camfil

WHITEPAPER

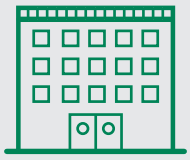
QUICK WINS FOR ENERGY SAVINGS IN BUILDINGS

A Facilities Manager's Guide to choosing low energy air filters for both optimised energy performance and indoor air quality

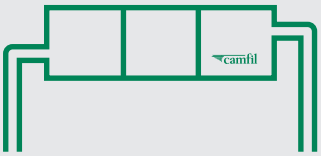
QUICK WINS FOR ENERGY SAVINGS IN BUILDINGS

Choosing A+ rated low energy air filters for both optimised energy performance and indoor air quality

Did you know?



200,000
Number of building with HVAC systems UK



35%
HVAC energy cost of total uk cost

5TWh
Annual saving available

£500m
Energy saving in the uk

In the average commercial building, 50% of the energy bill is for the HVAC system. 30% of that is directly related to the air filter yet the filtration part of this is substantially and invariably overlooked. Procuring the right filter can be a huge benefit to an organisation's energy saving strategy. A badly selected filter can cost over £500 per year. Low Energy Air Filters typically save 30% in energy consumption.

Business Challenge

Many multi-site organisations and Estates Departments at larger organisations are committed to developing and implementing energy plans, involving strategy and policy on energy & sustainability. One of the main aims of these plans is to strive to balance the key principles, those of sustainability, financial viability, environmental enhancement and social responsibility.

Large land owners, building management and insurance companies are waking up to the huge value of the potential savings that can be achieved from effective air filtration systems. With soaring energy prices and new energy directives and mandates, it truly pays to save energy in air filtration systems. Camfil offer low energy air filter products which provide the highest indoor air quality, with the lowest pressure drop, delivering the biggest energy savings to customers, without compromising air quality.

The effective management, maintenance and procurement of air filtration systems can allow managers to quickly see a reduction in energy bills. Paybacks within revenue budgets are typically less than 3 months.

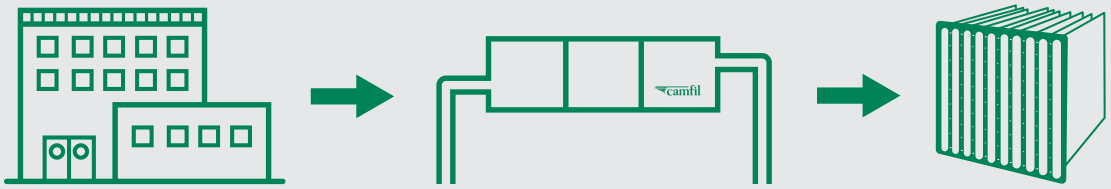
The Solution

Air filters are hidden in various plant rooms within the air handling unit, they significantly contribute to the resistance of the fan motor. Air filters are designed to be changed unlike other components within the ventilation system, and consequently do not put any pressure on capital budgets when upgrading to a low energy filter.

Would you spend a pound to save £5 or £10? Camfil can demonstrate how better air filters will lower Total Cost of Ownership (TCO). Low cost filters clog quickly, causing a higher resistance to the airflow which results in an energy cost penalty. Camfil air filters capture particles and maintain the proper airflow two to three times longer than low cost filters, and require less frequent filter changes. Fewer filters, less labour, reduced waste...AND the biggest savings is energy costs. How? By selecting filters designed for lower average lifetime resistance, the HVAC unit doesn't work as hard to pull air through the system.

'Camfil's Low Energy Air Filters delivered identified energy savings of over £2 million to the UK built environment'

Total Cost of Ownership (TCO)



Commercial Building Energy Consumption

50% of Buildings Total Energy Consumption

30% of HVAC systems Energy Consumption

We identify actual savings, by evaluating current HVAC systems using our Life Cycle Cost (LCC) software that leverages over 20 years of experience and data analysis. We can demonstrate through a number of high profile installations, how air filters directly influence energy consumption within air handling units that heat, cool and clean the air in the building. We prove it to clients with a free LCC analysis report. Our trained evaluators enter the current filter brand, type, operating parameters and filter costs to generate a customised analysis. We then quantify the energy savings and total cost of ownership advantages from switching to installing low energy filters. Camfil filters are an important part of an energy plan, total cost saving strategy and commitment to sustainability. In terms of installation, these low energy air filters in 90% of cases can be retro fitted in the existing framework which means that payback is usually 1-3 months. In other cases, new framework may need to be installed with the low energy air filters and the payback is extended but always within a 12 month revenue period. In our experience, these upgrades are resourced within the revenue budget with no need for capital expenditure.

