Products for AIR DISINFECTION

For the Covid crisis and beyond.

UVC based air and surface disinfection for factories, food plants, surgeries, schools, retail, offices, homes.

JenAct

signify

UV-C distributor

specialized in

PHILIPS

PHILIPS dynalite

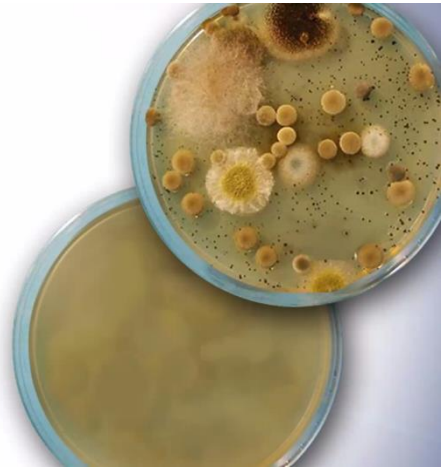
JenActUV
Background

JenAct is a subsidiary of Jenton International Limited.

JenAct has specialised in UV disinfection of air and surfaces since 1995

*Air disinfection for work areas, surgeries etc..
*Air disinfection for ducts, HVAC
*UV conveyors for food, packages / packaging
*Surface disinfection for bottles, masks & PPE

JenAct has 11 separate granted patents, several internationally.



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JenActUV

ACTIVE air disinfection

Air is driven past UV lamps in self contained units or air ducts and is exposed to UV and treated on the way.

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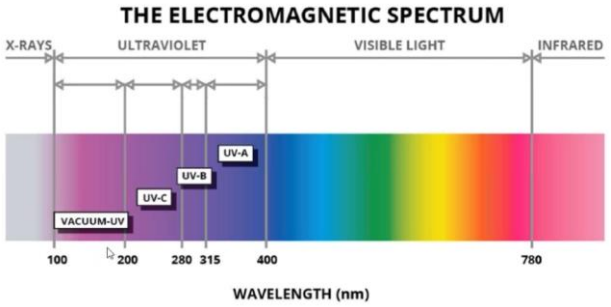
PASSIVE air disinfection

Room air is exposed to wall or ceiling mounted UV lamp fixtures by natural or fan assisted convection

The Science

UVC light at approx. 250-260 nanometers wavelength resonates and disrupts DNA/RNA in cell nuclei and viruses, inactivating it and causing disinfection.



JenAct **and** signify **systems do two things**.

a) They generate and emit UVC light at 254nm at the maximum intensity possible.

b)They transmit and concentrate that light efficiently towards the spores, bacteria or viruses that need to be inactivated.

JenAct **has developed sophisticated modelling software to make sure we do that right - reliably predicting performance**

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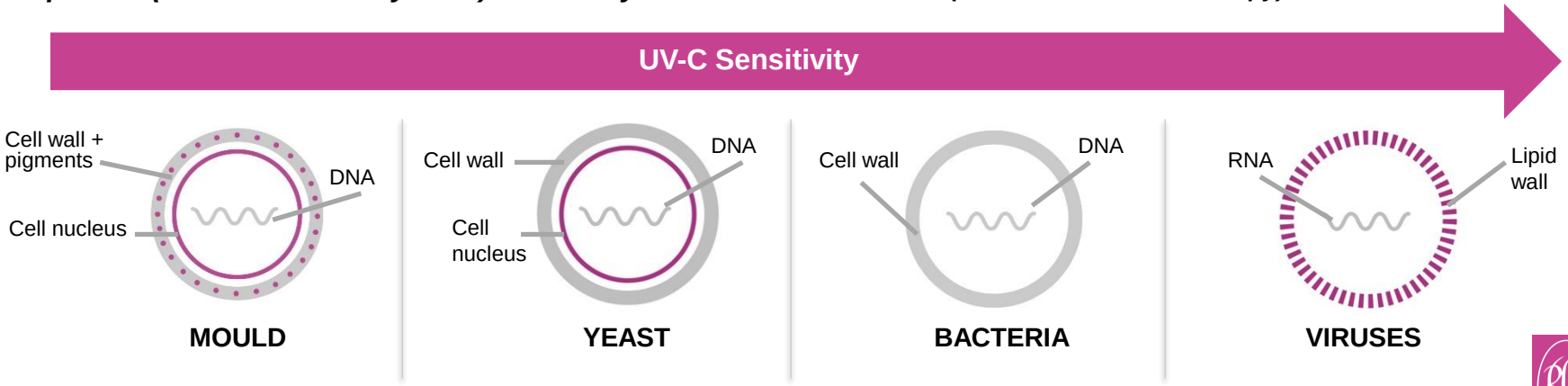
UV-C Sensitivity of Different Microorganisms

Viruses, such as coronaviruses, are easier to disinfect as their thin walls offer little resistance to UVC which will disrupt their RNA. Bacteria are also very suited to UVC disinfection. ***SARS-CoV-2 is proven (Boston University 2020) to be easy to disinfect with UVC.*** ***(ask JenAct contact for copy)***



JenAct

Lethal dose

Dose (mJ*/cm$^{2)}$ = **Irradiance** (mW/cm^2) **x Exposure Time** (s)

* 1J = 1Ws

** of a UV light source at a defined distance

Lethal Dose:
Dose required for the inactivation of a specific germ strain

Lethal dose for 99.9% Inactivation of different:

BACTERIA			
Saremalutea	59.0	B paratyphosus	9.6
B Subtilis	36.0	Escherichlia coli	9.0
Micrococcus sphaeroides	30.0	B Megatherium sp (spores)	8.0
S typhitmurium	24.0	Proteius vulgaris	7.8
Micrococcus Candiclus	19.0	Staphylococcus aureus	7.8
Staphylococcus lactis	18.0	Seratia marcescens	7.2
Pseudomonas Aeruginosa	16.5	Staphylococcus hemolyticus	6.6
Bacillus Anthracis	13.7	Eberthella typosa	6.3
Neisseria Catharrhalis	13.0	Staphylococcus vindans	6.0
Phytomonas turnefaciens	13.0	Staphylococcus albus	5.4
Spirillum rubrum	13.0	Shigella paradysenteriae	5.2
Pseudomonas fluorescens	10.5	B Megatherium sp (veg)	3.4
Corynebacterium diphteriae	10.0		

Lethal dose

Lethal dose for 99.9% Inactivation

Viruses (airborne)	
Adenovirus	14.0
Bacteriophage MS2	13.0
Coxsackievirus	6.3
Influenza A	6.0
Coronavirus (SARS-CoV-2)	3.7*
Coronavirus (SARS-CoV)	2.1

* pre-printed paper (not peer-reviewed)

Lethal Dose Ranges for 99.9% (log 3) Inactivation:

Virus	2 – 16 mJ/cm^2
Bacteria	4 – 60 mJ/cm^2
Molds	15 – 400 mJ/cm^2

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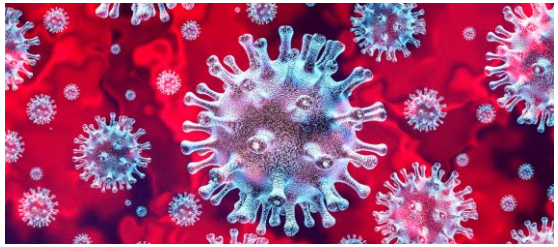
signify

COVID-19

The pathogen that everyone is interested in in 2021 is SARS-CoV-2, which causes COVID-19. The good news is that coronaviruses are very easy to inactivate with UVC. (see chart on previous page)

Although COVID-19 is new, coronaviruses are not. Much work has been done on UVC's disinfection abilities on SARS-CoV-1 (SARS) which can be related to SARS-CoV-2 (COVID-19). In addition, work initiated by Signify in 2020 by Boston University confirms UVC effectiveness https://www.signify.com/global/our-company/news/press-releases/2020/20200616-signify-boston-university-validate-effectiveness-signify-uvc-light-sources-on-inactivating-virus-that-causes-covid19



Suggested:

Rapid and complete inactivation of SARS-CoV-2 by UV-C irradiation
Rapid and complete inactivation of SARS-CoV-2 by ultraviolet-C irradiation | Scientific Reports (nature.com)

SARS-CoV-2 response to UVC
International Ultraviolet Association:
https://iuva.org/iuva-covid-19-faq

CDC advice on COVID-19 for employers:
https://www.cdc.gov/coronavirus/2019-ncov/community/office-buildings.html

UK Government
https://www.gov.uk/government/publications/emg-role-of-ventilation-in-controlling-sars-cov-2-transmission-30-september-2020

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The best thing since....

FRESH AIR

JenAct

The best way to deal with airborne viruses to minimise cross infection is to flush them out with fresh air.

Open windows, doors or set ventilation systems to avoid recirculated air..

Or…if you can't do that…

You can use *JenActUV* systems to make your own "Covid fresh" air (99.99% virus free air).

Our UV systems for air treatment (self contained or in ducts) will provide 99.99% disinfection of SARS-CoV-2 in the air going through the system.

