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TECHNOLOGY

Introduction

Airtècnics has developed a disruptive and innovative patented technology that responds to the current and future global need for environmental hygiene. The new range of purifying and disinfectant devices efficiently generate and expand hydroxyl radicals ($\text{OH}\cdot$) to inactivate up to 99.99% of pathogens and pollutants in the air and on surfaces. This technology is called active because it expands its properties throughout the environment and not only acts on the air passing through the device.



This method is harmless to the human organism, as demonstrated by studies published in the IJOER (International Journal of Engineering Research and Science) and the UPC (Universitat Politècnica de Catalunya).

The oxidising agent $\text{OH}\cdot$, qualified as a “natural detergent” due to its capacity to clean the atmosphere, neutralises more than 2,500 different compounds such as carbon dioxide and methane, the main causes of the greenhouse effect. Hydroxyl radicals are produced in nature by the combination of the sun's ultraviolet rays with ozone in the atmosphere, and also by reactions caused by the ozone present in the environment on plant oils (terpenes) that evaporate from plants.



By means of Advanced Oxidation Processes (AOP) produced by hydroxyl radicals ($\text{OH}\cdot$) it is achieved:

- Eliminate up to 99.99% of pathogenic microorganisms (viruses and bacteria).
- Improve air quality by reducing Volatile Organic Compounds (VOCs) and suspended particles (PM).
- Eliminate odours.

The high effectiveness of hydroxyl radicals is because their oxidation potential is among the highest in nature.

Oxidising Agent	Electrochemical Oxidation Potential (EOP)	EOP relative to Chlorine
Fluor	3,06	2,25
Hydroxil Radical	2,80	2,05
Ozone	2,08	1,52
Hydrogen Peroxide	1,78	1,30
Chlorine	1,36	1,00

Source: University of South California

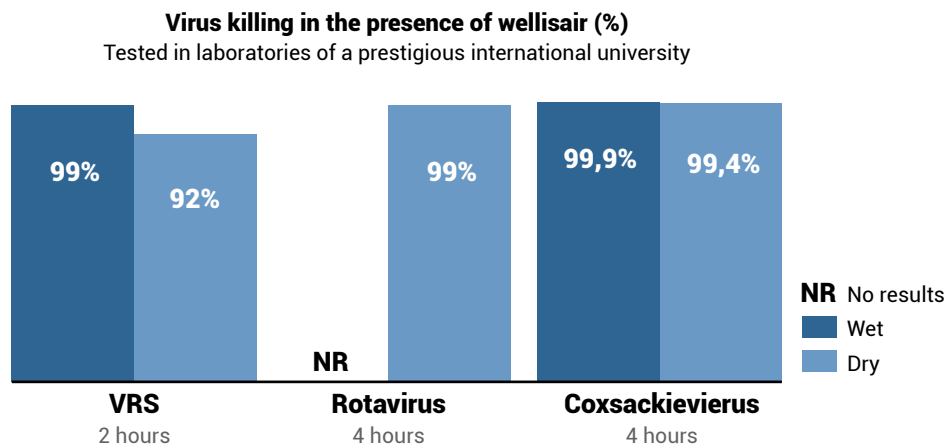
Its great oxidising power is complemented by the chain effect it produces, and releases more Reactive Oxygen Species (ROS), thus generating a wave of purifying and disinfecting agents that spreads through the atmosphere.

Effectiveness

The disinfecting and purifying power of Wellisair technology has been tested in several studies on viruses, bacteria, volatile organic compounds, odours and other suspended particles.

