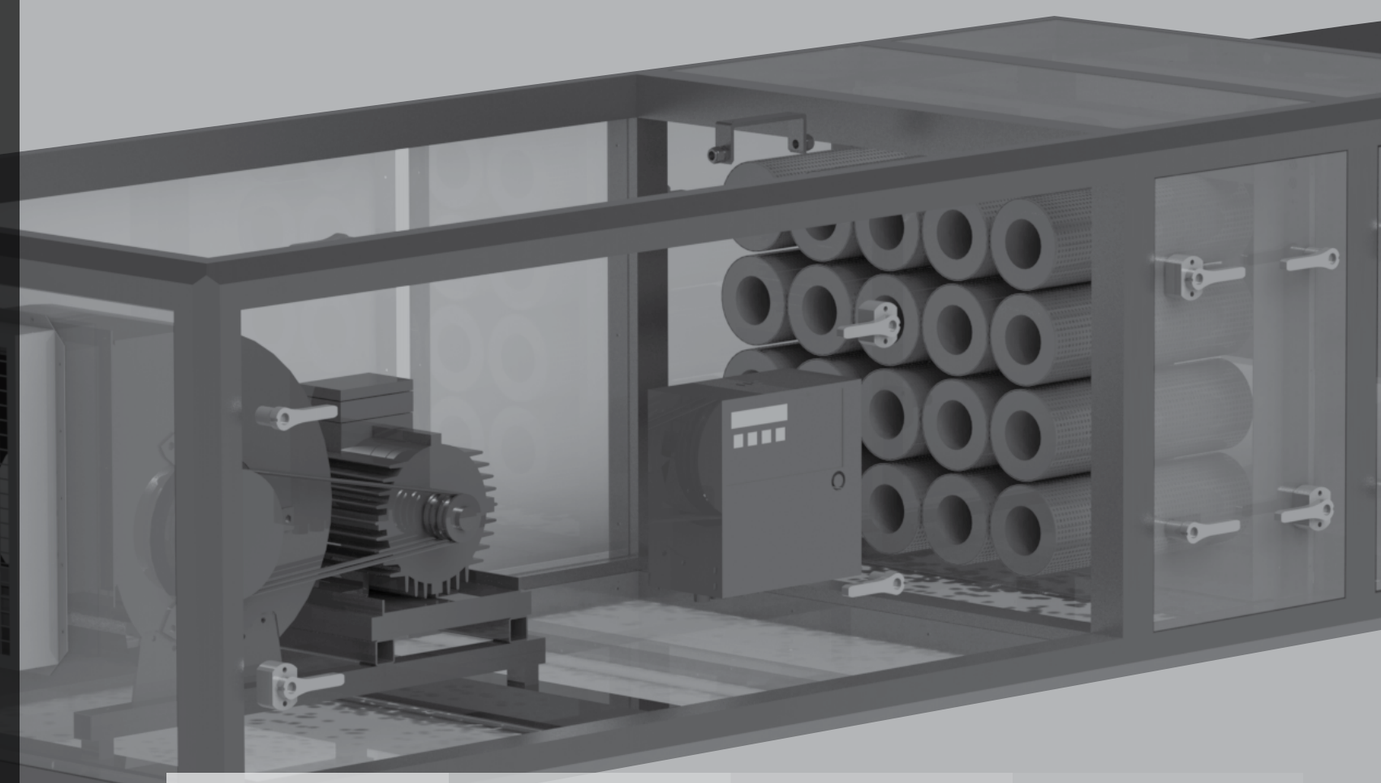
VIANEN
KITCHEN VENTILATION

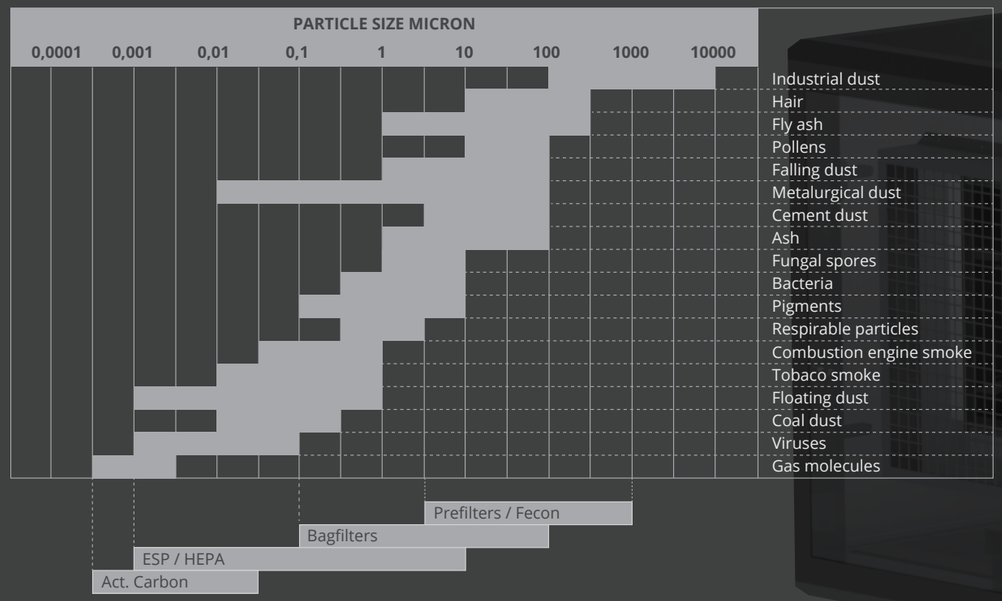
ECOLOGY UNIT



Filtration principles

Correct filtration of exhausted cooking fumes is based on both the particle size and the velocity of the fumes through the various filtration stages. Both of these variables are required to establish an efficiency of a filter. A Vianen Ecology Unit is custom engineered to the corresponding situation.

Correct air filtration depends on the size of the particles in the air stream. Particle size in kitchen exhaust fumes typically vary from 0.01 micron to 10 micron (1 micron (µm) = 0.001 mm). The offered Vianen Ecology Unit will consist of several filter stages in order to filter the kitchen exhaust fumes.



System operation

A prefilter will filter out the most coarse particles. After the prefilter comes the bagfilter. This is a filter with a fine medium of glass fibre. Varying in filter efficiency from F7 to F9. The third stage consists of an Electrostatic Precipitator. Through the use of ionizing