KITCHEN EXHAUST FILTRATION UNIT

THE REVOLUTION IN AIR FILTRATION

expansion® electronic

BETTER AIR FOR A BETTER QUALITY OF LIFE

INDEX

FILTRATION SYSTEMS FOR COMMERCIAL KITCHENS

The quality of the air in professional kitchens is a very important parameter that most of the insiders underestimate.
Managing it correctly affects security of the workers (cooks, help cooks, waiters, etc.) but also the quality of the room, because there is nothing worse for a customer than coming out of the restaurant with soaked clothes from unpleasant odors of food.
At the same time, healthy and suitable working conditions must be guaranteed for all workers.
An adequate system of aspiration and treatment of fumes, finally, also benefits from neighborly relations.
The extractor hood or filtering hood is intended to provide a comfortable environment for the operation of the kitchen staff and not only. The non-optimal functioning of an air treatment system (filtering or suction hood, filtering ceiling and deodorizing unit) leads to higher maintenance costs of the premises and poor hygienic and safety conditions, both for the customers and for the operators. It is therefore essential to gear up to be up to standard. Each cooking equipment emits fumes or vapors produced by combustion during food preparation.
The function of the hoods is that of capturing and expelling such fumes, in addition to reducing in part the contribution of heat from the equipment.
The air treatment process has two critical aspects: on the one hand, systems that restore the air in the kitchen area, with the consequent winter and summer air-conditioning costs, are needed; on the other hand, there is the risk of introducing into the environment air that contains combustion residues, fumes and odors.

There are technological solutions aimed at reducing energy use and reducing pollutants in output such as:

1. Electrostatic or electronic filters, FEL SYSTEM
2. Ozone filters, FX SYSTEM
3. Negative ion filters, FI SYSTEM
4. Plasma, a cylindrical cartridge system that emits ozone and negative ions. It works well only if there is not a high concentration of humidity in the filtered air.
5. UV lamps, a system made up of neon tubes that generate ultraviolet rays that produce ozone. They have a big limit, they last only about 4000 hours.

REFERENCE STANDARDS

The Italian and international reference standards are represented by a series of UNI and VDI that, according to the thermal flow, provide suitable fume extraction systems and their removal from the outside.
In particular, Expansion Electronic electrostatic filters are certified according to the new **UNI EN ISO16890** global standard, which classifies the air filters on the basis of their capacity to retain the dispersed airborne particulate matter (PM10, PM2.5 and PM1). This legislation is generating a general revolution in the air filtration sector. It replaces the previous and obsolete standard EN 779: 2012 (F7, F8, F9), anti-dust air filters for general ventilation.

ISO 16890

ADVANTAGES OF A GOOD VENTILATION SYSTEM

One of the fundamental elements for the wellbeing of your customers and kitchen staff is certainly the suction or filtration system. The propensity to purchase this equipment has been increasing in recent years, so much that aspiration/filtration is perceived essentially as a mandatory advantage and a plus. Having good suction and filtration brings a competitive advantage in terms of:

It is essential to size the suction volumes, the filter unit and the flue that conveys the fumes to the roof of your building, in relation to the equipment in the kitchen.
In addition, careful attention must be paid to the direction the fumes will take once evacuated, considering the distance and location of your neighborhood.
At this point, once the hood has been sized, it is necessary to decide what to install as an aspirating and/or filtering element.

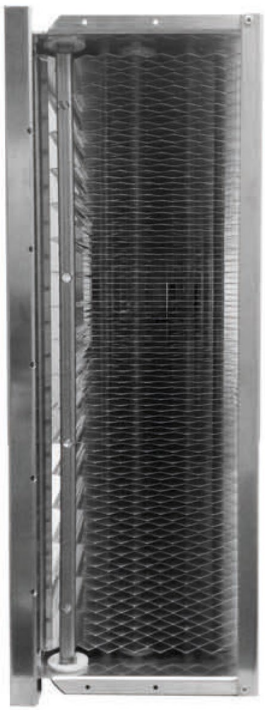
There are essentially 3 types:
- traditional hoods with suction box.
- compensating hoods with labyrinth filters and filtering unit.
- suction ceilings (they also function as filtration).

