



mitie

TECHNICAL
SERVICES



In a post-covid world, never compromise on air quality

Mitie UVC Disinfection Systems

In Partnership with

LUXIZEL[®]



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Introduction

Harmful bacteria, viruses and toxic gases are just some of the agents known to circulate indoors. But in offices, airports, shopping centres and public and private spaces, building users can breathe easy with Mitie’s air disinfection technology.

We’ve combined our exceptional skills and expertise, and partnered with Luxibel, a global provider of UVC Disinfection Systems, to introduce cutting-edge air cleansing technology to support customers and enhance the safety assurance in properties.

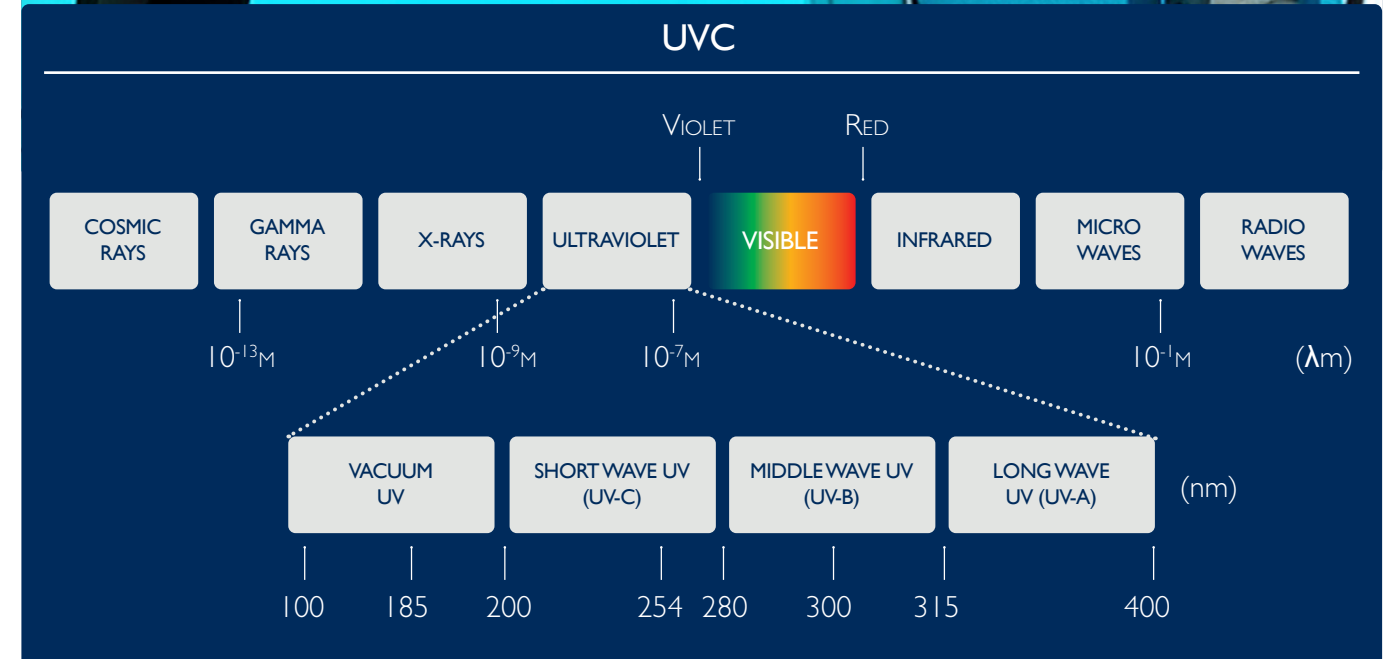
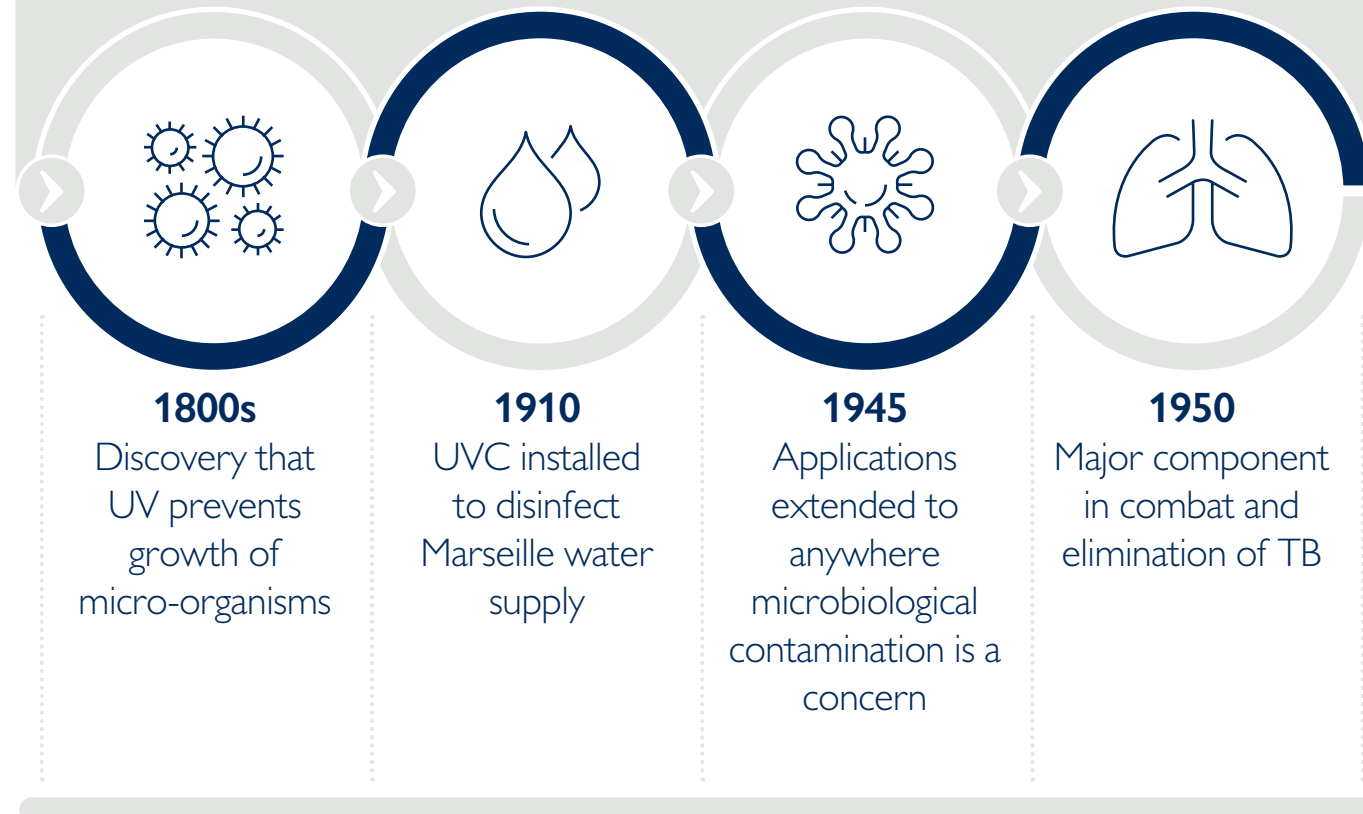
i UVC is recognised as an option for surface cleansing by HSE

What is UVC?

