



Solutions
to improve
the **indoor air
quality**



SODECA IAQ,
we treat the air you breathe



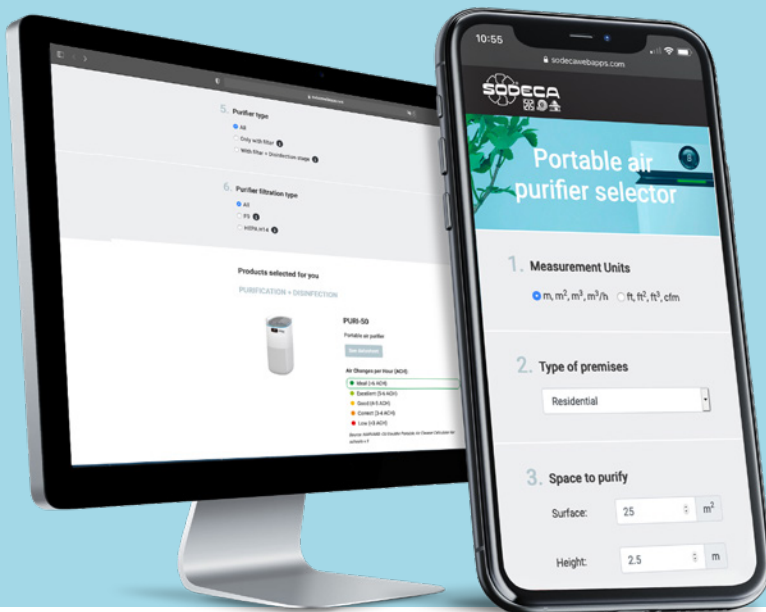
SODECA IAQ is a division of the SODECA, specialising in indoor air quality and focusing on finding the best solutions for improving indoor air quality in enclosed spaces.

Our objective is to create healthy indoor spaces where people can live and work, free from the health issues that can rise from poor air quality. We strive to improve the well-being of occupants using efficient and sustainable designs.

We want to ensure buildings become locations where people's health is fully protected.

We work closely with our clients to develop innovative solutions for their specific projects. We aim to optimise indoor air quality for their new or existing installations in whichever sector they work in, whether it is education, retail, general commerce, health, pharmaceutical, food, automotive and more. Our sole purpose is to improve people's health, well-being and productivity.





NEW WEB APP

Quick purifier search tool

Use our new web app to easily and quickly find the portable air purifier that is most suitable for your home or business.

01. Complete a simple form
02. Analyse the results
03. Obtain a product proposal

Indoor air quality; our objective

The air we breathe is a resource that is essential and inexhaustible but extremely fragile and vulnerable to pollutants.



If the right solutions are not applied, air may become a means of transmission for diseases, cause health problems and affect comfort. Air is invisible and so we can easily forget just how essential the air that surrounds us is.

Nowadays, consideration for the environment and for sustainability is as important as caring about the quality of the air that we breathe. We are all responsible for the planet and for the people who live on it. Companies and organisations have a responsibility towards their workers and for anyone sharing their facilities and so we must all work together to achieve the best quality for the air that we breathe and to improve the quality of life of the people around us and ensure our clients feel safe in our premises.

Achieving a good Indoor Air Quality (IAQ) is a vital, present and future need. For this reason, at SODECA IAQ, we are committed to working towards providing the most suitable technological solutions to achieve an air that is pure, healthy and clean.

Air quality analysis through continuous monitoring by applying IoT systems to improve the indoor air quality

What do we offer?

At SODECA IAQ we offer a personalised assessment service to analyse all aspects of indoor air quality. This enables us to determine which pollutants are present in the air and allows us to propose the best solution for the cleaning and disinfection of those pollutants, using the most appropriate technology.

As indoor air quality experts, SODECA IAQ has professionals at your disposal who have been specifically trained with equipment that utilises the most advanced technology in air treatment and air quality improvement.





Monitoring indoor air quality in buildings and structures

SODECA IAQ uses a device with WiFi connectivity and IoT technology to monitor the indoor air quality at any type of installation in real time for a specific time period; the data is stored on the cloud and can be monitored from any device.

Readings are taken by temperature and humidity sensors and levels of CO₂, formaldehyde, VOCs and suspended particulate matter (PM₁₀, PM_{2.5} and PM₁) are recorded. Based on real data about the pollutants that are present in the building, a thorough assessment can then be carried out so that the best solution for improving the indoor air quality can be offered.

On request, samples can also be taken to determine microbiological air quality, using aerobic and fungal sampling, to determine what microorganisms are present in the air. The results are then certified by an independent accredited laboratory.

Technical assessment aimed at improving indoor air quality

When all of the data has been gathered and analysed, a technical report will be submitted recommending the best solutions and most appropriate technology for improving indoor air quality at the facilities. The technical specifications of the recommended equipment will be provided along with a quotation for implementation of the proposed solution.



INDOOR AIR QUALITY ASSESSMENT

Description of the services provided for obtaining the best air quality inside buildings.

- 01. Interior space evaluation**

- 02. Delivery of monitoring equipment**

- 03. Data collection in real time**

- 04. Air quality technical report**

- 05. Technical proposal**
with the best solution based on the pollutants that are present

- 06. Validation of the proposed solution**



Certification and standards

The solutions provided by SODECA for purifying and disinfecting indoor air are compliant with standard EN 14476, are certified by external laboratories and use standardised on-site procedures.

The efficacy of air purifying technology has been proven in a laboratory certified by ENAC and APPLUS+ in accordance with standard EN 14476 for the evaluation of virucidal activity in the medical area for antiseptic and disinfectant tests.

The tests conducted in this laboratory have demonstrated a rate of 100% virus inactivation for inoculated Mengovirus (a microorganism of the same family as SARS-CoV-2, which causes COVID-19) and also showed a very substantial reduction of aerobic bacteria and environmental fungi.

The cultured virus strain has been inoculated into the air in a controlled manner and the pertinent tests have been conducted in accordance with standard EN 14476, analysing the air at the inlet and outlet of the purification unit with germicidal chamber.



Results certified in accordance with standard EN 14476

| Equipment | Antiviral activity | Time | Reduction of aerobic bacteria | Reduction of environmental fungi | Presence of ozone |
|-----------|--------------------|------|-------------------------------|----------------------------------|-------------------|
| UPM | 100% | 15' | 95% | 81% | NO |
| UPA | 100% | 10' | 100% | 100% | NO |



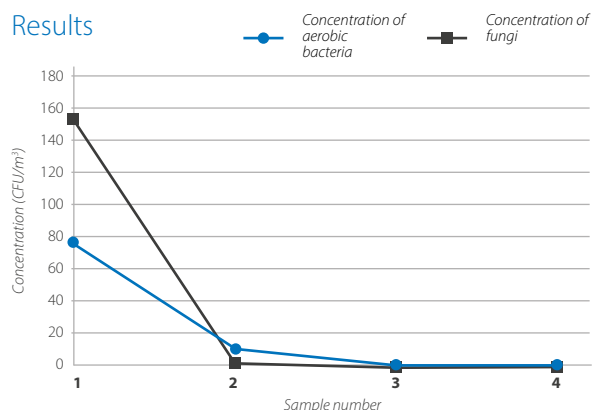
Validation study of the anti-bacterial and anti-fungal activity

