camfil FARR

Clean air with economic benefits

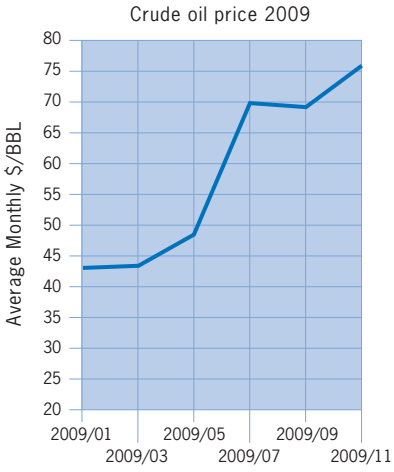
Camfil Farr	Segment brochure
LCC – Life Cycle Cost	
Camfil Farr – clean air solutions	

the filter is the only component in a HVAC system that can be changed at a reasonable cost

Camfil Farr over the past 40 years has become a world leader in clean air technology and air filter production. We specialise in developing, manufacturing, and selling air filtration products and services.

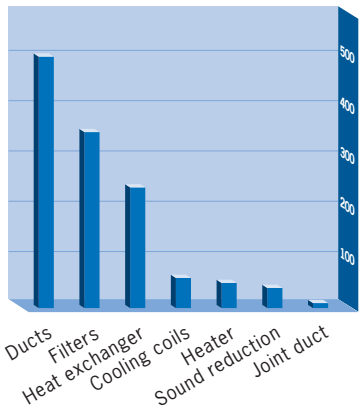
The Camfil Farr Group of companies is the world's largest designer and manufacturer of air filters with 22 different manufacturing facilities worldwide. Our products are designed and manufactured to the highest quality, offering the market long life air filters. We are proud of Camfil Farr's renowned quality.

The crude oil price has more than doubled over the last few years and the cost of electricity is steadily growing in all countries. There are many reasons for this dramatic increase in fuel costs, and considerable speculation about where it might end. But one thing is sure, more and more of our daily activities, both professional and private involve equipment that runs on electricity. Furthermore, developing countries are increasingly becoming more industrialised and their energy needs are soaring. The World Energy Cuncil, World bank have predicted that the total global consumption of energy will continue to increase at existing rates, for at least 50 more years.



The cost of ventilation

It is well known that building ventilation costs are significant. The 'typical' energy cost of filters as a percentage of the total system is approximately 30%. Selecting the correct filter, i.e. F7 filter efficiency and lowest average pressure drop, can create significant savings on energy while maintaining healthy Indoor Air Quality (IAQ). This is an opportunity since the filters are the most inexpensive part of the system to improve



Pressure drop (Pa) in a typical ventilation system with one filter step in the inlet- and the outlet air.

1Pa = 1 Euro

A rule of thumb, for a typical installation running half time over one year, is that one additional Pascal in pressure drop over a filter adds 1 Euro in extra energy cost. A bad filter construction could add 50 Pascal compared to a "good" construction, even when the same filter class is used. In other words it adds 50 Euro on the annual energy bill.

"Over the past two years my KW/hr consumption has increased only by 1%", remarked a client when first contacting Camfil Farr, "and yet my costs have shot up by 30%!"

Life Cycle Cost (LCC) – Energy accounts for 70% of the total cost!

From a long-term perspective, it is evident that the energy consumption is the major overall cost of a filter.

The Life Cycle Cost for a filter is the cost of the

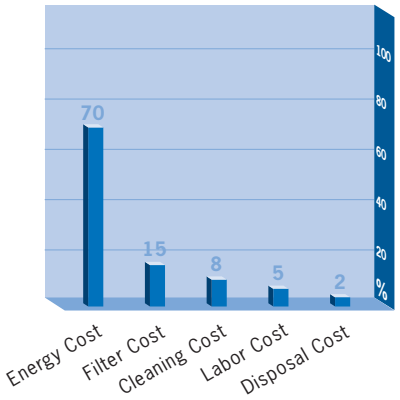
Filters
Labour (installing and replacing)
Energy consumption
Cleaning of ventilation system
Disposal of used filters

= LCC

Camfil Farr has developed software to determine precise LCC costs for a particular filter, in any given system, with its unique conditions and requirements. Our Camfil Farr Sales team will help you optimise your system.

70% of the cost is energy

Calculations reveal that energy normally accounts for 70% of the total life cycle cost of the system. The energy consumption is directly proportional to the average pressure drop over the filter.



Choosing the right filter saves energy

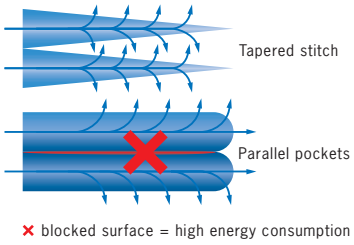
In order to optimize filter lifetime and reduce energy cost during the filters lifetime, it is important to understand how far configuration or design influences average pressure drop.

Camfil Farr has been a pioneer in designing low average pressure drop filters in all filter classes for the HVAC system for over 40 years.

Many people assume that filter efficiency is the largest contributor to initial pressure drop; in certain filter classes, however, it is the actual design of the filter that has the main impact!

Beware Camfil Farr imitations!

A rival filter with the same number of pockets will not necessarily have the same average pressure during its lifetime.



