



Photocatalytic Air Purifier



SNE[®]
Super Air Purifier

SNE FAP DF / DV



Multi-photocatalytic air purification
system for mounting in air ducts

Effective against bacteria, viruses, fungi and germs



Versatile air purification systems against micro-organisms, odors and volatiles

Spread of germs via an air handling system

In order to provide spaces with fresh, cool or warm air, many buildings are equipped with an air treatment system, in which air is extracted from the individual spaces and, if desired, cooled or heated, refreshed to a greater or lesser extent and redistributed throughout the building.

These systems thus ensure a pleasant indoor climate and are hardly noticeable to the people present in the building.

However, the conditions in these systems are often ideal for the growth of micro-organisms and can spread them over the entire building if a source is present in one room. The dark, dusty and humid conditions in the air ducts are an ideal breeding ground for the growth of bacteria, viruses and fungi. Filters in air handling systems are not fine enough to stop micro-organisms and will not stop odors or volatile substances, in fact; these will start to spread unpleasant odors themselves over time.

Elimination of bacteria, viruses and fungi

The SNE FAP MCI air purification systems are easy to install air purification instruments for use in air ducts and air handling units of HVAC air handling systems. The SNE FAP air purification systems are equipped with 2 UV/photocatalytic cells, in which the application of ultraviolet light in combination with photocatalytic material (titanium dioxide TiO_2) generates a photocatalytic reaction that breaks down harmful substances and micro-organisms.

Different types of photocatalytic material have different strengths, which is why the patented MCI (Multi Catalytic Ionisation) system uses different photocatalytic materials for effectiveness against a wide range of contaminants. The applied technologies have been developed and patented by SNE itself, the UV quartz lamps used are of high German quality (Heraeus).

Quick and easy to install, low running costs

The SNE FAP units are very easy to install, making a few holes in the air duct or air handling unit is sufficient, the housing of the unit is mounted on the outside and the UV/photocatalytic cells protrude into the airflow to be treated. The UV/photocatalytic cells have a lifespan of approximately 8,000 hours and are easy to replace.

There are a number of different versions available with which the unit can be configured for your situation, factors in this are the air throughput, the layout of the air handling system and the desired functionality.

Configurable to your application

The SNE FAP units are available in DF and DV versions. The DF units are for use in air handling systems where the air is distributed throughout the building before it is distributed to individual rooms. One of the air purifying effects of the FAP DF is the production of ozone, which is an effective means of breaking down odors and helping to kill microorganisms, and if the treated air still has some way to go before it reaches the room (such as in an office building ventilation system) the ozone in the air will break down automatically before it reaches the room where people are located. For applications such as these, the FAP DF units are the right choice. The DF models are available in different versions where the intensity of the air-purifying effect can be adjusted to your situation regarding the capacity of the system and the distribution of the treated air.

The DV units are ozone-free for situations where the path from the unit to space is shorter so that some ozone will not have a chance to reduce again or for locations where ozone must be controlled at all times such as museums or archives. The wavelength of the UV lamps of the DV devices (254nm) has an ozone-reducing effect, so a FAP DV will not only produce no ozone, but also actively break it down.

In addition to these 2 models, there is also a VBO series, these devices have been developed for application against odors and can be used in an extraction installation (catering or industrial) or in a recirculating system for air disinfection where there are no persons in the air at that time. space are available. Because these devices produce much more ozone, the VBO models are not intended for recirculation in locations where people are present. These VBO devices are available as CAP (single UV/photocatalytic cell) and FAP (two UV/photocatalytic cell) versions.

The importance of air purification in air handling systems



An HVAC (Heating Ventilation Air Conditioning) air handling system in a building is similar to the respiratory system in the human body. The system provides the persons present in the building with treated air (heated, cooled or ventilated) just like the breathing system provides the blood circulation with oxygen. Both systems are indispensable when it comes to allowing the body or the inhabitants to function.