FEL SYSTEM
ELECTROSTATIC FILTER

To have an efficient and up to standard suction system, it is always advisable to use these new technologies, independently if there is the presence or absence of an exhaust chimney.
Expansion Electronic has studied and developed the new range of active electrostatic filters for oil and oily vapors applications with integrated electronics, the FEL SYSTEM series. Their main characteristics are:

- High filtration efficiency on 0.3 ÷ 0.4 micron particles, comparable to classes E10, E11 according to EN 1822: 2009 and classes ePM1, ePM2.5, ePM10 according to EN ISO 16890;
- Pointed contact blades specially designed for the purpose of dripping high amounts of oily pollutants, with reduced formation of electrical discharges between the plates;
- Low pressure drops that guarantee significant energy saving;
- The built-in electronics that allows generating the voltages necessary for filter operation directly on the filter itself. Equipped with bi-color LED for signaling any malfunctions;

- Thermal protection that automatically blocks the filter functioning when temperatures are too high;
- ASHRAE standard sizes that allow retrofit with the classic pocket filters according to EN 15805;
- Multipolar connection suitable for network supply (230V-50 / 60Hz) and for series connection;
- Completely regenerable by washing with specific detergents without the need to remove the electronics as it is waterproof;
- As a result, there are no disposal and replacement costs.



ECOKITCHEN EXHAUST FILTRATION UNIT

In order to offer a complete service to its customers in the "extraction and ventilation systems for professional kitchens" sector, EXPANSION ELECTRONIC, in addition to producing hoods for industrial catering, has also developed a range of filtration units for professional kitchens. Each internal component is designed and produced internally by the company, offering the possibility of optimizing the results and needs of the client, as well as the actual suction characteristics of the system seen in its entirety.

ECOKITCHEN FEATURES

1. Completely washable and regenerable filters;
2. Noble materials;
3. Electrostatic technology for removing particulate grease and oily vapors;
4. Ionizing technology + ozone for the removal of odorigenic molecules;
5. Activated carbon for the elimination of ozone residue and bad odors;
6. Installation of low energy consumption Plug Fan motors;
7. Possibility of customization for use in both small and large kitchens.

