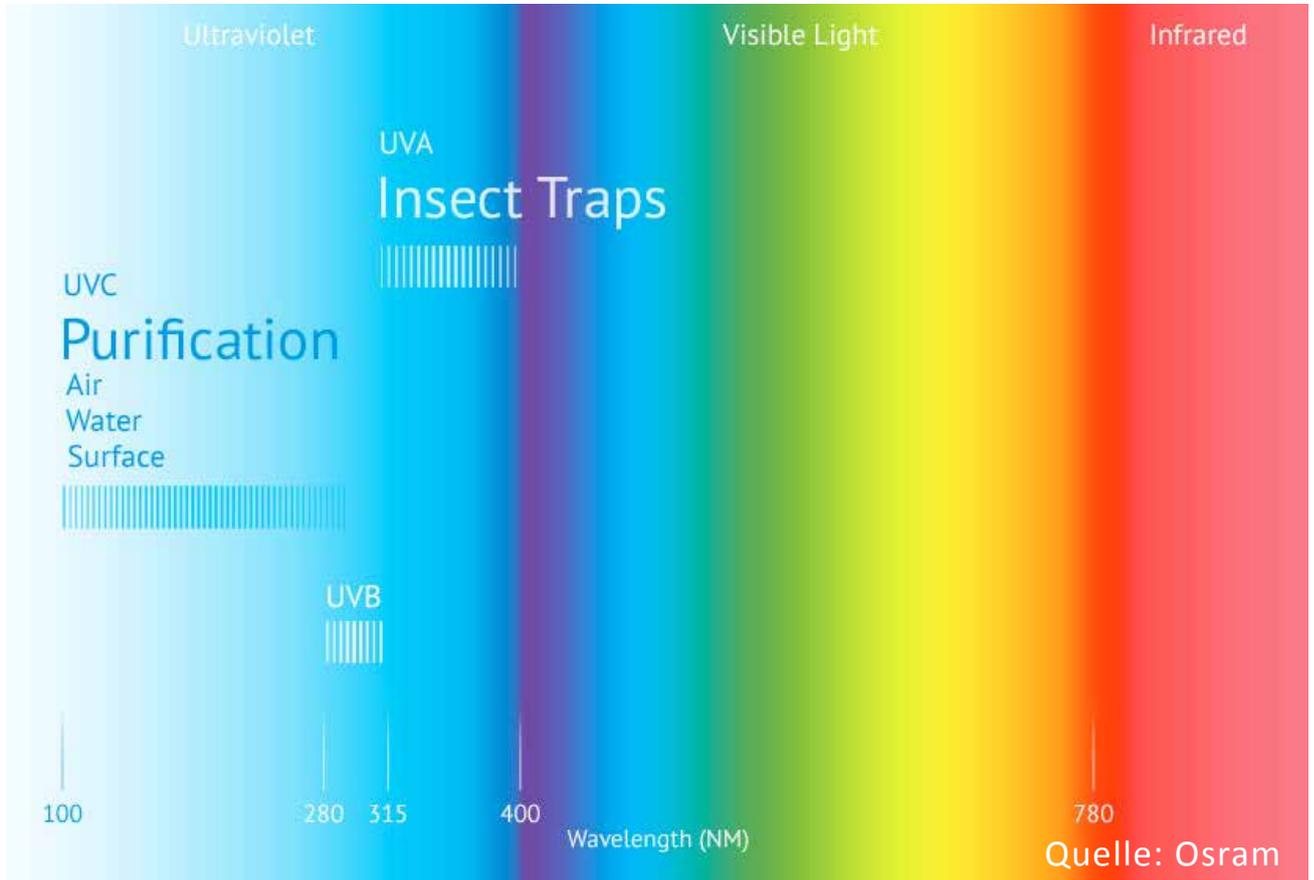
- Administrative and office space
- Public facilities
- Educational institutions
- Medical facilities
- Commercial floors of the shopping center
- Supermarkets and hypermarkets