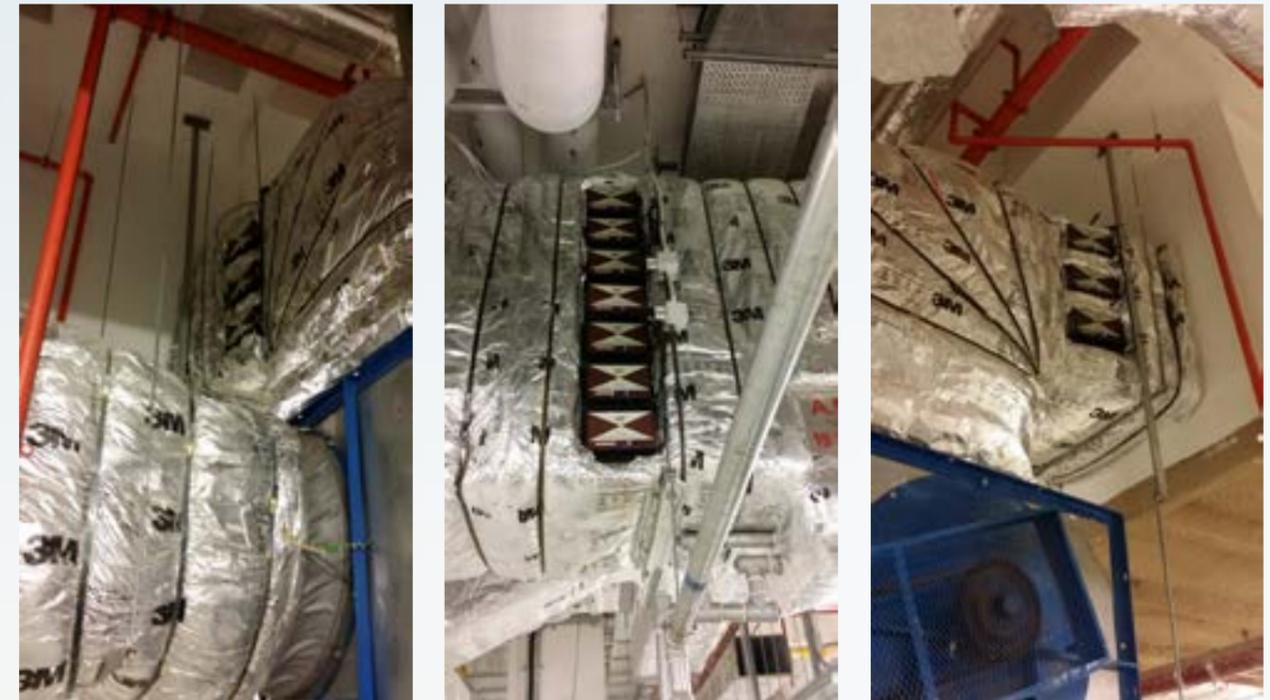
However, the conditions in the air ducts of the HVAC system can be a hotbed for many forms of pollution, the moist, dark conditions allow a large number of microorganisms (bacteria, fungi, viruses, spores) to survive and multiply that in turn can produce other types of contaminants (unpleasant odors, volatiles, bacteria and their excrement).

Building materials and interior elements such as furniture, paint, chipboard and carpet, especially if they are relatively new, are a source of volatile organic compounds (VOCs) such as formaldehyde, benzene, toluene and xylene.

The polluted air that is spread throughout the entire building inevitably leads to health complaints and absenteeism, some examples of symptoms include:

- Irritated airways
- Spread of viruses such as flu
- Irritated eyes/contact lenses
- Headache
- Greater susceptibility to colds and allergens
- Fatigue
- Difficulty concentrating

These health complaints related to the working or living environment are known as the Sick Building Syndrome.



The need for air purification

Just as the human respiratory system is equipped with air filtering, an HVAC system must also be provided with a filter system. Filters are generally used for this, they are very effective in "sifting" from the air most of the airborne contaminants such as dust, fluff, larger pollen, hair and dander. Some of the larger micro-organisms are also captured.

