

eco16
Clean air at
the lowest
possible cost.

eco16

Clean air management



Selecting an air filter may seem like a simple task — many people just replace the existing filter with a like-for-like product. But is that going to deliver the best value for money? And is it going to deliver the protection that you need?

This ultimately boils down to how much thought went into the original filter selection. Often what was installed simply came down to what was in stock or on offer at the time. Rarely is any analysis undertaken to determine if the filter is the correct choice for that particular operating environment.

And that can be much more costly than you imagine.

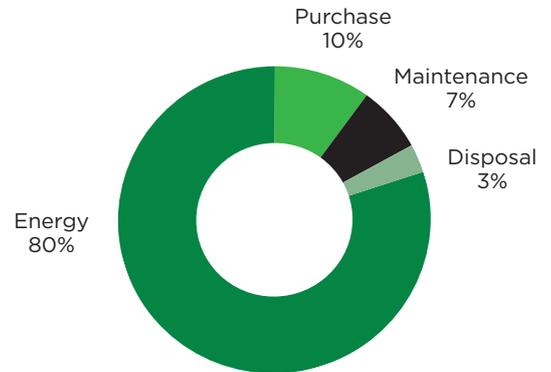
Now there is another way. eco16 is a patented method for selecting HVAC air filters that is based on air quality data from your individual building. It analyses the internal and external air at your facility and identifies the best filter configuration for your specific requirements. eco16 considers every cost associated with an air filter and balances it against the level of filtration so you get a safe level of air quality at the lowest possible cost — both to you and the environment.

THE TRUE COST OF AN AIR FILTER—YOUR MONEY

A filter consumes energy by creating a resistance to the air flow that it encounters. This pressure drop means that the ventilation fan has to work harder to move the required volume of air.

The effort required is directly related to the energy consumed by the fan motor. Put simply, if the pressure drop over the filter is lowered, the fan works less hard and therefore consumes less energy. And as fans in office buildings account for approximately 15 – 20% of total building energy demand, this is a significant amount.

The same is true when it comes to the overall running cost of the filter. Energy typically accounts for around 80% of a filter's life cycle cost, with the purchase price just 10%. Therefore, a cheap filter may not save you any money at all.

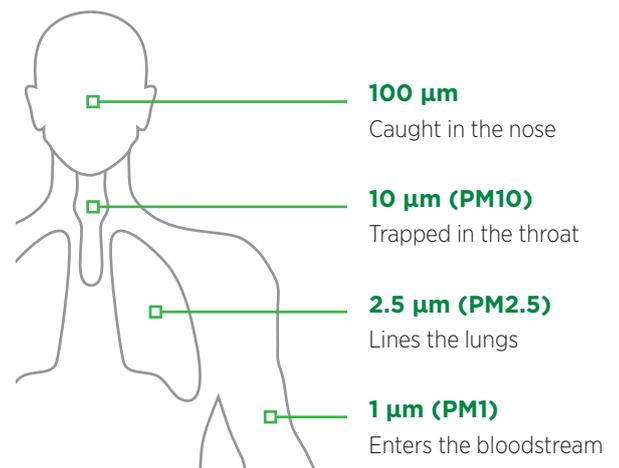


Life cycle costs of an HVAC filter

THE COST OF THE WRONG AIR FILTER—YOUR HEALTH

The World Health Organization rates air pollution as the greatest environmental cause of premature death. An estimated seven million people die every year as a result of the air that they breathe. Air pollution is a toxic cocktail of different substances. But particulate matter (PM) is seen as one of the main causes of pollutant-related ill health.

While our bodies are able to defend against larger contaminants, smaller particles — such as PM10, PM2.5 and PM1 — evade capture. As this particulate travels through our respiratory systems it contributes towards asthma, lung disease and cancers. As it travels further and enters the bloodstream, PM can cause cardiovascular illness and issues with other vital organs — including brain function and health.



How far do different-sized particles penetrate the human body?

By capturing PM before it enters indoor environments, filters protect inhabitants from these health effects. Accordingly, it is crucial to select filters that are up to the job of protecting against the type and quantity of particulate that enters your air handling unit.

The challenge: Performing the filter balancing act.

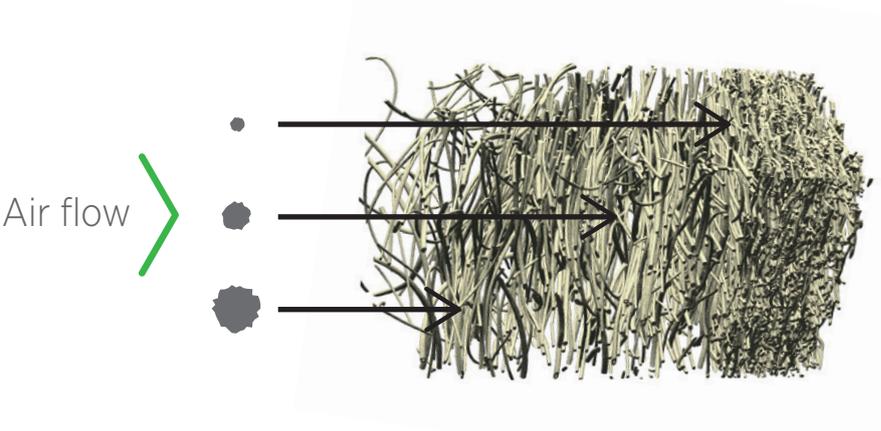
Protection against airborne particulate is crucial to protect a building's inhabitants. And an air filter should be selected for its energy efficiency too. The challenge comes from the fact that these two factors are at opposite ends of the spectrum — as you increase one, the other decreases.

