

ELECTROSTATIC FILTER FEL SYSTEM



DESCRIPTION

Building on the reliability and the success of the FE SYSTEM range, thanks to our experience in the applications of particular industrial processes, we have been able to conceive and develop the FEL SYSTEM range. This is a new range of active electrostatic filters with built-in electronics, for oil and oily vapour applications.

FEL SYSTEM represents a revolutionary development, and a valid alternative to traditional filters. It was conceived to facilitate the use of electrostatic oil filters for specific processes. Its use in industrial plants, ensures consistent filtration efficiency. Thanks to high separation and oil accumulation capabilities, because of low load losses, it also provides important energy savings. Its multipole connection system means that several filters can be connected at the same time, depending on the air load and filtration requirements. In addition, electrostatic filters are installed and removed by simply sliding them across the equipment filter frame support.

The built-in electronic power input circuit is equipped with LEDs to notify the user that the filter is working correctly. A customised range of electrostatic filters for oil and oily vapour applications, without built-in electronics is also available.



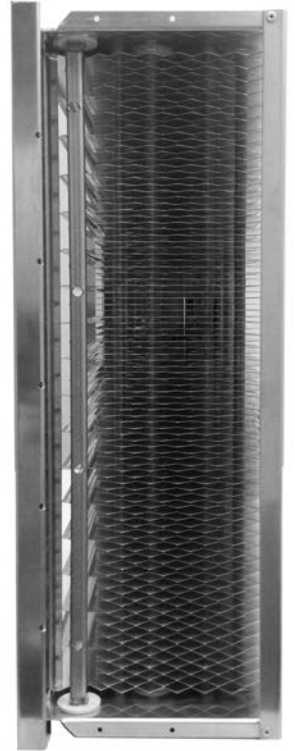
ELECTROSTATIC FILTER FEL SYSTEM

CHARACTERISTICS

FEL filters are particularly suited for the abatement of polluting substances such as oily vapours and mists, with and without particulate, normally produced in mechanical processing activities, like grinding, milling, and mechanical forming of ferrous and non-ferrous metal parts. The main distinguishing characteristic of this filter is the bottom section of the capture blades, the shape of which has been purposely conceived to enable the dripping of high quantities of oily pollutants, with reduced formation of electric discharges between the plates. In addition, the special mechanical construction ensures, also in the presence of emulsifying oils, that no electric discharges occur on the insulator, therefore providing high reliability in the long term.

The open bottom part makes it possible to collect, in appropriately conceived containers, the condensation that forms during the filtration process. The high separation performance together with a high capability of capturing particulate, also makes it possible to obtain compact abatement systems with low load losses virtually consistent across time and with high levels of efficiency. It is therefore possible to obtain a reduction in electric consumption when compared with other systems using mechanical filters.

On an operating point of view, the FEL600 filter is capable of condensing hundreds of grams of oil every day, therefore collecting hundreds of grams of solid particulate in between maintenance activities. The installation of these filters in industrial plants, makes it possible to reduce the emissions resulting from highly productive environments with extremely high concentrations of pollutants.



EASY INSTALLATION

The FEL system represents an alternative to the common pocket filters and it is conceived to simplify the electrostatic filters use.

Its adoption within ventilation systems not imply any variation regarding constructive and dimensional characteristics of the plan.

Thanks to its multipolar connection system, assembly and disassembly FEL electrostatic filters becomes simple, it is enough to slide in and out the filtering units inside the filter frame.



PSC - POWER SUPPLY CONNECTOR



JC - JUNCTION CONNECTOR



FCC - FINAL COVER CONNECTOR

APPLICATION SECTORS



INDUSTRIAL:

Manufacturing process: Filtration of micro dust, fumes and oil vapors in general.

Welding: Filtration of welding smokes as ferrous metals, precious metals, control boards, ect.