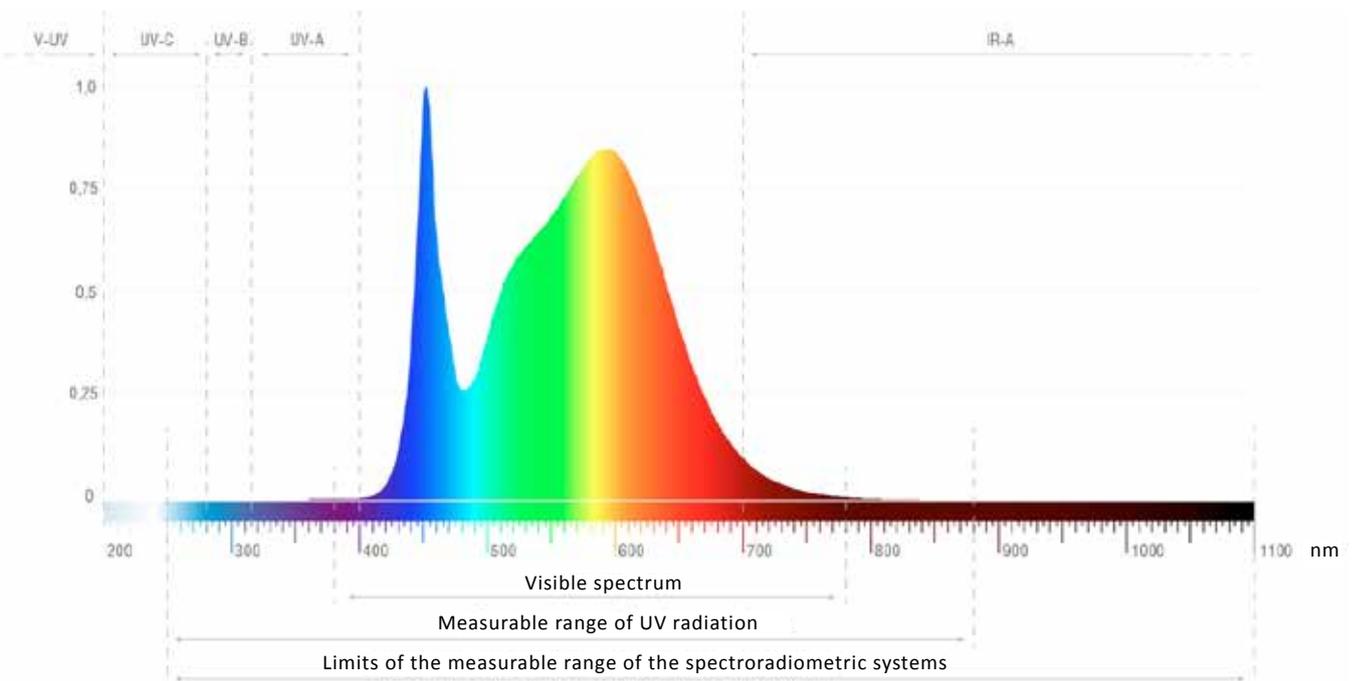
Technical Specifications

System performance of the LED unit:	36 Watt
System performance of the UV-C 254 unit:	2 x 15 Watt
System performance of the fans:	3 Watt
Supply voltage:	198 -264 V/50 Hz
Power factor:	0,98
Luminous flux:	3600 lm
Luminous efficacy LED blocks:	110 lm/W
Color temperature:	4000 K
RA color rendering index:	Ra > 80
CRI color rendering index:	CRI > 80
Temperature range:	+5°C / +45°C
Light stabilization time:	15 min.
The wavelength of the maximum radiation from UV lamps:	254 nm
The proportion of radiation. UV lamps in the UV-C range (100-280nm):	44%
The proportion of radiation. UV lamps in the UV-B range (280-315nm):	8 %
The proportion of radiation. UV lamps in the UV-A range (315-400nm):	8 %
LED lifespan:	100.000 h
UV lamp life:	9.000 h
Protection class:	IP-20
Lamp per square meter:	30 m ²
Capacity approx. Air volume per lamp:	50 m ³ /h
Housing size (L x W x H):	595 x 595 x 135 mm
Blanket size (L x W x H):	600 x 600 x 135 mm
Housing size (L x W x H):	620 x 620 x 135 mm
Blanket size (L x W x H):	625 x 625 x 135 mm
Weight:	4.0 Kg