Equipment: UPA-UV-1500-HEPA H14+CG-UV-1500

| Date | Sample number | Identification | Volume of sampled air | Environmental aerobic bacteria count (CFU/m ³) | | Environmental fungi count (CFU/m ³) | | Concentration of ozone (ppm) |
|------------|---------------|---|-----------------------|--|------|---|------|------------------------------|
| | | | | Pre | Post | Pre | Post | |
| 19/01/2021 | 21-000165 | Environmental air with aerobic bacteria and fungi. Pre-treatment | 22 L | 155 | - | 75 | - | < 0.001 |
| 19/01/2021 | 21-000167 | Environmental air with aerobic bacteria and fungi. 10' post-treatment | 200 L | - | 0 | - | 10 | < 0.001 |
| 19/01/2021 | 21-000169 | Environmental air with aerobic bacteria and fungi. 20' post-treatment | 200 L | - | 0 | - | 0 | < 0.001 |
| 19/01/2021 | 21-000171 | Environmental air with aerobic bacteria and fungi. 30' post-treatment | 200 L | - | 0 | - | 0 | < 0.001 |

| REDUCTION RATE | | |
|------------------------|---|--|
| Sample number | Reduction rate (%) of the concentration of aerobic bacteria | Reduction rate (%) of the concentration of fungi |
| (1) Pre-treatment | - | - |
| (2) 10' post-treatment | 100.00 | 86.67 |
| (3) 20' post-treatment | 100.00 | 100.00 |
| (4) 30' post-treatment | 100.00 | 100.00 |

Results



Conclusion:

The UPA-UV-1500-HEPA H14+CG-UV-1500 unit has shown a reduction rate of 100% for eliminating environmental aerobic bacteria and environmental fungi 20 minutes after the air was treated. Likewise, the concentration of ozone 20 minutes after treatment is lower than 0.001 ppm.

SECTORS

Our commitment is towards ensuring a healthy workspace is maintained

Shops

We spend most of our lives indoors, which can eventually impact on our health and well-being, as well as our productivity and efficiency. A healthy building environment means more than improving the indoor air quality for our own well-being, it should also provide energy savings and peace of mind.

Improving the indoor air quality adds value to your business

Implementing solutions to improve air quality will give your customers the peace of mind of knowing that the environment they are in is clean and healthy and will reassure them that their shopping experience is safe. At the same time, it will make the workspace more comfortable for employees. Breathing high quality indoor air has a positive effect on the productivity and health of personnel and can have a positive effect on energy efficiency and sustainability.

Productivity and health

The European Environmental Agency has published the European annual air quality study, EEA Signals 2020, where it alerts that the levels of pollution in many European cities continue exceeding the legal limits set by the EU and the World Health Organisation (WHO) to protect people's Health. According to statistics, each year about 400,000 European citizens die as a result of poor quality air.

Air pollution is the number one cause of premature death due to environmental factors in Europe but the economic impact is also important: medical costs are increased and economic productivity is decreased as a result of the poor health of workers.



Breathing easy

The quality of the air we breathe has been one of the main concerns in recent years: before COVID-19, 9 out of every 10 people were not satisfied with the air they breathe. Currently, this dissatisfaction has also become a concern. Today more than ever, our society needs to be assured that sufficient measures are being taken to prevent risks and diseases transmitted through aerosols.





Offices

Our commitment towards offering a healthy workspace is essential. Improving the indoor air quality is essential in sectors where people spend many hours in the office. Experts have demonstrated that the risk of transmission through the air is present in any enclosed space where people are present. Therefore, measures must be implemented that supplement the existing measures and that have a lot to do with improving the indoor air quality.

Act of responsibility

However, the scientific community has gone one step further and it believes that measures need to be taken urgently to ensure that the purification solutions used to improve health in buildings are also sustainable and efficient. Preventing the transmission of diseases through aerosols is an act of responsibility; not only from a business point of view, but from a social perspective as well.

Efficient, healthy, comfortable and productive spaces

A clean and healthy environment increases productivity, reduces work absenteeism and also helps maintain the sustainability and health of buildings. Efficient, healthy and comfortable work spaces increase productivity.

Even if it is not always apparent, healthy air is essential. It is a double-edged sword in as much as although air is essential for our survival, it can also be a means for transmitting viruses, bacteria and other agents harmful to health. Indoor air quality is measured by the number of pollutants that are present in the air and by the degree of discomfort that is felt by occupants. As well as spreading disease, poor air quality can cause a general feeling illness. This is known as Sick Building Syndrome.





Education

In education centres, students, teachers and family have the right to breathe healthy air. For this reason, all classrooms at education centres must meet certain requirements in terms of ventilation and indoor air quality to ensure a healthy environment is maintained. Poor indoor air quality can affect the cognitive development of minors and can even become a space where viruses and bacteria are easily transmitted.

Air affects school performance

In spite of this, according to a comprehensive study conducted by the University of Burgos, Spanish schools for example, can fail in terms of comfort, quality of the environment and ventilation inside buildings. This study also notes that children spend five out of every six hours in areas where there is poor quality air and a lack of comfort, which directly affects their health as well as their performance in school. Ensuring that environments of education centres are clean and safe is not only essential for those centres but also for protecting society as a whole.

Ventilation and contagion

According to the classroom ventilation guide published by CSIC (which is based on the Harvard University Guide), zero risk does not exist; however, the better the ventilation, the lower the risk of contagion. In indoor environments, suspended particulate matter (aerosols), susceptible to containing viruses, may accumulate. Diseases may be spread through exposure to this air. The risk of contagion can be reduced by reducing emissions and exposure.



SECTORS

We provide solutions for improving spaces



Hospitality

Better quality air, better results. Guaranteeing the quality of indoor air breathed by clients of hotels and restaurants has already become a necessity. Offering clients a good experience is essential to earning their loyalty.

Paradigm changes

Every time we judge a restaurant, we do so based on elements that go beyond the ingredients used to make the dish. Improving environmental conditions indoors answers society's growing concern for the indoor air quality. By implementing healthy solutions that eliminate solid particles, viruses or bacteria, or simply foul odours, we are filling the environment with healthy experiences in terms of well-being.

Solutions for an optimum experience

The layouts of restaurants are increasingly more open and with greater access to the kitchen; therefore, applying the best solution is essential in order to guarantee an optimum experience for their customers. In the end, we must make sure that customers are not reminded of where they have eaten by the smell of their clothes rather than by the memory of their experience. The sense of taste is 70% smell. Therefore, a kitchen without smoke or odours is a feature that is becoming increasingly popular in the restaurant business. The air we breathe is a conductor of health, comfort and life experiences but it can become our worst enemy if we do not apply the best solution.

PURI-50

This system incorporates a digital panel that continuously indicates the air quality in accordance with the IAQ classification, based on parameters of the concentration of fine particles in the air.





SECTORS

Clean air, ensuring our surroundings are safe



UPA

Units specifically designed to clean and purify the air inside any type of space and primarily in high occupancy areas.

Healthcare

Hospitals, medical centres, dental clinics and other similar buildings are places where air quality has to be almost perfect. These spaces, where the air that is breathed by patients as well as by healthcare workers, must be strictly protected. Clean air is essential, not only to prevent infections derived from aerosol transmission but also for creating a safe environment, with good quality, healthy air.

How can we prevent breathing poor quality air?

We can treat air in our internal spaces by passing it through a closed circuit. This way it can be cleaned, or in other words, purified. Several elements are required to accomplish this, for example, filters, germicide chambers, etc. This way, air can be properly treated, turning it into high quality air. In healthcare settings this is a fundamental need rather than an option. In these demanding times, conventional ventilation and filtration systems cannot provide the high-quality air that is required and so alternative systems have been developed to meet this demand. These systems extend beyond the health and pharmaceutical sectors also.