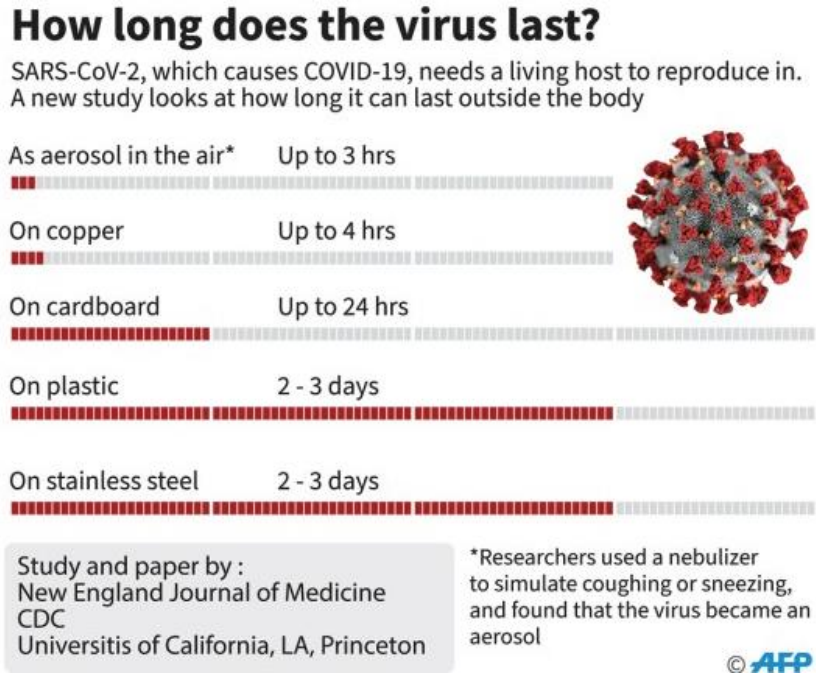
COVID-19

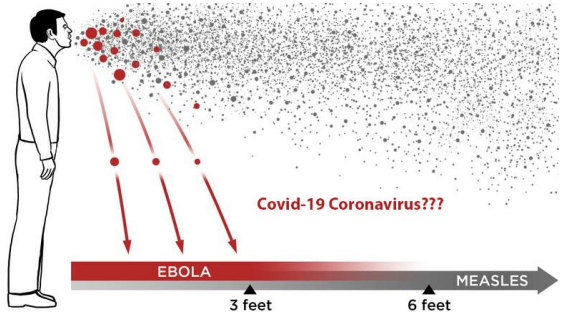
JenAct air disinfection systems are designed to destroy 99.99% of all coronaviruses passing through them.

We do NOT collect viruses in filters. We don't use filters. (If you need to remove dust from the air you need a filter).

CDC have accepted evidence of airborne SARS-CoV-2 (which causes Covid-19) and multiple papers recommend fresh air ventilation or air treatment to mitigate risk.

The chart opposite shows data on survival of SARS-CoV-2 in air and on various surfaces. One or more changes of air in a room per hour will make a huge difference, especially where aerosols are generated – such as dentistry.

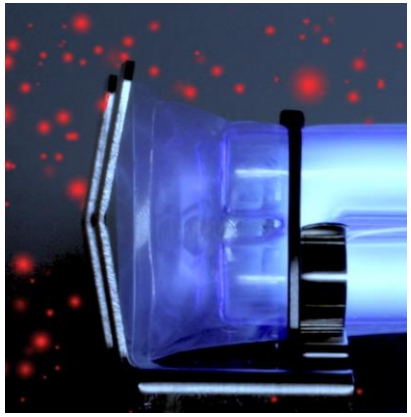


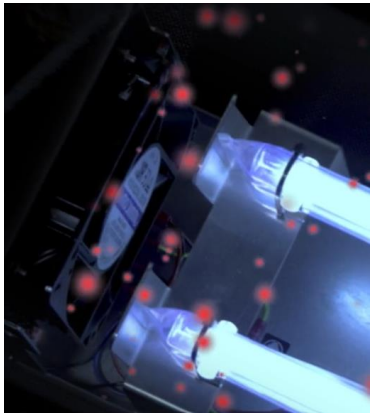


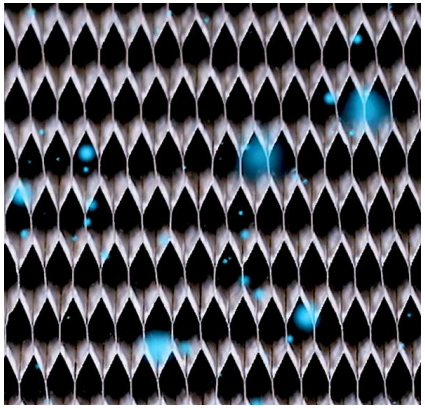
JenAct

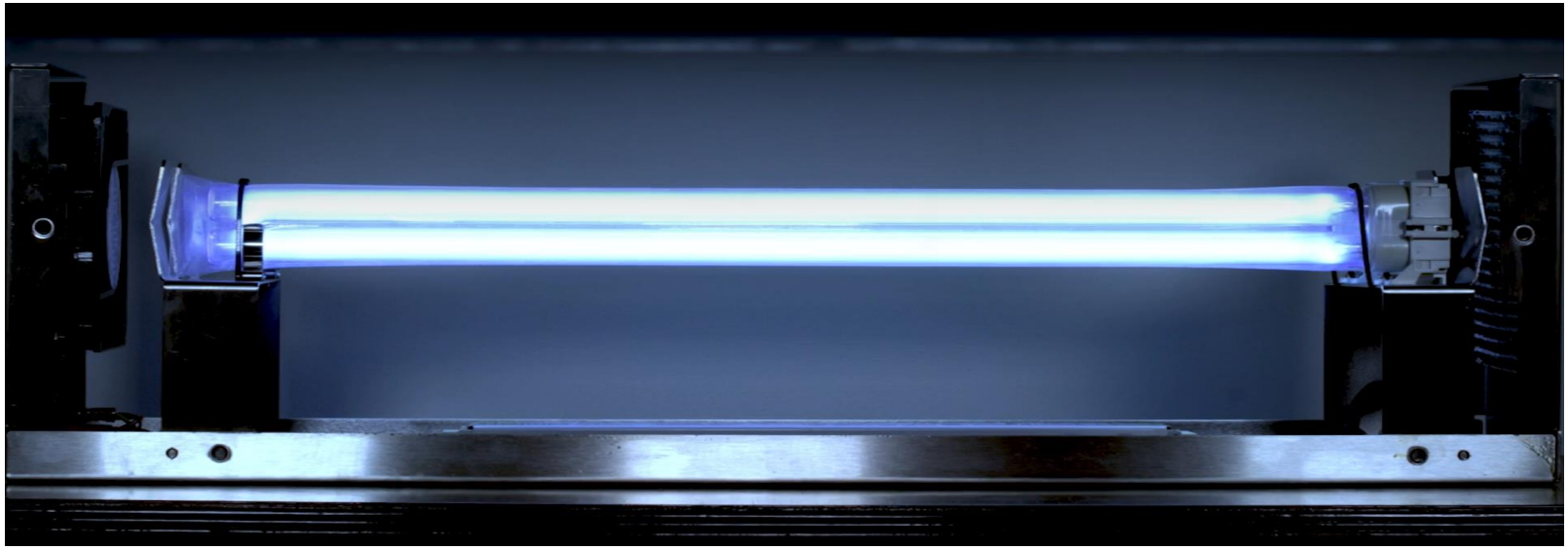
GRU-V®

It's a simple principle. We generate UV. We shine it at pathogens in the air and inactivate them causing disinfection.









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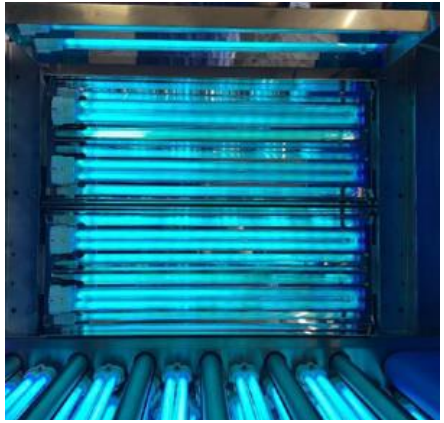
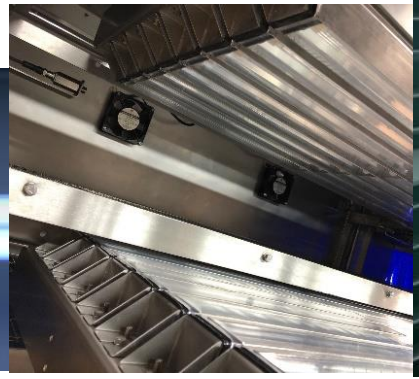
JenAct's wide range of products:





JenAct

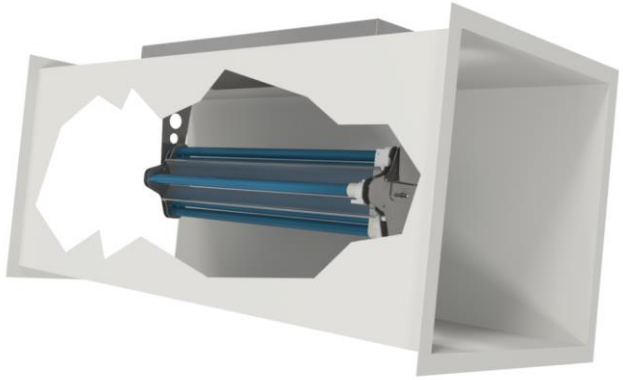
What can *JenActUV* do?

We know exactly how much UVC we produce in our systems.

From 100 years of many other people's research, science *knows* what levels of UV are required to disinfect all the 'major' viruses, bacteria and moulds.

We *know* what will happen if UVC from *JenActUV* systems reaches the DNA/RNA of target pathogens.

With air disinfection in controlled ducts we can do this very accurately. If we work in a duct and know air volume, air speed and target pathogen we can be 100% sure of what level of disinfection can be achieved.



People's skin must NOT be exposed to UVC.

JenAct

Air disinfection with GRU-V ®

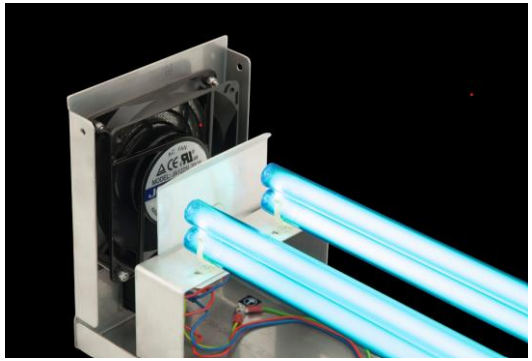
JenAct GRU-V systems are designed for dynamic air disinfection - vertical wall or horizontal suspended mounting.