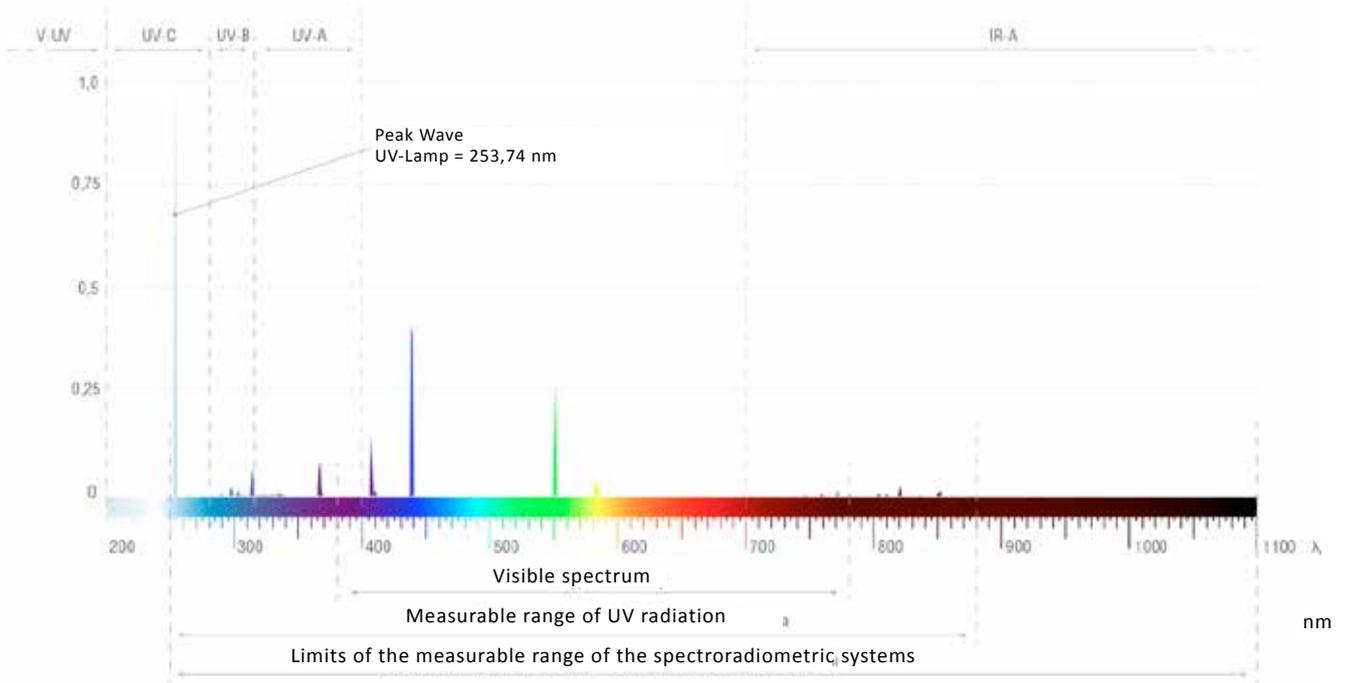
Photolytic effect on DNA: microorganisms such as bacteria, mold, yeast and viruses cannot replicate. The cleaning effect is achieved at wavelengths below 320 nm, the maximum effect being achieved at 260 nm. OSRAM HNS germ lamps emit light at 254 nm, close to maximum effectiveness and are also ozone-free.



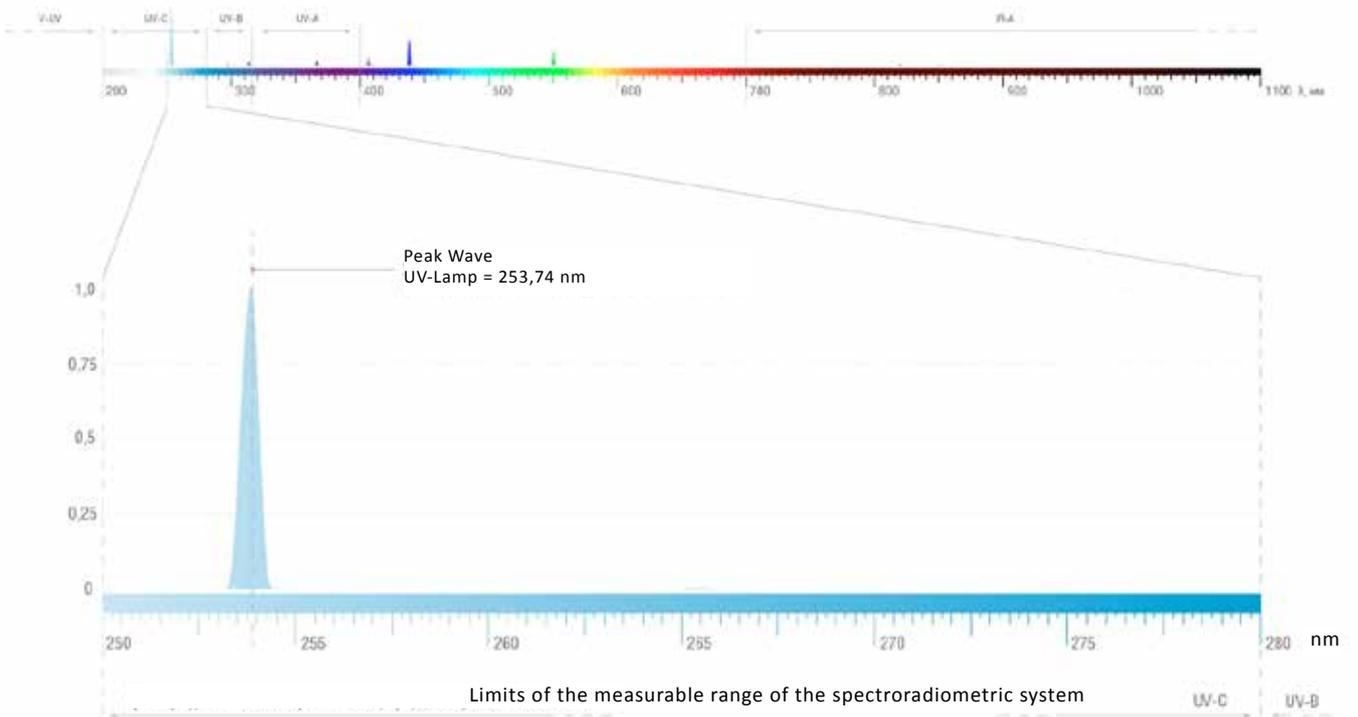
Spectral distribution measurement of radiation - LED PANEL