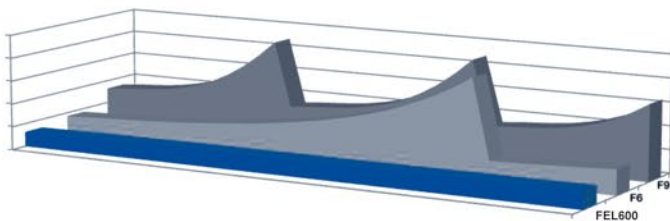
ENERGY SAVING

In the electrostatic filter the initial pressure drop increases only a small part while the filter gets dirty. This characteristic, combined to an extraordinary capacity of pollutants accumulation, allows the filter to have a long duration of use between a maintenance and the other.

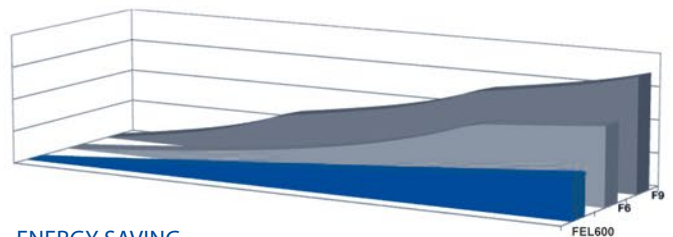
In a traditional rigid pocket filter the initial loss of pressure is higher than in an electrostatic FEL filter, and it increases considerably during its clogging. The bag must be replaced when it has reached the maximum pressure of 450 Pa.

Comparing the FEL filter with two other different filtering systems operating at the same contaminated indoor air conditions and at the same air flow capacity, we can observe that the FEL filter has a pressure drop that grows very slowly, while in a F6 filter it reaches the max pressure drop of 450 Pa before the filter is saturated. It means that maintenance is required to replace the filter F6. Even more evident is the durability of a filter F9 that need to nearly three substitutions in the same period of operation than a filter FEL.

A higher flow restriction means merely higher energy consumption for the pocket filters. Compared with an electrostatic filter FEL, we can estimate a double energy consumption using an F6 and three times more using an F9.



AIR PRESSURE DROP



ENERGY SAVING

COMPLETELY REGENERABLE

The electrostatic filter FEL is embedded with a rigid rugged aluminum frame which gets dirty by attracting and holding airborne particles of pollutants which remain accumulated on collector plates. When the filter is saturated, it can be easily washed flushing water and detergent to remove dirtiness and put it back as new.

If the washing operations are done properly and carefully the filter can last for many years.

INCORPORATED ELECTRONIC

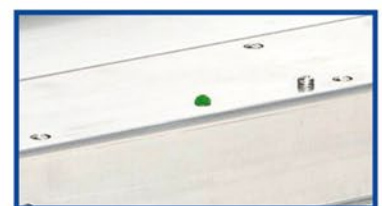
An incorporated electronic circuit permits to generate the necessary voltage of works directly in the filter itself.

Through the multipolar connectors PSC, JC, FCC, it is possible to carry the power supply to the filter with power voltages of 230V-50Hz, combine multiple filters in a row and give out alarm signal.

Efficient watertight solutions allow the electronic box to be bathed with the filter instead of being removed.