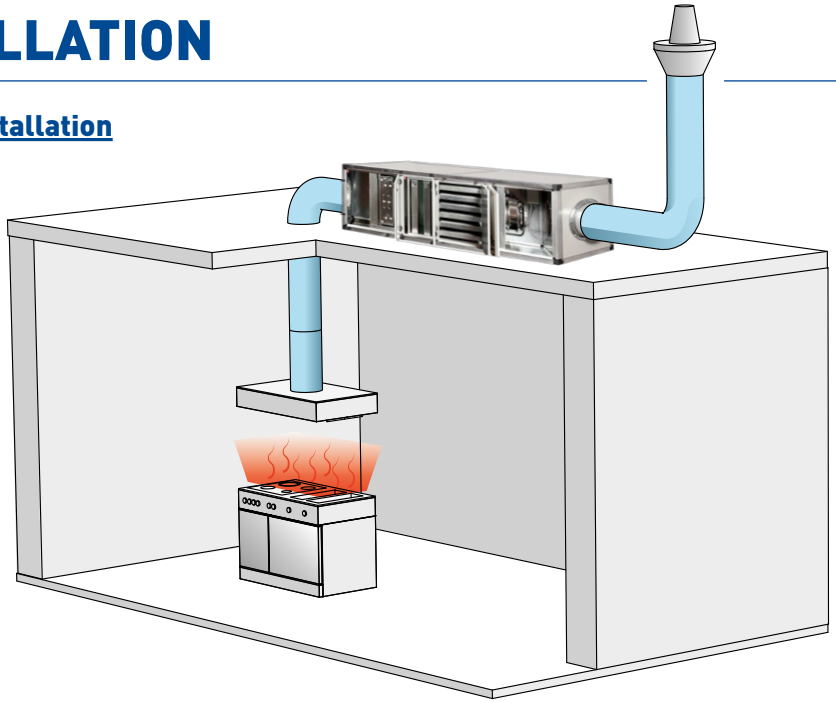
A COMPLETE SYSTEM

Expansion Electronic exhaust filtration unit has the following functions:

1. Eliminate the odor without any release of molecules or chemical gases;
2. Has an overall particulate removal efficiency greater than 95% if equipped with a single electrostatic filtration battery, or greater than 99% if bi-stage;
3. Reduces the costs of filter replacement service to a minimum (washing only, no replacement);
4. It is available in customized and modular designs;
5. The FI and/or FX module is optional for microbial sterilization;
6. Allows easy maintenance and installation with simple double opening panels and access doors.

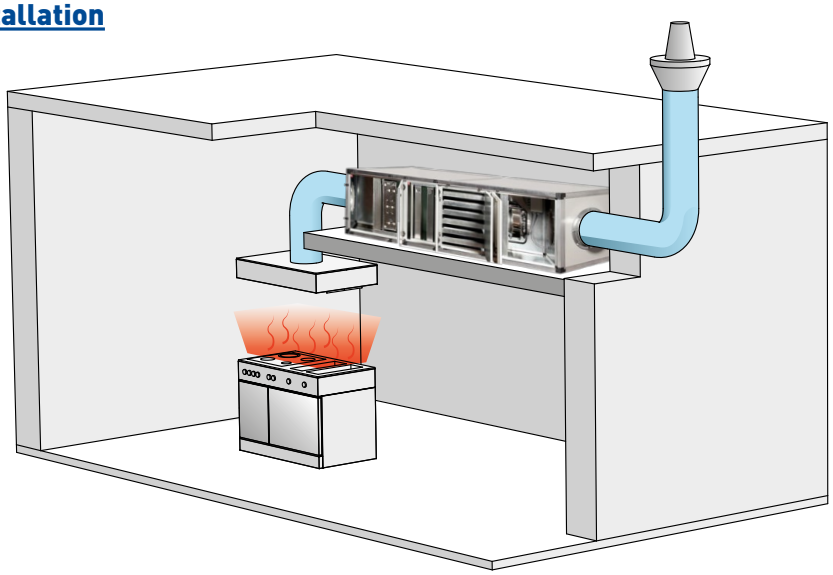
INSTALLATION

External installation



Kitchen

Internal installation



Kitchen

CRITERIA FOR SIZING A FILTRATION SYSTEM

A According to the health regulation, the calculation to be made is as follows:

Formula: Hood surface m^2 x air speed between 0,25 and 0,3 m / s x time (3600 s)

Or

Formula: Hood surface m^2 x minimum 900 m^3 / h - Max. 1800 m^3 / h

B According to the cooking machines:

Grill, sauteuse, plate	1500 m^3
Convection ovens	1000 m^3
Steam ovens	1500 m^3
Static fires	300 m^3
Naked fires	200 m^3
Fryer	1000 m^3/10 l of oil

C According to the air speed passage on the suction section (hood perimeter):

Formula: Surface (m^2) x Speed (0.4m / s) x Time (3600 s)

MAIN CERTIFICATIONS

ILH BERLIN
INSTITUT FÜR LUFTHYGIENE

BSRIA

CETIAT
ensemble, innover et valider

Consiglio Nazionale
delle Ricerche

ENERGIA AMBIENTE

SP
your Science Partner

POLITECNICO DI TORINO

IRAM
Instituto Argentino
de Normalización
y Certificación

CE

ISO
16890

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