Viruses

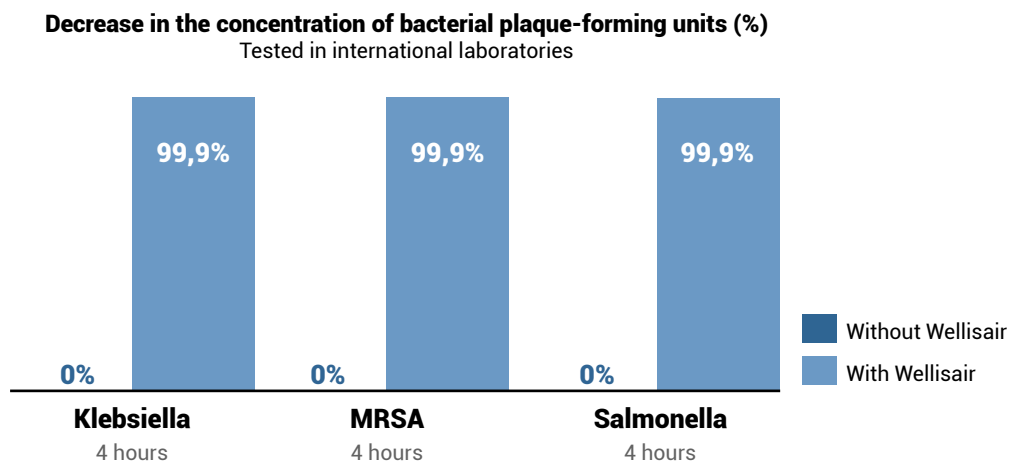
Viruses are the most transmissible pathogen in the environment due to their microscopic size and high volatility. In all surface tests that have been conducted, hydroxyl radicals have inactivated 92-99% of enveloped and non-enveloped viruses in both wet and dry environments. In air, the results are expected to be better because the hydroxyl radical can affect the pathogen across its entire surface.



The efficacy on untested viruses will be similar to that of tested viruses because their morphological structure is similar. Therefore, the results for Covid-19, whose morphological structure is similar to that of the Respiratory Syncytial Virus (RSV), would show an efficacy between 92 and 99%.

Bacteria

In the case of bacteria, the hydroxyl radical reacts with fatty acid chains and proteins, modifying their morphological structure and potentially affecting their genetic information.



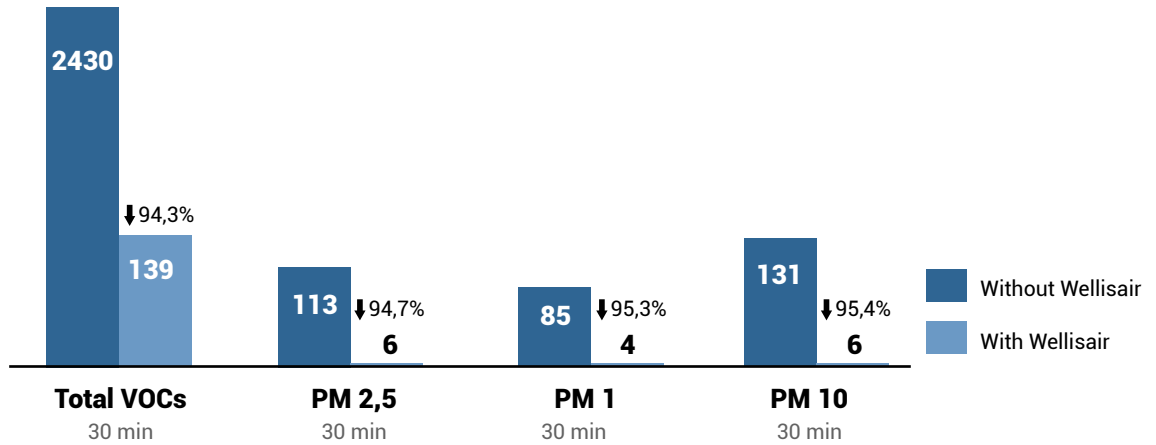
In addition to these tests, other tests were carried out on bacteria *Bacillus subtilis*, *Staphylococcus Aureus*, *Pseudomonas Aeruginosa* and *Escherichia Coli* in which a similar efficacy was demonstrated. Several field tests have even been carried out in hospitals and schools showing that it eliminates and prevents the appearance of mould caused by excess humidity.

VOCs and PMs

Air quality is mainly determined by the concentration of Volatile Organic Compounds (VOCs) and particle matter (PM). In one hand, VOCs are carbon-based chemical compounds that may contain fluorine, chlorine, bromine or sulphur, all of which are harmful to health. PM, on the other hand, can cause serious damage to the respiratory system.