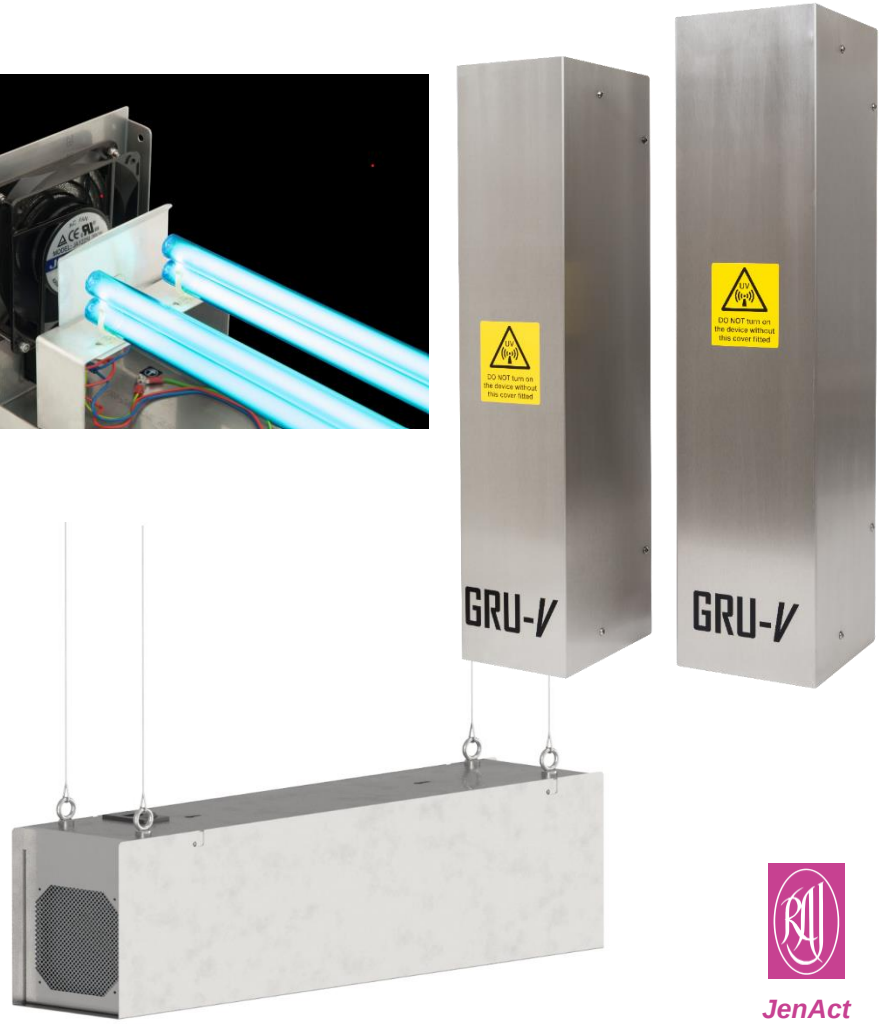
UV lamps are mounted longitudinally in a food/medical grade stainless steel duct unit with integral fan. Fan is sized to move an appropriate volume of air to achieve 4 log kill (99.99% disinfection) of viruses.

Signify (Philips) PL-L or equivalent [55w x 2] or [95w x 2] lamps are used for 100m3/hr or 160m3/hr airflow.

Variants available for 300-3500m3/hr.

FEP sleeves are used to keep bulbs clean and safe if broken. Bulbs have a rated life of 9,000 hour life (to 85% output) Annual changes recommended.





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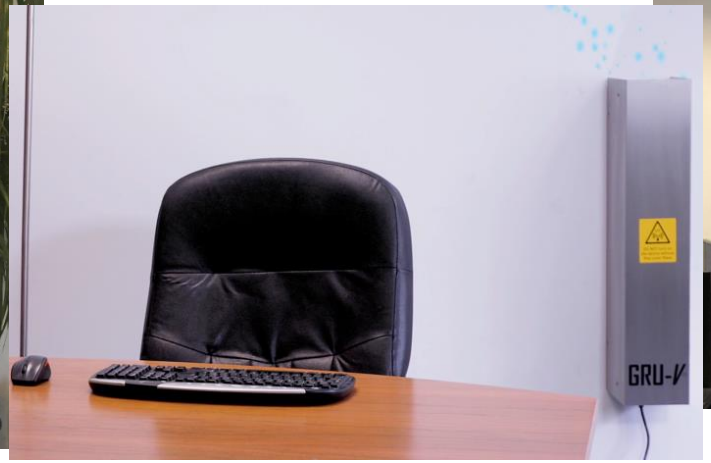
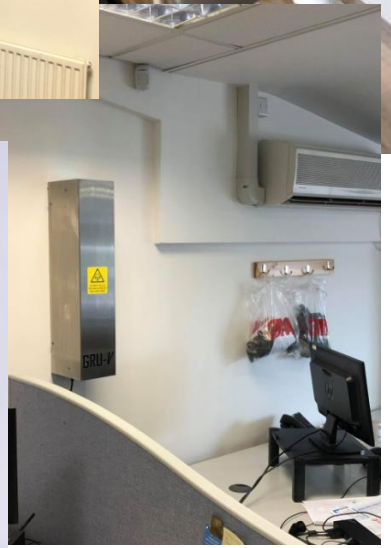
Examples (offices)

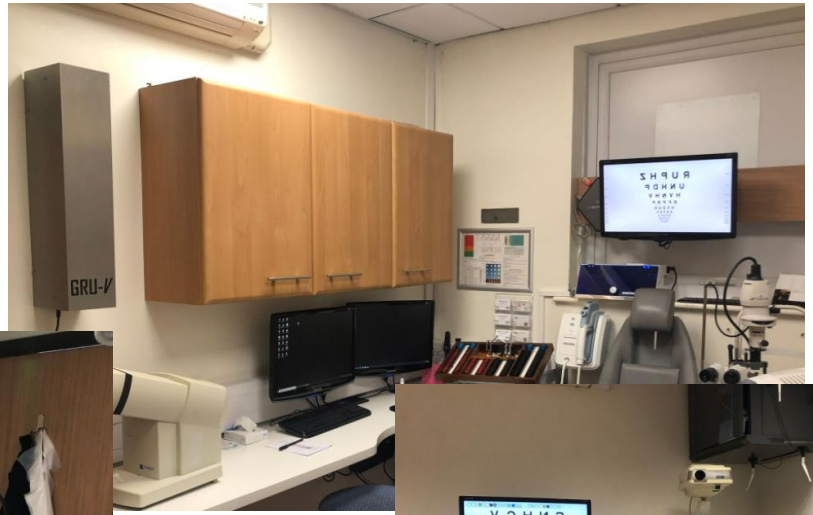




JenAct

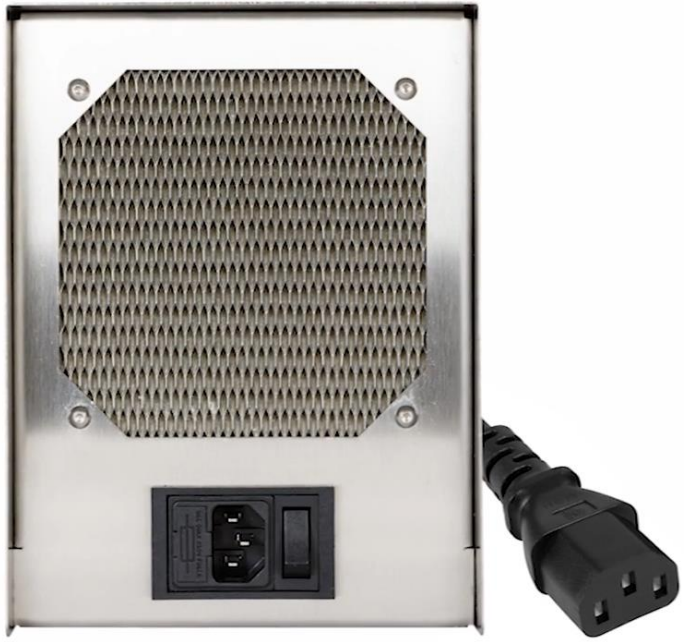
More installations … opticians..

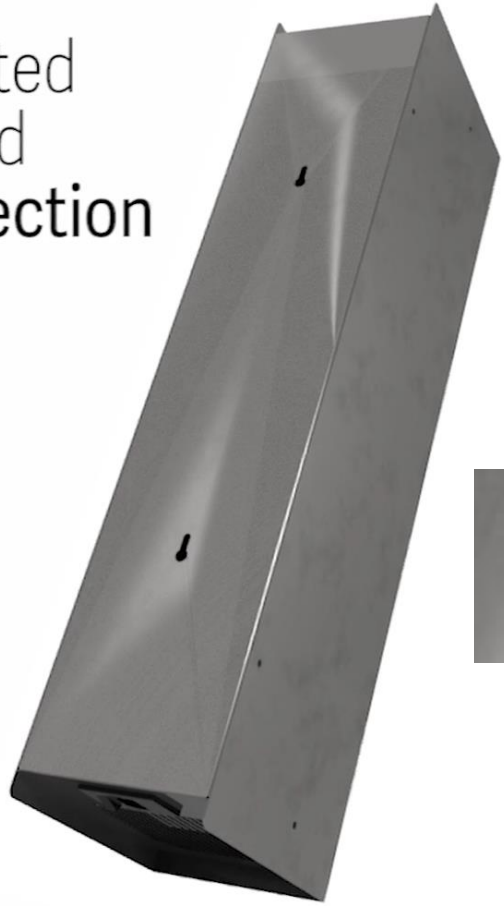
SARS-CoV-2 in aerosols presents a real problem for dentists, opticians, offices and immunocompromised people in all situations.



JenAct

Easy to install with integrated wall mounting points and IEC 230V 5A Electrical connection



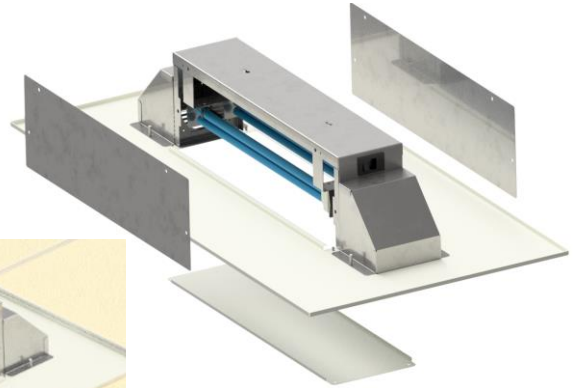


JenAct

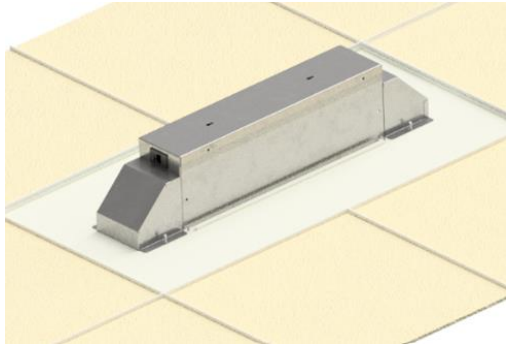
GRUV-LB

JenAct GRUV-LB systems are custom designed to easily replace 1200x600 and 600x600 standard ceiling tiles.

