

Health is in the air



ENGLISH VERSION

JUST BECAUSE
YOU DON'T SEE
THE PROBLEM,
DOESN'T MEAN IT
ISN'T THERE.



STE - Sanitizing Technologies and Equipment is an innovative start-up and **spin-off** of the **University of Urbino Carlo Bo**. We arose from the merging between university researches and experts in aeraulic system and aerobiology fields. We develop, produce and sell the latest generation air and surfaces sanitizers suitable for indoor and professional environments and industrial settings.

STRATEGIC PROCESS



SPIN OFF UNIVERSITÀ DEGLI STUDI DI URBINO
CARLO BO

Our brand identity

Vision

We aim to contribute to build a better future where the priority is the health. We do that offering **innovative, fast and green sanitization solutions** capable to rise the standard leaving.

Mission

Our mission consists in offering **safety indoor environments**, protecting people and spaces with pioneering systems of sanitization.

As a Biotechnological company and spin-off of the University of Urbino, we merge the **scientific research and innovation technology** to develop effective, eco-friendly and approved outcomes.

Everyday we convert knowledge in concrete products ensuring protection and wellness to those who live, work and share the same indoor environments.

Values

We are a biotech company inspired by ***Life Science***, infact we believe in the balance between nature and science to improve the quality of people's life.

Our sanitization products care the people's health in a **green way**, we are convinced that the true innovation combines the effectiveness and accountability.

Every choice, from materials to technologies, is guided by **eco-sustainability** and the less impact on the environment.

Producing healthy product in a green way means building a **safety planet for tomorrow**.

Advantages

With the union between the academic research and the ***Made in Italy style*** we are able to create advanced and reliable solutions. The design and the innovation of our products are two of our main **competitive advantages**. These items reflect high quality, utility and esthetic.

Each product is the result of the match between scientific knowledge and creativity, infact we pay attention to technical aspects and aesthetic details, that means **certainty, innovation** and **italian design**.

Air Treatment

Sanitization and purification

STE S30

STE S30 sanitizer is a device used for the continuous sanitization of the air. Thanks to the UV-C LED technology, it is able to treat air up to 30 m³/h silently and high efficiency. The device was examined according to legal requirements with microorganisms test, such as bacteria, fungi and viruses. The results show **sanitization values at 99.9%**.

The device is an adaptable tool due to its **small size**, it allows different ways of installation. Infact it can be fixed on parades, on the ceiling, or with a specific support on the floor.

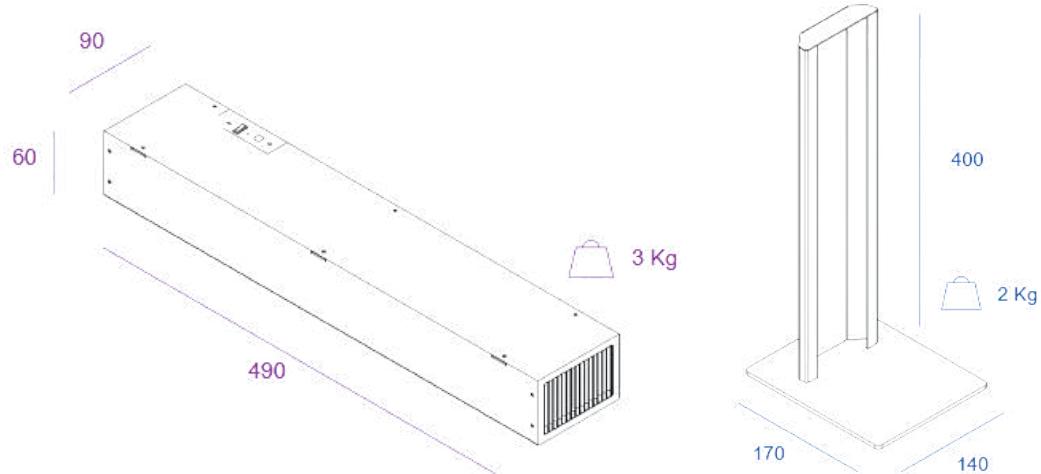
STE S30 has a rechargeable **battery** that allows **two hours of continuous operation**. This condition makes it independent from wall sockets. The battery is recharged by connecting the device to the electric current with a **cable USB-C**.