Hydroxyl radicals (OH·) mineralise VOCs and transform them into compounds that are entirely harmless to humans and nature. PM are also affected by these radicals by converting them into heavier compounds that fall to the ground, thus reducing air pollution.

VOCs and PMs Elimination (% reduction)
Tested in international laboratories

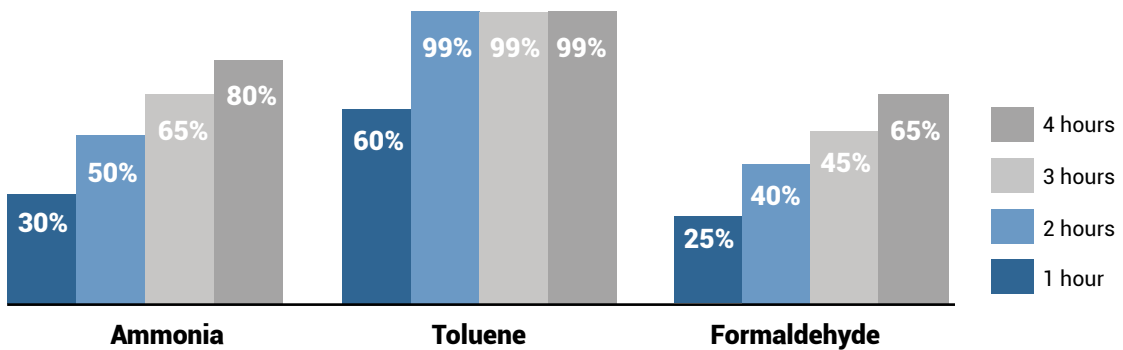


Odours

Son moléculas que escapan de su estado líquido o sólido y pasan al aire. Normalmente, suelen ser en base carbono y pueden contener nitrógeno y/o hidrógeno.

De la misma forma que actúan sobre los COVs, los radicales hidroxilo hacen desaparecer los principales indicadores del olor.

Deodorisation test during the first 4 hours of exposure to Wellisair (%)
Tested in international laboratories



APPLICATIONS



Healthcare Sector



Laboratories



Veterinary Clinics



Education Sector



Means of Transport



Private Sector



Shops



Domestic Use



Food Industry

PRODUCTS

Wellisair WADU-02

Wellisair Room

Wellisair Lift

Certifications



Wellisair

Room
ollisair
ion performance

Lift
ollisair
ection performance



Wellisair WADU-02

Wellisair WADU-02 is a patented device with a disruptive and innovative technology to disinfect, purify and clean the air and surfaces with natural mechanisms.

It is ideal for disinfecting and purifying enclosed spaces of 60 m² or less.

Technical Features

Eliminates viruses, bacteria, allergens, mould, odours, volatile organic compounds (VOCs) and suspended particles (PMs) by 99.9%.

Very low power consumption of 3.6 W/h.

Works with cartridges filled with a limonene or hydrogen peroxide solution. Each consumable has a shelf life of 3 months.

Does not use filters for air purification.

Integrated touch control panel with power buttons, night mode, cartridge change warning indicator and alarm indicator.

Very low noise level.

In night mode, the LED indicator remains off and the sound of the device is reduced, favouring rest.

In order to achieve a better and wider disinfection action, it is recommended to place the device at a height of 1.5 metres from the floor, separated from corners by at least 60cm and in places as well ventilated as possible.