Effective methods

In purification methods with germicidal chambers, UVC lamps are used to emit ultraviolet light of a wavelength between 200-280 nm, to greatly reduce the presence of bacteria, viruses and fungi. By using this method, we are able to achieve a high-quality air by properly treating it using the appropriate equipment.





Culture

In places such as theatres, museums and other similar type venues, there is invariably a high number of people attending events at any one time and so indoor air quality must be a priority for these spaces if we want to maintain a safe and healthy environment. Creating a healthy indoor environment is crucial in high-occupancy venues where lots of people will be inhaling and exhaling air during an event. Although air is apparently invisible and odour free, it is directly related to our well-being and performance. Air can easily become a means of transmitting diseases.

Humidity, temperature and unseen organisms

In museums, ensuring high quality indoor air is not only important to protect the health of workers and visitors, it is also important to ensure that the exhibits displayed there are properly conserved.

Humidity, temperature and microorganisms can cause irreversible damage to works of art and antiquities. Nowadays, we must also be socially responsible for people's health and we must have proper air renewal and purification systems.

These days, current technology allows us to perceive air purification systems as an investment, not as an expense, due to the high efficiency of this type of equipment. Now, like never before, health, efficiency and sustainability are three concepts that go hand in hand.

I exist because I breathe





Residences

Improving the quality of the air inside the buildings where we spend many hours of the day will help us when we are resting or when we pursue our leisure activities. For healthy lungs, the air we breathe must be free from harmful elements that affect our level of comfort as well as our health. Mildew, dust, dander and gases affect the quality of the air inside your home. Open windows are also a way that harmful elements might enter your home.

Stale internal air; a global health problem

The quality of the air we breathe is the first and primary cause of respiratory diseases. Ventilating our homes by simply opening windows may be a serious mistake if we do not have a good air renewal and purification system. In terms of COVID-19, according to a report published by the European Environmental Agency in October 2020, the quality of the air we breathe is a growing concern in society. The report warns that most Europeans living in cities are exposed to air pollution levels that exceed the guidelines set by the World Health Organization (WHO) for clean air.

Respiratory problems are a growing concern. Deaths from respiratory illnesses have increased in recent years, even without taking into account the COVID-19 outbreak in 2020. Air pollution poses the greatest threat to health in Europe and the rest of the world. A recent report published in Europe, points out that people play a key role in improving air quality. An on-line tool is available in Europe that allows people in EU countries to see their air quality in real time.

A protected home

Far from thinking that we are protected inside our homes, international experts claim that this is not the case.

In the case of our home, harmful gases may originate from the inside as well as from outside our home, they can even be generated by our appliances. High gas levels may cause health problems.

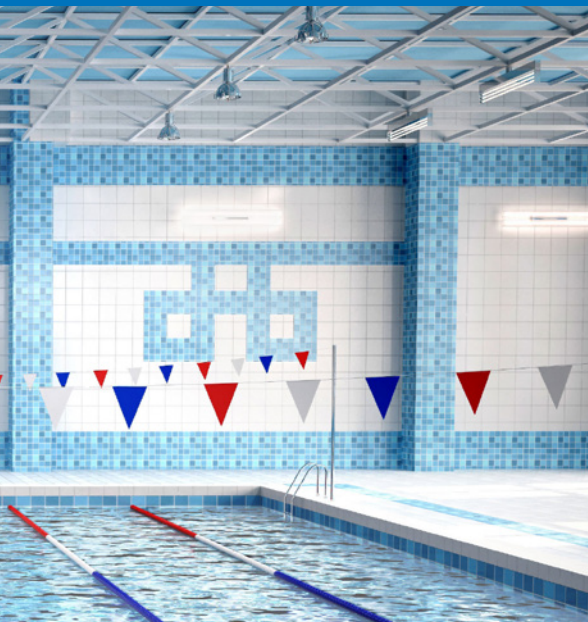
Mites, dust, suspended particulate matter, viruses and bacteria all affect the quality of the air that we breathe.





SECTORS

We renew indoor air to protect your home



Sport

Gymnasiums and swimming pools are good examples of places where large numbers of people gather and where there will be high levels of physical exertion. Quality control of indoor air in these buildings is a sensitive issue because, due to physical activity, the need to renew indoor air (using the most suitable solution) is extremely important.

People's health during exercise

Exhaled air or air that has not been sufficiently purified and renewed, negatively affects performance and it is especially harmful to people's health while they are exercising. Viruses and bacteria are latent in the air that we breathe. The risks are higher at sports facilities. The respiratory activity of a sedentary person is not the same as that of a person that is lifting weights. The normal respiratory frequency of an adult at rest is between 12 and 15 breaths per minute. During each breath, around half a litre of air is moved, which means that every minute we move between 6 and 7.5 litres of air. Respiratory frequency and consequently, the amount of air we move, is multiplied when we are physically exerting ourselves. In situations where intense exercise is being carried out, respiratory frequency may reach 40-50 breaths per minute and the volume of air that is moved with each breath is about 3-4 litres. During maximum exercise peak, between 120 and 200 litres of air are moved per minute.

For this reason, in order to cater for the well-being of workers and users of sports venues, it is extremely important to have an air ventilation and treatment system that is able to guarantee that the air that people breathe is clean and free from elements that are harmful to health. Therefore, we are investing in new air purification methods such as germicidal chambers with UVC lamps.

UPM/EC

Mobile air purification units designed for cleaning, eliminating odours and purifying indoor air in any type of premise.



Technologies used for improving indoor air quality

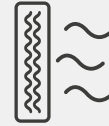
The air that we breathe will be healthier when the most appropriate technology is used. More than ever these days, our well-being and health is dependent on the environmental conditions of the buildings and premises that we spend most of our time in. Opening windows is no longer a guarantee that our health is being protected and, more often than not, leads to discomfort. Knowing that we are guaranteed to breathe clean air gives us peace of mind. Also, modifying our buildings using equipment that complies with environmental and energy regulations is an investment that produces cost savings and improves quality of life.

Air purification systems supplement ventilation to achieve air that is clean and pure inside a building. This happens by recirculating the air, reducing the supply of external air and achieving a healthier working environment with less pollutants and particles that are harmful to health, all while providing energy savings.

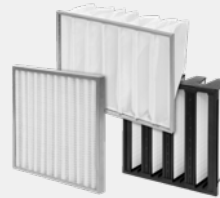


Each environment requires an appropriate technical solution for improving the indoor air quality based on the pollutant that is affecting it.

Our technologies offer solutions to all problems related with indoor air quality:



Filter solutions



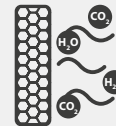
Solutions that use HEPA filters, F9 and active carbon filters **for problems caused by solid particles and odours.**



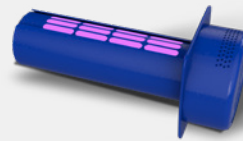
Ultraviolet Light



Solutions that use UVC ultraviolet light **to inactivate viruses, bacteria and germs.**



Photocatalysis



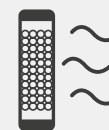
Solutions that use photocatalysis **for spaces that require a highly efficient disinfection.**



Electrostatic Filter



Solutions that use electrostatic filters **to eliminate grease and odours.**



Activated carbon filters



Solutions with activated carbon filters, **for the elimination of unwanted contaminants and to trap odours, gases and allergens.**

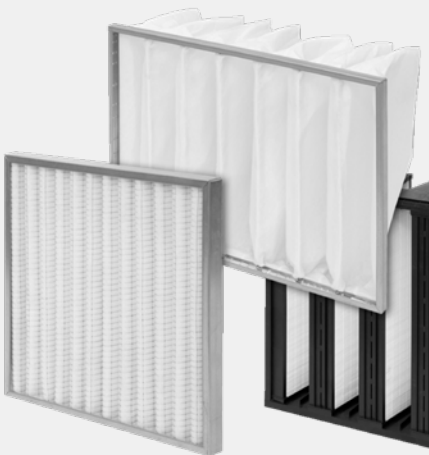
TECHNOLOGY

Filter solutions



How does it work

The system contains a mesh with glass filter (between 0.5 and 2 microns) that allows clean air to enter and retains particles that are harmful to people's health (efficacy of 99.995%, H14, certified).