Features

Category	Air sanitizer
Materials	Light alloy
Colors	Black/White
Air flow (m ³ /h)	30
Power consuption (W)	5
Noise (dB)	<25
Operating temperature (°C)	0 a +35
Voltague (V)	5 Vdc USB micro-B min 2A
Led UVC	Yes
Installation	Wall, ceiling and floor
Controls	Remote control
Dimension (cm)	6 (P) x 49 (H) x 9 (L)
Weight (kg)	3
Battery	Rechargeable Li/Ion

The device **STE S30** was tested on Influenzavirus A subtype H1N1.



STE S30 - Dimension (mm)

Support STE S30 - Dimension (mm)

CSA SYSTEM S200/S600

CSA SYSTEM S200 and S600 are the best solutions for the **continuous purification and sanitization of the indoor air**. The CSA SYSTEM S200 is able to trait up from 200 m³ to 600 m³ air per hour, allowing maximum healthiness in 80 m² spaces, and the CSA SYSTEM S600 has the same capacity but until 240 m². Both devices are “*Plug and Play*” solutions.



The style is one of our competitive advantages, in fact we rely the design of the product to who works with it, thus was born the collaboration with **Giugiaro Architettura**. The result is to turn our ideas into reality.

CSA SYSTEM S200 and S600 are the true representation of the combination between “**Made in Italy**” style and innovative technology.

Efficacy trials

Thanks to our patented technology, the devices can reduce significantly the presence of microorganisms in the air, achieving **inactivation rates above 99%**. The device's efficiency was evaluated by tests conducted in collaboration with the **University of Urbino Carlo Bo**. **CSA SYSTEM S200** and **S600** guarantee the healthiness of indoor environment, removing pollutants such as particulate matter, dust, allergens and volatile organic compounds (e.g. formaldehyde).

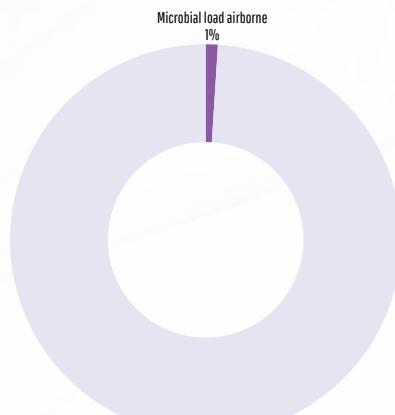
CSA SYSTEM S200/S600

OFF



CSA SYSTEM S200/S600

ON



1506
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CSA SYSTEM S200/S600

Air sanitizer
and purifier

A



B



C



D



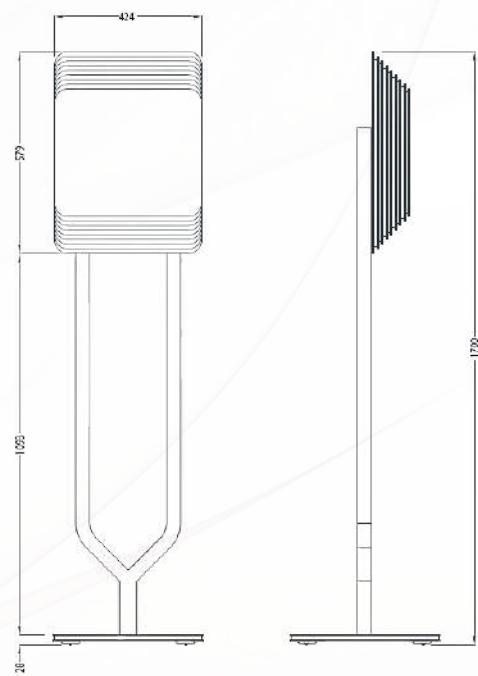
Features

	CSA SYSTEM S200	CSA SYSTEM S600
Category	Air purifier and sanitizer	Air purifier and sanitizer
Indoor environment (m ²)	Until 80	Until 240
Materials	Plastic, light alloy or composite material	Plastic, light alloy or composite material
Air flow (m ³ /h)	200	600
Power consumption (W)	50	200
Noise (dB)	45	62
Operating temperature (°C)	-20 until +45	-20 until +45
Voltage (V)	24	230
Frequency (Hz)	50	50
Led UVC	Yes	Yes
Type of input filter	G4 self-sanitizing	G4 self-sanitizing
Installation	Ceiling or wall	Ceiling or wall
Controls	Remote control	Remote control
Dimension (cm)	22 (P) x 58 (H) x 43 (L)	22 (P) x 81 (H) x 57 (L)
Weight (kg)	8	14

The devices **CSA SYSTEM S200/600** were tested on *Escherichia coli*.