blades, even finer particles receive an electrostatic load, which are then collected on an opposite charged collector plate. The fourth filtration stage consists of the activated carbon filter. Through activated carbon the fine gaseous particles are filtered which contain the cooking odours. The use of activated carbon is an absolute must when deodorization is required.

The filtration of the air stream operates within a frame constructed from extruded aluminium profiles and double walled and insulated side panels. The panels are removable for inspection and maintenance purposes. In addition, a high performance and high efficiency centrifugal fan is used to pull the air through the filters.

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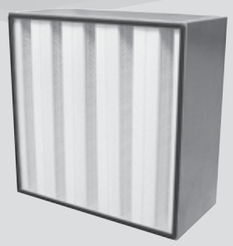
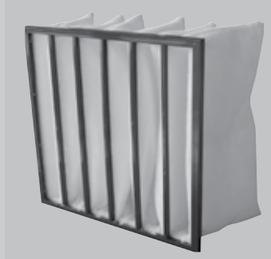
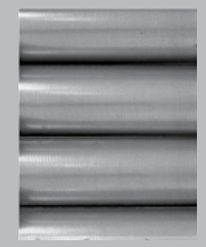


HEPA FILTERS

ELECTROSTATIC PRECIPITATOR



BAG FILTERS



ACTIVATED CARBON FILTERS

Tailor made filtration unit for extracted kitchen fumes from commercial cooking appliances