Automatic Operation

Automatically purifies contaminants in the air and on surfaces



Night Mode

Quiet operation. Low brightness for a comfortable sleep



Cartridge Alarm

Lets you know in advance the time to replace the cartridge

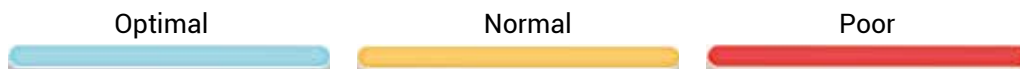


Alert

Notifies in case of empty cartridge or when incorrect insertion causes a stop in function



Real-time LED indicator of the state of air and surface contamination in the operating area. Depending on the amount of Volatile Organic Compounds the air quality may be:



Weight

1,9 Kg



Consumption

3,6 W/h



Noise level

35 dB

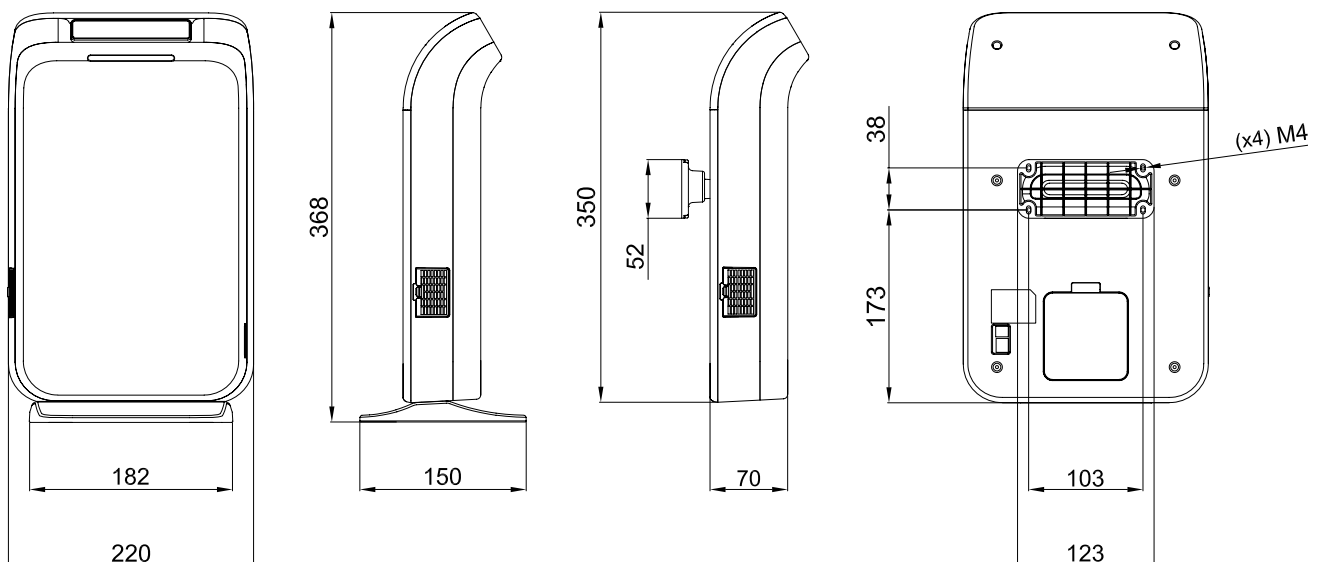


Range

150 m³

Dimensions

The unit has a compact and pleasing design, with overall dimensions of 368 x 220 x 150 (mm). Thus, it is perfectly integrated into the environment in which it is located. In addition, it is easily transportable due to its low volume and weight.