However, most micro-organisms are not caught by the filters. The organisms (such as bacteria, fungi) that are captured are given the opportunity to multiply in the filter due to the large amount of nutrients that are also captured by the filter. This makes the filters a hotbed of micro-organisms, a large part of which moves through the filter at a given moment and ends up in the air (such as gram-negative bacteria). The filters must be treated as a biological risk (biohazard) when replaced. The volatile substances pass through the filter and are not or hardly reduced.



Photocatalytic air purification for germ control

The alternative is an air purification system that removes the pollutants in the air actively oxidizes and sterilizes. Not only does the air passing through the cleaning system is cleaned but oxidants are generated that spread into the air and the contaminants there to eliminate.



SNE developed the MCI air disinfection technology for application in the air ducts of air circulation systems such as air conditioning, air circulation and balanced ventilation systems. By applying ultraviolet light in combination with photocatalysis the micro-organisms in the air are killed and odors and volatile compounds are oxidized. The applied technologies have been developed and patented by SNE itself.

Ultraviolet light penetrates the cell wall of an organism and reacts there with the DNA of the organism. The C=C carbon compounds in the molecules of the organism are broken down. This leads to the death of the cells, which prevents the organism from growing or multiplying.

Optical catalysts are used in combination with the UV light, these are compositions of substances that, when UV light is shined on them as a result of a catalytic reaction, are gaseous hydrogen peroxide (H₂O₂), hydroxyl radicals (OH), negative ions (O₃-), ozone ions (O₃) and superoxides (O₂-).

The emission of these oxidizers creates an oxidation process in which bacteria, viruses, micro-organisms and fungi are oxidized. In this process, the oxidizers are simultaneously oxidized to oxygen and hydrogen. The system is also effective against volatile substances such as formaldehyde, smoke and unpleasant odours. The contaminants and oxidizers balance each other, resulting in clean, pure, odor-free air.

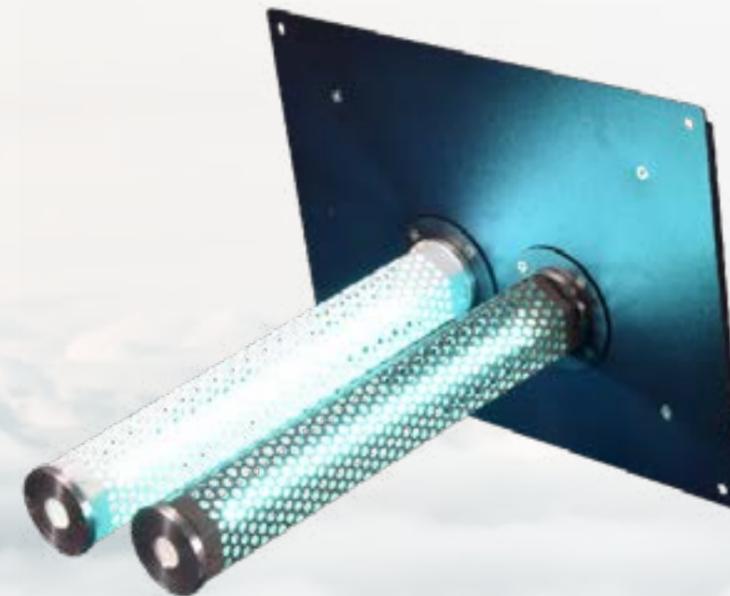
The **SNE MCI system (Multi Catalytic Oxidation)** uses high-quality UV-C lamps of German manufacture (Heraeus), which, partly due to the use of quartz glass, have a 30 to 60 percent higher energy yield compared to conventional UV lamps of the same length. For the various applications, there is a choice between lamps that generate ozone (natural quartz, 184 and 254 nanometers), or lamps without ozone production (synthetic glass, only 254 nanometers).

Different types of optical catalysts produce different types of catalytic reactions and all have different benefits, the MCI system uses two different optical catalysts to combat a wide spectrum of contaminants more effectively.

The MCI induct air sterilizer program consists of various models of units fitted with one or two UV lamps/optical catalysts (MCI cells) of various lengths, in combination with various applicable UV lamps (different strengths of ozone production or ozone-free), making it possible to combination of technologies and devices for every possible circumstance (size of the property, number of people present, size/capacity of HVAC system, etc.).