Spectral distribution measurement of radiation - UV LAMP



Spectral distribution measurement of radiation - UV LAMP



LIST OF INFORMATIVE WEB LINKS (JUST CLICK) AROUND THE TOPICS

EFFECTIVENESS OF UV-C DISINFECTION

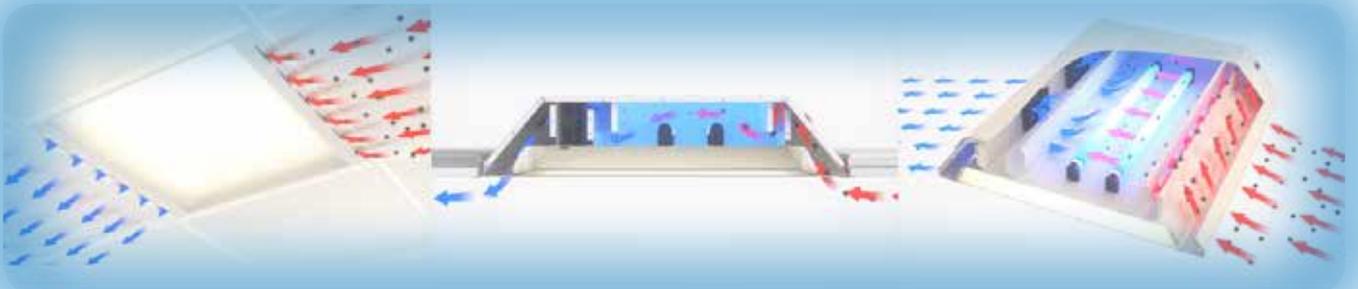
- > [www. UVC-Strahlung tötet Coronavirus ab](#)
- > [www. Raumluftdesinfektion mit UV Strahlung](#)
- > [www. Desinfektion durch UV-Licht](#)
- > [www. Wie funktioniert die UV-Desinfektion?](#)
- > [www. Licht reinigt](#)
- > [www. Vorteile der Desinfektion](#)
- > [www. Resistenz der UV-Strahlung](#)
- > [www. UV-Strahlung gegen Covid-19](#)
- > [www. GUV-Keimtötung/Wirkung](#)
- > [www. Luftentkeimung-industrielle Bereiche](#)

ENGLISH LANGUAGE REPORTS

- > [www. Covid-19 transmission - Johannes Dahinten](#)
- > [www. National Library of Medicine about UVC](#)
- > [www. Aerosol and surface stability of HCoV-19](#)
- > [www. Air disinfection Professional and industrial areas](#)

MEDICINE / RESEARCH

- > [www. Infektion durch Viren in der Raumluft](#)
- > [www. Ansteckung über Luft](#)
- > [www. Wie breitet sich der Virus in Raumluft aus?](#)
- > [www. Tröpfchen und Aerosole](#)
- > [www. Die Übertragung von Covid-19 - Johannes Dahinten](#)



DESI-RAY

UV-C LUMINAIRE 254

HOW UV-C WORKS?

Ultra-Violet (UV) light is invisible to human eyes. It can be subdivided into three categories: UV-A, UV-B and UV-C. UV-A from 315 to 400 nm UV-B from 280 to 315 nm UV-C from 200 to 280 nm. UV-C radiation is known to break the DNA of bacteria, viruses and spores. As a result, they are rendered harmless.

UV radiation can be used for multiple purposes in water and air treatment, but is primarily employed as a disinfection process that inactivates micro-organisms without chemicals. For other applications, UV is used for the removal of organic and inorganic chemicals, including chlorine, chloramines, ozone and Total Organic Carbon (TOC) emerging contaminants. UV-C radiation has been proven to be effective against waterborne pathogenic microorganisms including those responsible for cholera, hepatitis, polio, typhoid, giardia, cryptosporidium and many other bacterial, viral and parasitic diseases.

UV-C disinfection is complementary to Chlorine disinfection: it deactivates organisms that are resistant to Chlorine such as giardia and cryptosporidium.