Air purifiers with HEPA or F9 filter from SODECA are ideal for alleviating solid particulate pollution problems and for the molecular elimination of air pollutants, HEPA filters are used. These purifiers act as a supplement to ventilation systems to achieve an environment that is healthier and free from harmful particles.

Maintaining good indoor air quality requires filtering out particles that pollute air and specifically, those particles that are almost imperceptible, which are the most hazardous to people's health. Stale internal air in high occupancy and high mobility areas will contain small sized particles and gases originating from combustion engines as well as containing spores, mites and bacteria or viruses that will also be harmful to health, unless they are removed from the air that we breathe. An optimum installation will include filters with an efficiency classified of ePM₁, ePM_{2.5} and ePM₁₀ in accordance with standard ISO 16890.

Final filtering stages ePM₁

For applications in buildings such as schools, commercial premises or offices, we recommend using ePM₁ type fine filters capable of retaining particles of a diameter size between 0.3 and 1 microns. These filters are also more cost efficient to maintain.

Final filtering stages HEPA

HEPA filters are the most efficient filters that exist and are frequently used in the surgical areas of hospitals to prevent spreading bacteria and viruses. The use of HEPA filters in commercial applications must be accompanied by important maintenance and replacement protocols to prevent hygiene problems resulting from the high concentration of microorganisms that are retained by these filters.

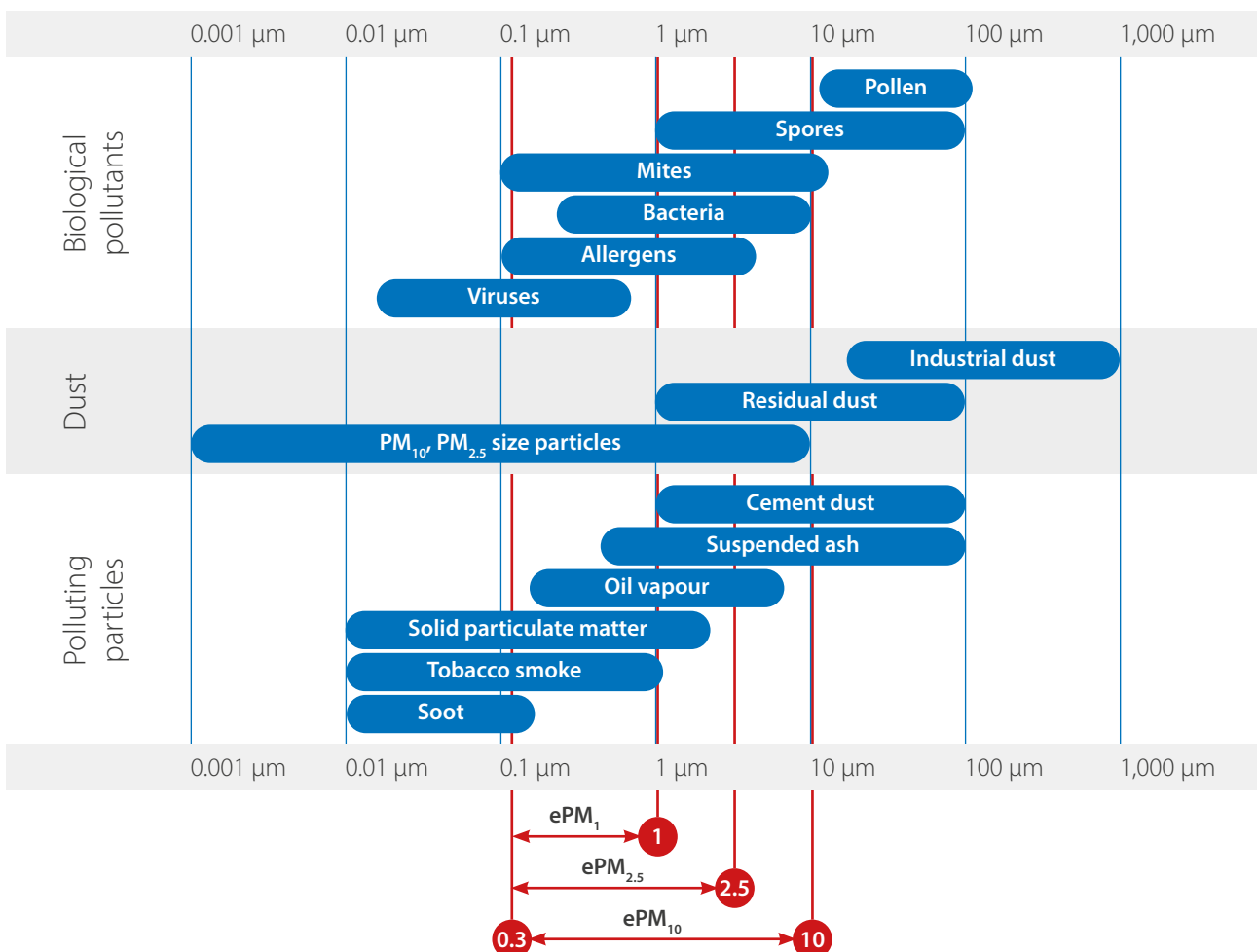
Recommended for:

Healthcare industry
(Surgical areas).
High occupancy
and high mobility areas.



Filtration efficiency

It is common to find filters with an efficiency based on EN 779 but nowadays, the standard that is used is ISO 16890. Both standards cover the efficiency of coarse and fine dust filters used in ventilation. The EN standard is based on particles measuring 0.4 microns and standard ISO 16890 defines the efficiency for different size particles measured at 0.3 micron intervals. For HEPA filters, efficiency is measured based on standard EN 1822.



TECHNOLOGY

Ultraviolet Light



Air purifiers with UVC ultraviolet radiation technology with a 254 nm wave length incorporate a germicidal chamber and filtration stages.

Germicidal chambers with ultraviolet light are effective along with other technologies to ensure that any pathogen that has not been previously detected using a different method is inactivated by this technology and finally retained by this final filtration stage.



GERMICIDAL CHAMBERS WITH ULTRAVIOLET LIGHT ENDORSED BY ASHRAE AND BY IUVA

Germicidal chambers with UVC ultraviolet light are effective along with other technologies to ensure that any pathogen that has not been previously detected using a different method such as filtration can be finally inactivated using UVC technology.

According to ASHRAE, germicidal radiation uses UVC short wave ultraviolet energy to inactivate viral organisms, bacteria and fungi in a manner that prevents these from replicating and causing diseases. UVC energy disrupts deoxyribonucleic acid (DNA) of a wide range of microorganisms, making them harmless. Standard UVC lamps in commercial systems are low pressure mercury vapour lamps that mainly emit an almost optimum 254 nm UVC through the air that is used as a germicide.

