Air Suite

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Inactivation of bioburden

Zero energy impact

No additional maintenance

Immediate retrofitting on existing systems

Tax incentives*

Rhoss sets a new standard for "indoor" comfort by improving the hedonistic nature of the air delivered into the room by means of broad spectrum "biocidal filtration" treatment.

Air'Suite®

A new way to treat the air in the confined spaces that we breathe every day. It requires systems for olfactometric conditioning and the "filter" range, that is the line of filters applicable to the world of ventilation and air conditioning.
A new concept of biocidal filtration that allows for the removal of microbiological contamination without requiring the installation of additional solutions or the modification of existing systems.

Healthy environment
Living in a "clean" environment is a concept closely linked to breathing clean air.
On average, each person inhales air 16,000 times a day, so breathing in a healthy environment allows for healthy living. But what does clean air mean? Healthy?
It means guaranteeing adequate thermo-hygrometric conditions, but mainly the absence of conditions that directly or indirectly affect out mental and physical state, such as odours and pathogens. In other words, a high standard of IAQ (Indoor Air Quality).
Today this need indoors is threatened by the intensification of external pollution (promiscuity of production areas, road traffic, etc...) and increased air recirculation in environments where energy saving is strategic and/or where there is no easy availability of primary air.
General regulatory issues

Through the "2004-2010 European Environmental and Health Action Plan", the European Union has set the improvement of air quality as a priority objective together with the development of new countermeasures against the increase in diseases and syndromes associated with extended periods spent in confined, high density environments (SBS: sick building syndrome). This same objective has inspired our staff during the design and creation of Air'Suite®.

Air'Suite® filter
Applying the Air'Suite® filter to a Rhoss air handling system of the ADV Custom or Next Air Ranges assures traditional de-dusting, additional decontamination from microbiological agents (bacteria, moulds, viruses, algae, etc.) of the air and filtration device as well. An effect that requires no change to the existing or new air conditioning equipment and that does not require any additional cost for the installation of additional equipment. The conventional filtration unit simply needs to be replaced with the Air'Suite® filter line.
Obviously, its development has met the following essential requirements, in order to assure immediate use and no short or long-term contraindications:

- The electrical loads of the system are not altered;
- The pre-existing levels of filtration are not changed;
- No formats or multi-cell compositions other than the existing ones are required;
- No special frames or specific filter integration systems are required
- No additional maintenance is required;

The replacement times are determined by the pressure drops due to dust contamination (as for classic filters) and not by the biocide power

In addition, the Air'Suite® filter offers the following advantages:

- Contamination through the “proliferation” of algae, moulds, fungi or bacteria on the filter surface is completely inhibited;
- The filter is self-decontaminating. If left in the environment it does not become a source of contamination;
- The possible release of biological material into air ducts, unlike conventional filters, is not active, therefore, it cannot proliferate again in other parts of the air conditioning system.

Biocidal filtration

Biocidal filtration refers to a combination of granular filtration (conventional) and inactivation of the bioburden (innovative) on the same amount of air which passes through the same filtration medium.
This process has been achieved by using a new, appropriately functionalised bio-polymer, characterised by:

- wide availability in nature;
- biocompatibility;
- non-toxicity;
- intrinsic infection preventing properties.

Fields of application
There are no limits of application, however, fields and contexts that are particularly sensitive to indoor air quality in which the new line of Air'Suite® filters finds its natural application are:

- Boats, planes, trains, coaches and subways;
- Hospitals, clinics and nursing homes;
- Offices, meeting rooms and conference rooms;
- Waiting rooms, outpatient clinics;
- Restaurants, cafés, bars;
- Hot baths, spas;
- Swimming pools, gyms;
- Schools and kindergartens, etc...

Available types of filters
The Air'Suite® biocide filters are available in the following filtration grades:

Cell filters: ISO COARSE 55% ISO 16890
Rigid bag filters: ISO ePM1 50%, 70%, 85% ISO 16890

Research, development and certifications

The action mechanism of the biocide media has been the subject of study and development of important Italian research institutes.
The decontamination power of the media was also the subject of studies and testing. The classic sampling on plate that is usually indicated as sole reference to measure removal efficiency, e.g. of bacteria, in fact is nothing more than a system for a semi-quantitative measurement of a possible contamination that passes through the filter.

Whereas, the Air'Suite® filters were tested with new, state-of-the-art techniques that measure the actual biocide capacity on the filter surface and that do not make use of cultures but count each organism/cell and its integrity or capacity to reproduce.
The bacteria removal efficiency was, therefore, measured through a study protocol with IRSA-CNR certified flow cytometry techniques on a sample of the contaminated filter.
The resulting efficiencies are higher than 50% of “instant” reduction and 100% within 30 hours of contamination.

Technical data

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