2020

UVC BOX

Keep your devices clean

Dimensions:

Exterior: Height 920 mm, width 740 mm, depth 550 mm

Disinfection chamber: Height 400 mm, width 600 mm, depth 500 mm

Weight: 39 kg

Get a safer work environment with UVC BOX

A great opportunity for effective disinfection of devices with no use of chemicals or alcohol.

UVC-BOXUVC-BOX can be used in numerous contexts in various professions

Hospitals – Medical Clinics - Dentists - Therapists

Nursing Homes - Hairdressers – Mass Caterers

– Restaurants Agriculture – Veterinary Clinics – Car Dealers

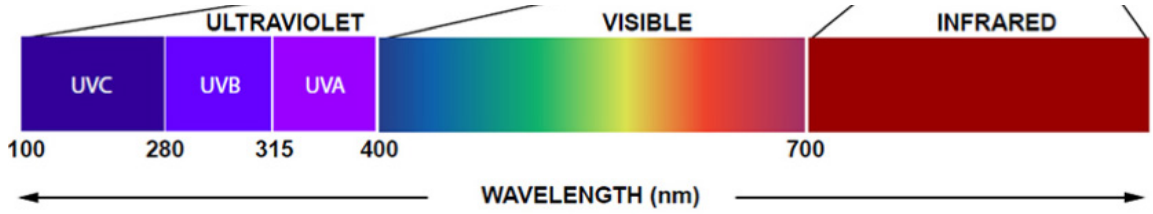
Business Offices - Opticians – Continuation Schools, etc.

Simply connect the non-contact UVC-BOX to mains power and it is ready to use

Effective combat of viruses and bacteria requires the right UVC light in the correct quantities, as well as optimum design and placement of the light sources in the disinfection chamber.

Our design has been tested and researched by the Danish Technological Institute and thus fulfils the requirements of effective combat of viruses and bacteria.

How UVC light affects viruses and bacteria



For many years, UVC light has been used in industry and in hospitals for disinfection. UVC light has a wavelength of 253.7 nm and is, therefore, invisible to the human eye. Many UVC light sources also emit other wavelengths, and therefore, you often see the light as blue or violet, but it is not the UVC light itself you can see.

UV light has a shorter wavelength than visible light. UVA and UVB can pass through the atmosphere, and it is this light that gives us a tan in the summer. UVC has a shorter wavelength and is stopped by the ozone layer at the uppermost part of the atmosphere, which is fortunate as this light is very harmful to living cells. This is also why this light (UVC) can be used so effectively to kill viruses and bacteria. UV light has a wavelength between 100-400 nm. UVC has a wavelength between 200-280 nm.

The shorter the wavelength, the more energy. UV light does not penetrate into the body only into the surface of the skin and eyes.

UV light inactivates bacteria and viruses, and the greatest effect is between 200–300 nm. In this wavelength range, the DNA and RNA of the bacteria and viruses break down so that they cannot multiply.

The 3 key effectiveness factors of UVC disinfection:

1. UV light wavelength (Nm)
2. UV energy emitted (watt)
3. Illumination time on the device

The quality of UVC equipment depends , among other things, on how many watts the UV light source supplies. Typically, a 25 watt UVC tube delivers approx. 7 watts UVC light efficiently. The duration of the illumination of the item is also important to achieve the correct effect. Likewise, the distance from the light source to the item is very important to achieve the optimum effect.

Degrees of effectiveness of disinfection

As standard, up to 6 levels are normally considered (Log).

The level breakdown (Log) is calculated based on the percentage (of 1 million bacteria) that survive the UV treatment in question.

Log 1	100.000	bacteria survive	90 % reduction
Log 2	10.000	bacteria survive	99 % reduction
Log 3	1000	bacteria survive	99,9 % reduction
Log 4	100	bacteria survive	99,99 % reduction
Log 5	10	bacteria survive	99,999 % reduction
Log 6	1	bacteria survive	99,999 % reduction

For most known bacteria and viruses, tests have been made to find out how large a dose of UVC light is needed to inactivate them. As for Covid 19, no test data is available yet, but it is expected that inactivating Covid 19 will require the same dose as the SARS and MERS viruses.