UVC is ultraviolet light with wavelengths between 200 – 280 nm (as opposed to UVA or UVB with longer wavelengths). It is germicidal and has been used since the 1800s to help eliminate harmful micro-organisms. It destroys the reproductive material (RNA and DNA) in bacteria, viruses and other pathogens in the air, on surfaces and in water, and prevents them from multiplying.

This is not new technology

Short Wave UVC disinfection is proven technology that is already used by many industries



Why Choose UVC Light?

What are the options?

Technology	Medium	Strengths	Weaknesses
Water peroxide	Liquid	High disinfection rate	Health issues if in contact with humans. Not possible to implement in society
TiO ₂	Small particles, powder	Low power, efficient disinfections	Category 2 carcinogen by inhalation. Needs UVC light
O ₃	Gas	Reduces odours	Limited concentrations allowed, difficult to control

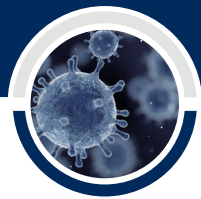
Benefits of choosing UVC disinfection:

- ✓ Dangers of UVC are researched and controlled
- ✓ Temporary or permanent scalable solution for all public places
- ✓ Affordable, low maintenance solution
- ✓ Static solution against most known viruses, bacteria and fungi

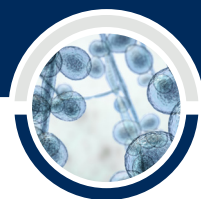
Can UVC help prevent covid-19 transmission by reducing contamination?



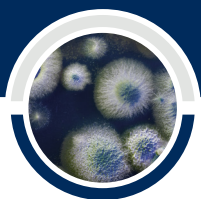
Antibacterial



Antiviral



Antifungal



Anti-mould

The International Ultraviolet Association (IUA) believes that UVC disinfection technologies can play a role in improving air quality. Especially when used in a multiple barrier approach to reduce the transmission of coronaviruses (including COVID-19, SARS-CoV-2 (L strain)), based on current disinfection data and empirical evidence.

SARS-CoV-2 showed high susceptibility to UVC irradiation technology, when used correctly.

“Our UVC disinfection system will provide our clients and colleagues with reassurance that their working environments are safer, sanitised and more comfortable”

Tony Chase - Head of Critical Engineering and Technical Assurance



Did you know that the following can all be cleansed by UVC irradiation:

- Drinking water
- Waste water
- Fish tanks
- Bank notes
- Food

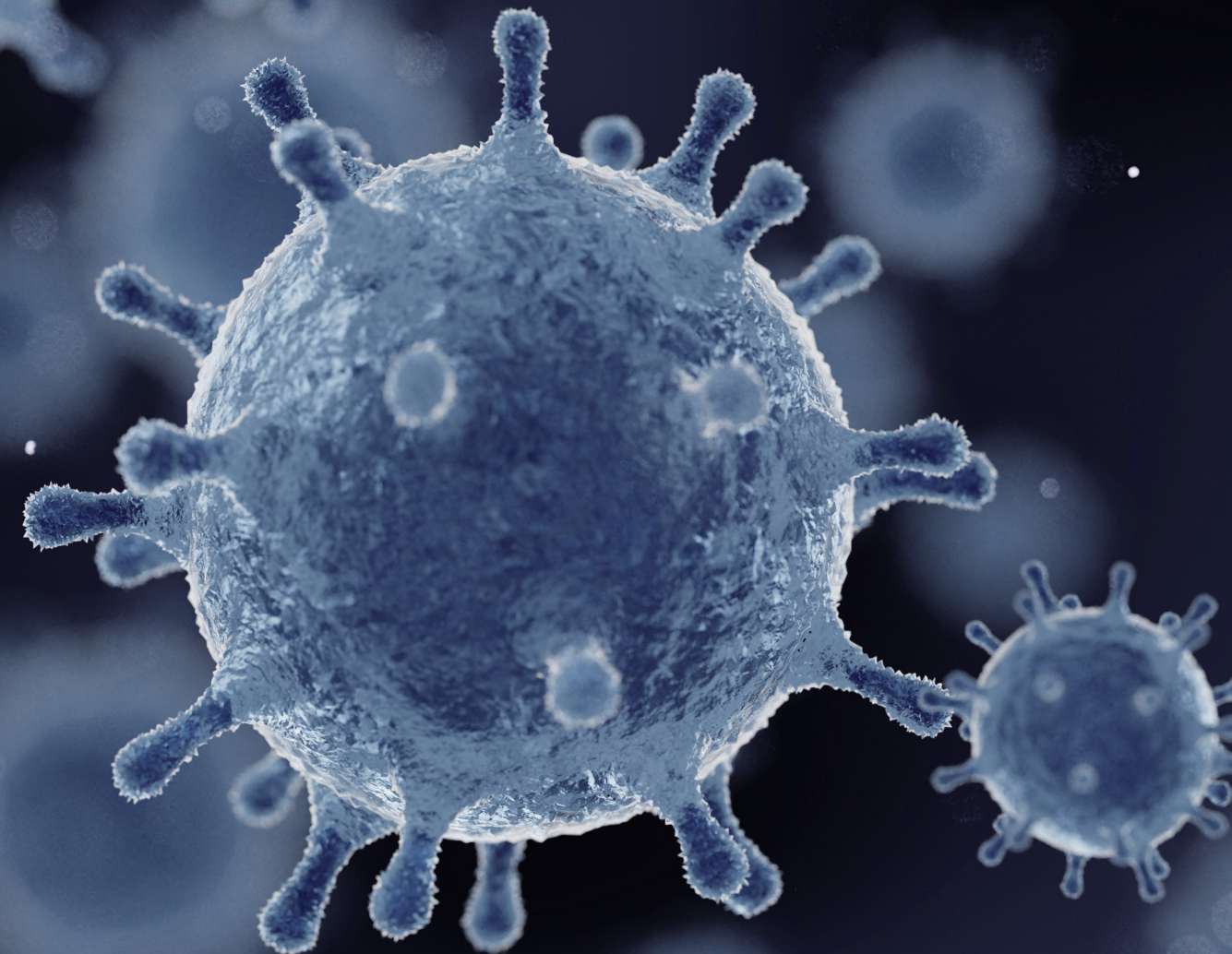
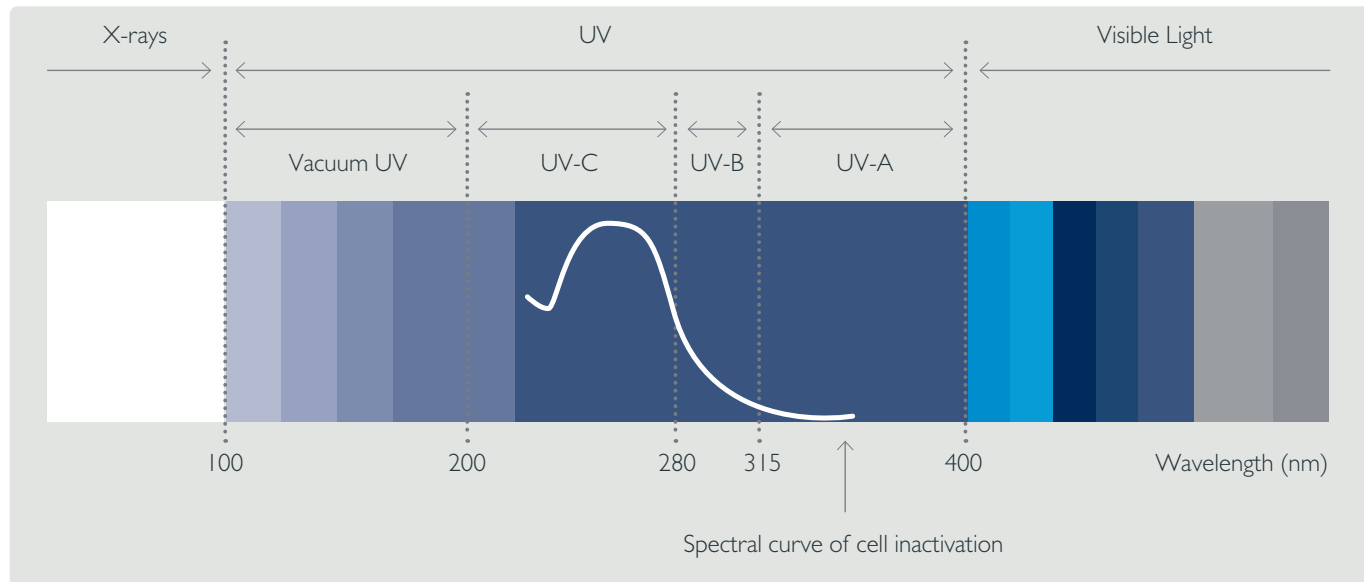
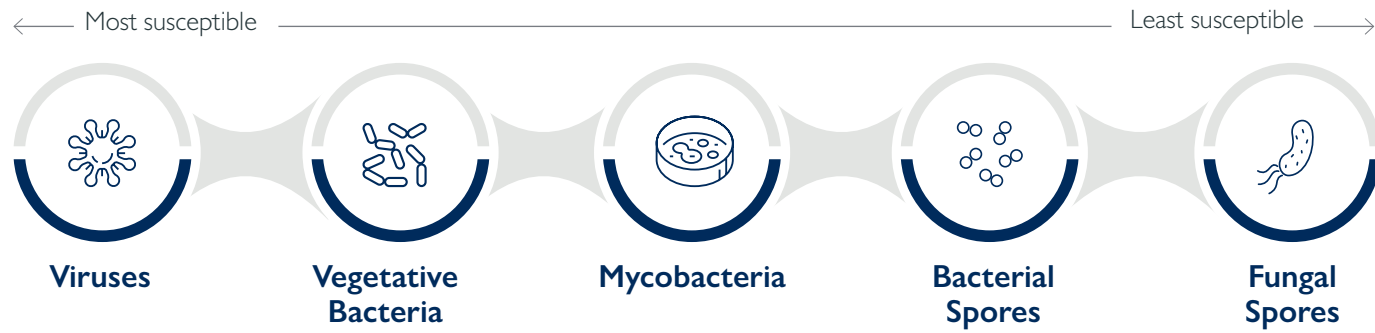
Why Choose UVC Light?