ELECTRONIC CIRCUIT

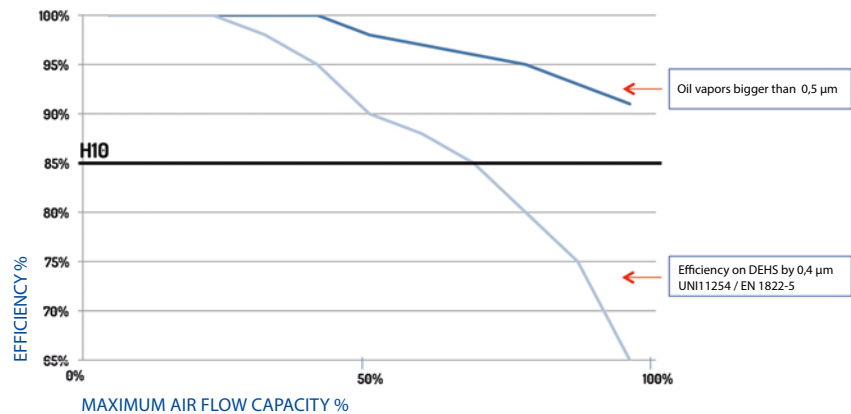
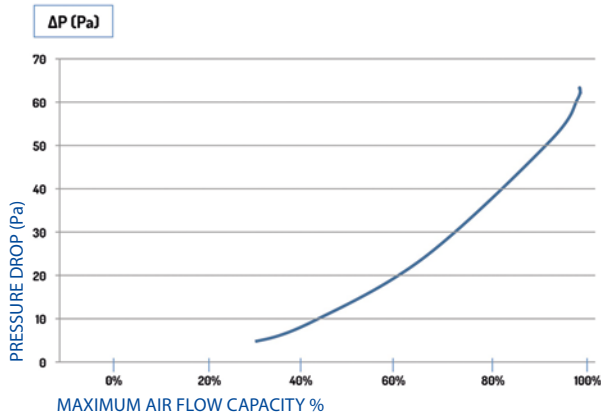


LED

TECHNICAL SPECIFICATIONS



BETTER AIR FOR A BETTER QUALITY OF LIFE

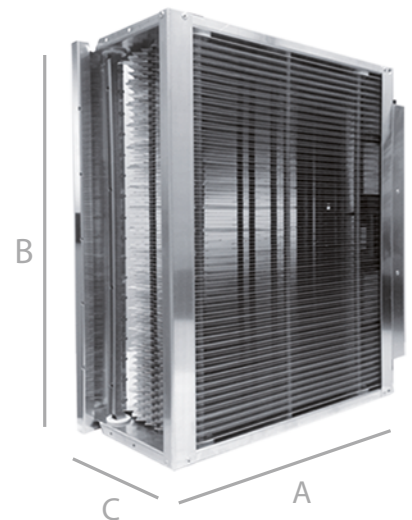


| Filtration class UNI11254 Efficiency in % on DEHS at 0,4 μm | u.m. | A $E_m \geq 99$ | B $95 \leq E_m \leq 99$ | C $95 \leq E_m \leq 90$ | D $80 \leq E_m \leq 90$ |
|--|------|--------------------|----------------------------|----------------------------|----------------------------|
| Efficiency in % on particles > 0,5 μm | % | 99,6 | 99,5 | 98,4 | 97,3 |
| Pressure Drop | Pa | 10 | 17 | 25 | 34 |
| Percentage of max air flow capacity | % | 39 | 50 | 63 | 76 |

FEL SYSTEM

XFE250L
XFE300L
XFE450L
XFE500L
XFE550L
XFE600L

| MOD. | COD. | Airflow Capacity min/max m³/h | Accumulation Capacity g | Electrical Power W | Dimensions Ax B x C mm | Weight Kg |
|------|---------|-------------------------------------|-------------------------------|--------------------------|------------------------------|--------------|
| XFEL | XFE250L | 480 ÷ 1200 | 370 | 9 | 287 x 490 x 218 | 8 |
| XFEL | XFE300L | 650 ÷ 1600 | 470 | 9 | 287 x 592 x 218 | 10 |
| XFEL | XFE450L | 840 ÷ 2100 | 623 | 16 | 490 x 490 x 218 | 14 |
| XFEL | XFE500L | 1070 ÷ 2760 | 823 | 16 | 490 x 592 x 218 | 16 |
| XFEL | XFE550L | 960 ÷ 2560 | 750 | 16 | 592 x 490 x 218 | 16 |
| XFEL | XFE600L | 1300 ÷ 3400 | 1000 | 16 | 592 x 592 x 218 | 19 |



CERTIFICATIONS

ILH BERLIN
INSTITUT FÜR LUFTHYGIENE



Standard UNI 11254