Maintenance

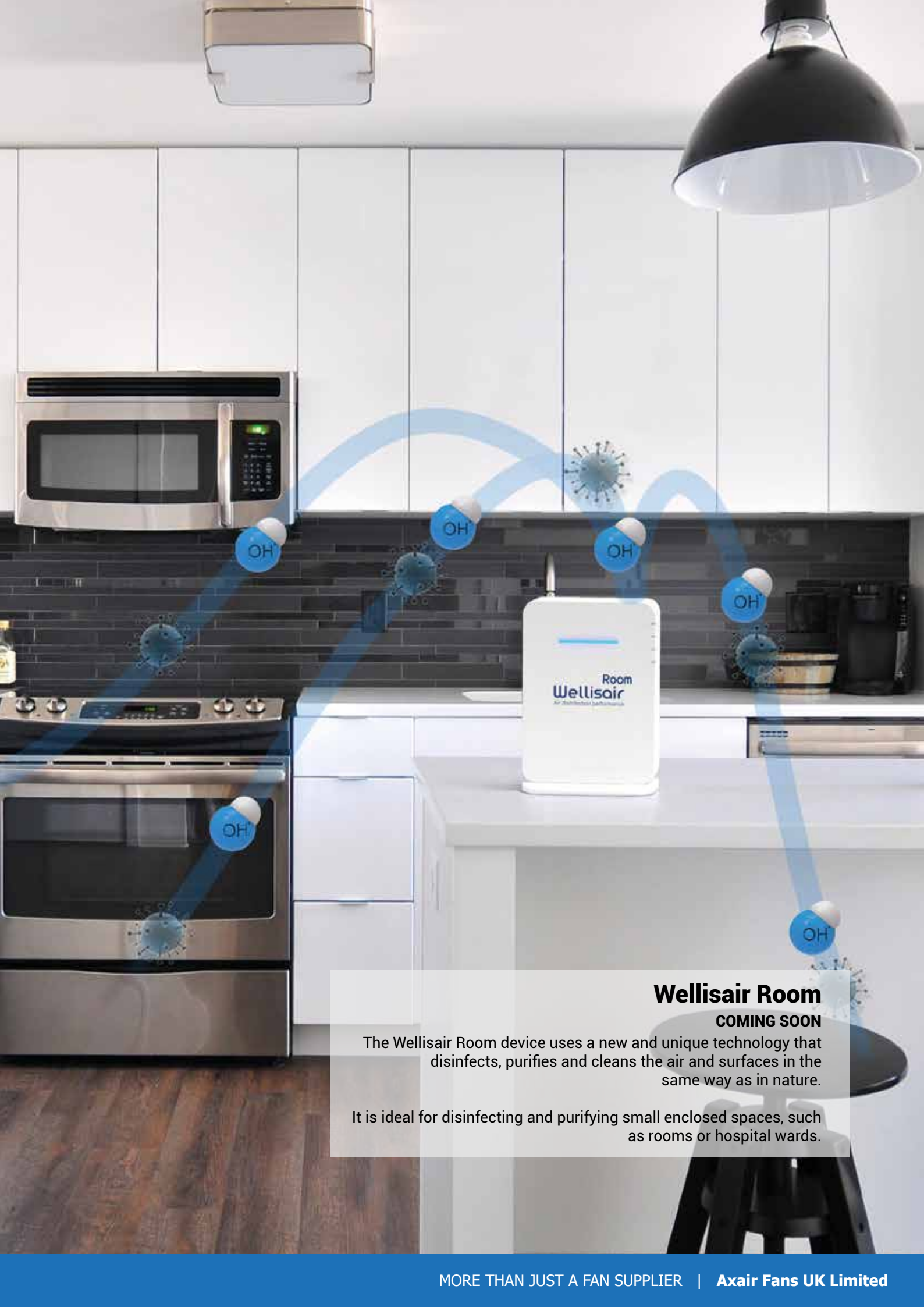


The cartridge only needs to be changed every 3 months. One week before this change, the front warning indicator will light up so that you can anticipate this replacement and purchase the consumable. When changing the cartridge, it is recommended to wash the small side filter with water.

Accessories



Wellisair can be placed on surfaces or anchored to the wall, depending on the user's needs, using the brackets included with the equipment.



Wellisair Room

COMING SOON

The Wellisair Room device uses a new and unique technology that disinfects, purifies and cleans the air and surfaces in the same way as in nature.

It is ideal for disinfecting and purifying small enclosed spaces, such as rooms or hospital wards.

Technical Features

Eliminates viruses, bacteria, allergens, mould, odours and volatile organic compounds (VOCs) and suspended particles (PMs) by 99.9%.

Very low power consumption of 0.4 W/h.

Works with cartridges filled with a hydrogen peroxide solution. Each consumable has a shelf life of 3 months. Does not use filters for air purification.

Touch control panel integrated in the side of the equipment with power and night mode buttons, as well as cartridge change and alarm warning indicators.

Low noise level.

The night mode turns off the LED indicator and reduces the noise of the device, making it easier to sleep.