This balancing act is made more difficult by the mechanics at play within an air filter. It may look simple from the outside, but a filter employs a host of different mechanisms to capture particulate, which all influence one another and combine to create a cumulative level of filtration. And how efficiently—in terms of energy—a filter can deliver this level of performance is impacted by an even larger number of factors.

And that's why identifying the perfect air filter is not straightforward. But it is important.

Just selecting a filter with the lowest energy consumption could risk the health of the people in your building. But overspecifying filtration efficiency may mean your energy consumption is considerably higher than it needs to be.

Finding the perfect filter configuration is a balancing act between particle efficiency on one side and energy consumption on the other.



Finding the optimum performance means taking filter development down to the individual fiber and analyzing the complex 3D structure at submicron level.



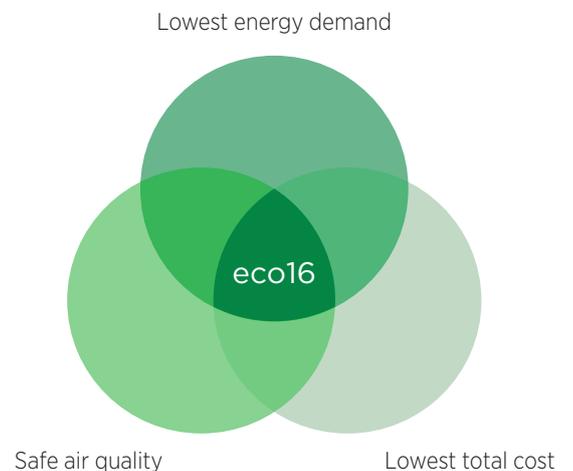
eco16 balances your entire HVAC system to provide you with a safe level of air quality at the lowest possible cost.

THE SOLUTION — eco16

eco16 provides the answer to overcome this challenge. It finds the sweet spot where the filtration system is supplying a safe level of air quality but at the lowest possible energy demand.

eco16 uses a standardized process for identifying the perfect filter configuration, so its repeatable and suitable for any environment.

Because eco16 analyses the conditions inside and outside of your building, your filter selection is based upon hard evidence of what is required — not a sales rep’s opinion or just replacing what has always been used.



The eco16 process

From initial discussion to fully-fledged system.

INITIAL CUSTOMER CONSULTATION

Discussion of current and desired air cleanliness along with energy costs and conservation goals.

PRE-EVALUATION INSPECTION

During an assessment to confirm suitability for testing, we will check current filter condition, filter framing and access door integrity, general AHU condition and coil cleanliness.

TESTING AND MEASUREMENTS

Using approved particle counters, manometers and anemometers, our engineers will determine dust mass concentration levels at all critical points in your system. We will also establish the air flow rate, pressure drops and system control parameters.

COMPUTER-AIDED ANALYSIS

The raw data will be analyzed with our bespoke software solution to gain a precise insight into the current system and environment.

DESIGN SYSTEM CONFIGURATION

Using the eco16 framework, we will formulate the optimum filtration solution to provide the required air cleanliness with the lowest possible life cycle cost and energy demand.

ISSUE REPORT AND RECOMMENDATIONS

A report detailing the testing and analyses results will be provided, accompanied by full recommendations and system design. Any defects and maintenance issues will be identified, along with recommended remedial action.

SYSTEM IMPROVEMENTS/MAINTENANCE

The new filter system is installed and any remedial works to AHU components carried out. Old filters and components will be recycled where possible or disposed of according to local regulations.

POST-INSTALLATION REVIEW

The new system's performance will be tested to ensure that it meets agreed outcomes in terms of air quality and delivery as well as energy consumption.

AWARD CERTIFICATION

On completion of testing, date-stamped certificates detailing the air quality delivered by the system will be issued for the customer to display.

FOLLOW UP AND AFTERCARE

Ongoing system analysis to ensure performance can be undertaken, or alternatively a Total Filter Management program can be provided.

In this program, MANN+HUMMEL will manage all of your filter requirements over an agreed time period for a one-off payment. This means that we will supply, install and maintain all the filters necessary to maintain air quality at a set level at the lowest possible energy consumption. This also includes all particulate matter testing and disposal of expired filters.

Benefits

What can eco16 do for you?

2

SAVE TIME

The eco16 process will reduce the number of filter configurations that you need. With stock rationalized, filter installation, removal and disposal are streamlined. Finance, stock and purchasing administration is also simpler.



4

ENHANCE WELFARE

Looking after people is important. With eco16, you can be sure that air quality is kept at a safe level. And the audit trail that eco16 provides demonstrates the proactive measures you have taken to safeguard staff, customers and visitors.



1

REDUCE COST

eco16 uses filters with the lowest possible pressure drop, so can slash your electricity bill dramatically. The total number of filters is also minimized to reduce purchasing costs and on-site workload. And with correctly sized and specified filters installed, service life is increased and fouling to other HVAC components is reduced.



3

IMPROVE AIR QUALITY

Filters are selected on the basis of a repeatable technical evaluation, so air quality standards can be imposed, achieved and maintained across all your sites. Your HVAC system will be more efficient too, with clean coils providing improved heating and cooling rates, and correctly-configured filters delivering higher air flows.



Contact us or visit our website to learn more about eco16 Clean Air Management





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airfiltration.mann-hummel.com

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