UV lamps are mounted longitudinally in a lightweight steel duct with integral fan which is mounted directly on to a ceiling tile insert. Fan is sized to move an appropriate volume of air to achieve 4 log kill (99.99% disinfection) of viruses.



Signify (Philips) PL-L or equivalent [55w x 2] lamps are used in 100m3/hr airflow



FEP sleeves can be used to keep bulbs clean and safe if broken. Bulbs have 8000 hour life.

JenAct

UV TORPEDO ®

***JenAct* UV TORPEDO® systems are designed to fit longitudinally into existing HVAC and air ducts.**

JenAct has designed optimised aluminium extrusion to ensure maximum UV harvest from the UVC lamps in the torpedo unit.

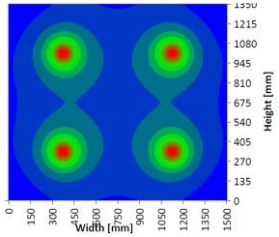
Lamps, ballasts and sizing all selected to suit each customer requirement based on airflow, temperature and identified problem pathogens.

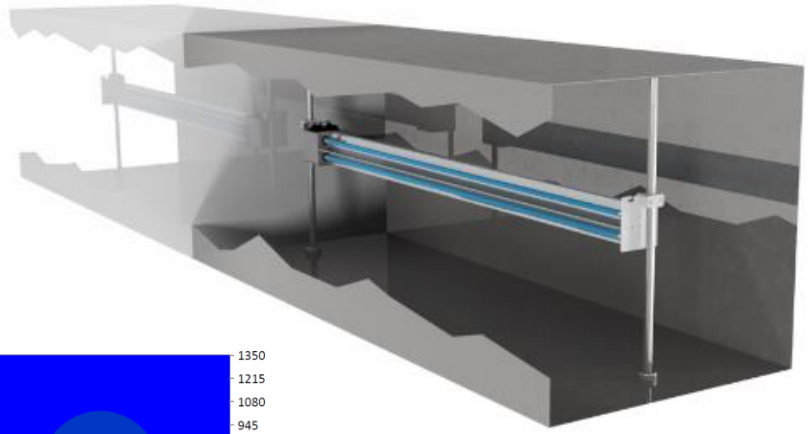
Custom control systems allow local control operation and/or Building Control Systems (BMS)

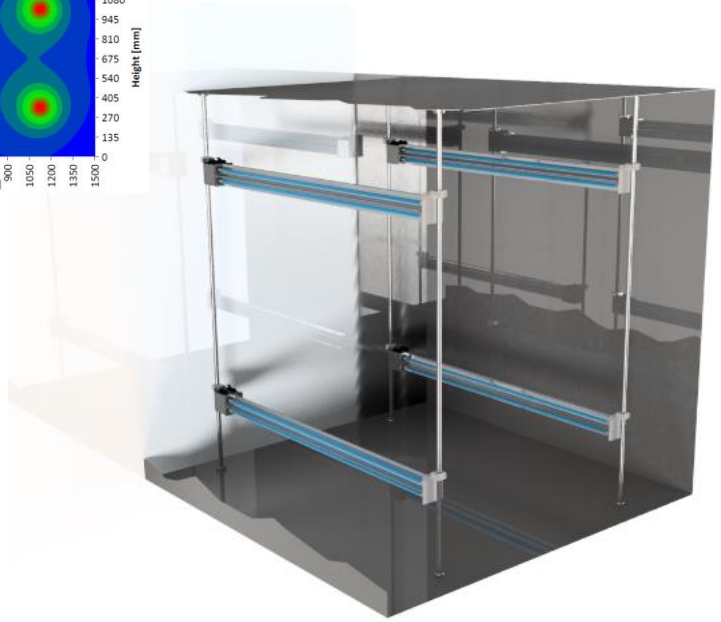
Current public recommendations are not to use recirculating HVAC in a possible COVID-19 situation without disinfection. These systems prevent transfer of virus from one room/area to another

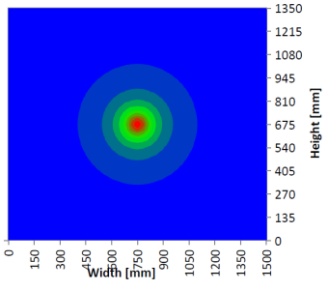
JenAct

Duct Mounting





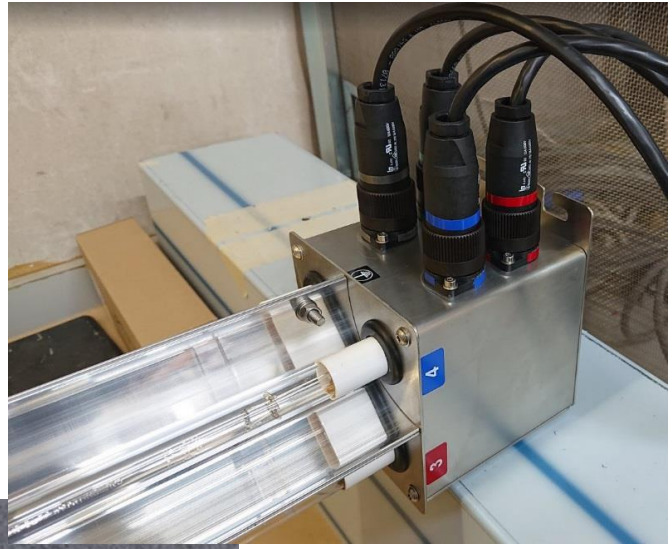


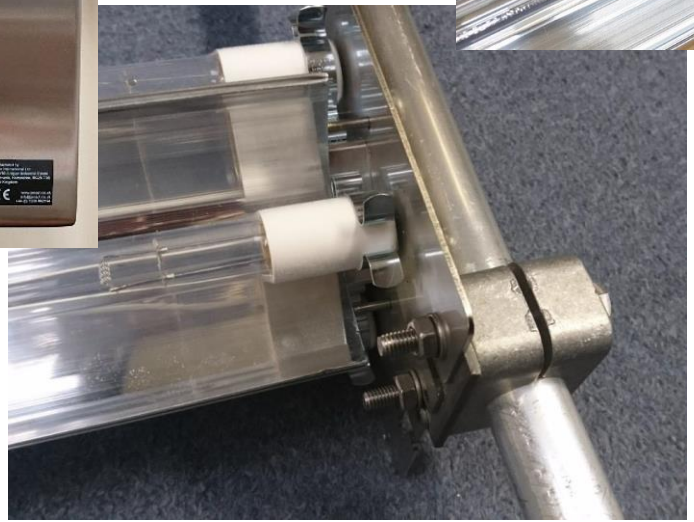


Lamp modules are clamped to easily mounted rods across duct in calculated position for best results. Wires exit to PSU. Access hatch required.

JenAct

UV Torpedo® detail.

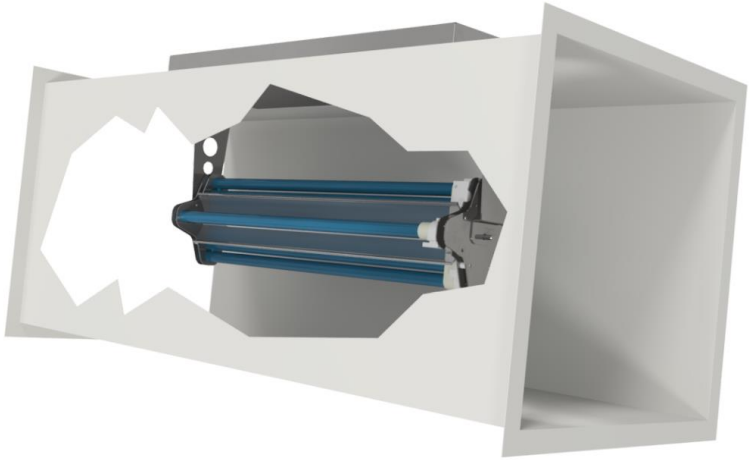


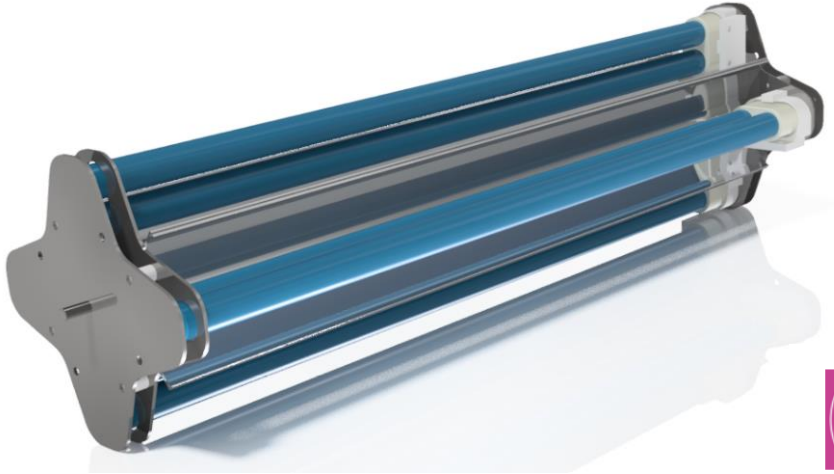


JenAct

“Quad”

UVTorpedo® Quad has advantage of max UV output per unit length of all torpedo variants. Available in 550mm lengths applicable to short spaces and easy to modify existing ducts for mounting. Features Signify (Philips) PL-L lamps.