Accessory DIAPASON

DIAPASON is an accessory that allows to move **CSA SYSTEM S200** with extreme ease thanks to a **retractable wheel** system. This attachment makes the device **free from the installation on the wall**.



DIAPASON e CSA SYSTEM S200 - Dimension (mm)

CSA SYSTEM S14000

CSA SYSTEM S14000 is a solution that can be integrated within the heating, ventilation and air conditioning system (**HVAC**). With this device it is possible to sanitize and purify the air continuously in environments where there are high levels of pollutants, due to high crowding rate. The performance of the product is verified by microbial test conducted in collaboration with the researchers of the University of Urbino Carlo Bo. The system showed a microbial knockdown effectiveness of over **99%**.

CSA SYSTEM S14000 is a valuable solution for the sanitification and purification of the air in environments with **high crowding rate**, such as offices, train and underground stations, theatres, trade fairs, hospitals, sport facilities, hotels, residential buildings and other venues.



Integrated

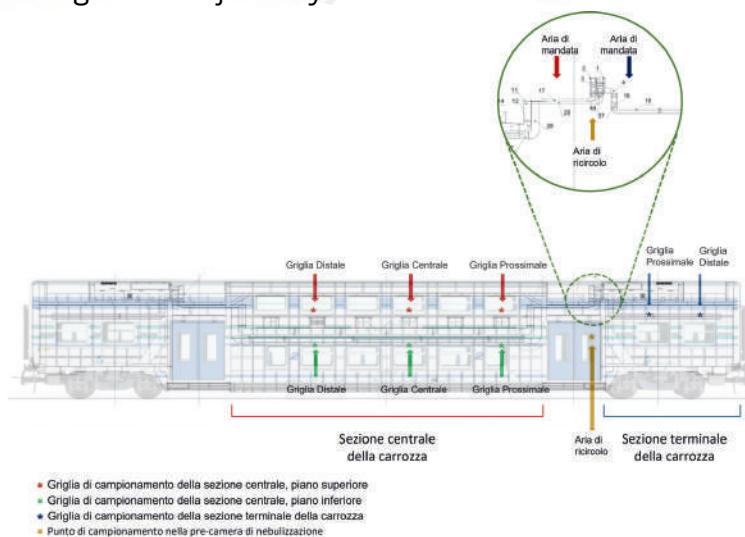


Interfaced

CSA SYSTEM S-TRAIN

CSA SYSTEM S-TRAIN is the best solution for trains, trams and metros. Integrating this system to the heating, ventilation and air conditioning system (HVAC) it is possible to maintain high level of healthiness of air for passengers and staff on board.

In this type of public transports the air is recycled with a low renewal rate with the outside air, thus allowing the accumulation of pollutants inside of the train carriage, in its HVAC or its conducted. CSA SYSTEM S-TRAIN sanitizes and purifies the indoor air, keeping the levels of pollutants present in the air low and healthy throughout the journey.



During the efficacy trials the presence of microorganism was higher than the typically found inside a train, the device was able to achieve on average microbial inactivation rates above **93%**.

CSA System Technology

Our patented technology **Continuous Sanitization Air (CSA) System** provides the continuous purification and sanitization of the air through **only one device**, even in presence of people.

The **CSA SYSTEM** devices apply in an innovative way the purification and sanitization of air standards, synergistically integrating mechanical filtration technologies, ionization and irradiation of air through ultraviolet LED sources. The license includes the modulation of sanitization effectiveness through the monitoring of the air quality.

Thanks to the latest elements, our technology is able to achieve high level of microbial inactivation and reduction of atmospheric particulates, volatile organic compounds, smells and allergens while maintaining **minimal energy consumption**.

The new technology **CSA SYSTEM** is eco-friendly, in fact during its operation it doesn't use chemical substances and the elements can be disposed in a sustainable way and the use of LED UV-C allows an energy saving.

Overall our technology has a **low impact on the environment**, in fact it is in line with the ecological transition.

All devices with **CSA SYSTEM Technology** were tested on *Escherichia coli*, *Bacillus subtilis* and *Cladosporium sphaerospermum*.

