



Megalam® EnerGuard™



# Megalam® EnerGuard™

Built Tough to Protect Operations and Save Energy.

The first revolutionary change for cleanroom HEPA filtration in decades.



## PROPERTIES

SOLID PARTICLE LOADING  
OIL PARTICLE LOADING  
CHEMICAL RESISTANCE  
PHYSICAL RESISTANCE  
PRESSURE DROP  
LIFETIME  
EFFICIENCY CLASS FIDELITY  
OUTGASSING

## PLEATED METHOD

CAMFIL METHOD

ENERGUARD

## MEDIA

GLASS FIBRE

ENERGUARD

## ACCESSORIES

PROTECTION GRID

GASKET

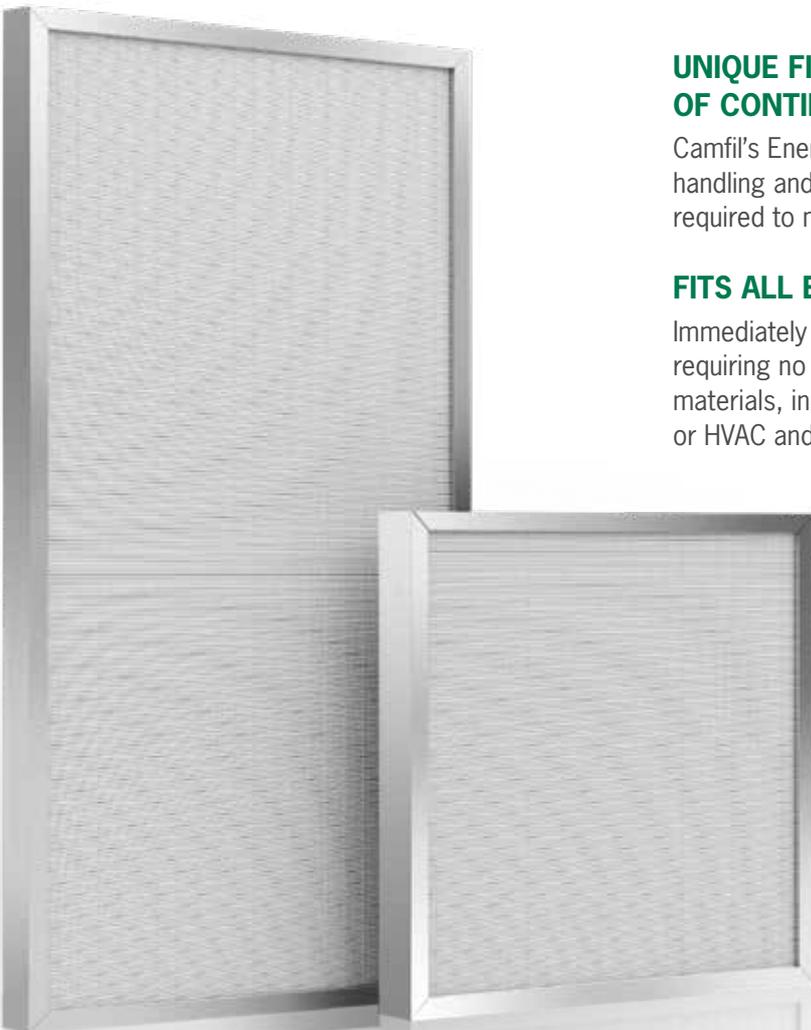
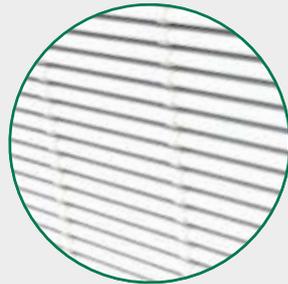
EVOLUTION SUCCESSFUL

# WHAT IS MEGALAM ENERGUARD?

**Megalam EnerGuard** is the latest terminal HEPA/ULPA panel filter developed by Camfil specifically for qualified cleanroom industry through years of research and application testing.

## THE MAGIC IS IN THE MEDIA

Camfil's Megalam EnerGuard utilises the best features of all HEPA media types. EnerGuard incorporates the long life properties of glass fiber with the low energy consumption of membrane media to ensure optimal performance.



## UNIQUE FILTER MEDIA DEVELOPED AFTER YEARS OF CONTINUOUS RESEARCH & DEVELOPMENT

Camfil's EnerGuard media is resistant to damage during handling and operation while still providing the efficiencies required to maintain ISO cleanroom class levels.

## FITS ALL EXISTING CONFIGURATIONS

Immediately substitutable into existing filter configurations, requiring no changes of other filter components or materials, installation or testing and validation processes, or HVAC and filter equipment.