What are we doing?

UVC radiation inactivates or damages the DNA/RNA of micro-organisms so they can no longer replicate or cause harm



UVC can reduce or eliminate



UVC Dosages

Each micro-organism needs a different UVC dose.

A more effective elimination rate can be achieved by increasing the UVC dose at the same environment :

- 10 mj/cm² → 90% killing
- 20 mj/cm² → 99% killing rate
- 40 mj/cm² → 99.9% killing rate

22 mj/cm² for 25 sec is 99.9999% effective killing rate for COVID 19. According to Boston University and Signify

100% killing rate can never be achieved with UVC.

Mitie UVC Disinfection Systems

When superior air quality is a key concern to your colleagues, customers, and guests, the Mitie UVC Disinfection System can provide peace of mind. The Luxibel UVC (Ultraviolet) purification lamp uses the latest technology to blitz a number of known airborne and surface contaminants. It ensures indoor air and surfaces are extensively disinfected, fresh and clean, and helps to create a sense of wellbeing and a safer working environment.

This chemical-free innovation can be installed as a wall-mounted unit, concealed within existing vents or even disguised as a ceiling tile.

It helps protect against airborne pathogens, creating a safer and more beneficial indoor environment with the power of light.

There are two options for UVC treatment:

- **Direct** – Surface disinfection
- **Indirect** – Air disinfection

i UVC is recognised as an option for surface cleansing by HSE



What are the benefits?



Chemical-free

UVC technology is environmentally friendly. It uses no chemicals so leaves no residue when used on surfaces, in water or in air.



Effective

UVC has been proven to be effective against waterborne and airborne pathogenic micro-organisms and many other bacterial, viral and parasitic diseases.



Measurable

The disinfection effect is directly related to the UVC dose, so its effectiveness can be simply measured using on-site indicators and sensors connected to our service operations centre.



Rapid result

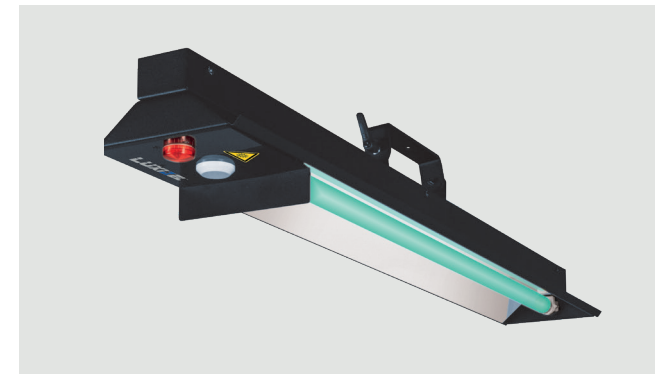
UVC works rapidly and the effectiveness can be monitored with simple, visual guides.