Camfil Farr use an optimised design in order minimise the energy consumption

In the case of Bag Filters our unique tapered stitch (shown above) allows for full utilization of the media, even distribution of airflow and loading resulting in extended life and low energy cost. Having established that Camfil Farr has the lowest average pressure drop during the filters working life, you should then select a filter to achieve the desired IAQ level for your application. Always check for the minimum efficiency as reported in the European standard EN779:2002.

energy-saving filters

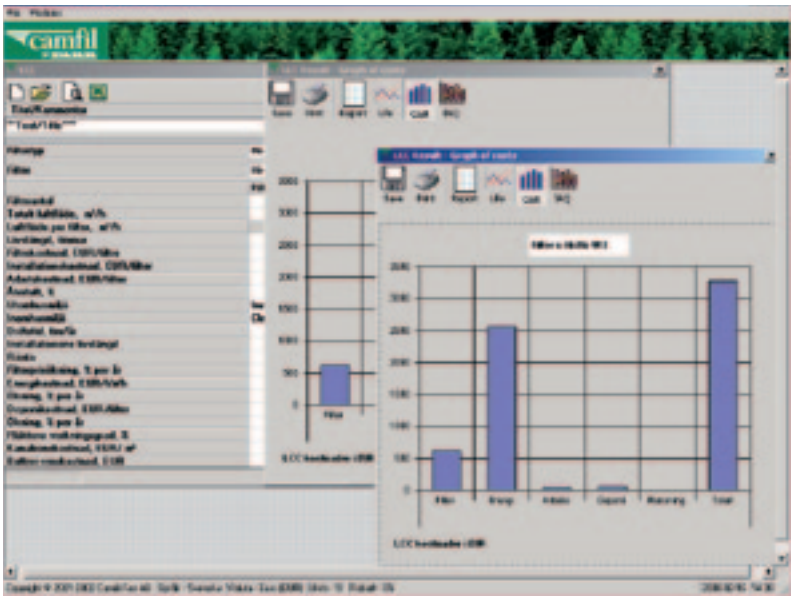
Camfil Farr was the first filter manufacturer to develop a sophisticated program that calculates the Life Cycle Cost of air filters. Over many years the program has been improved. The program is based on numerous real life measures of filters. This allows us to predict the filter's pressure drop and lifetime in an actual installation rather than relying on theoretical calculations.

After having selected required filter class, we can calculate LCC for 1-, 2- or 3-step filtration based on either change outs after time or after final pressure drop. The program can be adjusted according to the characteristics of your outdoor air and your specific costs for filters, labour, disposal, cleaning and energy.

In the fist example we have selected an F7 filter in a typical installation, in an industrial city. The filter is running 4000 hours during one year with an airflow of 0.94 m^3/s. We look at the installation over a one year period in order to take into consideration the total costs of the system.

In the second example we replaced the first filter with another filter of the same filter class (F7). While the filter has the same size and similar material, the manufacturer's less favourable design results in a 20 Pa higher pressure drop over the clean filter. As a consequence the energy consumption is affected. The total cost increased by 23 Euro per year. Per filter!

	EXAMPLE 1	EXAMPLE 2
Initial Pressure Drop (Pa)	105	125
Average Pressure Drop (Pa)	160	194
Filters. Labour. Disposal. Cleaning.	55	55
Energy	105	128
Total LCC (Euro per year)	**160 Euro**	**183 Euro**



Low efficiency means high cleaning costs!

camfil farr products for LCC

Key products

Hi-Flo F7

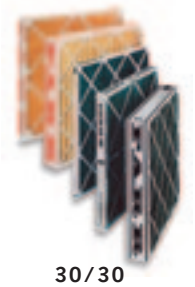
This product features an optimised design of the pocket stitching, a so-called controlled media spacing, allowing for the lowest possible resistance to air flow. Combined with a high quality material in order to guarantee excellent filter efficiency it is the premium bag filter for keeping the life cycle cost to a minimum.

Camfil Farr has the broadest range of bag filters available on the market. For the optimum life cycle cost the recommended models are M7, P7 and UF7.

Opakfil Green F7

With an optimised design of the material configuration, together with an extensive filter surface the filter pressure drop is kept to a minimum and the lifetime of the filter is prolonged. By combining this with a high efficiency material we offer the best compact filter available for a low life cycle cost.

Prefilter



30/30

When limited space exists in ahu's and where 50 or 100 mm G4 grade filters are accept-able, Camfil Farr recommends our superior prefilter 30/30. The filter has a unique radial pleat design and preparatory media which ALWAYS delivers the lowest life cycle cost when compared to filters in its class.

Camfil Farr products are specifically designed to last longer, generate the lowest possible energy costs and deliver maximum efficiency for the application. Please contact your nearest Camfil Farr office or authorised distributor for further information or support.

camfil FARR

On world standards...

...Camfil Farr is the global leader in clean air technology and energy efficient air filter solutions with product development, R&D and local representation in the Americas, Europe and Asia-Pacific region.

We supply high quality products and services with the aim of making our customers operations more sustainable, energy efficient and productive.

Our own vision of sustainability is a global approach combining consideration for people, environmental protection and business performance.

Camfil Farr is a member of the United Nations Global Compact programme and follows the GRI sustainability reporting framework.

www.camfilfarr.com

Artwork: Ymer Reklambyrå AB. Printer: Trosa Tryckeri AB 71628, Sweden, ©Camfil Farr 20091113.

FOR FURTHER INFORMATION PLEASE CONTACT YOUR NEAREST CAMFIL FARR OFFICE.
YOU WILL FIND THEM ON OUR WEBSITE.