The UVC-BOX has been designed based on state-of-the-art knowledge, with 6 powerful UVC light sources ensuring a high, 360-degree dose so that the entire item is illuminated sufficiently to achieve the highest degree of disinfection and inactivation of bacteria and viruses.

The process time has been defined as 2 minutes, ensuring that the items will get a sufficient dose of UVC light.

The UVC BOX has been tested at the Danish Technological Institute according to the modified standards in force for disinfectants and cleaning.

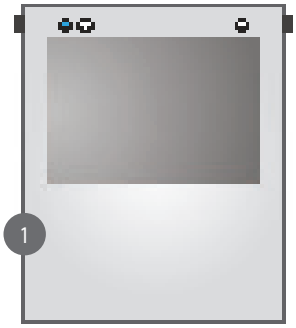
EN 13697 requires a minimum reduction of Log 4.

The UVC BOX complies with these requirements.

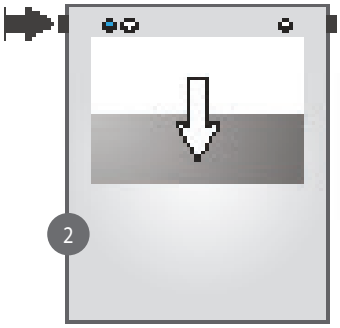
Tests have been made on the following bacteria:
Pseodomanas aeroginosa ATCC 15442
Staphylococus aureaus ATTCC 6538
Enterrococcus hirae ATTCC 10541
Acinetobacter baumanii ATT 19606 = CIP 70,34
Salmonella typhimurum (enterica) ATCC 13311

Så nemt er det at bruge UVC BOX

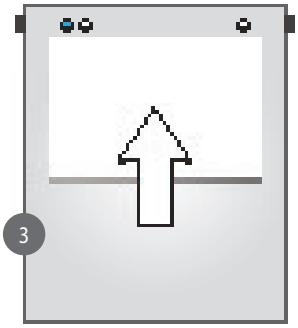
The UVC BOX
is on standby



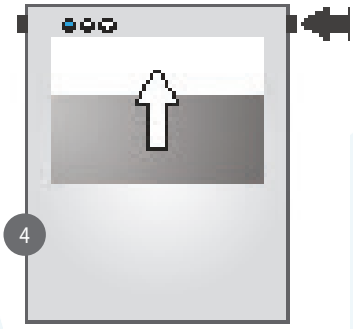
Contactless sensor is
activated and the
hatch opens



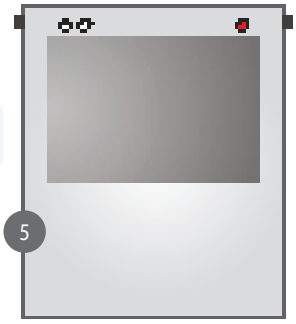
Items to disinfect
are placed
in the chamber



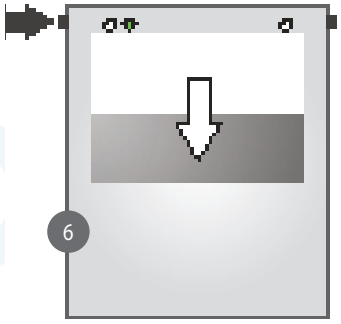
Disinfection is started with
contactless sensor.
Hatch closes.



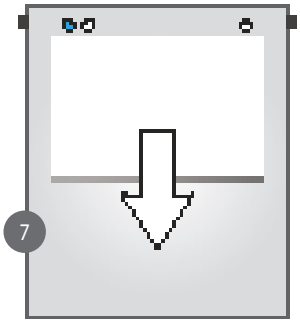
LED turns red.
Disinfecting for 2 minutes.



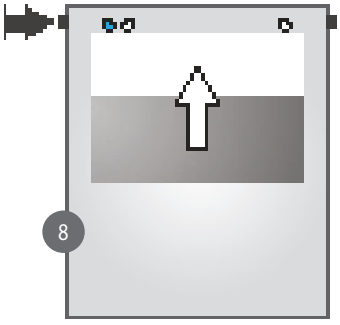
After 2 minutes of disinfection,
the LED turns green. The hatch is
opened by touchless sensor.



