UV-C AIR DISINFECTION

UV PURIFIER

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Valeo Thermal Commercial Vehicles Germany
UV purifier
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UV LIGHT AGAINST VIRUSES, FOR MORE SAFETY ON BOARD

INACTIVATION OF OVER 95 % OF VIRUSES AND BACTERIA INCL. SARS-CoV-2

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Valeo

SMART TECHNOLOGY
FOR SMARTER MOBILITY

▸ UV-C RADIATION KILLS THE COVID-19 VIRUS

The Valeo UV purifier offers maximum safety to passengers in buses, transit or city buses, and protection against the active viruses that circulate in the air in the form of aerosols. It reduces the concentration of viruses in the air just as effectively as a fresh air supply.

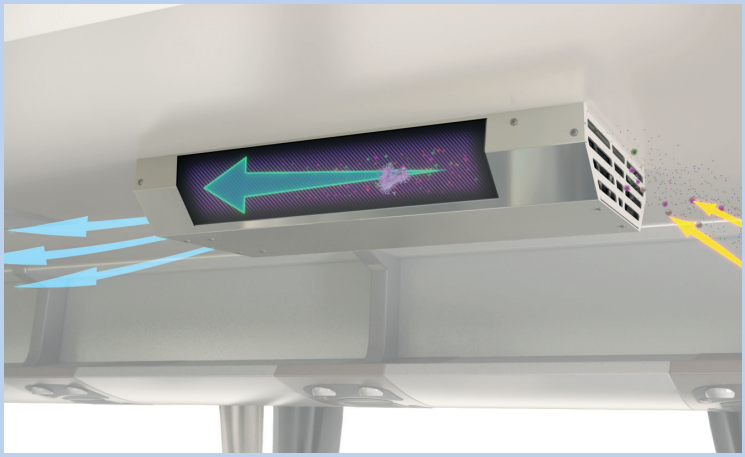
For this purpose, the UV purifier exploits the germicidal effect of short-wave ultraviolet light.

Irradiation with UV-C light (254 nm) is a proven method of disinfection by the inactivation of microorganisms and various viruses, including SARS-CoV-2. With adequate exposure time and intensity, the DNA of the virus is cracked and destroyed, so that it can no longer reproduce itself.

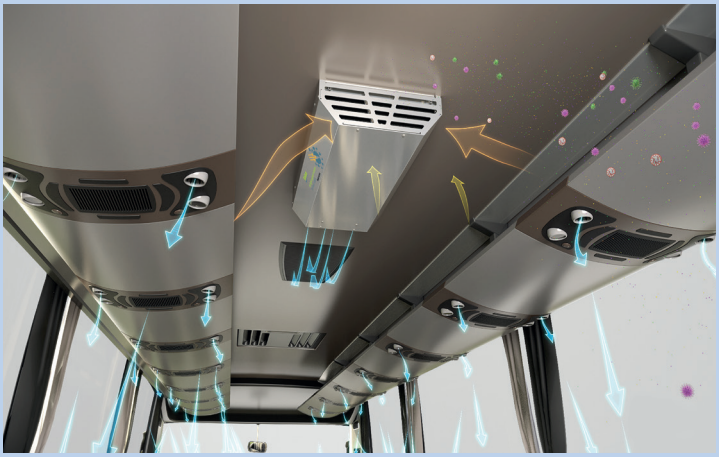
UV PURIFIER
ANTI VIRUS SYSTEM

▸ OVER 95 % OF VIRUSES INACTIVATED IN LESS THAN A SECOND

The UV purifier sucks the air through the box, disinfects it in a matter of seconds and rein-jects it into the bus, practically as clinically clean air. Purified air thus flows continuously during the entire journey and circulates in the passenger compartment, ensuring that the virus concentration in the bus is kept at a low level, even when there are infected persons on board who are constantly breathing out viruses. For us, the limit value for virus concentration in the interior of the bus is the same threshold value as for a hospital operating theatre at the start of an operation. With an inactivation rate of over 95 %, the air is purged not only of viruses such as SARS-CoV-2, but also of harmful microbes, mould and spores.



Cabin solution: contaminated air is drawn in, disinfected and re-released virtually virus-free (>95 %) into the bus.



The virtually virus-free air is subsequently circulated in the bus via the ducts.

