

A photograph of a data center aisle with rows of server racks on both sides. The racks are filled with server units and cables. The lighting is cool and blue-toned, and the perspective is from the end of the aisle looking down its length.

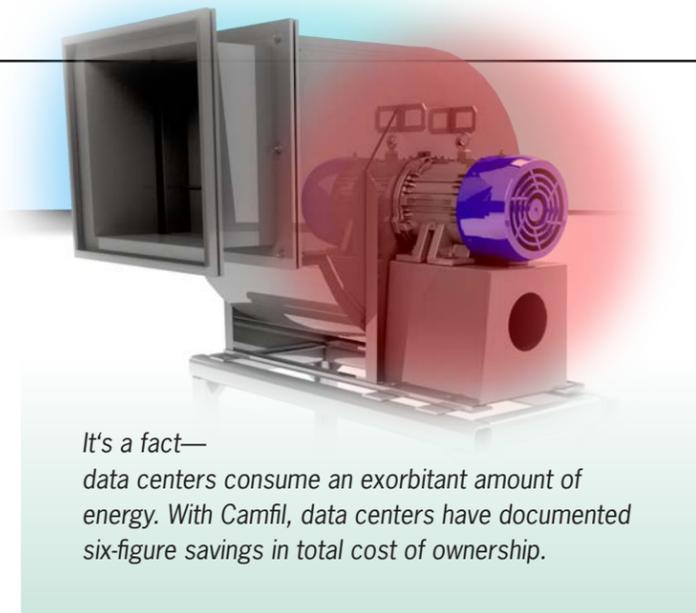
Protect Your
Best in Class
Technology
With Ours

Clean Air Solutions

Costly Fan Energy Reduced by Camfil

Power Usage Effectiveness (PUE) is an important metric tool that measures and tracks where and how improvements can be made in the efficiency performance of the electrical and mechanical infrastructure — the lower the ratio, the better the efficiency. A PUE ratio can be dramatically lowered by reducing fan energy in a data center's cooling system. The efficiency and energy curves of fans used in the cooling systems are far from constant. There can be a difference of 30% or more between peak and low efficiency in fan working range. Filter pressure drop is the driving force behind fan energy expenditures. If low-cost air filters are installed, pressure drop will cause the system to lose efficiency, sending fan energy costs soaring, which in turn will show a rise in the PUE ratio.

Camfil's Farr 30/30®, 30/30® Dual 9, Durafil® ES and Hi-Flo® ES filters have Energy Cost Index (ECI) ratings of five stars—the highest performance rating available. Camfil's proprietary blend of fine fibers uses mechanical particle capture principles which do not require an electret charge. This offers the longest life and lowest average pressure drop while in service over the life of the air filter ... GUARANTEED! Low cost, coarse fiber filters, which incorporate an electret charge to operate, can drop in efficiency and increase in pressure drop in a short period of time resulting in increased fan energy consumption and shorter filter life. Although the upfront cost for these filters may be lower, the total cost of ownership (TCO) is higher because they are on the negative side of Camfil's Life Cycle Cost (LCC) analysis values when compared to the fine fiber media used in Camfil products.



It's a fact— data centers consume an exorbitant amount of energy. With Camfil, data centers have documented six-figure savings in total cost of ownership.

Camfil's low average pressure drop filters allow AHUs (air handling units) and fans to be downsized, saving operating and capital costs on initial installation. Conversely, if a system isn't optimized at design, Camfil air filters can replace substandard filters, or can be retrofitted with Camfil's FastFrame holding frames or MultiTrack hardware for short-term payback.

These are just some of the factors that are considered in Camfil's LCC software (see page 3). Camfil offers a free LCC analysis which is performed by our exclusive distributor in your area.

Camfil's longer-lasting, fine fiber air filters extend equipment life and reduce maintenance. Data firms consume energy – Camfil has documented significant energy savings for data center customers, in some cases, by as much as six figures annually.



Data centers are one of the most energy-intensive building types, consuming 10 to 50 times the energy per floor space of a typical commercial office building. A large data center requires as much energy as 75,000 households.

Collectively, data centers account for approximately 2% of the total U.S. electricity use, and as the country's use of information technology grows, data center and server energy use is expected to grow too. Fortunately, there are many opportunities to reduce energy use in data centers using Camfil energy-efficient air filters.