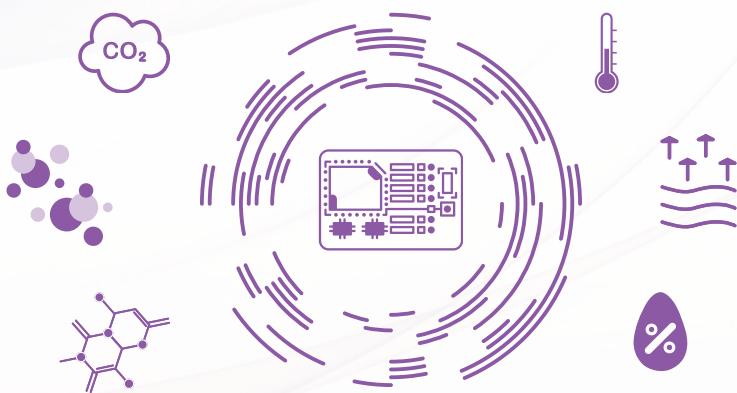
Real-Time monitoring

In our devices there is a **sensor platform** for the continuous monitoring of the **air quality parameters**, such as the pressure, the air flow rate, temperature, relative humidity, atmospheric particulate matter (PM₁₀, PM_{2.5}, PM₁) e gaseous pollutants (VOC, CO₂) and radioactive pollutant (Radon).

Through these sensors, the user can see the quality air data in **real time** on different devices. The information from other tools installed in separate spaces can be **tracked at the same time** using only one screen.

The sensor platform can be bought as a **single unit** with its **protection case**. The device is **rechargeable via socket USB-C**.

The monitoring device sends information through **Wi-Fi connection** and it can be installed on shell, on wall or on ceiling.



Surfaces Treatments



Sanitization



STE SWORD 25/50

STE SWORD is a handheld battery-powered device, **projected for a rapid and effective sanitization of surfaces**. The device is available in two versions: 25 cm and 50 cm. The sanitizing effectiveness of the latest LED UV-C sources acts directly on the microorganisms present on the surface of interest, inhibiting their reproduction, but without damaging the treated materials.



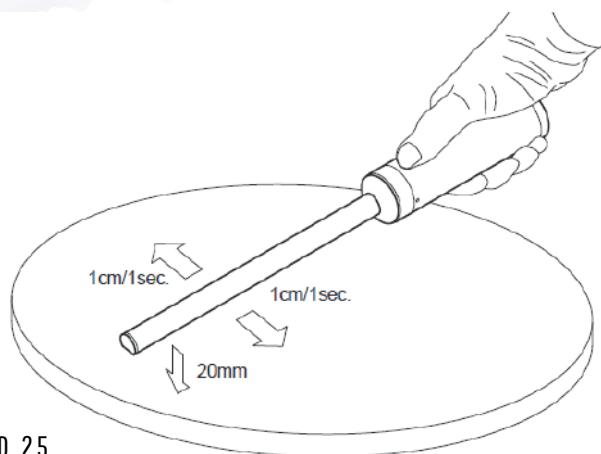
The device is the best solution for the sanitization of all surfaces. The lab test showed that keeping **STE SWORD** in **a short distance from the surface** (3-5 cm) and irradiating for a few seconds, we can obtain percentages of suppression of the main microorganisms over **97%**.

Features



	STE SWORD 25	STE SWORD 50
Category	Sanitization for surfaces	Sanitization for surfaces
Materials	Plastic, light alloy	Plastic, light alloy
Colors	Black	Black
Dimension (cm)	40 x Ø4	65 x Ø4
Weight (g)	324	406
LED*	UV-C + UV-A	UV-C + UV-A
Power (W)	6	8
Autonomy (h)	2,5	2,5
Operating temperature (°C)	0-50 °C	0-50 °C
Charging system	micro USB-B 5V	micro USB-B 5V
Protection degree (IP)	IP20	IP20

The devices **STE SWORD 25/50** were tested on *Escherichia coli*.



Use of STE SWORD 25

*The device emits UV radiation!
Avoid direct exposure of eyes and skin with light emitted by UV-C LEDs.
Keep out of the reach of children.



STE LYRA

STE LYRA is a professional device for the sanitization of indoor environment and surfaces. The tool is projected for the **ceiling or recessed installation** into modular ceiling 600x600 mm. This product has small dimentions, is safty and it merges the sanitizing propriety of UV-C radiation and UV-A in only one device. **STE LYRA** is the best choice for work spaces, because it offers a reliable and effective solution to **mantain high hygiene standards in absence of people**.