The use of UVC is becoming **increasingly more frequent as the concern for the quality of indoor air grows.**

UVC is used to disrupt the transmission of pathogenic microorganisms such as *Mycobacterium tuberculosis* (TB), influenza viruses or mildew. By applying UVC, the indoor air quality (IAQ) is improved and consequently, so is the health, comfort and productivity of the occupants.





The International Ultraviolet Association (IUVA) advocates using UVc disinfection technology as part of the multiple processes used to reduce the transmission of the virus that causes COVID-19, based on disinfection data and empirical evidence. UVc is a known disinfectant of air, water and surfaces and when properly applied, plays a significant role in reducing the risk of COVID-19 contagion.

UVc DOSE

Some examples of effective dosage for virus and bacteria inactivation

For further information please go to: www.iuva.org

* Table according to IUVA (International Ultraviolet Association)

| TYPE | NAME | INACTIVATION DOSE (mJ/cm ²) | | REFERENCE |
|----------|--|---|-----------|-------------------------------|
| | | 1st (90%) | 2nd (99%) | |
| BACTERIA | <i>Legionella pneumophila</i> | 3.1 | 5.0 | Wilson et al. 1992 |
| | <i>Salmonella enteritidis</i> | 5.0 | 7.0 | Tosa and Hirata 1998 |
| | <i>Salmonella typhimurium</i> | 3.0 | 11.5 | Maya et al. 2003 |
| | <i>Shigella dysenteriae</i> | 0.5 | 2.0 | Wilson et al. 1992 |
| | <i>Shigella sonnei</i> | 3.2 | 4.9 | Chang et al. 1985 |
| | <i>Vibrio cholerae</i> | 0.8 | 1.4 | Wilson et al. 1992 |
| | <i>Citrobacter diversus</i> | 5.0 | 7.0 | Giese and Darby 2000 |
| | <i>Mycobacterium tuberculosis</i> | 2.2 | 4.3 | Collins 1971 |
| | <i>Listeria monocytogenes</i> | 2.2 | 3.0 | Collins 1971 |
| PROTOZOA | <i>Cryptosporidium parvum</i> | <2 | <2 | Clancy et al. 2004 |
| | <i>Giardia lamblia</i> | <10 | ~10 | Campbell et al. 2002 |
| | <i>Giardia muris</i> | <2 | <2 | Mofidi et al. 2002 |
| | <i>Encephalitozoon intestinalis, microsporidia</i> | 3.0 | 5.0 | Marshall et al. 2003 |
| VIRUSES | Adenovirus 40 | 55.0 | 105.0 | Thurston-Enriquez et al. 2003 |
| | Echovirus II | 7.0 | 14.0 | Gerba et al. 2002 |
| | Hepatitis A | 5.1 | 13.7 | Wilson et al. 1992 |
| | Poliovirus Type 1 | 5.7 | 11.0 | Wilson et al. 1992 |
| | Rotavirus SA11 | 8.0 | 15.0 | Sommer et al. 1989 |

How does it work

Germicidal radiation technology in the ultraviolet short wave UVc range, inactivates a wide range of microorganisms, including viruses, bacteria and fungi, by damaging their DNA.

According to a study conducted by Boston University, the use of short wave UVc ultraviolet lamps that produce a 5mJ/cm² dose of 254 nm UVc ultraviolet light, results in a reduction of SARS-CoV-1 and MERS-CoV coronaviruses, which are similar to and in the same family as SARS-CoV-2.

Ideal applications for UVc technology

Ideal applications for air purification using UVc disinfection technology are, for example: offices, school classrooms, stores, hotel rooms, etc., or all areas where lots of people pass through in a short space of time. Disinfection is carried out by continuously but slowly circulating the air through the purifier.

Recommended for:

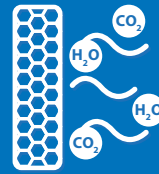
Hospital applications.

Medical applications.

Scientific applications.

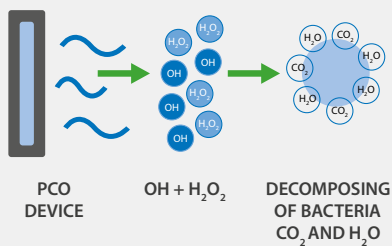
TECHNOLOGY

Photocatalysis

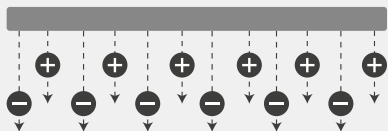


How does it work

These devices combine PCO technology together with positive and negative ionization of suspended particulate matter that has not been collected by the filters, grouping them and making them fall as they settle.



Positive and negative ionization of particles



Applications

Purifying air by disinfecting it using PCO technology is ideal for premises where people are continuously entering and exiting. These premises require a speedy, high efficiency disinfection due to the high rate of pollutants that may be circulating. PCO technology is also suitable for use at locations where there is a need to disinfect large material surfaces through the air.

Recommended for:

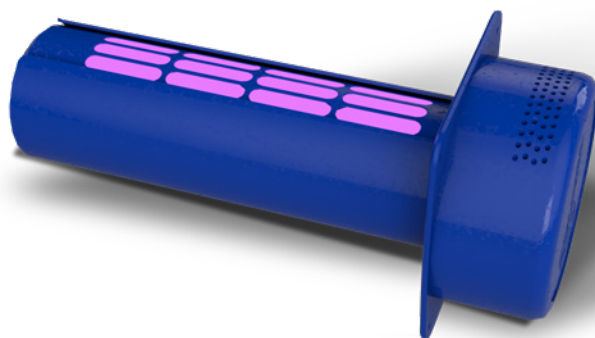
Hospitals, food industry, stores, offices, waiting rooms, clean rooms, libraries, etc.

Air purifiers with PCO (Photocatalytic Oxidation) technology incorporate a germicidal tool that combines UVC ultraviolet technology and oxidation to accelerate the natural decomposition of organic matter via photocatalysis, reducing pollutants such as chemical compounds, viruses, bacteria, fungi and other microorganisms. They are also efficient at eliminating gases and odours.

This technology uses the ultraviolet light source to react with a catalyst consisting of titanium dioxide in the presence of humidity to create hydroxyl radicals (OH) and hydrogen peroxide (H₂O₂), which inactivate microorganisms and harmful chemical substances that are constantly circulating through the air.

PCO photocatalytic technology

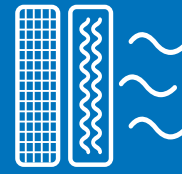
PCO technology is a powerful tool that is used for purifying air and nearby surfaces by accelerating the natural decomposition of organic matter through photocatalysis.



Additionally, our equipment has built-in modules with positive and negative ionization technology, which improve their purifying efficacy against ultra-fine dust and odours.



Electrostatic Filter



Purifiers equipped with EF electrostatic filters are especially suitable for removing polluting substances such as particles, grease, gases, odours and also bacteria.

The high performance of these filters, along with their excellent ability to capture particles, ensures this equipment operates with a very reduced load loss and consequently allows it to provide significant energy savings.

Electrostatic filters (EF) technology operates by ionizing particulate matter which, as it passes through the filter, becomes attached to oppositely charged collector cells, thereby removing it from the outlet air flow.