▸ EFFECTIVE INFECTION PREVENTION

According to research conducted by the University of Ulm the world's most powerful air purifier provides effective infection prevention in city buses, school buses and coaches. The device's effectiveness against SARS-CoV-2 for use in the interior of a bus has scientifically been proven. All system tests carried out have confirmed that when using the UV purifier in the vehicle interior, effective air exchange rates are achieved that are far above the value recommended by the WHO and also apply, for example, to classrooms in schools.

For the fifth time, the trade magazine busplaner has awarded the international busplaner Nachhaltigkeits Award 2021 for outstanding sustainable achievements.
In the category: Vehicle Equipment/Interior Equipment, the price went to Valeo for the UV purifier.

▸ UV PURIFIER – SITS, FITS AND CLEANS THE AIR

The UV purifier can be used in all types of buses worldwide. Each device works independently and can be mounted directly on the ceiling of the bus, beneath the seats or in the luggage rack. The UV purifier is equally suitable as a retrofit solution as for installation in a new vehicle. As a simple plug-and-play installation, the cabin solution is ready for immediate operation. Furthermore, it is modular and for autonomous use, guaranteeing a long service life of up to 12,000 hours. The UV purifier has a blink code fault diagnosis in the event of stoppage or malfunction, and early detection of defective lamps. The box is completely maintenance-free, i.e. there are no replaceable parts, filter changes or similar.

Inside the vehicle, effective air exchange rates are achieved when using the UV purifier, comparable to those recommended for classrooms.

The simple plug-and-play solution for the bus interior can be used autonomously and put into immediate operation.

BREATHE CLEAN CABIN AIR, FEEL SAFER ON BOARD

▶ TESTS FOR MAXIMUM SAFETY, EXPERIENCE WHEN IT COMES TO COMFORT

Scientific evidence

The device's effectiveness against SARS-CoV-2 for use in the interior of a bus has scientifically been proven. According to research conducted by the University of Ulm, the world's most powerful air purifier provides effective protection against infection for use in city buses, school buses and coaches.

Test certificate on the evaluation of the inactivation efficiency of UV radiation against viruses in a dynamic medium has been provided.

Safety

In addition, the UV purifier has undergone numerous safety tests such as a shock resistance test (impact strength). Thick quartz glass makes the lamp highly shatterproof, and a Teflon coating prevents glass splinters or fluids from entering the bus interior, e.g. in the event of an accident.
Furthermore, with its impermeable metal box the UV purifier ensures that radiation does not penetrate the cabin. Specially arranged stray light destroyers (scattered light labyrinth) in the box also prevent UV stray light from escaping and no ozone (gas irritant to humans and animals) is generated.

Comfort

The UV purifier box incorporates low-noise axial fans.
It will not detract from the efficiency of an existing a/c unit, nor the feeling of comfort.

TECHNICAL DATA

Box dimensions L x W x H (in)*	33,46 x 13,78 x 4,33
Maximum fan capacity (free-blowing) per hour and box (m³)	approx. 200
UV-C lamps - electrical power (W)	64
- optical performance (W)	26
Power consumption 24 V (A)	3.8
Weight (lbs.)	26
Virus inactivation rate with one airflow cycle	>95 %

*Ceiling mounting on a 12 m standard bus: two units per bus, mounted in front of the recirculation filter cartridge

Disclaimer:
The Valeo UV purifier is not intended for the disinfection of surfaces. Airborne active viruses and bacteria are inactivated when passed through the system. These UV devices reduce the concentration of microorganisms circulating in the airflow. UVGI devices installed in a bus air conditioning system or separate box will not completely eliminate viruses and microorganisms circulating in the air of the passenger compartment. Over 95 % of the air flowing through the devices in circulation mode can be deemed virus-free, but not 100 %. These UVGI devices are not a substitute for the general hygiene rules, such as social distancing, wearing face masks covering both the nose and mouth and washing your hands. They do not protect passengers from other infected persons and contact surfaces. The UV lamps used, treat only the air flowing within the reach of the lamps and passing through the unit. Viruses or bacteria carried by larger droplets may not be collected by the system. The inactivation rate is calculated from measurements of UVGI treatment with bacteria and other viruses with SARS-CoV-2 on surfaces and transferred according to the average intensity of the Kowalski UVGI Handbook of 07-2020 to a virus inactivity rate in the air. This method of calculation has been verified by scientific experts in the field of clinical SARS-CoV-2 disinfection.

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Valeo Thermal Commercial Vehicles (TCV), formerly known as ACC Climate Control/Spheros North America.

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