To achieve a better and wider disinfection action, it is recommended to place the device at a height of 1.5 metres from the floor, separated from corners by at least 60cm and in places as well ventilated as possible.





Automatic Operation

Automatically purifies contaminants in the air and on surfaces.



Night Mode

Quiet operation. Low brightness for a comfortable sleep



Cartridge Alarm

Lets you know in advance the time to replace the cartridge



Alert

Notifies in case of empty cartridge or when incorrect insertion causes a stop in function



Real-time LED indicator of the state of air and surface contamination in the operating area. Depending on the amount of Volatile Organic Compounds the air quality may be:

Optimal



Good



Normal



Poor



Weight

0,5 Kg



Consumption

0,35 W/h



Noise level

39 dB

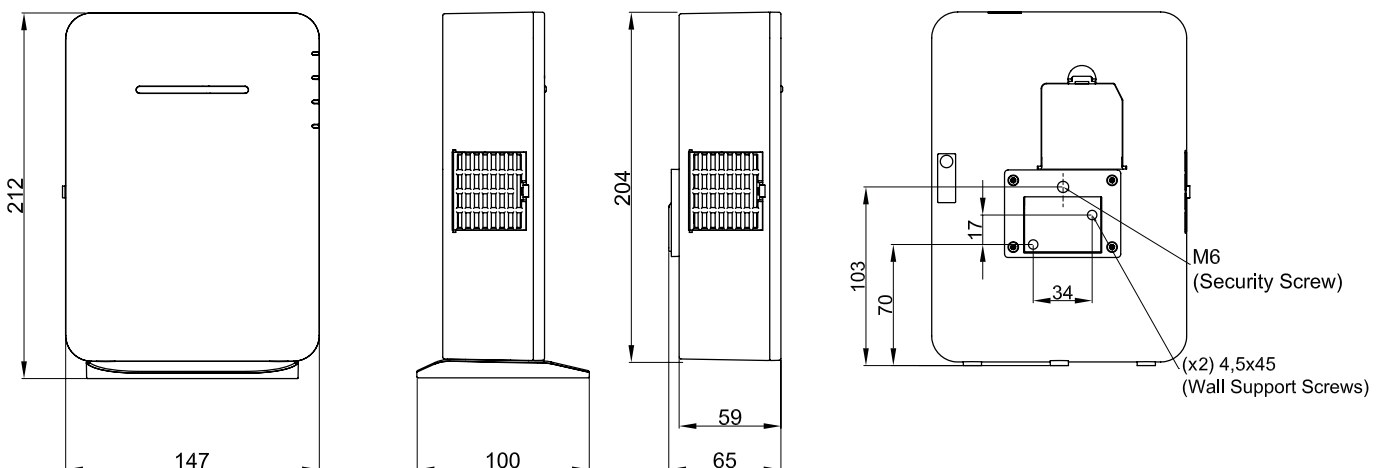


Range

100 m³

Dimensions

The device has a nice compact design with overall dimensions of 212 x 147 x 100 (mm). It is ideal for disinfecting small spaces and its timeless design and low volume and weight make it easily transportable between different rooms and perfectly integrated into its surroundings.



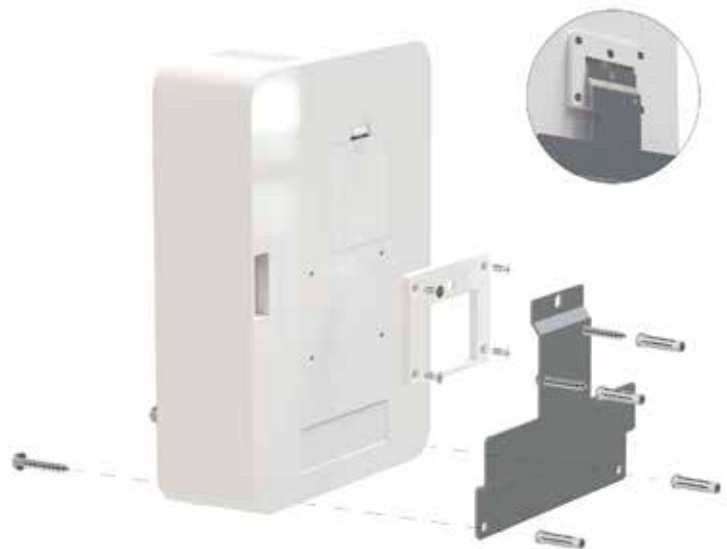
Maintenance

It is advisable to maintain the filter when replacing the consumable by washing it with water and replacing it so that it traps any particles that may damage the fan.