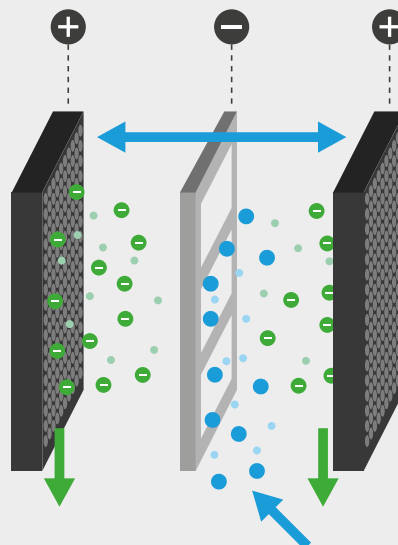


Electrostatic filters (EF) technology

EF filters are especially useful for eliminating polluting substances such as particles, bacteria, gases, etc. The high performance of these filters, along with their excellent ability to capture particles, results in this equipment operating with a very low load loss and therefore energy consumption is very low in comparison with that of conventional mechanical filtering systems.

How does it work

Particulate matter is ionized and becomes attached to oppositely charged collector cells and thereby removed from the outlet air flow.



Applications

Air purification by disinfection using electrostatic filter technology is ideal for environments where pollutants are suspended particulate matter, oily or greasy or of the type that quickly saturate mechanical or fabric filters. Electrostatic filters are washable and easy to maintain.

Recommended for:

Industrial kitchens, hospitals, agri-food sector, factories (suspended particles and smoke measuring up to 20 mg/m³), fast food restaurants, chemical and metallurgy industries, etc.

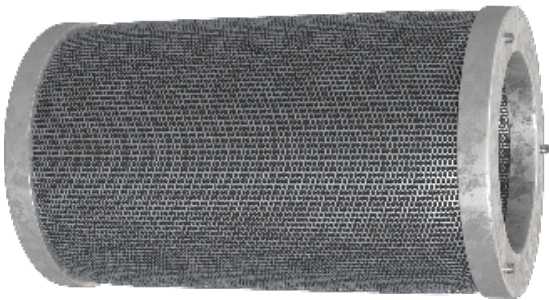
TECHNOLOGY

Activated carbon filters



These filters are easy to install and are rechargeable.

Activated carbon filters are specifically designed for treating large air flows while minimising load loss.

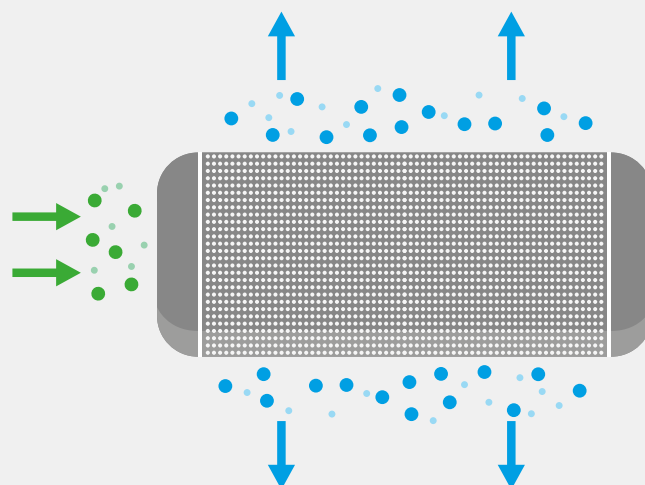


Activated carbon filter technology

Activated carbon filter technology is ideal for removing undesired pollutants, trapping odours, gases and allergens. They are also recommended for purifying pollutants generated by general use and occupation of premises.

How does it work?

Activated carbon filter technology in cartridges works by trapping pollutants and odours present in the air that passes through the filter cartridge.



Recommended for:

Commercial kitchens, airports, hospitals, agri-food industry, fast food restaurants





Indoor air quality **solutions**

A recent poll confirmed that our health is extremely important to us, so we must be conscious of the fact that a healthy environment is essential to protect people's health. An inadequate mechanical ventilation system or inadequate natural ventilation can seriously affect our health. People spend between 70% and 90% of their time indoors; at work or at home. During this time, we breathe between 20 and 25 kg of air on average and the quality of this air is vitally important for our bodies. Prevention is better than a cure: breathing clean air significantly reduces respiratory illnesses and tiredness.

In fact, health and well-being go hand in hand. Studies confirm that, apart from increasing life expectancy, good quality air improves mental and physical development, improving our overall health, which is very important.

Increased productivity and concentration

In situations where high levels of concentration are needed, if we want to achieve good quality indoor air, using natural ventilation would not normally be sufficient, particularly now, as higher rainfall is becoming more common. In these cases, natural ventilation must be supplemented with air purifiers to obtain an optimum and healthy environment with air that is clean and pure.

Good oxygenation of the blood is essential to increase productivity. Studies show that the better the air quality, the better our performance, because having optimum oxygen levels increases our efficiency while we are carrying out our daily tasks.



SOLUTIONS

Fans

Improving sustainability and increasing cost savings is possible thanks to ventilation systems equipped with high efficiency EC motors (which have a longer service life compared to AC motors). These systems are specially designed to emit the lowest possible noise levels while at the same time helping to achieve a sustainable building by giving the maximum possible energy savings.



SVE/PLUS/EW



CL/PLUS/EC

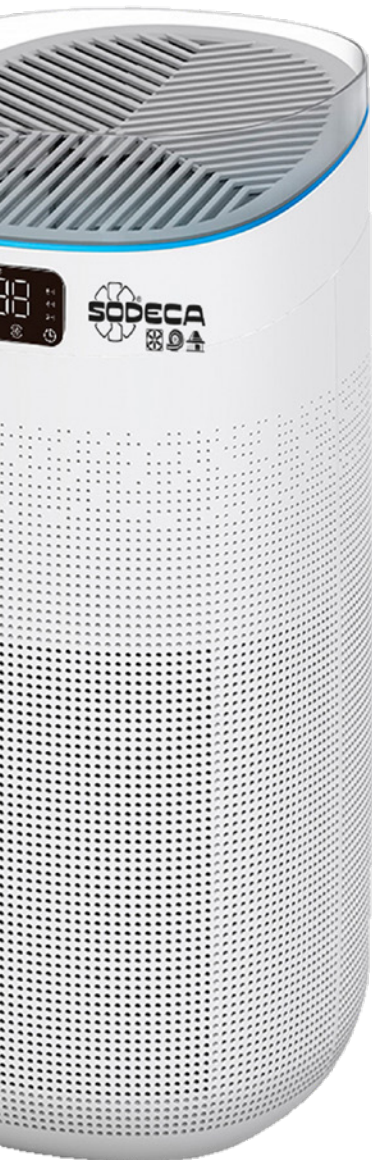


CJK/EC

According to statistics, almost all of the costs associated with a fan's life cycle are related to power consumption and maintenance. We must bear in mind that most of the energy costs generated by a building are attributed to its ventilation systems. These motors make it easier to comply with energy regulations as well as providing significant cost savings.

SOLUTIONS

Air purifiers



Air purifiers **with PCO photocatalytic technology**

Air purifiers with PCO (Photocatalytic Oxidation) technology incorporate a germicidal tool that combines UVC ultraviolet technology and oxidation to accelerate the natural decomposition of organic matter via photocatalysis, reducing pollutants such as chemical compounds, viruses, bacteria, fungi and other microorganisms while they are also efficient eliminating gases and odours.

This PCO technology uses the ultraviolet light source to react with a catalyst consisting of titanium dioxide in the presence of humidity to create hydroxyl radicals (OH) and hydrogen peroxide (H_2O_2), which inactivate microorganisms and harmful chemical substances that are constantly circulating through the air.

Air purifiers **with electrostatic filter (EF)**

Purifiers equipped with EF electrostatic filters are especially suitable for removing polluting substances such as particles, grease, gases, odours and also bacteria. The high performance of these filters along with their high ability to capture particles ensures this equipment operates with a very reduced load loss and consequently obtain a very important energy savings.