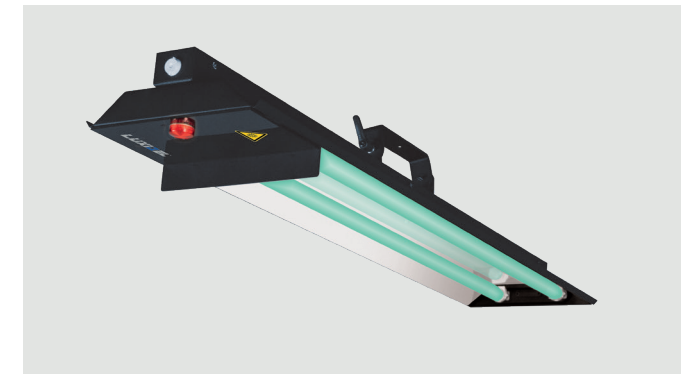
Low cost

UVC installations have low capital and operational cost and can be installed quickly with minimal disruption.

The Blue Light For More Comfort And Safety



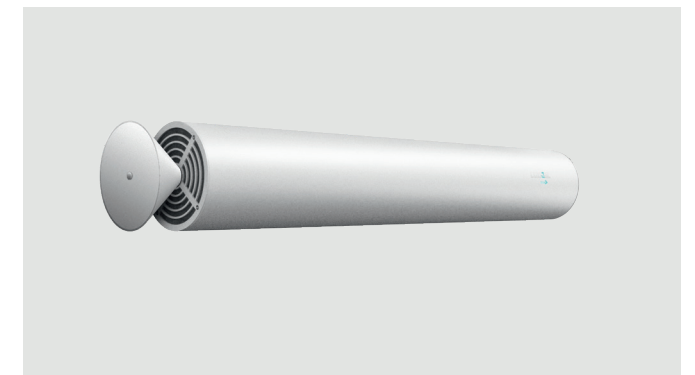
B Direct



B Direct II



B Hybrid



B Air V2



B Square



B Cannon



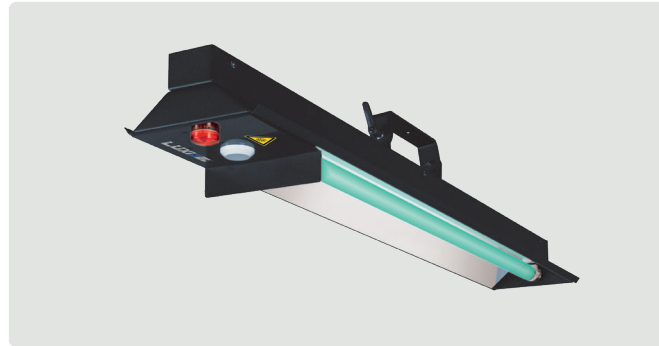
WARNING. When in operation the product will emit internal UVC radiation. UVC radiation is invisible to humans and exposure to UVC radiation may cause serious damage to eyes and skin. The floodlights contain a small amount of mercury which can be poisonous at certain concentrations. **Avoid** Direct or indirect lighting on eyes or skin of humans or animals and exposure to direct or strongly reflected UVC light.

Product - B Direct Family

B Direct Family

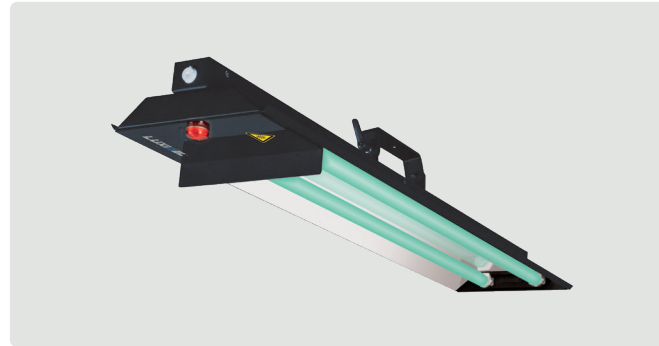
The B Direct family comes in two versions: **B Direct** and **B Direct II**. Both disinfect air and surfaces. They prevent secondary infections and help to eliminate a number of known bacteria, viruses and fungal and mould spores in the air. Multiple uses include in production halls, hospitals, health care facilities, pharmacies, public transport and many more, subject to appropriate safety assessments, installation and operation to avoid direct exposure and maximise efficiency. All direct radiating fixtures are equipped with a double security with movement sensor and LED light + sound alarm.

- Lamp life: > 9,000hrs
- Mounting: wall, ceiling or tripod
- 360° RF movement sensor
- Visual and audio alarm (70dB)
- Protective foil for lamp (on request)
- Lamp replacement: once a year
- Irradiance @ 1m: 150 $\mu\text{W}/\text{cm}^3$ (B Direct)
- Irradiance @ 1m: 300 $\mu\text{W}/\text{cm}^3$ (B Direct II)



B Direct

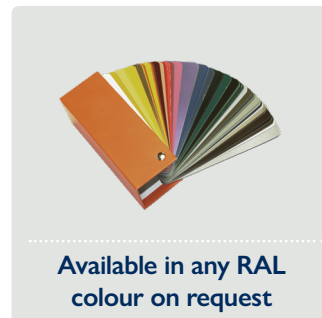
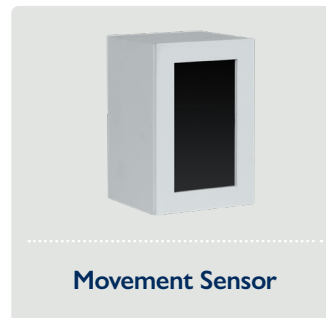
- 1x TUV 55W HO
- IP20
- 57W | AC 230V - 50Hz
- 1.080 x 135 x 165 mm | 42.5 x 5.3 x 6.5 in
- 6.6 kg | 14.6 lb



B Direct II

- 2x TUV 55W HO
- IP20
- 112W | AC 230V - 50Hz
- 1.080 x 135 x 245 mm | 42.5 x 5.3 x 9.6 in
- 8.8 kg | 19.4 lb

Available accessories



Product - B Square

B Square

The **B Square** is a ceiling-mounted disinfection unit which extensively disinfects surfaces. It helps to prevent secondary infections and eliminates a number of known bacteria, viruses and fungal and mould spores in the air. Double security comes as standard and all direct radiating fixtures have a moving sensor and an audiovisual alarm. They can be used in production halls, hospitals, health care facilities, pharmacies, public transport and many more applications - subject to appropriate safety assessments, installation and operation to avoid direct exposure and maximise efficiency.