It works with interchangeable cartridges, which must be replaced every 3 months.

Accessories



Wellisair Room can be placed on flat surfaces or hanging on wall with its hangers, depending on the needs of the user.



Wellisair Lift

COMING SOON

Wellisair Lift works with nature's own mechanisms for the disinfection and purification of air and surfaces thanks to its innovative and disruptive patented technology.

It is ideal for disinfecting and purifying small, enclosed spaces, especially lifts.

Technical Features

Eliminates viruses, bacteria, allergens, mould, odours, and volatile organic compounds (VOCs) by 99.9%.

Very low power consumption of 0.2 W/h.

Works with cartridges filled with a limonene or hydrogen peroxide solution. Each consumable has a shelf life of 3 months.

Does not use filters for air purification.

Low noise level.

Uninterrupted operation 24h / 7 days, only requires 12VDC power supply.

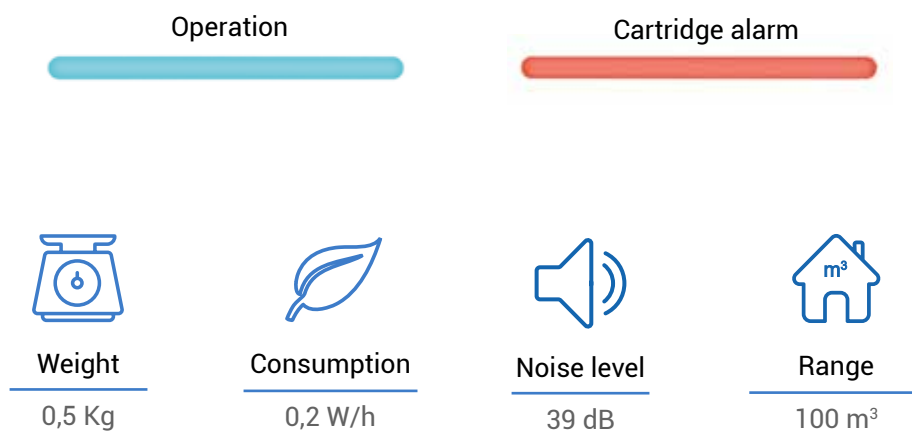
It has an alarm signal to connect to the lift regulating equipment.

Possibility of wall or ceiling installation. On request, possibility of making a solution incorporated with the lift casing.