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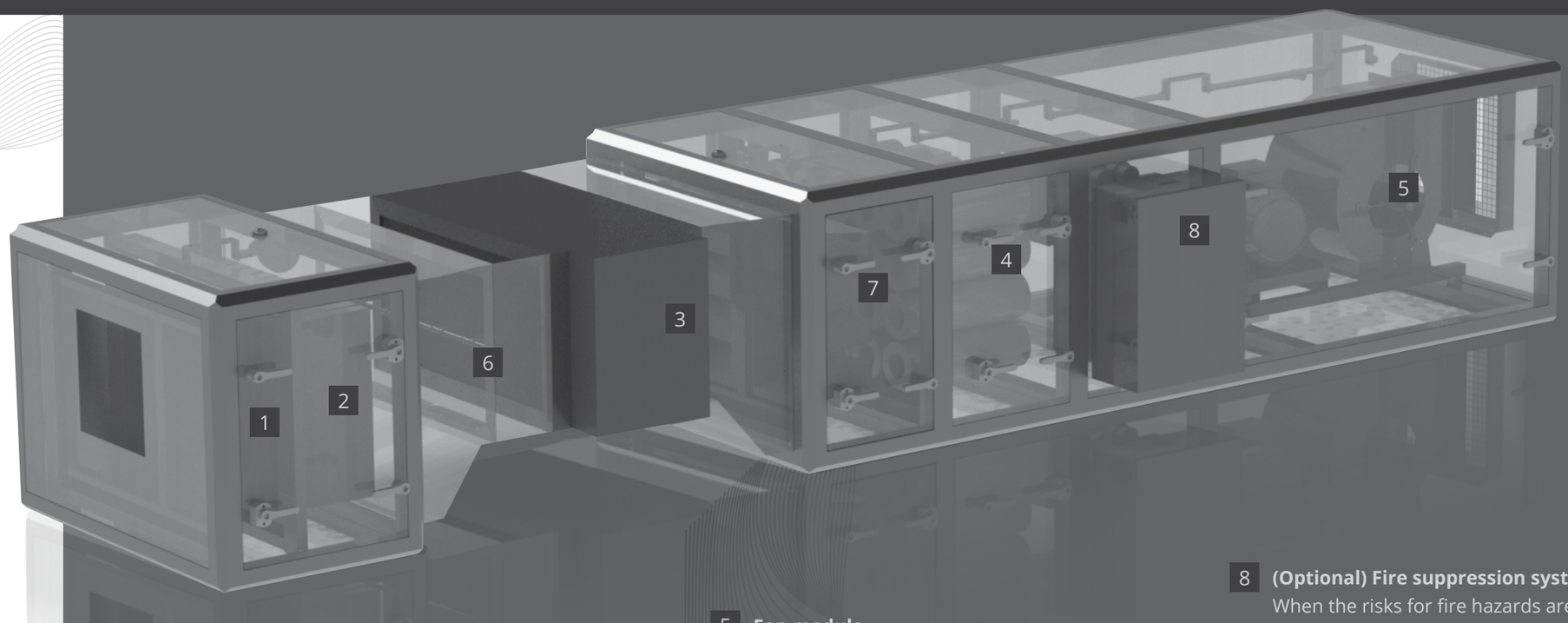
GENERAL DESCRIPTION

With an ever increasing environmental awareness and the common global goal to reduce emissions and pollutions, Vianen has a responsibility of contributing through the filtration of cooking fumes arising from commercial kitchen applications. In order to effectively filter all the grease, gaseous and other particles, proper filtration of the extracted fumes from these commercial cooking appliances is required. A Vianen Ecology Unit is meant as a second stage filtration system, when a proper kitchen hood suitable for the desired appliance comes in first.

A Vianen Ecology Unit can be located on for instance rooftops, inside parking garages or above false ceilings. It shall be custom made according to the situation at hand. The situation will be determined on variables such as; type of cooking (regular, charcoal grills, spicy food etc), kitchen hoods (existing or to be installed), location of the Ecology Unit, ducting etc.

The required air capacity of the Vianen Ecology Unit is to be based on the kitchen equipment that is, or has to be, installed in the specific connected kitchen area. The exhaust ductwork of multiple kitchens can be connected to a single Ecology Unit.

A Vianen Ecology Unit will be customized according to the desired situation or cooking appliance. Several optional filtration stages and components may be added, based on the requested specifications. Examples are; an automatic wash function for the Electrostatic precipitator, double stage Electrostatic precipitators, HEPA absolute filters, or a fire suppression system.



1 Prefilters
Stainless steel prefilter. Used for safety and the capture of large air-borne particles. Used to create an even distribution of air when arriving at the bagfilters.

2 Bagfilters
High efficiency pleated bag filters. With a medium consisting of glass fibre, these filters are used to filter the finer particles from the air stream.

3 Electrostatic Precipitator
The use of an Electrostatic Precipitator (ESP) ensures a filtration for the even finer particles. ESP's are designed to maintain high filtration efficiencies under heavy loads. Possible multistage operation for high smoke generating equipment.

4 Activated Carbon
Filtration of gaseous molecules (odours) is done through adsorption of these particles in the activated carbon pellets. The use of cylinders provide a higher capacity as well as efficiency. Optional to be installed with an after filter to capture potential detached carbon particles.

5 Fan module
An energy efficient, backward inclined centrifugal fan. Powered and belt driven, by a heavy duty electromotor. Mounted on a support base with vibration dampers.

6 (Optional) ESP Wash module
The Electrostatic Precipitator comes optionally with a built in washing system which ensures an automated washing cycle of the collector plates, on both the front and backside of the unit.

7 (Optional) HEPA filter
A high efficiency particulate air filter is used to filter even the finest particles from the airstream. When high standards are required, these filters may be installed as an option before the activated carbon section. Mainly used in fresh air handling units for surgical rooms and equal appliances.

8 (Optional) Fire suppression system
When the risks for fire hazards are increased, a fire suppression system can be installed. A fusible link fire damper could also be installed where the ductwork meets the inlet of the Ecology Unit.