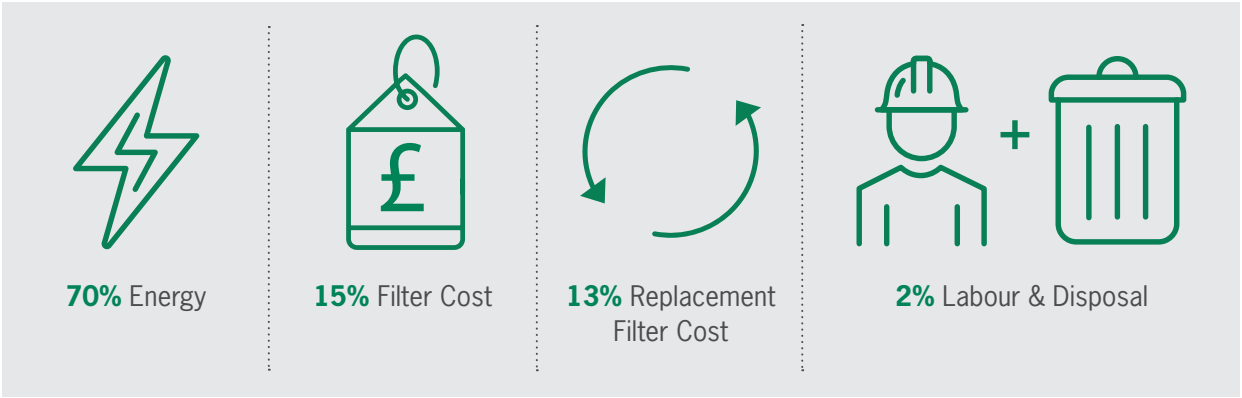
Placement of low energy air filters in air conditioning systems enhance the system efficiency by maintaining the heat transfer efficiency of the heating and cooling coils over an extended period. Low Energy Air filters, such as the HiFIoM7ePM1 60% Bag filter are designed to optimise all the surface area, thereby creating a lower pressure drop across the filter. This has a direct impact on the fan motor in terms of energy consumption. Over the life of the filter the pressure drop increases due to the loading of particulate on the filter and consumes more energy. Because the average pressure drop of the low energy air filter described above is much lower than any other product on the market, it consumes much less energy. Estimate of possible savings can be as high as £300 per filter 10p per KW/hour to optimise each ePM1 60% class filter tested to BS EN ISO 16890:2016.

People we work with

Working with Consultants and Building Services Engineers, our Life Cycle Cost Analysis shows that air handling optimisation in air conditioned buildings is very often the most cost effective way to achieve no/low cost energy efficiency. The energy savings and benefits are achieved and sustained for our clients in the UK and identified and verified by our Life Cycle Cost Software.

Our filters were installed in the 'world's most environmentally friendly building' in Manchester. The filters were selected using our LCC software to ensure minimum running costs with consistent high lifetime particle removal efficiency. This selection process was done in conjunction with the Design Engineers on this project.

Total Cost of Ownership in numbers



The cost saving example

In a typical building, for example a hotel, containing 20 air handling units (AHU's) installed with 10 filters in each (200 pre and secondary air filters) energy savings can typically amount to £14,000 per year, every year, simply by upgrading to low energy air filters.

Other savings include

- 50% labour time (you only change half as many filters)
- 50% waste costs (you only dispose of half as many filters)
- Nearly 1 tonne of CO2 for each upgrade.

Case studies can be found for the following sectors:

- Commercial Buildings
- Food & Beverage
- Gas Turbines
- Hospitals and Healthcare Estates
- Industrial & Manufacturing
- Molecular Filtration
- Museums
- Pharmaceutical Estates
- School & University Estates

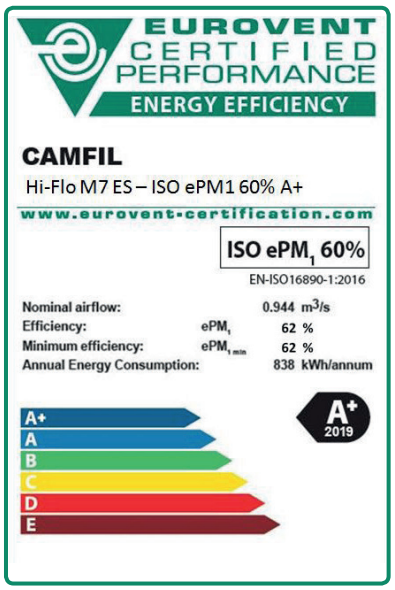
No compromising on air quality

The function of an air filter in air conditioning applications is to clean the air that we breathe to a prescribed level. (ePM1 60% class filters to ISO 16890) In order to achieve this, the air filter must perform at this level throughout its installed lifetime. Only filters that are manufactured using fine fibres can reliably perform at this level as the interstitial holes between the fibres are smaller and will trap smaller particles. It is this balance of fine fibres and engineered construction that allows a low energy air filter to deliver optimised energy performance and good indoor air quality.