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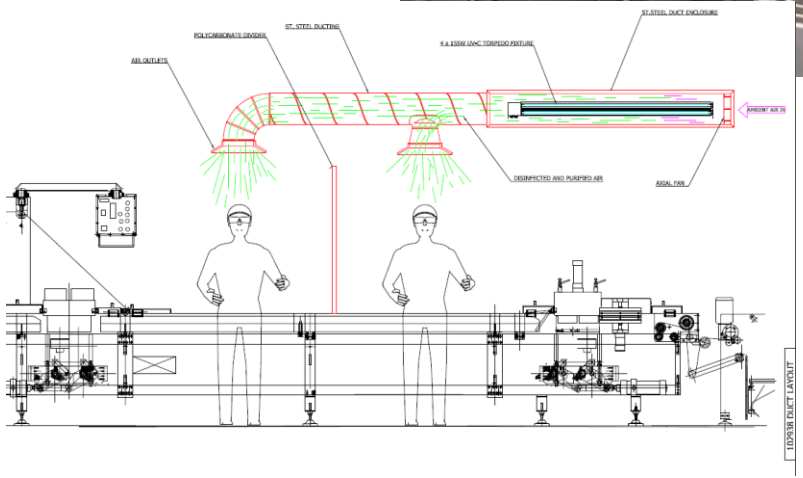
Systems for food production

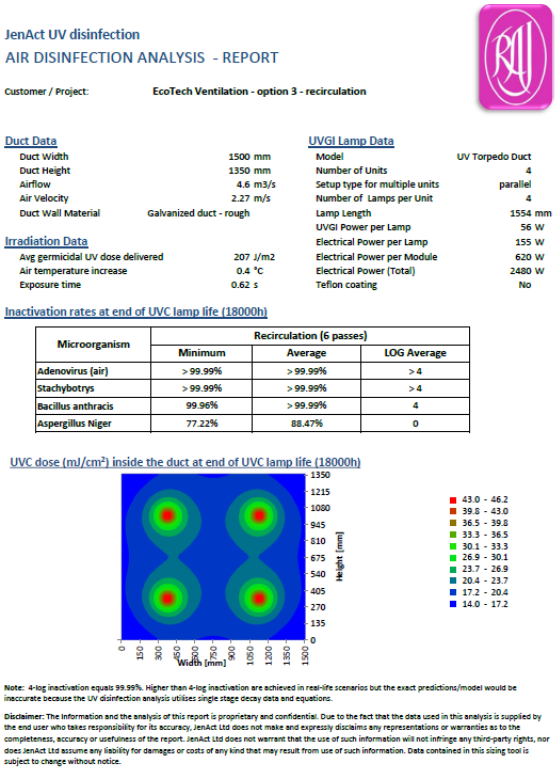


JenAct

Getting it right

UV has been used for disinfection for over 100 years. During that time so much work has been done on testing, measuring and categorising performance in relation to viruses, bacteria and moulds that performance can be accurately and reliably modelled based on thousands of tests over the years.

JenAct has developed sophisticated modelling software and licences it to other companies in the UVC world.



JenAct UV disinfection

AIR DISINFECTION ANALYSIS - REPORT

Customer / Project: EcoTech Ventilation - option 3 - recirculation

Duct Data

Duct Width	1500 mm
Duct Height	1350 mm
Airflow	4.6 m3/s
Air Velocity	2.27 m/s
Duct Wall Material	Galvanized duct - rough

Irradiation Data

Avg germicidal UV dose delivered	207 J/m2
Air temperature increase	0.4 °C
Exposure time	0.62 s

UVGI Lamp Data

Model	UV Torpedo Duct
Number of Units	4
Setup type for multiple units	parallel
Number of Lamps per Unit	4
Lamp Length	1554 mm
UVGI Power per Lamp	56 W
Electrical Power per Lamp	155 W
Electrical Power per Module	620 W
Electrical Power (Total)	2480 W
Teflon coating	No

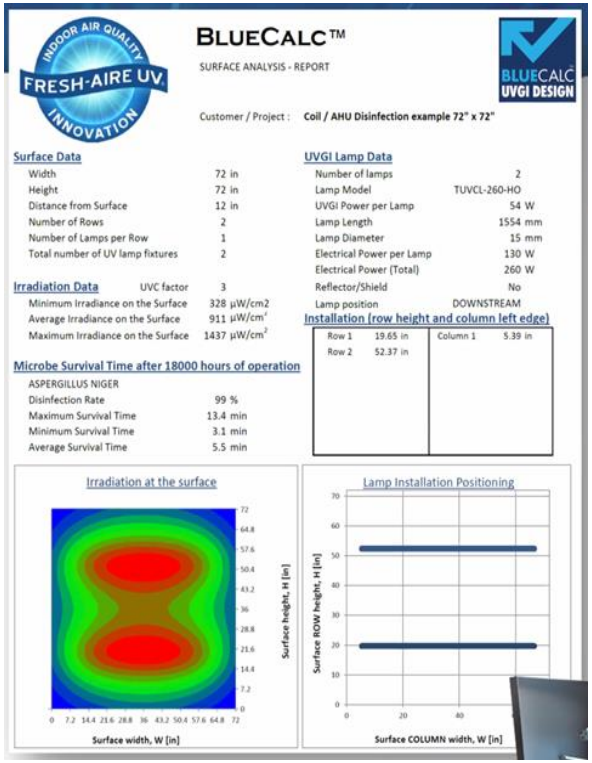
Inactivation rates at end of UVC lamp life (18000h)

Microorganism	Recirculation (6 passes)		
	Minimum	Average	LOG Average
Adenovirus (air)	> 99.99%	> 99.99%	> 4
Stachybotrys	> 99.99%	> 99.99%	> 4
Bacillus anthracis	99.96%	> 99.99%	4
Aspergillus Niger	77.22%	88.47%	0

UVC dose (mJ/cm²) inside the duct at end of UVC lamp life (18000h)

Note: 4-log inactivation equals 99.99%. Higher than 4-log inactivation are achieved in real-life scenarios but the exact predictions/model would be inaccurate because the UV disinfection analysis utilises single stage decay data and equations.

Disclaimer: The information and the analysis of this report is proprietary and confidential. Due to the fact that the data used in this analysis is supplied by the end user who takes responsibility for its accuracy, JenAct Ltd does not make and expressly disclaims any representations or warranties as to the completeness, accuracy or usefulness of the report. JenAct Ltd does not warrant that the use of such information will not infringe any third-party rights, nor does JenAct Ltd assume any liability for damages or costs of any kind that may result from use of such information. Data contained in this sizing tool is subject to change without notice.



BLUECALC™

SURFACE ANALYSIS - REPORT

Customer / Project : Coil / AHU Disinfection example 72" x 72"

Surface Data

Width	72 in
Height	72 in
Distance from Surface	12 in
Number of Rows	2
Number of Lamps per Row	1
Total number of UV lamp fixtures	2

UVGI Lamp Data

Number of lamps	2
Lamp Model	TUVCL-260-HO
UVGI Power per Lamp	54 W
Lamp Length	1554 mm
Lamp Diameter	15 mm
Electrical Power per Lamp	130 W
Electrical Power (Total)	260 W
Reflector/Shield	No
Lamp position	DOWNSTREAM

Irradiation Data UVC factor 3

Minimum Irradiance on the Surface	328 µW/cm2
Average Irradiance on the Surface	911 µW/cm²
Maximum Irradiance on the Surface	1437 µW/cm²

Installation (row height and column left edge)

Row 1	19.65 in	Column 1	5.39 in
Row 2	52.37 in		

Microbe Survival Time after 18000 hours of operation

ASPERGILLUS NIGER

Disinfection Rate	99 %
Maximum Survival Time	13.4 min
Minimum Survival Time	3.1 min
Average Survival Time	5.5 min

Irradiation at the surface

Lamp Installation Positioning

Sample predictive modelling.

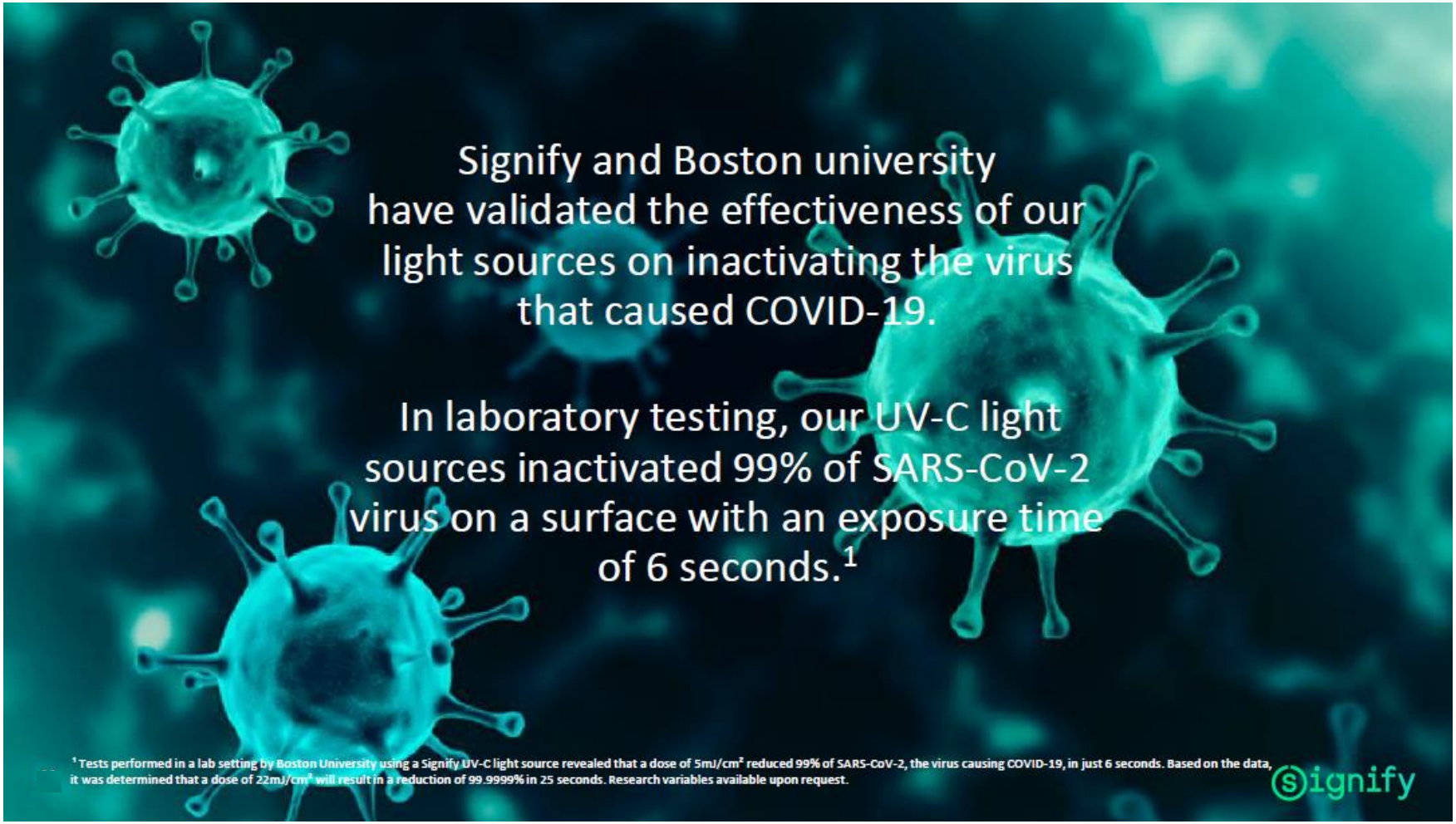
JenAct

Signify

PASSIVE air disinfection

Room air is exposed to wall or ceiling mounted UV lamp fixtures by natural or fan assisted convection