- Lamp life: > 9.000 hrs
- 360° RF movement sensor
- Visual and audio alarm (70 dB)
- Fits straight into ceiling system
- Suspended on 4 springs for lowered ceiling



B Square

- 2x TUV PL-L 60W
- IP20
- 124W | AC 220-230V - 50Hz
- 595 x 595 x 80 mm | 23.4 X 23.4 X 3.15 lb
- 4.8 kg | 10.6 lb



Important safety warning

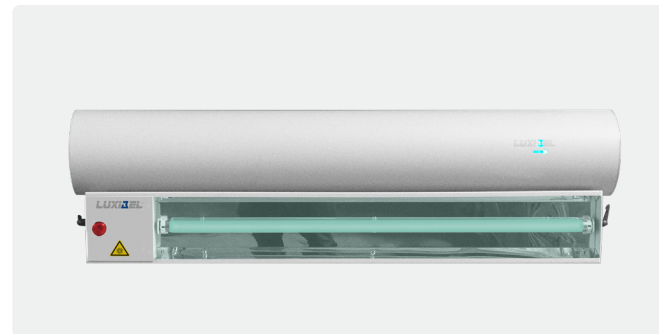
Never allow human beings to be directly exposed to UVC radiation.

Product - B Hybrid

B Hybrid

The **B Hybrid** combines direct and indirect disinfection. The indirect module allows for 24-hour disinfection when there are people and animals around. It extensively eliminates airborne bacteria, viruses, fungal and mould spores. Applications include in production halls, health care facilities, pharmacies, public transport, shops and many more - subject to appropriate safety assessments, installation and operation to avoid direct exposure and maximise efficiency.

- Lamp life: > 9.000hrs
- Disinfection time < 15min
- Mounting: wall, ceiling or tripod
- Recommended uptime: 24h
- 360° RF movement sensor
- Visual and audio alarm (70dB)
- Lamp replacement: once a year
- Air filter replacement: twice a year recommended
- Irradiance @ 1m: 150 $\mu\text{W}/\text{cm}^3$



B Hybrid

- 117m³/h fan capacity
- 1x TUV 55W HO + 2x TUV 55W HO
- IP20
- 184W | AC 230V - 50Hz
- 1.150 x 235 x 320 mm | 45.28 x 9.25 x 12.6 in
- 14.7kg | 32.41lb

Available accessories



Mounting arm



Wireless Individual control



Movement Sensor



Replacement set: dust filter with carbon



Available in any RAL colour on request



Important safety warning

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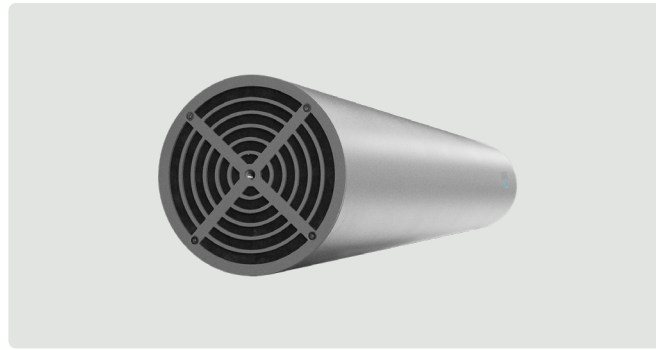
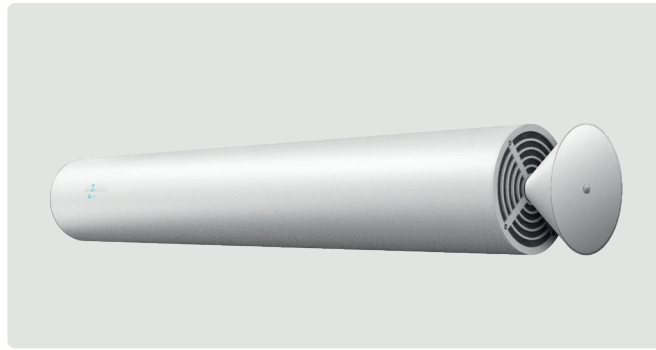
Product - B Air V2

B Air V2

The **B Air V2** allows for 24-hour disinfection when there are people and animals around, and helps to eliminate bacteria, viruses, fungal and mould spores in the air. Applications include in production halls, health care facilities, pharmacies, public transport, shops and many more - subject to appropriate safety assessments, installation and operation to avoid direct exposure and maximise efficiency.

The B Air V2 comes with a B Nozzle standard included to use Luxibel's patented Mid-Air Disinfection System (MADS).

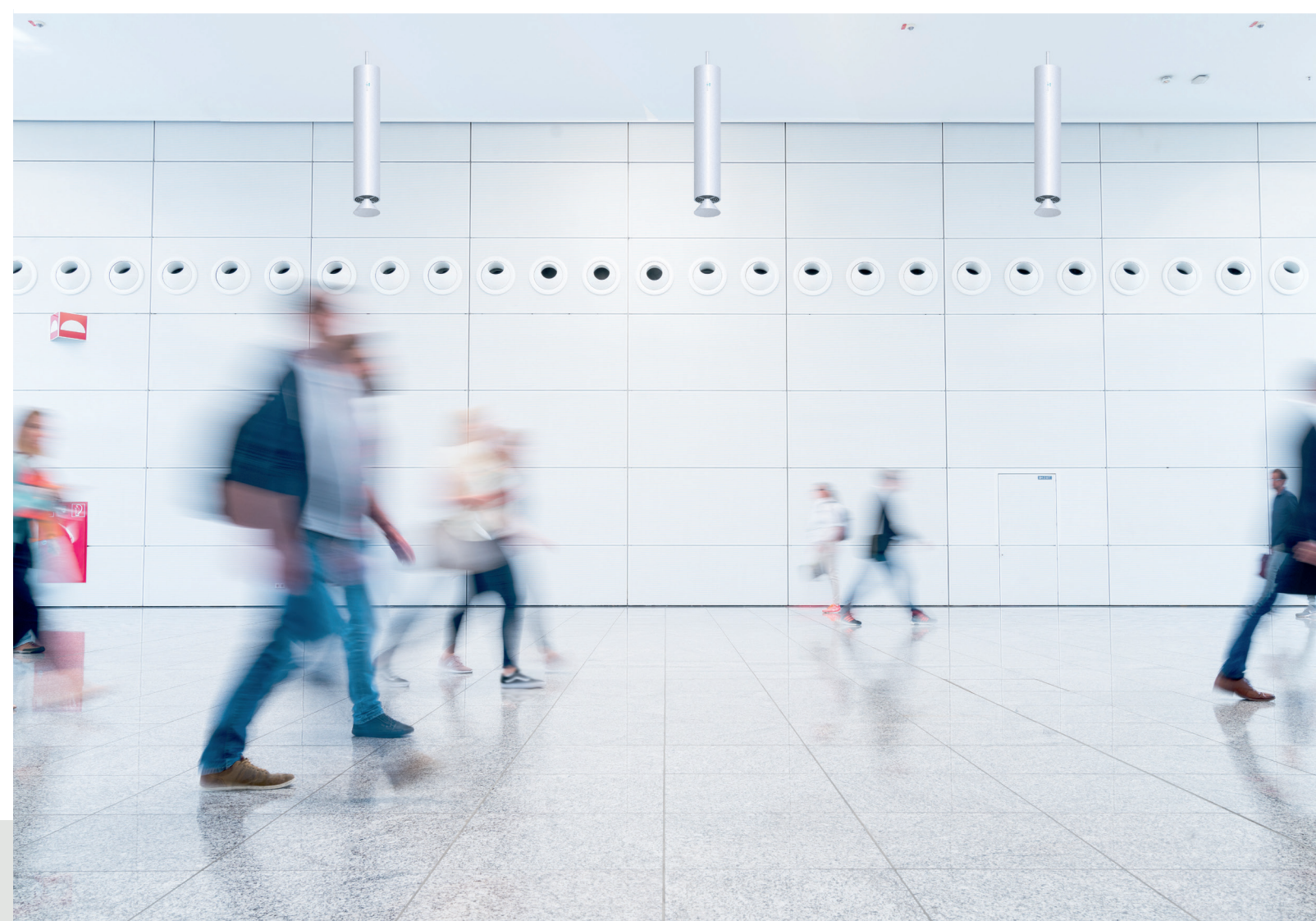
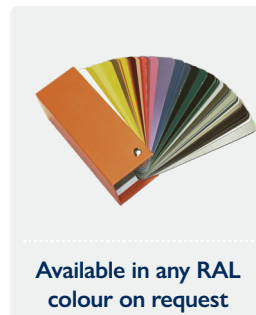
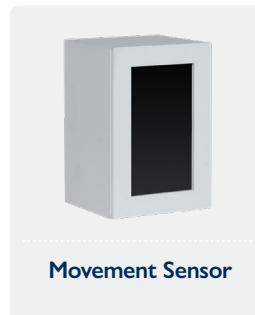
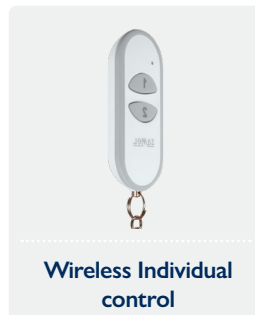
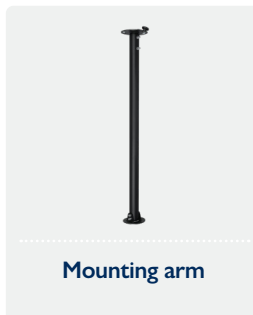
- Lamp life: > 9.000hrs
- Mounting: wall, ceiling or tripod
- Recommended uptime: 24h
- Lamp replacement: once a year
- Air filter replacement: twice a year recommended
- B Nozzle (Mid-Air Disinfection System)