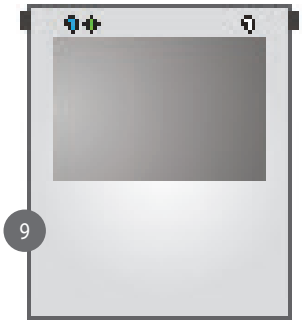
The disinfected items are
removed and
are ready for use.



The hatch closes again; if not
manually, then automatically
after 40 seconds.



Blue and green LEDs indicate
service mode.



Brugervejledning til UVC BOX

How the UVC BOX works

UVC light is a very effective and well-documented method for disinfection, which has been used for more than 100 years. Therefore, UVC light is often used for disinfection of equipment and air and water purification at hospitals and at food companies and water supplies.
With UVC light, you can neutralize most types of microorganisms, such as bacteria, viruses, and fungi.
The UVC light destroys the DNA of the cell or virus and prevents the cell's ability to multiply (reproduce).
UVC light can have an efficiency of more than 99.99 % reduction of bacteria and viruses, depending on the dose and illumination time on the items.
The most effective wavelengths for this are to be found in the area 254 nm.
It is essential that the light hits all surfaces so that the bacteria and viruses are irradiated.
There is no effect in shadow areas or on dirty items, as the light cannot penetrate dirt.
Large amounts of UVC light are harmful to all living cells and can cause burnt skin and damage to the eyes.
In the UVC BOX, the UVC light is effectively shielded when the hatch closes and the disinfection starts.

1. Check prior to use

First, make sure that the box has not been damaged during transport. Remove the protective film. If there is visible damage, check that the 6 UVC light sources are not damaged. There are 2 light tubes at the top and 2 at the bottom of the disinfection chamber, with 2 more at the sides. Look through the sight glass at the rear and check that the tubes are intact.
The UVC BOX must be placed in a ventilated room and must not be exposed to moisture. The room temperature must be between 15-45 degrees.

Connection

Connect the UVC-BOX to a 220 V supply and it is ready for use.

2. Preparation prior to UV-treatment

Check that the items to be disinfected are clean and without any visible dirt, and that there are no loose objects that could fall through the holes of the net at the bottom of the box, measuring 12x12 mm.
If you wish to disinfect dirty items, they must be washed with soap or alcohol solvent and be wiped dry prior to disinfection.

3. Operation

Move your hand past the hatch sensor (left side) and the interior hatch opens.

4. Placing of items

The items are placed on the net at the bottom. It is important to keep a minimum distance of 3 cm between items so that they can be illuminated both from above and below. Please ensure that the items are lying on the net and at 3 cm distance from the wall of the chamber.

5. UV-treatment of items

Move your hand past the sensor at the right side to start disinfection, and the hatch closes automatically. Disinfection starts and continues for 2 minutes, which is indicated by the red LED.
The first time the UVC BOX is turned on, we recommend disinfecting with an empty chamber, to clean the device and, at the same time, to check that all lamps are functioning by looking through the sight glass.
After a complete cycle, which is indicated by a green light at the left side, the hatch opens and you can now remove your disinfected items. The hatch can now be closed by moving your hand past the left-side sensor, or it closes automatically after 40 seconds.

6. Troubleshooting

If the box does not open when activating the hatch sensor, check that it is connected to a 220 volt supply, and that the wall switch is on.
The cable plug has a built-in fuse that can be removed and replaced, if necessary. This fuse should be checked.
If both the blue and the yellow light are on, the box is in service mode. The electronics can be reset by holding a hand in front of both of the sensors for 10 seconds, and the hatch will now move down once and then up again. After that, the box is ready for use.
If the box still does not work, please contact UVC BOX on telephone number 0045 29 78 79 59.
Please quote the serial number which appears at the rear of the box.
If items are lost through the net, unplug the box from the switch and loosen the rear plate: lost items can then be removed. The same procedure should be used if the hatch gets stuck and does not open on completion of treatment, or in case of power failure during use. ALWAYS REMEMBER TO UNPLUG THE PLUG FROM THE SWITCH.
If the UVC light sources get damaged, we recommend placing the UVC BOX outdoors and ventilating it for 30 minutes, as the UVC light sources contain small amounts of mercury.
Do not vacuum the box. Damaged glass should be removed with cloths and you should wear gloves.
Gloves, cloths, and glass should be placed in a sealed bag and disposed of as hazardous waste.
The UVC BOX uses light sources from Phillips.