Overview of properties

- UV air purification for air handling units and air ducts
- Photocatalytic action for broader scope
- Highly effective against microorganisms such as viruses, bacteria and fungi
- Very versatile due to compact dimensions and very easy installation
- Prevents the spread of germs via the air treatment system in the office, commercial building, ship and/or offshore installation
- Air purification without filters
- Available in different versions to optimize operation for your specific application
- Very low maintenance
- Stable operation with a UV cell life of approx. 8,000 hours
- The SNE FAP devices are available in three basic versions





SNE FAP-DV (ozone-free, widely applicable)

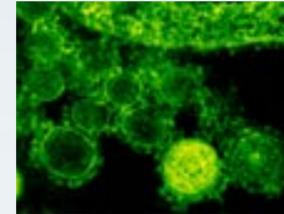
Model	for floor space	for air transit	UV Cel	Wattage
FAP - 300DV	100 - 300 m ³	3.500 - 6.500 m ³ /uur	2x 287 mm	2x 12W
FAP - 500DV	300 - 500 m ³	6.500 - 12.000 m ³ /uur	2x 356 mm	2x 15W
FAP - 600DV	500 - 700 m ³	12.000 - 17.000 m ³ /uur	2x 436 mm	2x 20W
FAP - 700DV	700 - 900 m ³	17.000 - 25.000 m ³ /uur	2x 540 mm	2x 25W

SNE FAP-DF (for air handling systems)

Model	for floor space	for air transit	UV Cel	Wattage
FAP - 300DF	100 - 300 m ³	3.500 - 6.500 m ³ /uur	2x 287 mm	2x 12W
FAP - 500DF	300 - 500 m ³	6.500 - 12.000 m ³ /uur	2x 356 mm	2x 15W
FAP - 600DF	500 - 700 m ³	12.000 - 17.000 m ³ /uur	2x 436 mm	2x 20W
FAP - 700DF	700 - 900 m ³	17.000 - 25.000 m ³ /uur	2x 540 mm	2x 25W

Voltage	220 - 240 V
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Effective against bacteria, viruses, fungi and volatile substances



Bacteria

Staphylococcus Aureus (MRSA)
Methicillin Resistent
Streptococcus Spp
Pseudomonas Sp
Listeria
Escherichia coli
Bacillus spp



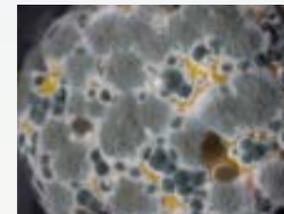
Viruses

Bird Flu (Avian Flu virus)
Sars virus
H1N1
Norwalk virus



Volatile Compounds

Formaldehyde
Xylene/Toluene
benzene
Trichloroethylene
Chloroform
Ammonia
Alcohols
Acetone