B Air V2

- 117m³/h fan capacity
- 1x TUV 55W HO + 2x TUV 55W HO
- IP20
- 129W | AC 230V - 50Hz
- 1.150 x 180 x 235 mm | 45.3 x 7.1 x 9.3 in
- 11.1 kg | 24.5 lbs

Available accessories



Important safety warning

Never allow human beings to be directly exposed to UVC radiation.

Product - B Cannon

B Cannon

The **B Cannon** is a high volume air disinfection unit for large scale venues. Its high air flow capacity provides a very high level of internal UVC disinfection and ensures that all micro-organisms are trapped inside the B Cannon. No UVC radiation escapes from the unit due to the use of light traps (air passes through, while UV light is blocked).

B Cannon is the perfect solution to disinfect large venues like concert and exhibition halls, sports arenas, shopping centres, production facilities, airports and train stations - subject to appropriate safety assessments, installation and operation to avoid direct exposure and maximise efficiency.

- Lamp life: > 9.000hrs
- Mounting: hanging or standing
- Recommended uptime: 24h
- Control: manual, DMX or remote (optional)
- Easy and fast maintenance thanks to rail system
- Filter blow-out function



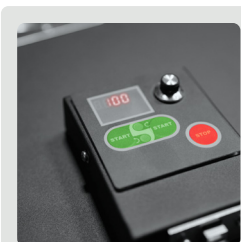
B Cannon

- 12.000 m³/h fan capacity
- 30x TUV 55W HO
- IP20
- 4.680W | 3x AC 230V - 50Hz - 16A
- 2.395 x 1.265 x 800 mm | 94.29 x 49.8 x 31.5 in
- 265 kg | 584.2 lbs