JenAct


Signify and Boston university have validated the effectiveness of our light sources on inactivating the virus that caused COVID-19.
In laboratory testing, our UV-C light sources inactivated 99% of SARS-CoV-2 virus on a surface with an exposure time of 6 seconds.[1]
[1] Tests performed in a lab setting by Boston University using a Signify UV-C light source revealed that a dose of 5mJ/cm² reduced 99% of SARS-CoV-2, the virus causing COVID-19, in just 6 seconds. Based on the data, it was determined that a dose of 22mJ/cm² will result in a reduction of 99.9999% in 25 seconds. Research variables available upon request.
signify

intertek
Total Quality. Assured.

SIGNIFY NETHERLANDS B.V.

EFFICACY TEST REPORT

SCOPE OF WORK
Non-standardized Test Method: Microbial Reduction Rate Test

PRODUCT – Germicidal UV Light

MODEL – 1. Philips UV-C disinfection upper air luminaire, ceiling mount, Philips PL-S TUV lamp included: 4x9W
2. Philips UV-C disinfection upper air luminaire, wall mount, Philips T5 TUV lamp included: 25W

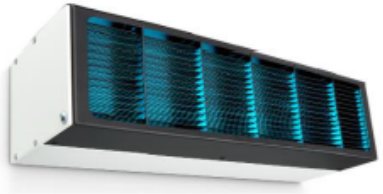
REPORT NUMBER
104510702COL-001

ISSUE DATE
12/31/20

PAGES
5

DOCUMENT CONTROL NUMBER
GFT-OP-10h (6-July-2017)

- *"Our Philips UV-C disinfection upper air luminaires inactivate up to 99.9% of virus Coliphage φX174 in air within 10 minutes in a room with sufficient air circulation[1] "*
- More specifically for the Ceiling mounted version : *"Inactivates 99.9% of virus Coliphage φX174 in air within 10 minutes in a room with sufficient air circulation[1]"*
- More specifically for the Wall mounted version : *"Inactivates 99.7% of virus Coliphage φX174 in air within 10 minutes in a room with sufficient air circulation[1]"*



[1] Results obtained from a laboratory test conducted by Intertek, a leading worldwide quality assurance services provider. For more information, please refer to Intertek's test report "

Signify

UV-C Solutions portfolio.

UV-C Upper Air

Application areas – General air purification

All professional indoor applications:

Meeting rooms, retail, hotel rooms, schools, universities, banks, gyms, restaurants.

- Typically 1 unit per 4m x 4m area

Available now

Once BioShift®

Large chamber

Small chamber

Application areas : Object / device cleaning

- Office and industry: mail rooms, reception, factories, distribution centers
- Retail & government: shared devices

Available now

UV-C Battens

Application areas – Indoor general room/ surface/space cleaning:
Pharmacies, retail, gym, spa, industries, cleanrooms, industrial kitchens, restaurants, transport, hotel rooms, schools, universities, banks,

- System to Include fixtures, safety devices, lighting design and exposure time calculations

Available now

Philips UVC Chamber

Medium chamber

Application areas : Object / device cleaning

- Office and industry: mail rooms, reception, factories, distribution centers
- Retail & government: shared devices

Available now

signify

Air disinfection Solutions

UV-C upper air luminaires

- Intended to be used for the disinfection of the air within a given space/ room
- Flexibility - fixtures radiate UVC directly and only into the upper part of the ceiling – can be used in the high traffic / density spaces.
- It has been proven to be **effective in healthcare settings to reduce exposure to viruses such as Tuberculosis** [1]
- Results in cleaner air in the space, **equal to 18-24 air changes per hour**

Coverage

- Ceiling and wall mounted options to suit your layout
- Typical coverage of 20m²

Safety

- ✓ Positioned above the highest door in a room and at a minimum height of 2.3m, out of the reach of people to disinfect the air at this level as it circulates
- ✓ Integrate with Interact to enable scheduled operation, remote control and monitoring

[1] National Institute for Occupational Safety and Health [2009], *Environmental Control for Tuberculosis: Basic Upper-Room Ultraviolet Germicidal Irradiation Guidelines for Healthcare Settings*, 2009 -105

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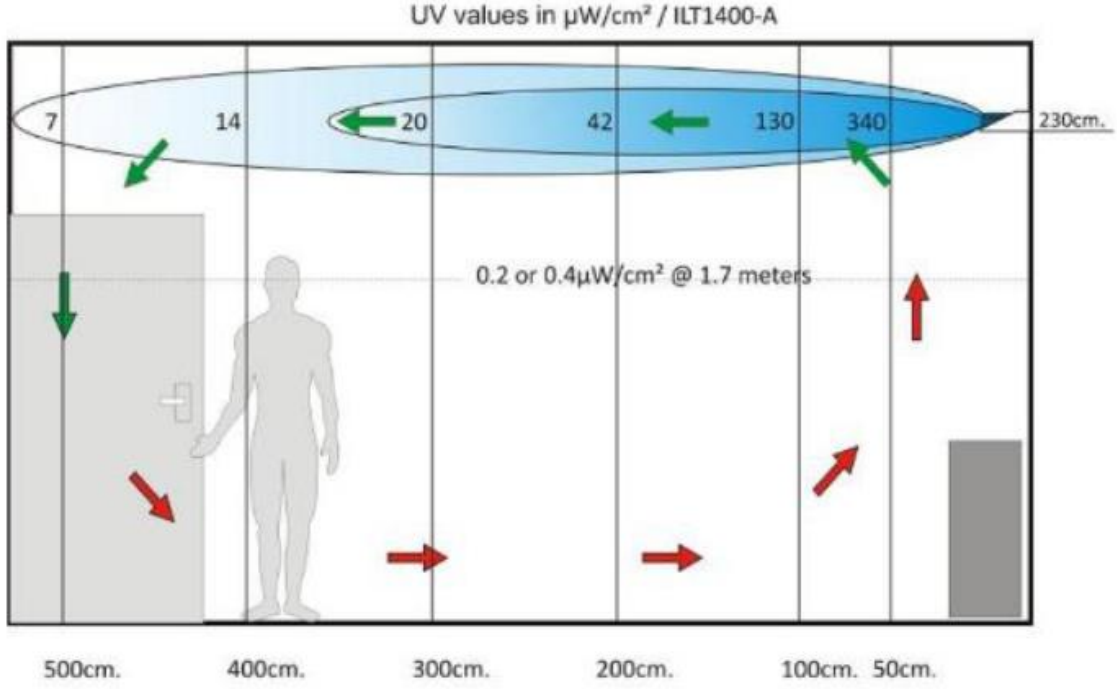
Air disinfection Solutions

Upper air solutions provide an ideal way to disinfect air while the space is still occupied



Signify

UV-C Upper Air : Surface & Suspended Ceiling version

Surface mounted version

919206000101 SM345C 4xTUV PLS 9W HFM SMB

Surface mounted using a
ceiling plate in a false recessed ceiling

Suspended version

919206000091 - SM345C 4xTUV PLS 9W HFM SM4

Suspension Kit included

Signify

Example installation using upper air units

INNOVATIVE BIOANALYSIS
creating solutions | getting results

February 2021

Full report available on request

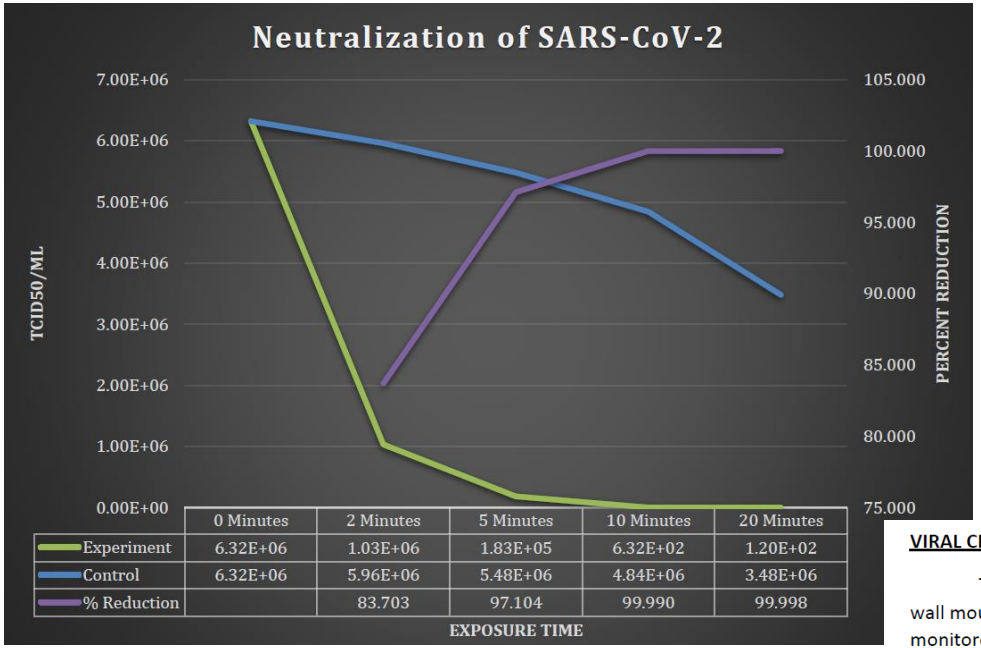
ABSTRACT: EFFICACY OF A WALL MOUNTED UV DEVICE AGAINST AEROSOLIZED SARS-CoV-2

Background: This in vitro study was designed to determine the efficacy of a The Philips UV-C disinfection upper air luminaire with a Philips T5 TUV lamp installed. The wall mounted luminaire is designed to decrease the concentration of pathogens in the air within a room when it is operating to lower the risk of transferring pathogens. For this challenge, the SARS-CoV-2-CA1/2020 pathogen was used. Coronavirus and similar pathogens can be spread through the air and by touching contaminated surfaces. Signify supplied a pre-packaged UV-C disinfection upper air wall mounted system for testing purposes. For the testing, power was supplied through a power regulated 120v outlet with a 200w step up voltage transformer. Transformer was set to the needed 220v required to power the system. Test procedures were followed using internal SOPs for aerosolized viral pathogen challenges and subsequent decontamination. All internal SOPs and processes follow GCLP guidelines and recommendations.