A new classification for air filters

Now you will have it a lot easier to find the right air filter – regarding both energy efficiency and indoor air quality. Eurovent's new, objective energy efficiency classification has now been implemented. Today all air filters can be graded from A+ to E. The grade A+ stands for the lowest energy consumption and E for the highest. The classification is based on ISO16890 and will give you a good understanding of annual energy consumption, initial efficiency and minimum efficiency.

As the price of energy increases and the demands of reducing CO2 emissions get tougher, the energy consumption related to air filters has become the focus of attention. Yesterday, air filters were classified only by their average efficiency. The new energy classification is far more precise.



Summary

With 50 years of experience in air filtration products and solutions, Camfil delivers value to customers all over the world while contributing to something essential to everyone – clean air for health, well-being and performance.

Our products address the energy considerations that all organisations face. We have supported site and energy teams, in estates across the UK, presenting opportunities for Engineers to deliver identified energy savings (over £2 million) for clients and stakeholders. This is supported by high profile case studies.

Our filters deliver the required air quality, clear of particulates, for people to safely inhale, using the minimum amount of energy. Estimates of savings can be as high as £300 per filter 10p per KW/hour to optimise each ePM1 60% class filter. They offer high efficiency grade filtration to address indoor air quality problems. No other air filter matches this optimised performance combination. With superior materials and a proven engineered design, our low energy air filters offer the lowest energy cost throughout their installed lifetime. Balanced with this, they also provide protection against potentially health damaging pollution, by providing independently guaranteed certified performance. Choosing the right air filter can be a big part of your company's energy saving strategy. With soaring energy prices and new energy directives and mandates, it truly pays to save energy in your air filtration systems.

Save energy, money and the planet

Choosing a high ranked filter can save you up to 20 percent more energy over the year – per filter. But using the right air filter will not only help you save more energy. It will also help you save money, and keep a healthy indoor air quality. Maintaining a healthy indoor environment is good for your staff or the building inhabitants. Clean air results in less sick days, increased productivity and wellbeing.

Put your supplier to the test!

Many suppliers do not test their filters properly, making it impossible for customers to compare different brands. At Camfil, we test all our filters to guarantee a high standard of quality. Does your air filter supplier have what it takes?

- Is the supplier certified by Eurovent?
- Are air filter performance tests based on BS EN ISO 16890:2016?
- Are there labels on all boxes?
- Is there a test protocol for validation?

Camfil are currently offering a free energy opportunity assessment survey of your Air Handling Units which will evaluate your potential energy savings from using our new A+ products.

Our specially designed 'Life Cycle Cost' (LCC) programme will create an accurate simulation of the energy consumed in a typical AHU system.

From this we can produce a comprehensive report to realise real cost savings with fast pay backs, change frequencies of filters are reduced ensuring that annual filter costs do not exceed your current budgets other savings include labour, waste and Co2 reduction.

Camfil – a global leader in air filters and clean air solutions

For more than half a century, Camfil has been helping people breathe cleaner air. As a leading manufacturer of premium clean air solutions, we provide commercial and industrial systems for air filtration and air pollution control that improve worker and equipment productivity, minimize energy use, and benefit human health and the environment.

We firmly believe that the best solutions for our customers are the best solutions for our planet, too. That's why every step of the way – from design to delivery and across the product life cycle – we consider the impact of what we do on people and on the world around us. Through a fresh approach to problem-solving, innovative design, precise process control and a strong customer focus we aim to conserve more, use less and find better ways – so we can all breathe easier.

The Camfil Group is headquartered in Stockholm, Sweden, and has 30 manufacturing sites, six R&D centres, local sales offices in 30 countries, and 4,500 employees and growing. We proudly serve and support customers in a wide variety of industries and in communities across the world. To discover how Camfil can help you to protect people, processes and the environment.

www.camfil.com