Fungi

Strachybotrys chartarum
Candida albicans



Pollen/Particles

Allergens
(Ultra-) particulate matter
pollen



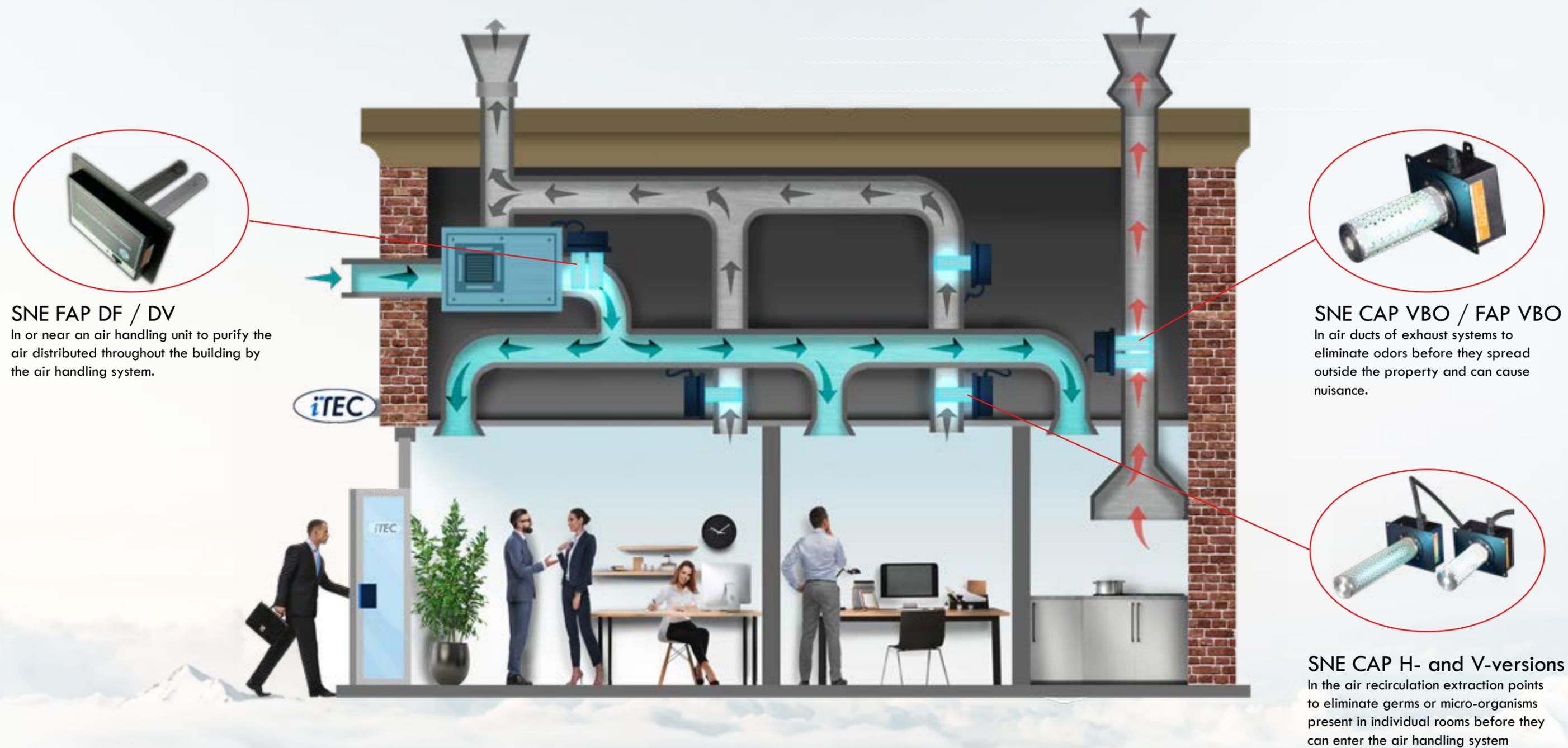
Smoke



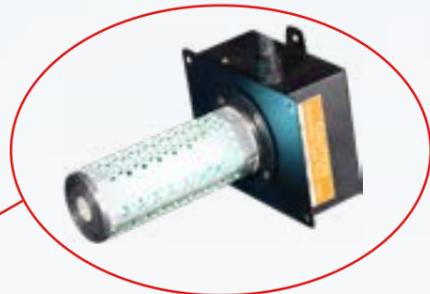
Scents



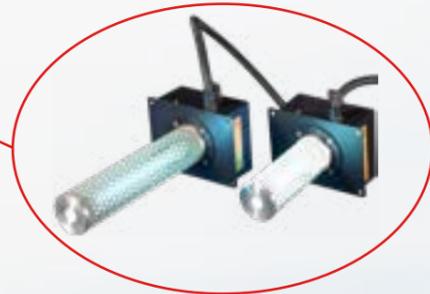
The SNE systems can be used in a variety of situations, below you can see an example of the most common application of the individual SNE devices in an air treatment system:



SNE FAP DF / DV
In or near an air handling unit to purify the air distributed throughout the building by the air handling system.



SNE CAP VBO / FAP VBO
In air ducts of exhaust systems to eliminate odors before they spread outside the property and can cause nuisance.



SNE CAP H- and V-versions
In the air recirculation extraction points to eliminate germs or micro-organisms present in individual rooms before they can enter the air handling system



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