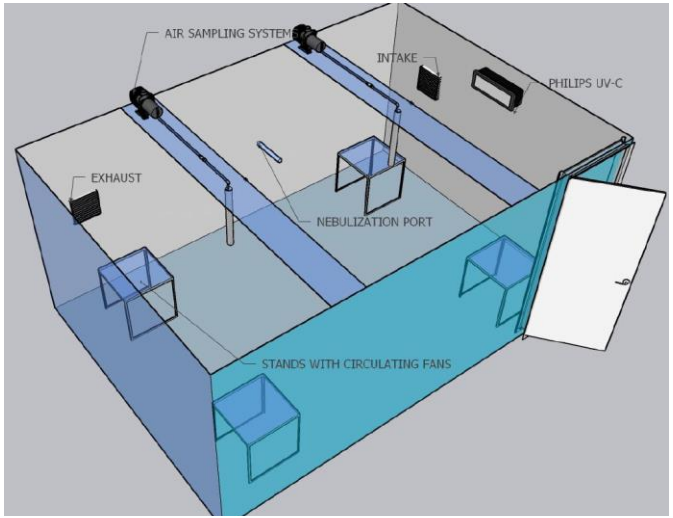
CONCLUSIONS:

The Philips wall mounted UV-C system performed to manufacturer specifications and demonstrated a progressive reduction of active virus after 5 minutes of exposure in aerosol form. The live SARS-CoV-2 virus was not detectable at the 20-minute timepoint, (levels were below the 120 TCID50 / ml limit of quantification. This would equate to a 4-log reduction compared to the control values. Within 2 minutes there was an 83.6% reduction in recoverable active pathogens in the air. After 10 minutes of exposure in the chamber there was a 99.99% reduction of collectable active pathogen in the air.

Taking into consideration the starting concentration of active SARS-CoV-2 virus, the volume aerosolized, one could assume that the likelihood of entering an environment with this quantity of pathogen in a real-life circumstance to be unlikely.



	0 Minutes	2 Minutes	5 Minutes	10 Minutes	20 Minutes
Experiment	6.32E+06	1.03E+06	1.83E+05	6.32E+02	1.20E+02
Control	6.32E+06	5.96E+06	5.48E+06	4.84E+06	3.48E+06
% Reduction		83.703	97.104	99.990	99.998



INNOVATIVE BIOANALYSIS
creating solutions | getting results

VIRAL CHALLENGE:

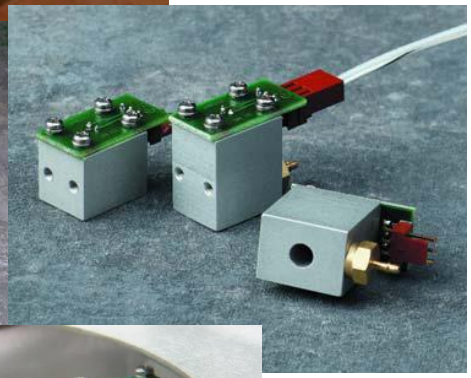
The challenge pathogen, SARS-CoV-2-USA-CA1/2020, was used for testing the efficacy of the wall mounted UV system. During the challenge tests the pressure in the challenge chamber was monitored to confirm no portion of the chamber was leaking. The bioaerosol efficacy challenge was completed in four distinct trials with the live pathogen to create a baseline of data. The wall mounted Philips upper air UV-C was in the same position for each viral challenge and operated in the same manner. Prior to nebulizing the viral pathogen, the UV system was turned on and allowed to run for 15 minutes to simulate a real-world environment and allow the device to reach standard operating conditions. UV emissions were blocked by a rigid material connected to an automatic drop system which prevented the UV from interacting with the virus during the nebulization period. Prior to starting the trial, the remote activated drop mechanism would be tripped, and the material would fall away from the UV system. Four low volume mixing fans were used throughout the entire control test and viral pathogen test. Sample times were as follows with T equal to minutes, T-2, T-5, T-10, T-20. Sampling occurred using 4 automatic air volume samplers that operated simultaneously for each collection. Samplers were pre-set to automatically shut off after 10 minutes of collection. Collections were made via the equipment utilizing viral media coated filters for maximum pathogen trapping and stability. Collection samples were provided to lab staff for pooling after each collection time point.

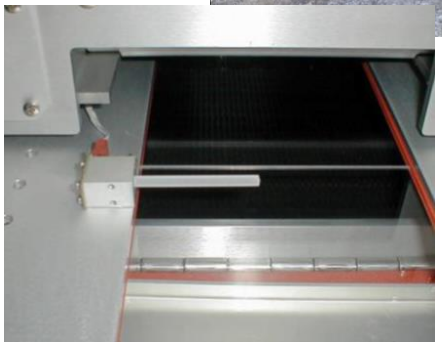
Checking it's right

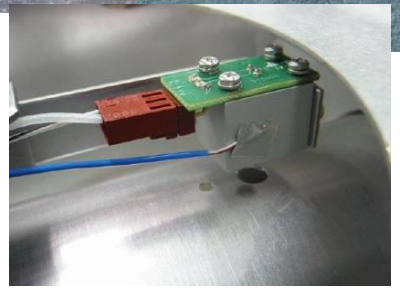
Jenton have been representing EIT radiometers in the UK since 1990.

EIT manufacture NIST calibrated integrating UV radiometers and filtered UV lamp monitoring systems.

EIT UVC radiometers are filtered to measure 250-260nm and display power (mW/cm2) and energy [dose] (mJ/cm2)



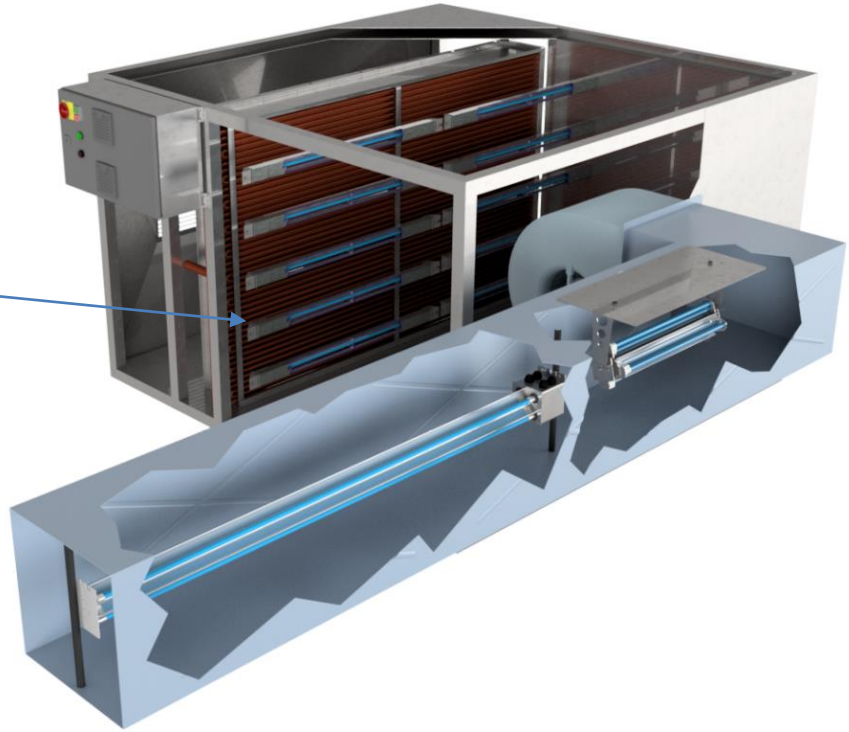




JenAct

Static disinfection of HVAC coils

More about moulds than COVID-19, *JenAct*'s coil cleaning UVC can easily and cheaply prevent moulds from growing on HVAC coils and other condensing areas.