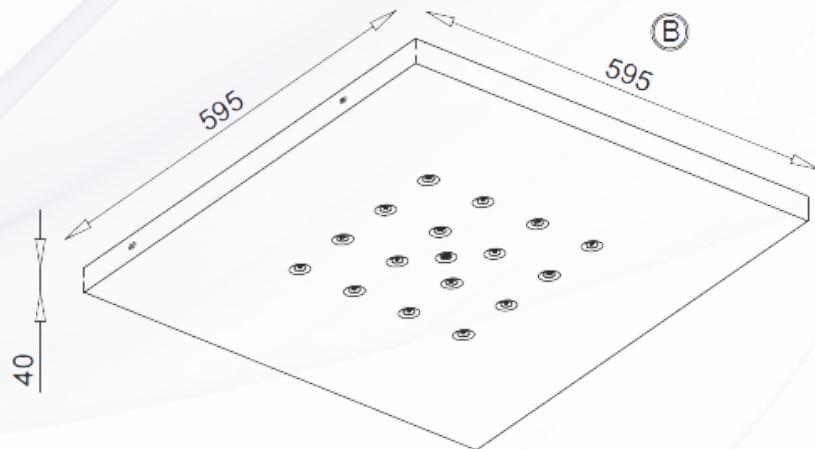


For a safety operation of the product, it is necessary to set up a **presence sensor**, the prevision of a **security interrupter** both inside and outside of the space where the user wants to sanitize, a **timed switch to program the sanitization cycles**, a sound/light signal outside the environment that is intended to be sanitized and the appropriate UV-C hazard warning signs.

Features

	STE LYRA
Category	Sanitization for surfaces
Dimension (cm)	59,5 x 59,5 x4
Weight (kg)	2,120
LED*	UV-C + UV-A
Power (W)	14 - 18.5 - 26
Voltage (V)	220 - 230 Vac
Operating temperature (°C)	0-50 °C
Protection degree (IP)	IP20

The device **STE LYRA** was tested on *Escherichia coli*, *Aspergillus fumigatus* and *Candida albicans*.



STE LYRA - Dimension (mm)

*The device emits UV radiation!
Avoid direct exposure of eyes and skin with light emitted by UV-C LEDs.
Keep out of the reach of children.



STE CleaV

STE CleaV with UV-C LED is a professional product for the sanitization of surfaces and/or small environments without the presence of people. Thanks to the **small size** and the **adaptability of the profile**, the device can be used in several situations, such as treatment of ventilation grills, conveyor belts, food banks and also the sanitization of products transported in the production lines.



For a safety operation of the product, it is necessary to set up a **presence sensor**, the prevision of a **security interrupter** both inside and outside of the space where the user wants to sanitize, a **timed switch to program the sanitization cycles**, a sound/light signal outside the environment that is intended to be sanitized and the appropriate UV-C hazard warning signs.

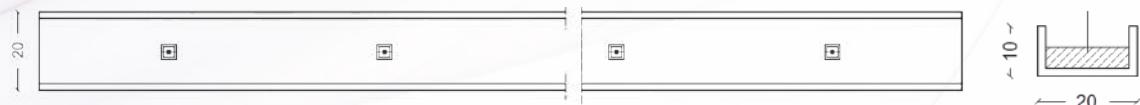
Features

Lab tests showed that **STE CleaV** is able to knock down bacteria and viruses with sanitization percentages of **99.9%**.

The outline of **STE CleaV** is available in different measures: 25 cm, 50 cm, 100 cm and 150 cm. Larger dimensions result in a greater number of UV-C LED sources, therefore an increase in power supply current and power.

	STE CleaV
Category	Sanitization for surfaces
Dimension (cm)	25/50/100/150 x 2 x 1
LED*	UV-C + UV-A
Operating temperature (°C)	0-50 °C

The device **STE CleaV** was tested on *Escherichia coli*, *Aspergillus fumigatus* and *Candida albicans*.



STE CleaV - Dimension (mm)

*The device emits UV radiation!
Avoid direct exposure of eyes and skin with light emitted by UV-C LEDs.
Keep out of the reach of children.



Liquid Treatments



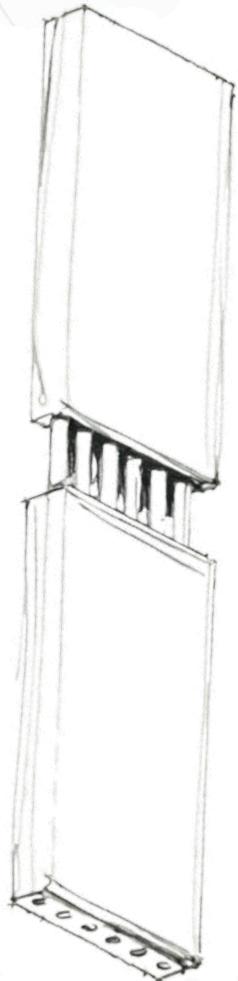
Stay Tuned

The future of **water sanitization** is arriving.