Electrostatic filters technology operates by ionizing particulate matter that, as they pass through the filter, become adhered to oppositely charged collector cells and this way, they are removed from the outlet air flow.



Air purifiers **with HEPA or F9 filter**

Air purifiers with HEPA or F9 filter from SODECA are ideal for dealing with solid particulate pollution problems and for the elimination of molecular air pollutants when using HEPA filters. These purifiers act as a supplement to ventilation systems to achieve an environment that is healthier and free from harmful particles.

Air purifiers **with UVC ultraviolet light**

Air purifiers with UVC ultraviolet light radiation technology in the 254 nm spectrum incorporate a germicidal chamber with filtration stages.

Germicidal chambers with ultraviolet light are effective alongside other technologies to ensure that any pathogen, that has not been caught using a different method, is inactivated by this technology and nullified by this final filtration stage.





SOLUTIONS

Air cleaning

Air is cleaned using filtration units, which, depending on the application, comprise of a fan, different filtration stages and an appropriate disinfection technology.

These units are used for cleaning external air or for cleaning pollutants that are produced during processes being carried out on the premises.

- Solutions that use F9 filters, HEPA filters and active carbon filters for problems involving solid particles and odours.
- Solutions that use UVc ultraviolet light to inactivate viruses, bacteria and germs.
- Solutions that use photocatalysis for use as a germicide and to eliminate odours.
- Solutions that use electrostatic filters to eliminate grease and odours.

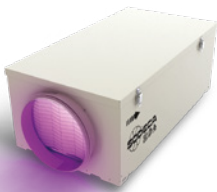


Filter units **with HEPA or F9 filter**

Air purifiers with HEPA or F9 filter from SODECA are ideal for dealing with solid particulate pollution problems and for the elimination of molecular air pollutants when using HEPA filters. These units cleanse the air of solid particles and small sized molecular constituents.



Filter units with UVC ultraviolet light



Filter units with UVC ultraviolet radiation technology in the 254 nm spectrum incorporate a germicidal chamber along with filtration stages.

Germicidal chambers with ultraviolet light are effective alongside other technologies to ensure that any pathogen that has not been caught using a different method, is inactivated by this technology and nullified by this final filtration stage.

Filter units with PCO photocatalytic technology

Ventilation units equipped with PCO (Photocatalytic Oxidation) technology incorporate a germicidal tool that combines UVC ultraviolet technology and oxidation to accelerate the natural decomposition of organic matter via photocatalysis, reducing pollutants such as chemical compounds, viruses, bacteria, fungi and other microorganisms. These units are also suitable for eliminating grease and odours.

This PCO technology uses the ultraviolet light source to react with a catalyst consisting of titanium dioxide in the presence of humidity to create hydroxyl radicals (OH) and hydrogen peroxide (H₂O₂), which inactivate microorganisms and harmful chemical substances that are constantly circulating through the air.



Filter units with electrostatic filter (EF)



Filter units equipped with electrostatic filters are especially suitable for removing pollutants such as particles, grease, gases, odours and also bacteria. The high performance of these filters, along with their excellent ability to capture particles, ensures that this equipment operates with a very reduced load loss and consequently gives significant energy savings.

Electrostatic filters technology operates by ionizing particulate matter that, as it passes through the filter, becomes attached to oppositely charged collector cells and is thereby removed from the outlet air flow.



SOLUTIONS

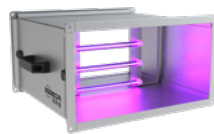
Air disinfection

We have devised air disinfection and cleaning solutions that can be installed in existing air conditioning and ventilation systems. Over time, air conditioning and ventilation installations become possible sources of bacteria, fungi and other microorganisms that could be harmful to health.

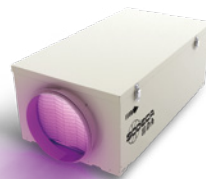
Many businesses have areas where it is essential to maintain extremely hygienic conditions because airborne pollutants may cause serious health problems to people working in those areas or contaminate products that are processed there.

Sick building syndrome is caused by pollutants that accumulate in buildings. In fact, according to studies conducted by the World Health Organization (WHO), one out of every three construction projects have health and comfort problems related to poor indoor air quality. Ensuring we breathe clean air inside residential or commercial buildings is extremely important if we want to promote good productivity and prevent work absenteeism as a result of health problems caused by poor IAQ.

Without a fan



With a fan





Heat recovery units



Heat recovery units work by using a combination of two, low-noise centrifugal fans. One is used to extract internal exhaust air from premises and discharge it externally. The second fan supplies external fresh air into the interior of the premises.

Both air circuits pass through a heat exchanger but without mixing. The heat from the discharged air is then used to heat the fresh outside air.

The greater the thermal efficiency of the exchanger, the less need there will be to supply additional air conditioning.

Installations must comply with energy efficiency and air quality regulations and objectives. Buildings will have ventilation systems that provide a fresh air supply from the outside, to prevent high concentrations of pollutants forming inside. The external air that is introduced will be filtered accordingly.

SOLUTIONS

Air monitoring and control

Air quality sensor solutions, for continuously monitoring suspended particulate matter, may be used for commercial as well as industrial applications. They start to gather and diagnose air quality and pollutants data as soon as they are installed. Air quality can also be continuously monitored remotely over the Internet.

Monitoring

Monitoring of these sensors is carried out using an IoT, cloud-based, data collection, analysis and management system.

This system allows clients to directly control the air quality in their premises and to act quickly when pollutants are detected, by applying the best solutions and at the lowest cost.



MICA-LITE/W

The indoor air quality monitor, MICA-LITE/W, with IoT, cloud-based connectivity, is used for monitoring the main air quality parameters in real time. Ventilation needs can then be identified so that the health of people inside these monitored spaces can be protected.

Characteristics:

- Temperature, humidity, CO₂ and suspended particulate matter PM_{2.5} sensors.
- Indicator lamp showing the need for ventilation in real time.
 - (Green symbol) Ventilation is not required
 - (Orange symbol) Ventilation is recommended
 - (Red symbol) Ventilation is needed
- Indicator lamp showing possible aerosols viral transmission.
- Monitoring of data on the cloud from any device.
- Alarm warning received via email.
- Plug&Play system.
- Designed for mounting on a wall.



Control

Equipment control solutions using sensors allows equipment to be set to its most efficient operating parameters, thereby quickly achieving the desired air quality while at the same time, giving significant energy savings.

Products



Fans



SVE/PLUS/EW

Low-noise, in-line duct fans mounted inside a 40 mm thick, noise-reducing casing.



CJK/EC

Ventilation units for circular ducts with a 25 mm thick noise-reducing casing, interchangeable panels and EC Technology motor.



CL/PLUS/EC

In-line duct fans for rectangular ducts with a 40 mm thick noise-reducing casing and EC Technology motor.

Air purifiers



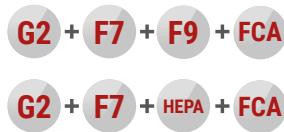
PURI-50

Portable air purifier



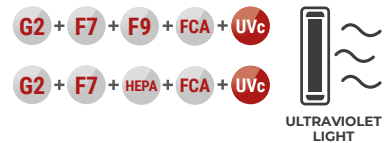
UPM/EC

Mobile air purification units designed for cleaning, eliminating odours and purifying indoor air in any type of premises.



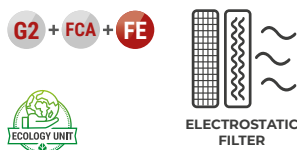
UPM/EC-CG

Mobile air purification units designed for cleaning, eliminating odours, purifying and disinfecting indoor air using UVc ultraviolet technology.