# WHAT MAKES ENERGUARD THE ONLY CHOICE ?



## ROBUST CONSTRUCTION

**You can easily aim at 0% installation failure rate.**

The robust nature of the filter significantly reduces the chances of product failure and expensive cleanroom downtime. Filters safeguarded from damage during transportation, installation, handling and filter service translate to cleanroom operating profits.



## LONG SERVICE LIFE

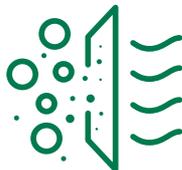
Service life is consistent with glass fiber filters; **2 to 3 times the life of membrane media when periodically aerosol challenged.** Depth-loading media increases the effective area of particle capture to maintain consistent low pressure drop and increases the period between filter replacements.



## ENERGY COST SAVINGS

**Savings of 30% to 50% vs traditional glass fiber filters.**

Camfil's new EnerGuard filter is specifically designed and tested to ensure the lowest possible energy consumption.



## PROTECT OPERATIONS

Complete range of efficiencies to suit all current operations. **Available in H13, H14 and U15 efficiencies.** Specific grades developed for the individual demands of Life Science and Microelectronic industries.



## PROCESS SAFETY

Certified for Life Sciences and Food & Beverage industries. When you see the ProSafe symbol you can be sure the filter materials and testing meet stringent requirements for safety, traceability and control. **See page 6** for more information about ProSafe.

# MEGALAM ENERGUARD TOTAL COST OF OWNERSHIP

## ENERGUARD DURABILITY, HANDLING FORGIVENESS FOR MORE OPERATION EFFICIENCY

Protect your process, product, profits and people from accidental filter damage. Megalam EnerGuard filters offer outstanding robustness to reduce the risk of airborne particulate leakage from tears, punctures and rips in the filter media which is common from mishandling during installation and validation. **Typically 3% to 20% of glass fiber media filters are replaced at installation due to inappropriate handling.** Megalam EnerGuard will not only eliminate the expense of replacement filters and reduce the need for spares, but most importantly will **reduce cleanroom downtime** while waiting for re-installation and re-validation.

## REPLACEMENT FILTER COST COMPARISON

(based on installation of 100 filters)

	Megalam EnerGuard <1%	Other HEPA filters 5% 10% 20%		
Failure rate	0%	5%	10%	20%
Filters failed	0	5	10	20
Replacement filter costs	0	€1,250	€2,500	€5,000
Process downtime (during replacement)	*0 weeks	1-2 weeks	1-2 weeks	1-2 weeks
Installation and certification cost per filter	** €240	** €240	** €240	** €240
Total re-installation and re-certification costs	0	€1,200	€2,400	€4,800
<b>Total re-installation costs</b>	<b>€0</b>	<b>** €2,450</b>	<b>** €4,900</b>	<b>** €9,800</b>

\*Assumes 1 spare will be available at time of initial installation    \*\*Installation €120/filter; Certification €120/filter



# MEGALAM ENERGUARD VS ALTERNATIVES

## THE HOLISTIC TCO APPROACH

When talking about the Total Cost of Ownership of a filter it is our view that you should not only look at the filter and replacement cost but also the energy cost as well as the related labour and disposal costs. The Megalam EnerGuard offers the lowest TCO of any HEPA panel filter on the market.



### ENERGY CONSUMPTION

The Megalam EnerGuard **offers savings of up to 50%** in comparison to other HEPA panel filters on the market. The Megalam EnerGuard maintains a low pressure drop for longer than other filters on the market. This ensure that the filter lifetime is optimised.



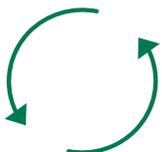
### FILTER COST

Filter costs often only equate to about 10% to 15% of the Total Cost of ownership of your HEPA panel filter. The holistic but inadapted technologies can substantially increase these costs to become significant if the real lifetime does not match the expected one: Megalam EnerGuard has be design to offer a long lifetime given the Life Science Industry applications for an easier comparison between filters.



### LABOUR AND DISPOSAL COSTS

When looking at the TCO of your filter, labour and disposal are often forgotten elements. Our holistic Megalam EnerGuard minimizes them by facilitating handling by operators eliminating the risk of rework as well as offering a long lifetime.