STE is developing a **new microbiology sanitization system for liquids**. This new method is projected to guarantee a continuous pure and safety water, without using chemical substances and minor waste.

Our system is a **patented technology** that uses **LED UV-C radiation** and **flow-controlled channels**. The device allows the **killing of bacteria, viruses, fungi and protozoa** during the flow of the liquid.

STE – Sanitizing Technologies and Equipment turns the research into **sustainable innovation** for a safety and clean world.



Services

Environmental Monitoring

We offer services of environment and air quality monitoring. We can do that thanks to sensors for the real time detecting of the main air pollutant and to conduct microbiological analyses through **sampling** in indoor environment following the classic method of harvest and cultivation. These achieved data are transformed into detailed reports, tempestive alert and interactive dashboard. With these tolls we provide to our clients facilities to understand the results and to **carry out the right improvement strategy**.

Engineering, research and development

We realize **customized system and devices for the sanitization** of air, liquid and surfaces, using a structured workflow that emphasizes each phase of the manufacturing process. From the **research** to the technical **engineering**, using the latest 3D modeling tolls and light studies, until the concrete implementation of products, we care every single details to guarantee reliable, functional and workmanlike products. We project all the devices to meet different needs.

Testing

We provide to our clients testing services, that means the possibility to carry out dedicated test rig to evaluate the effectiveness of sanitization systems. From those results we elaborate **performance reports and certifications**, thus we supply reliable validations guaranteeing the highest level of **security** and **assurance**.

Our team performs specific analysis in collaboration with qualified operators, following all the lab's good practice and the reference standard.

Scientific assistance and patenting

We offer scientific assistance to support our products, such as **interpretation of the data** and validation of protocols. We join our customers during the **patenting process** with focused consultancy on **intellectual property** and the **protection of innovations**. Thus we guarantee the assurance of the results, and their adequate securing and valorization on the market.

Scientific and technological value

As a spin-off of the University of Urbino, STE projects products and offers services with scientifically valuable solutions. In addition, **our products are are the subject of main scientific publications** on international journals, available on our website.

Read our scientific publications:

- Baldelli, G., Aliano, M.P., Amagliani, G., Magnani, M., Brandi, G., Pennino, C., Schiavano, G.F. Airborne Microorganism Inactivation by a UV-C LED and Ionizer-Based Continuous Sanitation Air (CSA) System in Train Environments. *Int J Environ Res Public Health.* 2022;19(3):1559.
- Palma, F., Baldelli, G., Amagliani, G., Aliano, M.P., Brandi, G., Schiavano, G.F. Use of an eco-sustainable UV-C LED continuous sanitation air (CSA) system in indoor sport environments. *Journal of preventive medicine and hygiene.* 2022; Vol.63 N.2S1.
- Palma, F., Baldelli, G., Schiavano, G. F., Amagliani, G., Aliano, M. P., & Brandi, G. Use of Eco-Friendly UV-C LEDs for Indoor Environment Sanitization: A Narrative Review. *Atmosphere.* 2022; 13(9), 1411.

Granted patents and pending application:

- Microbiological sanitization and air purification system for hvac system of a railway vehicle (WO2021234529A1).
- Microbiological sanitization device for liquids (Question number: 102025000006447).

Our dedication

Our goal is to make **innovative technology** available to everyone, because it is able to improve the quality of life and the environments where we live and work. Our range of products, that is in continuously evolution, consists into three broad categories, AIR, SURFACES and LIQUIDS. We target to **end consumers** (B2C) and also to **professional sectors**.

We are expanding our commitment to new frontiers. Our next aim is to project pioneers system for **liquids sanitization**.

Each product adapts to every context of use. We address to **health facilities**, like medical practices, clinics, retirement homes and RSAs; sport and **wellness** facilities with gyms, indoor sports centers and SPAs; to **industry** during the production chain; **education** and culture environments such as schools, kindergartens, cinemas and theatres; and also to professional and corporate sectors with offices, co-working spaces and meeting rooms.

Every products is designed to be settled in each context of use, supporting people into their daily activities and offering them a tangible wellness experience. With our solutions we want to build **healthier**, efficient and sustainable **environments**. We empower our clients and partners in a path of growing and innovation.



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