JenAct

Static and surface disinfection from

Signify

UV-C battens

- A fixed installation of luminaires on the ceiling are used at controlled times to fill a room or enclosed space with disinfecting UV-C radiation
- Provides disinfection outside of working hours for high contact areas such as material handling equipment

Coverage

- To ensure adequate coverage, our design team can help to create a layout with placements for your space

Safety

✓ Multiple safeguard options to be considered as a system

✓ Multiple, redundant occupancy detection methods to be designed in:

- Built in occuopancy sensor
- Occupancy sensors in the space deactivate the system if someone is present during operation
- Door sensors at each entrance provide a further deactivation trigger in case anyone tries to enter the space during operation
- Visible and audible triggers can be used during operation

Philips UV-C Batten with sensor TMS031 for Surface Disinfection

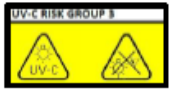
Philips UV-C TMS031 Batten luminaire with sensor & UV-C T8 lamps designed for the disinfection of surfaces

Batten with external microwave sensor

Key Features and Benefits

- **Philips UV-C battens disinfect surfaces that are directly exposed to the UV-C light emitted by the UV-C batten.**
- UV-C batten provides **universal UV-C irradiance with homogenous light distribution**
- ***Additional safeguard of a microwave sensor eliminates the need for a more complex controls installation***
- Includes safeguards such as an **integrated microwave sensor that automatically shuts down the UV-C batten when a person or animal is sensed.**
- **Mirror optics to cut off UV-C irradiance beyond the sensor coverage area.**
- **Sensor Timer Pre-Sets** for 30 mins, 1hr, 2hr and 3hrs for setting as per application.
- **Reflector/louvres provide better beam control for the required UV-C dose**
- Enhanced performance by a **highly-reflective** and durable aluminum body **directs the UV-C light to the desired -irradiated surfaces and within the sensor range.**
- **All plastic components (lamp holders & end caps)** are **protected by dedicated UV-C shielding.**
- **Replaceable UV-C light source with 1-lamp(T8 36W)**
- UV radiation wavelength peak at 254nm output(Philips UV-C lamps) inactivates the DNA & RNA of bacteria, viruses and spores
- **Environmentally friendly - no ozone emissions during or after use.**

Type	Length (inc sensor)	Number of UV-C lamps	Lamp Wattage	Gear	Sensor	UV-C irradiation values @ 2m distance	Mounting	Material	Temperature	Ratings	Lifetime	Warranty
Philips TMS031 UV-C Batten	1320mm	1 x T8 TUV	36W	High Frequency Performer (HFP)	Microwave sensor	up to 0.92 µW/cm2	Suspended, Surface	Aluminium (Housing & Reflector)	+10°C to + 45°C	IP20 IK02	Lamps:9,000hrs 90% UVC @ end of life	TMS031 luminaire: 1 year

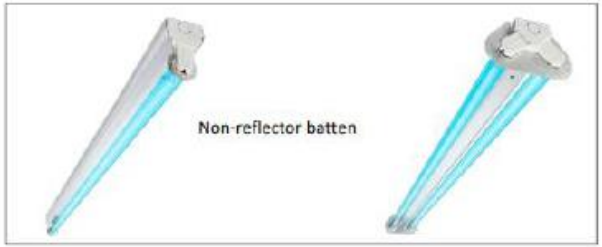


Safeguards

- Complies with all applicable regulations and standards (UV-C RISK GROUP 3IEC 62471)
- Combined with safeguards such as controlled-access devices, it is used safely.
- No person or animals should be present at the time of usage, due to high risk of harm to eyes and skin.
- This UV-C product is not approved and/or certified as a medical device.

Philips UV-C Batten TMS030 for Surface Disinfection

Philips UV-C TMS030 Batten luminaires with UV-C T8 lamps are designed for the disinfection of surfaces



Key Features and Benefits

- **Philips UV-C battens disinfect surfaces that are directly exposed to the UV-C light emitted by the UV-C batten.**
- **UV-C batten provides universal UV-C irradiance with homogenous light distribution**
- **Ceiling or wall mounted (adjustable bracket)** fixture options help to **radiate UV-C directly on the surface.**
- **Non-reflector battens** and **reflector versions provide better beam control for the required UV-C dose.**
- **High-reflective and durable aluminum housing** improves performance by directing the UV-C light to the to-be-irradiated surfaces.
- Disinfection capability is based on wattage used and a specific exposure time for a given distance from that surface.
- **All plastic components (lamp holders & end caps)** are **protected by dedicated UV-C shielding.**
- **Replaceable UV-C light sources** with **1-lamp(T8 18W) and 2-lamp(T8 36W)** versions
- UV radiation wavelength peak at 254nm output(Philips UV-C lamps) inactivates the DNA & RNA of bacteria, viruses and spores
- **Environmentally friendly** - **no ozone emissions during or after use.**

Type	Length	Number of UV-C lamps	Lamp Wattage	Gear	Reflector	UV-C irradiation values @ 2m distance	Mounting	Material	Temperature	Ratings	Lifetime	Warranty
Philips TMS030 UV-C Batten	614mm(2ft) 1224mm(4ft)	1 x T8 TUV or 2 x T8 TUV	18W or 36W	High Frequency Performer (HFP)	No reflector (TMS030)	up to 0.92 µW/cm2	Ceiling or Wall (adjustable bracket)	Aluminium (Housing & Reflector)	+20°C to +40°C	IP20 IK02	Lamps:9,000hrs 90% UVC @ end of life	TMS030 luminaire: 1 year
					With reflector (TMS030R)	up to 1.22 µW/cm2						

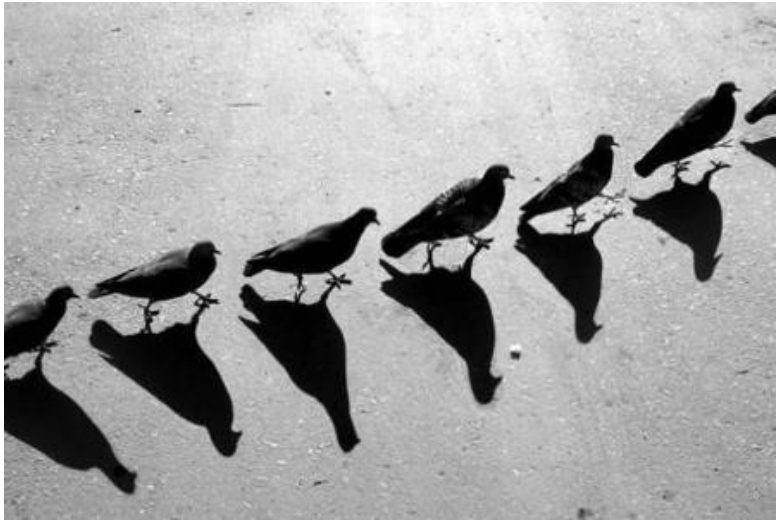
signify

The Limitations

UV-C light is unable to penetrate many materials, including most glass, plastic films and even small pieces of dirt.
In addition, one must consider shadowed areas, such as handles, folds, straps etc.

Shadowing can be an issue in UVC disinfection when the system is designed to cope with a large variety of complex objects.

When designing UV systems we position the UVC lamps in such a way to minimize this effect as much as possible, but on occasion you can get cold spots where the UV light is unable to reach the surface. UVC must reach the DNA that it is intended to disrupt.

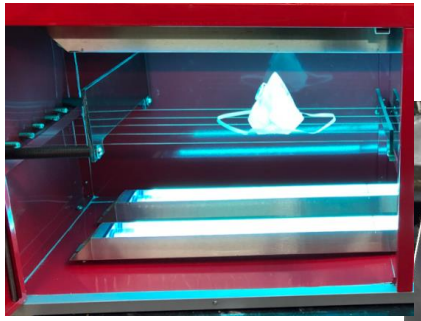


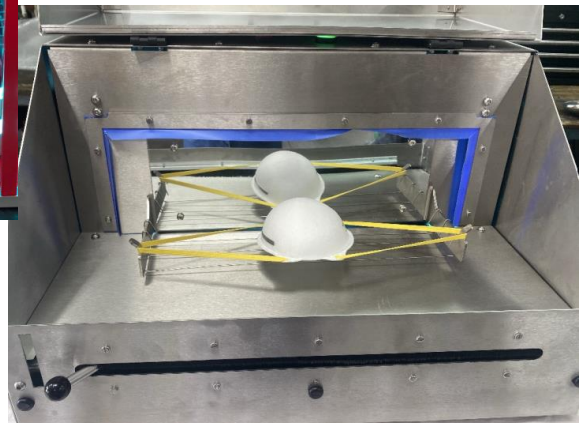
JenAct

PPE / surface disinfection

JenAct and Signify supply a range of UV cabinet variants forsurface disinfection.

JenAct have commissioned successful laboratory tests in UK (Surrey Diagnostics) to prove performance of cabinets and conf suitability for inactivation of SARS-CoV- (results available on request)





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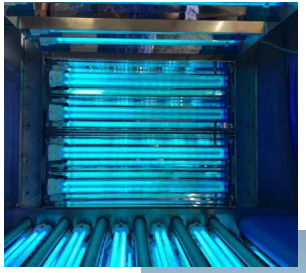
JenAct

UV disinfection conveyors

JenAct manufacture a range of UV conveyors for surface disinfection.



UV conveyors using rollers, flat and wire belts can be used for product transfer to high care, goods inwards, post and parcel disinfection etc.

JenAct

Our team

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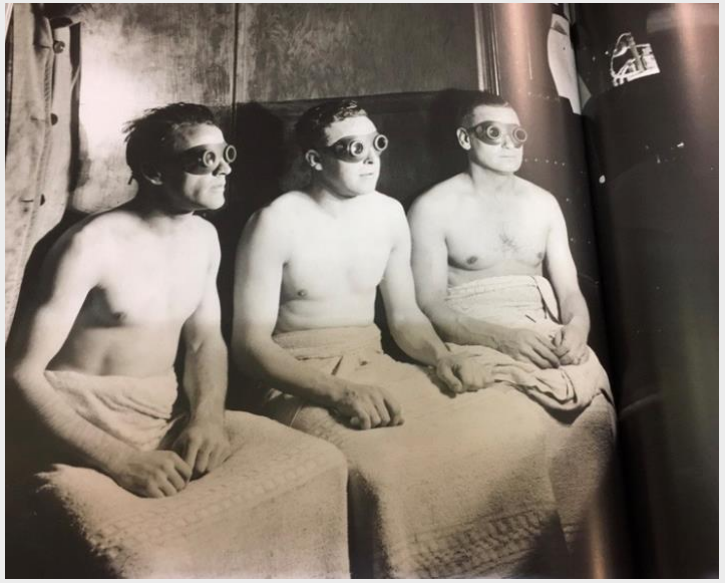
Richard Little (rlittle@jenton.co.uk)

Please talk to us – we know a lot about UV but we don't know everything about your business - and we are keen to learn more!

Telephone (UK) 01256 892194
From overseas +44 1256 892194

www.jenact.co.uk



Arsenal players being "energised" with UV in the 1930s

JenAct

signify
UV-C distributor
specialized in
PHILIPS
PHILIPS dynalite