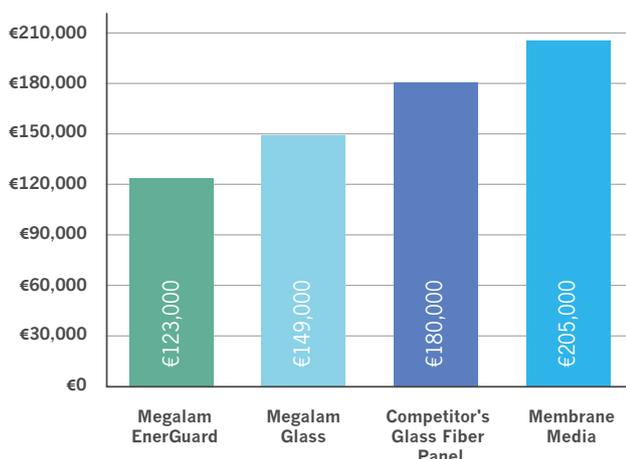


### FILTER REPLACEMENT COSTS

As highlighted on **page 4** the filter replacement cost can often be a large expense for your facility. The Megalam EnerGuard **combines the long life characteristics of glass fiber filters while allowing for handling and transport forgiveness** through more durable media.

## TOTAL COST OF OWNERSHIP OVER 10 YEARS OF SERVICE LIFE

(based on 100 filter installations)



### TCO SAVINGS UP TO 40%\*

TCO refers to the Total Cost of Ownership associated with your filter during a set lifetime. Not only does TCO account for your filter cost but incorporates: filter replacement costs, energy costs, labour costs and disposal costs. The Megalam EnerGuard can achieve 30% savings against glass fiber and 40% against membrane media.

\*Based on standard operating conditions including periodical integrity testing

# PROSAFE MEANS PROCESS SAFETY, YOUR PROCESS SAFETY

More than ever, the cleanroom industries faces tough demands in achieving clean air. Be careful choosing an air filter. The filter must protect your products from particulate contamination and must prevent undesirable materials from entering into your process. When you see the ProSafe symbol, you know the filter has been made with qualified materials that offer the maximum process safety. There is full material and process traceability and control.



- Designed for process safety.
- Every filter is scanned and leak tested at the factory.
- Food contact material tested acc. to EC1935/2004.
- ISO 846 approved (for microbial inertness).
- VDI6022 approved for moisture and corrosion resistance in hygienic HVAC applications.
- Chemical inertness to all common cleaning agents.
- Formaldehyde, phthalate and bisphenol A (BPA)-free materials.

## EFFICIENCIES AND OFFERINGS

Available in efficiencies of 99.95% (H13), 99.995% (H14) and 99.9995% (U15) @ MPPS.



# MEGALAM ENERGUARD DEVELOPMENT



## GLOBAL R&D NETWORK

Innovation is something we strive towards everyday. Our six R&D centres around the world allow us to work around the clock on developing the latest filtration technology. The development of the Megalam EnerGuard utilised the R&D capabilities Camfil has to offer around the world, to bring our customers the latest innovation in HEPA filtration.



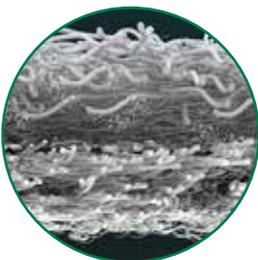
## HEPA FILTER LIFETIME TEST GRID

Camfil has created a new HEPA filter lifetime test grid to assist the Megalam EnerGuard development effort and provide the most scientifically-advanced HEPA filter analysis in the world. Camfil can control the airflow, particulate contamination concentration, temperature, humidity, scan test and filter challenge simulations, as well as most other variables affecting a filter's service life.

## TESTING ACQUISITIONS AND UPGRADES

For decades, Camfil's market position has been that of leadership through science and application analysis. In addition to the grid, see above, Camfil has augmented its technical leadership with recent acquisitions and upgrades.

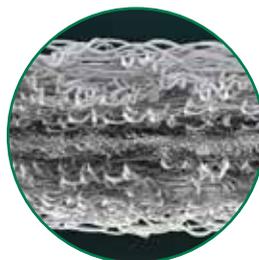
- **Solid particle and oil aerosol loading apparatus:** accelerates loading of flat sheet media samples.
- **Flat sheet discharge chamber:** analyzes performance of flat sheet media samples.
- **Laser aerosol spectrometer:** characterizes aerosol and particulate pollution.
- **Automated filter tester:** determines filter efficiencies and most penetrating particle sizes.
- **Scanning electron microscope (SEM):** examines materials down to nanometer sizes.
- **Gas Chromatograph:** mass Spectrometer with thermal desorption and headspace capability. Analyzes materials for outgassing characteristics.



Megalam EnerGuard



Glass Fiber



Membrane Media

Photorealistic renderings of cutaway, microscopic media depicting Camfil's Megalam EnerGuard media, traditional glass fiber media and membrane media. As illustrated here, the multifunctional fiber design of Megalam EnerGuard allows for depth loading of particulate contamination — a significant contrast to membrane medias.

## 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](http://www.camfil.com)

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For further information please contact your nearest Camfil office.