Premium Products Equals Cost Savings

Farr 30/30®

With its industry-leading 5-Star ECI Rating, the Camfil Farr 30/30 sets the standard for medium efficiency air filtration. When used as a prefilter, a stand-alone HVAC filter, or as the main filter in custom air conditioning units, the Farr 30/30 will remove nuisance dust and staining particles, and increase the life of downstream final filters by removing contaminants that shorten the final filter life. Using a mechanical efficiency to provide MERV 8 and MERV 8A performance levels, the Farr 30/30 will maintain its efficiency throughout the life of the filter.

30/30® Dual 9

Camfil's 30/30 Dual 9 is a breakthrough product where every component has been engineered to deliver the highest level of continuous particle removal, with the lowest energy consumption and longest service life. The 30/30 Dual 9 comes with dual but equal MERV ratings (MERV 9 and MERV 9A), dual-layered gradient density media and dual performance guarantee options of 9 or 12 months.

Durafil® ES

The Durafil ES offers high efficiency particle removal down to the sub-micron particle range to protect the most sensitive manufacturing processes and electromechanical equipment from contamination. Its fine fiber media maintains efficiency throughout the life of the filter, and its increased media area ensures maintained low pressure drop and longer filter life. The Durafil ES can save 40% or more in HVAC-related energy expenditures when compared to competitive products.

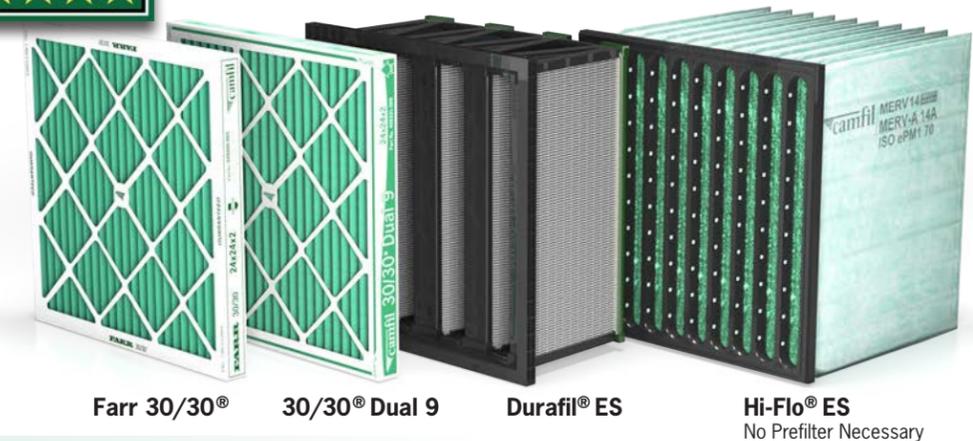
Hi-Flo® ES

The Hi-Flo ES uses a Camfil-exclusive high loft microfibre fiber media to capture even sub-micron particles. The Hi-Flo ES may be used as the only filter in a single-stage system, by itself in multi-stage systems (which lowers pressure drop and reduces service requirements) or any position in multi-stage systems with two or more filters. Available in MERV and MERV A from 11 to 15 and guaranteed to maintain rated efficiency.



5-Star ECI Rating

Camfil air filters are rated as 5-Star air filters through the Energy Cost Index (ECI) program. Based upon a five-star scale, the Energy Cost Index is an indicator of what a filter will cost over its lifetime. The best rating – five stars – indicates that the filter is the most energy-efficient, longest-lasting air filter available.



Critical Decisions Made Easy with LCC Software

The selection of air filters for data processing facilities is a critical decision when considering filter effectiveness in providing a clean environment. An almost equally critical factor is what an air filter will cost over its lifetime in the system, or its total cost of ownership (TCO). There are hidden costs to air filters, with energy usage at the top of the scale. This is followed by associated labor to service the filters, disposal costs and carbon footprint.