UPM/EC FE

Air purifier units with high efficiency electrostatic filters that are especially designed for cleaning and purifying indoor air at locations containing a high amount of grease or suspended particulate matter.



UPM/EC PCO

Mobile air purification units with technology based on photocatalysis, designed for disinfecting and purifying indoor air and surfaces in any type of high occupancy premises.





UPA

Units designed for cleaning and purifying indoor air, primarily in high occupancy areas. These units are also suitable for use in the pharmaceutical industry and in hospital settings.

G4 + F7 + F9 + FCA

G4 + F7 + HEPA + FCA



UPH/EC

Mobile air purification units designed for cleaning, eliminating odours and purifying indoor air in any type of premises.

F7 + F9 + FCA

F7 + HEPA + FCA



UPA-CG

Units designed for cleaning, purifying and disinfecting indoor air, primarily in high occupancy areas. These units are also suitable for use in the pharmaceutical industry and in hospital settings using UVC ultraviolet light technology.

G4 + F7 + F9 + FCA + UVC

G4 + F7 + HEPA + FCA + UVC



UPH/EC-CG

Mobile air purification units designed for cleaning, eliminating odours, purifying and disinfecting indoor air using UVC ultraviolet technology.

F7 + F9 + FCA + UVC

F7 + HEPA + FCA + UVC



Filters

Pre-filters

G2 G4

Particulate filter

F7

Particulate filter

F9

High efficiency filter

HEPA

Active carbon filter

FCA

Technologies

Ultraviolet Light

UVC

Electrostatic Filter

FE

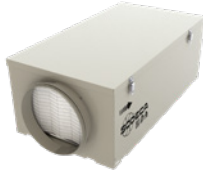
Photocatalysis

PCO

Activated carbon filters

CA

Air cleaning



SV/FILTER

Low-noise, in-line duct extract fans with different filtration stages.

- G4 + F6
- F6 + F8
- F7 + F9



CJK/FILTER/EC

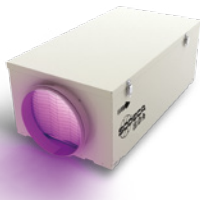
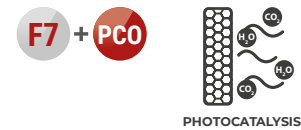
Air purification units for circular ducts, with a 25 mm thick noise-reducing insulated casing and EC Technology motor.

- F7 + F9
- F7 + HEPA



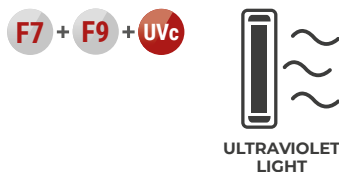
UFRX/ALS PCO

Filtration, disinfecting and air purification units with technology based on photocatalysis, especially designed for disinfecting and cleaning air in indoor spaces and material surfaces.



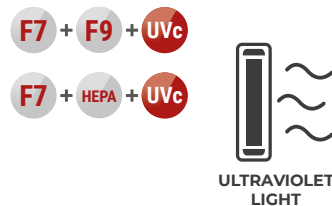
SV/FILTER-CG

Air purification units with UVC germicidal chamber, in-line for ducts and with different filtration stages.



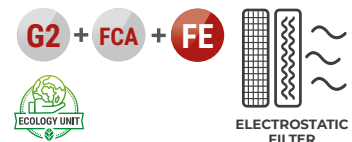
CJK/FILTER/EC-CG

Air purification units designed for cleaning, eliminating odours and purifying air in high occupancy areas using UVC ultraviolet light technology.



UFRX/ALS FE

Air disinfection, purification and filter units with high efficiency electrostatic filters, specifically designed for cleaning and purifying indoor air in locations that contain a high amount of airborne greasy or suspended particulate matter.





CJBD/ALF

Ventilation units with prefinished sheet, built-in filter and aluminium profile.

G4



MF

Filter units without a fan but offering various filter options, designed to clean air by trapping airborne particulate matter present inside buildings.

G4 + F7

F7 + F9

F6 + F8



UFR

Filtration units with sandwiched acoustic insulation, fitted with high performance impellers with backward-curved blades and with different filtration stages, depending on model.

G4 + F6

F6 + F8

F7 + F9



CJBX/ALF

Belt-driven ventilation units with prefinished sheet, built-in filter and aluminium profile.

G4



MCA

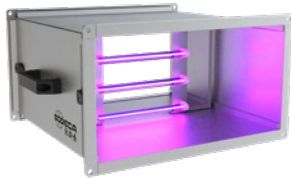
Filter units without a fan but with activated carbon filter cartridges, designed for eliminating odours and purifying airborne pollutants.

FCA + CA



ACTIVATED CARBON FILTERS

Disinfecting of the air



CGR-UVc

Germicidal chamber without a fan for rectangular ducts equipped with UVc ultraviolet light technology and with the option of including filtration stages. Ideal for installation in existing air conditioning and ventilation systems.

F7 + F9 + UVc
F7 + HEPA + UVc



CG/LP-UVc

Germicidal chamber without a fan for circular ducts equipped with UVc ultraviolet light technology and with the option of including filtration stages. Ideal for installation in existing air conditioning and ventilation systems.

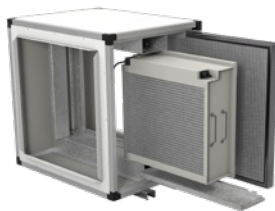
F7 + F9 + UVc
F7 + HEPA + UVc



CG/FILTER-UVc

Air purification units without a fan for circular ducts, with a 25 mm thick noise-reducing casing.

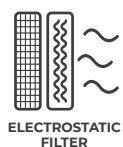
F7 + F9 + UVc
F7 + HEPA + UVc



MFE

Filter units without a fan but with high efficiency electrostatic filters that are especially designed for cleaning, disinfecting and purifying indoor air at locations containing a high amount of grease or suspended particulate matter.

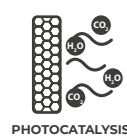
G2 + FE + FE



MPCO

Filter units without a fan but with technology based on photocatalysis, especially designed for cleaning, disinfecting and purifying air in indoor spaces as well as material surfaces.

F7 + F9 + PCO



Heat recovery units



REB

Heat recovery units with EC Technology and built-in bypass.

G4

G4 + F9

F6 + F8



RECUP/EC-BS

High efficiency heat recovery units with counterflow heat exchanger, automatic control and EC Technology motors, for installation in false ceilings.

M6 + F8

F7 + F9



REB-HEPA

Heat recovery units with EC Technology motor, built-in bypass and HEPA filter.

G4 + HEPA



RECUP/EC-H

High efficiency heat recovery units with counterflow heat exchanger, automatic control and EC Technology motors, for installation on roofs or in plant rooms.

G4 + M6 + F8

G4 + F7 + F9

Monitoring and Control



MICA-LITE/W

Monitoring and Control Indoor air quality monitor, with cloud-based IoT connectivity to monitor the main air quality parameters.



SI-PM2,5 + VOC

Intelligent sensor for CAP/EC controller, for regulating ventilation rate depending on the amount of solid particles and volatile organic compounds that are present.



CAP/EC

Intelligent controller for regulating equipment with EC Technology fans. Suitable for use with external air quality sensors.



SI-CO2 + VOC

Intelligent sensor for CAP/EC controller, for regulating ventilation rate depending on the amount of CO₂ and volatile organic compounds that are present.

SODECA IAQ,
we treat the air you breathe

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