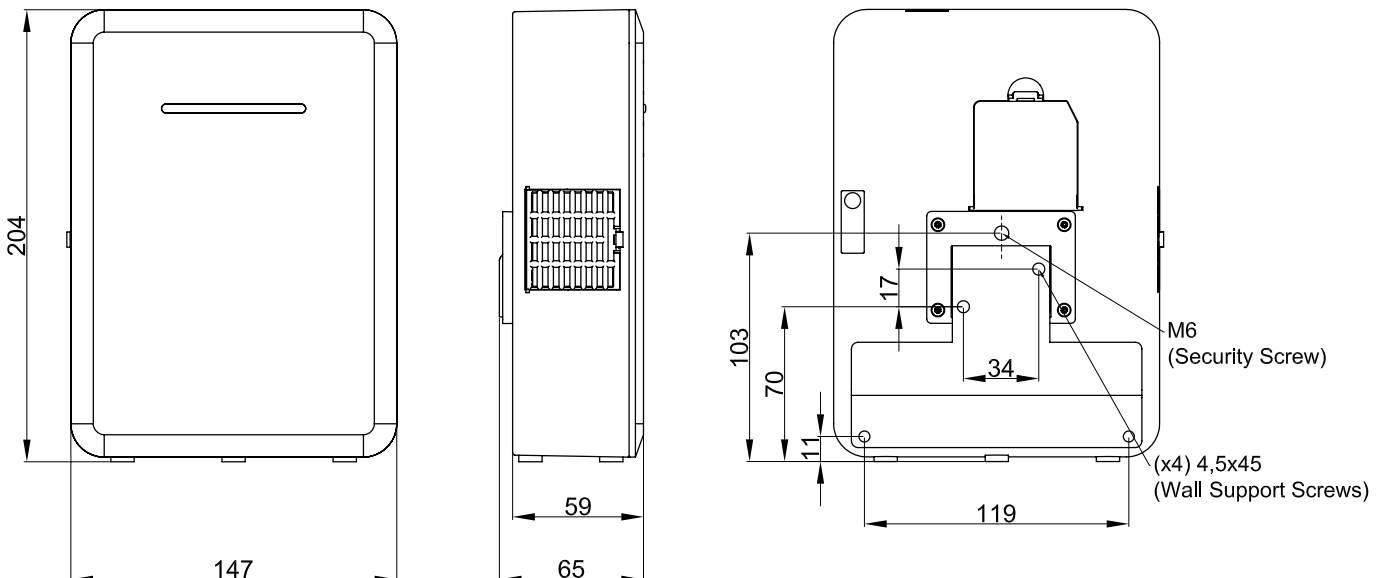


The front LED can indicate two states of the device depending on its colour. It will light up blue continuously when the unit is in operation, and will flash red when the disinfectant cartridge is empty.



Dimensions

The unit has a nice compact design with overall dimensions of 204 x 147 x 65 (mm). It is ideal for disinfecting small spaces, specially lifts. Its timeless design and its low volume and weight make it easy transporting it between different rooms and perfectly integrated with its surroundings.



Maintenance

It is advisable to maintain the filter when replacing the consumable, by washing it with water and replacing it repositioning it so that it traps any particles that may damage the fan.



It works with interchangeable cartridges, which must be replaced every 3 months.

Accessories



Wellisair Lift can be anchored to the wall thanks to its two-part bracket. The first is a plastic piece that holds the equipment, on which the second piece of sheet metal is placed. This last one is attached to the wall with its respective fixings: two inside the equipment and two directly on the sheet metal piece.

Certifications

Wellisair air purification devices have the most stringent quality control tests as well as safety and efficiency certifications. Institutions such as TÜV SÜD and Intertek have carried out the evaluations.



REFERENCES

Relevant Projects

Public buildings



Buildings

- Mercat Municipal, Castellar del Vallès (Spain)
- Billion Plaza II (Hong Kong)
- Cámara de Comercio, Madrid (Spain)



Healthcare centres

- Wuhan Hospital, Wuhan (China)
- Centro Médico Teknon, Barcelona (Spain)
- Dodent, Sabadell (Spain)



Universities / Schools

- Col·legi Sagrat Cor, Gavà (Spain)
- Escola Bertran, Sabadell (Spain)
- Kindergarden, Amman (Jordan)

Chain shops



Shops

- Opticalia Quesada, Oviedo (Spain)



Supermarkets

- Condis (multiple installations)

Companies



Banks

- Headquarters of Korean Bank (South Korea)



Factories

- Consoft, S.A.U., Dénia (Spain)

Leisure



Shopping centres

- Illa Carlemany, Escaldes-Engordany (Andorra)



Theatres

- Teatreneu, Barcelona (Spain)



Cinemas

- Cines Filmax - Gran Via 2, L'Hospitalet de Llobregat (Spain)



Hotels

- Ayass, Amman (Jordan)



Restaurants

- CalaBoca, Sabadell (Spain)

Gallery



Wellisair WADU-02
Medical centre



Wellisair WADU-02
Offices



Wellisair WADU-02
Domestic use



Wellisair WADU-02
Domestic use



Wellisair Room
Domestic use



Wellisair Lift
Lifts

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