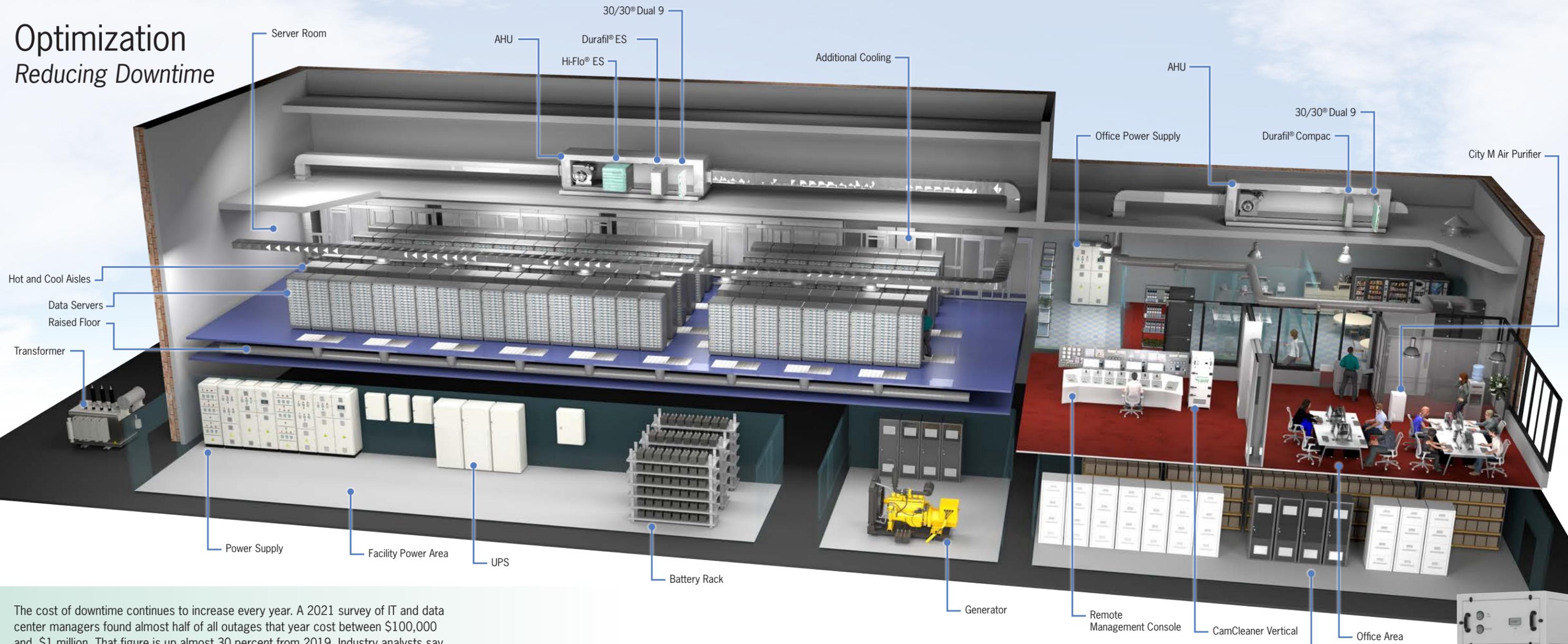
Camfil can predict your TCO using our proprietary Life Cycle Cost (LCC) analysis software. It can also predict the optimum filter change-out point to optimize energy usage and filter life based upon the actual operating parameters of your facility. Inputs include operating velocities, filter performance data pulled from a comprehensive information database of competitive filters, energy cost per kWh, number of hours of operation, labor cost projections, disposal costs and information related to the total carbon footprint.

Your local Camfil representative can run a data center-specific LCC analysis at your convenience to see how you can save thousands, even tens of thousands of dollars a year.



Life Cycle Costing software is a proprietary modeling tool developed by Camfil that allows users to evaluate and optimize air filter selection and change out points to reduce total cost of ownership.

Optimization Reducing Downtime



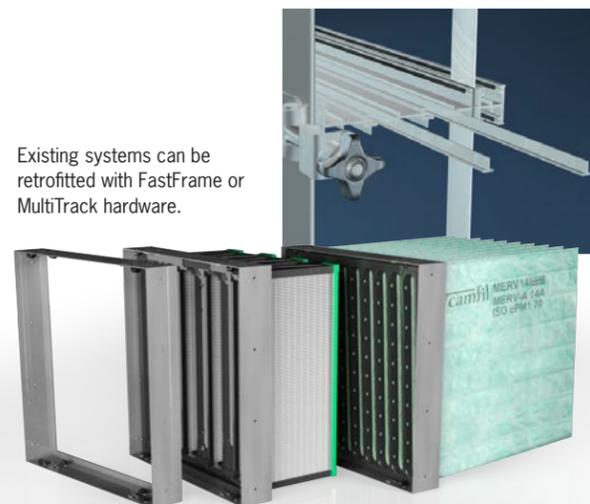
The cost of downtime continues to increase every year. A 2021 survey of IT and data center managers found almost half of all outages that year cost between \$100,000 and \$1 million. That figure is up almost 30 percent from 2019. Industry analysts say this upward trend will likely continue as organizations become more dependent on digital services and face regulatory penalties for downtime and greater customer turnover.