Available accessories



Rail system



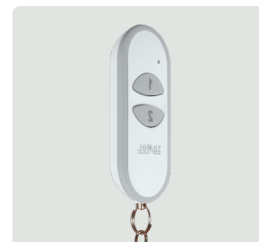
Easy-to-use



Light trap



B Nozzle



Wireless individual control

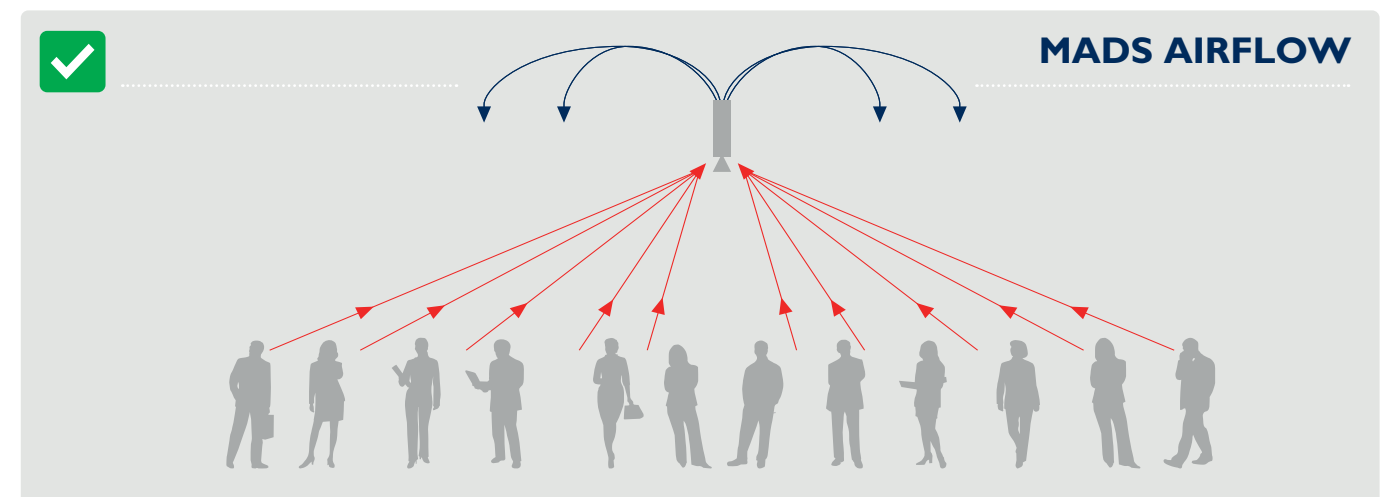
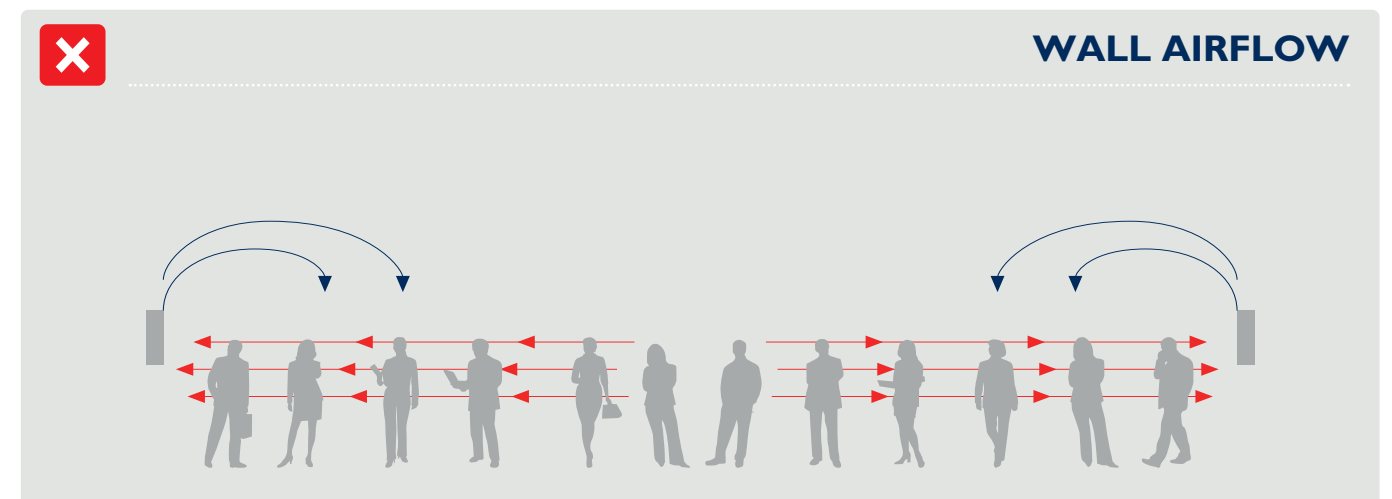
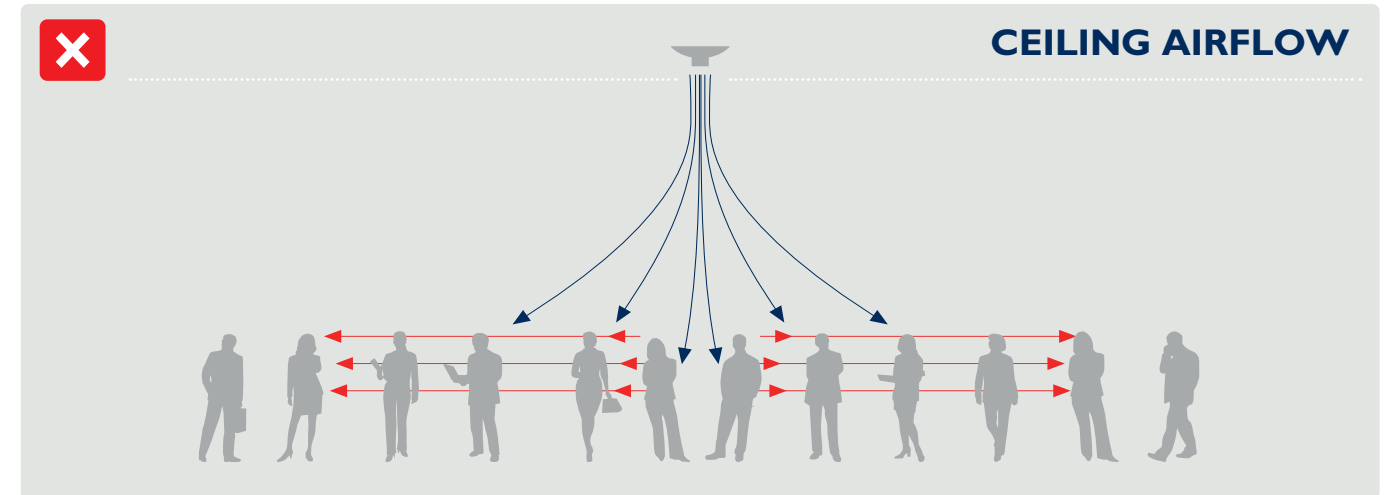
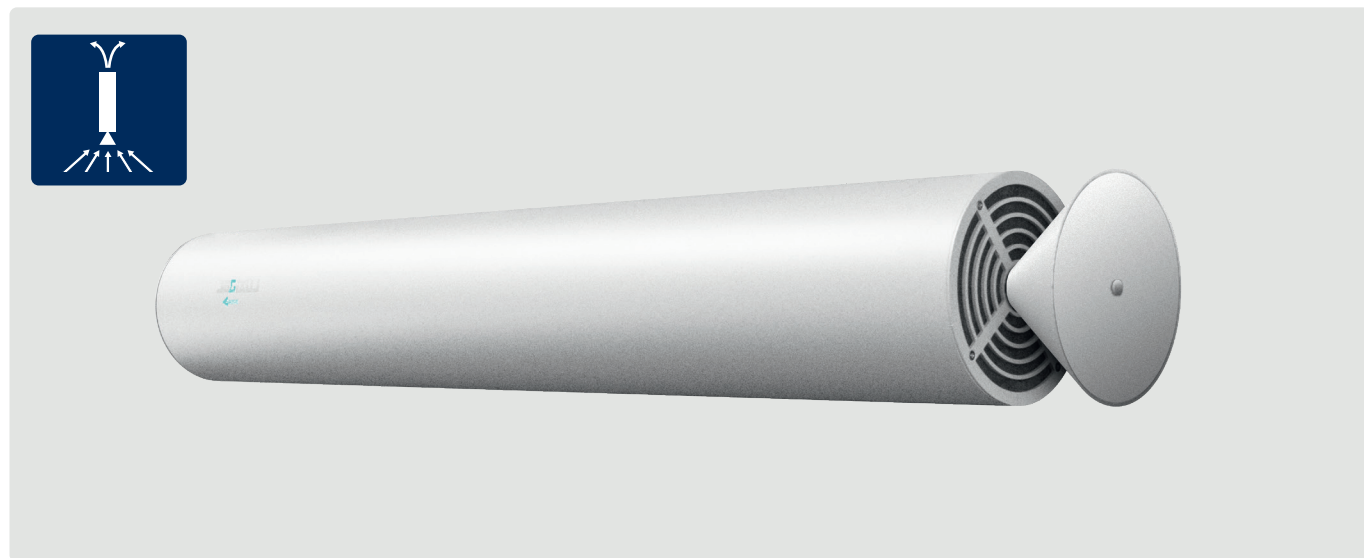


Mid-Air Disinfection System (MADS)

The Combination Of UVC Air Disinfection And Aerodynamics

In large enclosed spaces, where audiences are likely to gather, excellent air quality is expected as the norm. The **MADS system** is made for such spaces and helps to ensure a level of air disinfection and circulation that reduces air-borne infection rates. The main advantage of this installation is that it ensures the air exhaled by guests is drawn upwards by the **aerodynamically patented system**. Micro-organisms including bacteria and viruses, are neutralised and germ-free air is blown back into the space, helping to reduce airborne infections.