Bortskaffelse UVC rør

When the UVC tubes do not work any longer, they must be disposed of as hazardous waste. Do not discard them together with normal waste. They must be disposed of at a recycling station, environmental service, or the shop where you bought them/buy new ones.
The UVC tubes in the box have a very low mercury content of 2 mg. For comparison, neon tubes contain between 500-2000 mg and solaria tubes between 15-40 mg per tube.

7. Maintenance

Clean the exterior of the box regularly with a cloth slightly dampened with mildly soapy water.
The light sources must be replaced after every 8,000 operating hours, or 10,000 cycles, or if the lamps do not provide sufficient light. We rcommend that the lamps are replaced once a year as a minimum.
It is recommended that the box is serviced once a year, when light sources are replaced, the safety sensors are checked, and the box is cleaned on the inside. This will ensure that the effect of the light will be maintained and that the light will be spread optimally.

Warnings

Do not place any liquids in the chamber or items that are wet, as this may lead to short-circuiting. Do not place any animals inside the box as the UVC light is harmful.
Certain plastics can be degraded or discoloured after repeated treatments.
When unscrewing the rear plate of the box, make sure that it is not connected to 220 volt mains power.
If visible light comes out of the box due to damage, this can cause serious injuries to skin and eyes, and the box must be turned off immediately. Please contact UVC BOX for service

UVC BOX guarantee

We would like to ensure our customers´ greatest satisfaction and safety with their UVC BOX, both now and in the future.

Our guarantee agreement covers the following:
Guarantee on moving parts and sensors. 2 years of guarantee, starting from the invoice date. The guarantee covers material and manufacturing defects. The guarantee does not cover equipment that has been damaged due to misuse, or if you have tried to repair it by yourself.

Guarantee conditions for UVC light sources

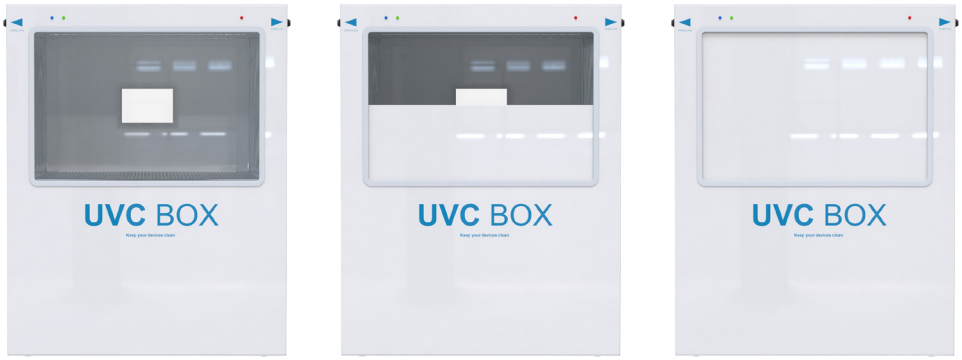
In case of defects and shortcomings on UVC light sources, they will be replaced at no charge, according to written agreement. The total guarantee period cannot be extended beyond 2 years from the invoice date.
The lamps will be replaced if they do not provide UVC light as specified for up to 5000 hours, or 5000 cycles start/stop.
In case of doubt about the efficiency of the lamps, UVC BOX sells test strips, which can be placed in the UVC chamber, and change colour to indicate whether the light quantity is sufficient to ensure maximum disinfection.
Furthermore, service visits can be agreed, where UVC BOX can check with calibrated equipment whether the UVC light sources work optimally.

External links:

https://www.lighting.philips.com/main/products/special-lighting/uv-purification

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3292282/

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6145099/



The UVC BOX is made from powder coated aluminium, protecting against degradation over time. The box is supplied with 6 UVC light sources for maximum effect and short treatment time.

The box is touchless in its operation to protect against transfer of bacteria or viruses between users: no buttons to be pushed or handles to open/close.

The UVC BOX is designed to be easy to use for all users.