Camfil's high-performance air filters are physically very robust and engineered to better withstand damage from shipping and handling. This high strength also minimizes downtime due to filter damage during installation or when confronted with unexpected environmental conditions.

FastFrame

The Camfil FastFrame for built-up air filter banks does not require cumbersome fasteners or clips to install filters into the frame. It accepts any headered air filter, including pads, pleats, bags, boxes and v-bank filters. It can also be used for two-stage filtration applications. Air bypass is eliminated as the air filters snap into place against a replaceable frame-to-filter seal ensuring less than 1/2 of 1% leakage across the filter and frame combination — all of the air seen by the system will be treated by the system. The FastFrame is available in 24" x 24", 12" x 24", 20" x 24", and 20" x 20" sizes to accommodate a variety of airflow requirements.

Existing systems can be retrofitted with FastFrame or MultiTrack hardware.



Increasing Air Quality for Sensitive Areas

Camfil CamCleaners

The CamCleaner Vertical is a free-standing air cleaner that is completely self-contained and includes pre-filtration, molecular filtration using CamCarb CG cylinders, final filtration, a fan and controls. Contaminated air enters at a low level and travels upwards through the unit. Clean air is discharged at the top. Dampers at the bottom allow the unit to be used in 100% fresh air mode (with duct connection to external source), 100% recirculation mode, or in a combination of the two modes.

The CamCleaner Vertical is particularly useful if there is no external recirculation system. It can also be configured to positively pressurize a control room. The unit is quiet and has a high aesthetic finish. It is, therefore, ideally suited as a supplemental unit in cases where the existing HVAC system lacks the needed clean air performance required to maintain the data center's integrity.



CamCleaner Vertical

On-Site Testing



CamField Lab

Camfil's CamField Lab sets a higher standard for users to evaluate one air filtration product versus another, at the user's site, under their unique conditions by testing individual air filters — either Camfil filters or competitors' filters. Air quality managers can evaluate filters for particle size versus efficiency, using instruments that provide particle counts in individual bands that includes micron sizes from 0.3-0.5, 0.5-0.7, 0.7-1.0, 1.0-2.0 and 2.0-5.0, and can also provide cumulative totals from one selected particle size and larger. Detailed reports help you to attain data that may be critical to analyze factors such as temperature, humidity and airflow histories.

Independent studies have shown selecting an air filter with a lower lifetime average resistance can save hundreds, even thousands, of dollars in energy costs each year.

CamTester III

The CamTester III is Camfil's third generation revolutionary mobile air filter resistance tester. The power required to move air through HVAC systems is the third-largest consumer of energy in North America. With careful air filter selection, facilities can save up to 40% of their HVAC-related energy costs, while achieving improved indoor air quality and longer filter service life.

The CamTester III is portable, includes a variable frequency controlled fan and is operated on an Apple iPad®, included with the tester. The tool allows the user to adjust the airflow to match that of the system being reviewed and includes a screen that displays filter resistance, current energy usage in kilowatts, and estimated annual energy cost to operate the filter.