Signify (formerly Philips Lighting) published the results of tests of UVC light on the coronavirus (L strain). Through scientific testing, by researchers at Boston University, they concluded that UVC radiation is highly effective in neutralising coronavirus. The UVC disinfection process is carried out within a fully-enclosed device so, where installed and operated correctly, there should be no risk of exposure to harmful radiation.



All representations above are in scale 1:60.

Case Studies

CASE STUDY Offices Anyway Doors



Installation of the Luxibel B Air V2 in the offices of Anyway Doors by Stage Unit



BAIRV2 Indirect UVC air disinfection unit



CASE STUDY SINE Sports School



SINE is a sports school in Denmark where students play sports together after school. The school installed Luxibel disinfection systems in the common areas to make sure this could happen in a safer way and lower the risk of coronavirus infection. The B AIRV2s ensure that the air is extensively disinfected and that students can again enjoy sport and relax together in a safer environment.



BAIRV2 Indirect UVC air disinfection unit



CASE STUDY HMK Bilcon A/S



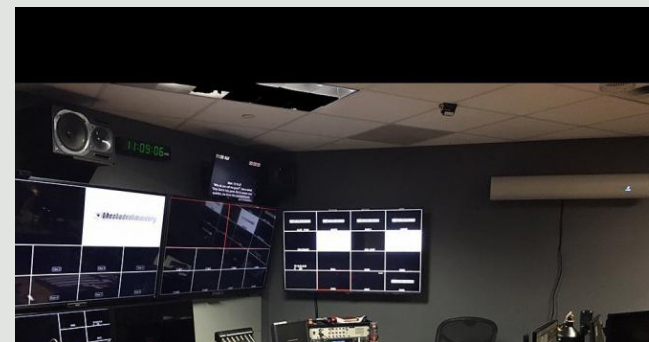
CEO Peter Jensby of HMK Bilcon A/S (a manufacturer of mobile solutions for the healthcare sector) has just invested in making the environment beneficial for his employees by having Luxibel B AIR V2 installed. His decision was based on a desire to provide a cleaner working environment once his employees were able to safely return to the workplace. At HMK Bilcon A/S in Gistrup, they now have Luxibel air disinfection systems in their meeting rooms, programming rooms and dressing rooms.



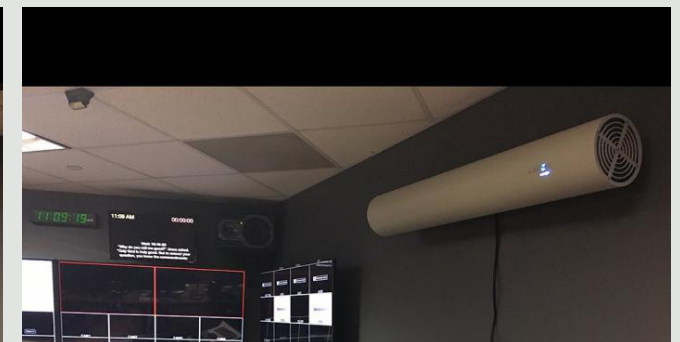
BAIRV2 Indirect UVC air disinfection unit



CASE STUDY Video Broadcast Control Room



LightParts recently supplied Luxibel B Air V2 indirect UVC disinfection to The Fellowship of The Woodlands for their video broadcast control room. Robert Mokry of LightParts said, "Several of our customers have asked for UVC disinfection products that can be used in occupied spaces. The Illuminating Engineering Society (IES, est. 1906) paper that discusses application of UVC makes it clear that for occupied spaces, a desirable solution is indirect UVC". He went on to add "Once we investigated several indirect UVC products on the market, we determined the Luxibel B Air V2 is a great value – 110W of UVC power for a reasonable cost".



BAIRV2 - 110V Indirect UVC air disinfection unit



Organisations using the Luxibel UVC Disinfection System



Enterprise

- Radio MK Station (UK)
- Codem Composites (UK)
- Central de Telefónica de Madrid (ES)
- Town Hall of Arroyo de la Luz (ES)
- Town Hall of Albala (ES)
- Town Hall of Sierra De Fuentes (ES)
- Town Hall of Mata de Alacntra (ES)
- Town Hall of Plasenzuela (ES)
- Town Hall of Villamesias (ES)
- Town Hall of Santa Cruz de la Sierra (ES)
- Town Hall of La Aldea del Obispo (ES)
- Town Hall of Arroyomolinos (ES)
- Town Hall of Edificio 3 Milenio Junta de Extremadura (ES)
- Town Hall of Castilblanco (ES)
- Town Hall of Azuaga (ES)
- Kindergarten Kos (GR)
- BMW Meeting room (DE)

Film & Television

- Great British Bake Off Television Show (UK)
- AED Film Studios (BE)
- Fellowship of The Woodlands Video Broadcast Control Room (USA)

Restaurants & Hotels

- Treehouse Hotel London (UK)
- Restaurant De Lekkerbek (BE)
- Café Saint-Pol (BE)
- Restaurant De Sécretaire (BE)
- Café 't Loze Vissertje (BE)

Medical

- Medical Prevention Rehabilitation Center (ES)
- Hospital Ptuj (SL)
- Hospital Rotterdam (NL)
- Military Hospital Neder-Over-Heembeek (BE)
- Orthopaedic Clinic (SG)
- Dental practice Pinke & Beijerinck (NL)
- Better Hearing Clinic (UK)
- Doctor Practice De Keulenaer (BE)
- Data Dental (BE)

Retail

- Hairdresser (DK)
- Cadena Uniqlo (ES)
- H73 Turkish barber (UK)

Sports & Leisure

- Dressing Rooms Levante Football Club (ES)
- Training Center Mouscron Football Club (BE)
- Tennis Club Molenbos (BE)
- Theme Parc Bobbejaanland (BE)
- Theme Parc Europapark (DE)
- Spa Wellness Center Medina Califa Baños Árabes (ES)
- Spa Wellness Center Medina Mayrit Baños Árabes (ES)
- Spa Wellness Center Medina Nazarí Baños Árabes (ES)
- Spa Wellness Center Al Andalus Baños Árabes (ES)
- Ophthalmic Exploration Center Tunis (TUN)

Transport

- Alpha Motors Mobilhome Rental (BE)
- JESCO Auto Training School (BE)



Important safety warning
Never allow human beings to be directly exposed to UVC radiation.



For further information, please contact: ts.enquiries@mitie.com