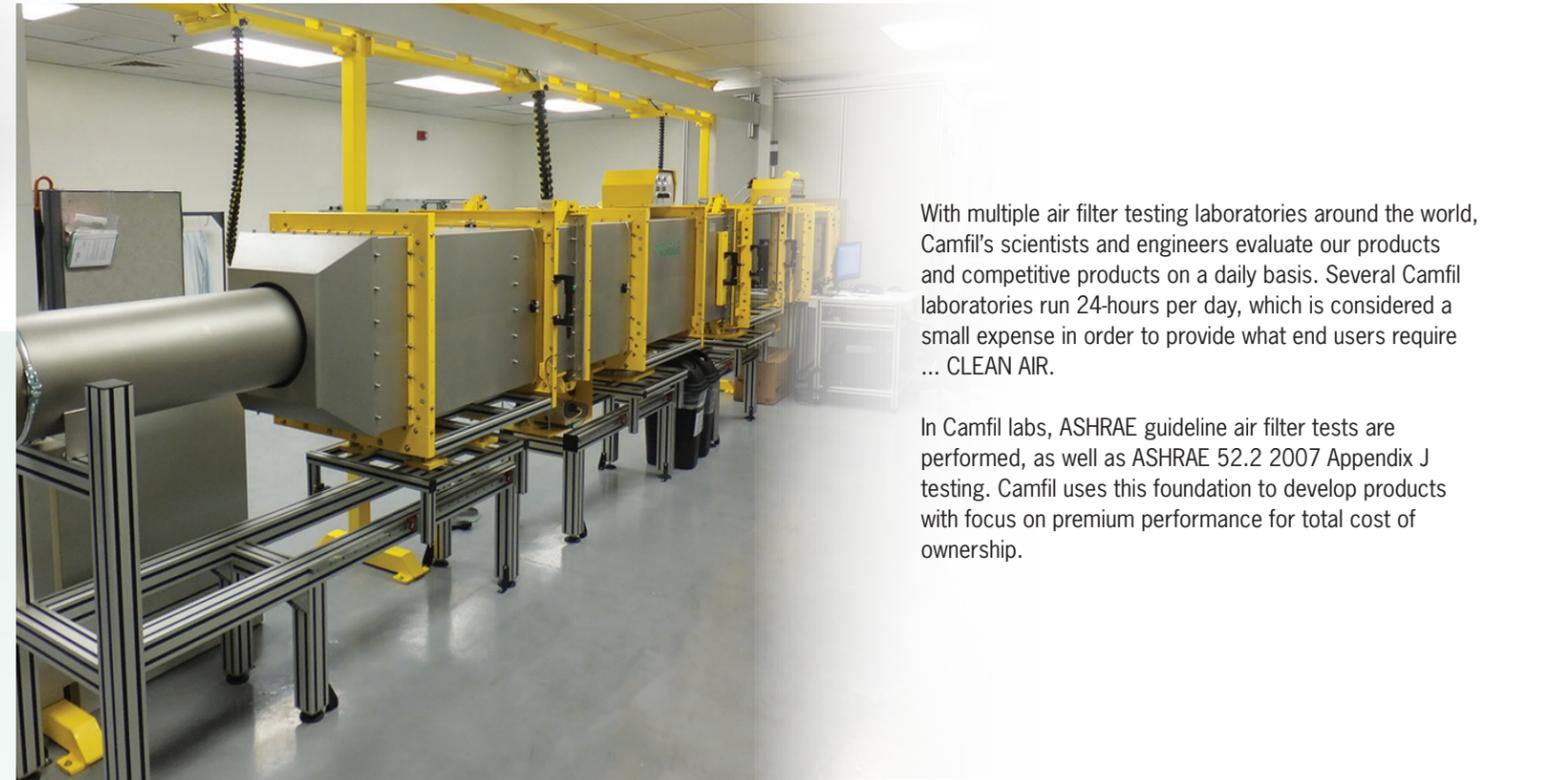


CamTester III

iPad® is a registered trademark of Apple Inc.

Leading the Way in Clean Air Technology

*The Solution is Clear —
Protect Your Best-in-Class Technology with Ours.*



With multiple air filter testing laboratories around the world, Camfil's scientists and engineers evaluate our products and competitive products on a daily basis. Several Camfil laboratories run 24-hours per day, which is considered a small expense in order to provide what end users require ... CLEAN AIR.

In Camfil labs, ASHRAE guideline air filter tests are performed, as well as ASHRAE 52.2 2007 Appendix J testing. Camfil uses this foundation to develop products with focus on premium performance for total cost of ownership.

Servicing and supporting a broad spectrum of industries and administrations, Camfil takes pride in the fact that our products are of the highest quality, with the longest life, as well as the lowest operating and maintenance costs.

We strive to develop and create products that well exceed industry standards and requirements. Strict monitoring, ISO certified quality control manufacturing processes and frequent product sample testing in our world-class testing facilities ensure that our customers receive industry-leading product performance.



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 31 manufacturing sites, six R&D centers, local sales offices in 30 countries, and about 5,200 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, visit us at www.camfil.us.



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