



Clean air solutions

GLOBAL LEADER IN AIR FILTRATION FOR LIFE SCIENCE



Year after year, Camfil stands as a trusted partner, delivering over 2 million products with precision, consistency, traceability and passion.

Our global reach extends far and wide, to thousands of customers globally, and specializing in the demanding domain of the life sciences. Our manufacturing footprint allows for multiple sites to provide the most advanced clean air solutions to your facilities, with an intentional redundant supply chain, reducing your risk. Each facility is ISO certified and strictly adheres to top manufacturing practices.

In a world where credibility is key, Camfil is the trusted adviser. We don't merely meet industry standards; we exceed them, we challenge them. As the only air filter provider in the world that certifies and tests every HEPA/ULPA we manufacture, we walk the talk. The bedrock of our partnerships lies in our adherence to the most rigorous local, regional, and international regulations. Our clients, whether global pharma giants or local enterprises, find reliability in the consistency of our products and services, no matter where they are located.

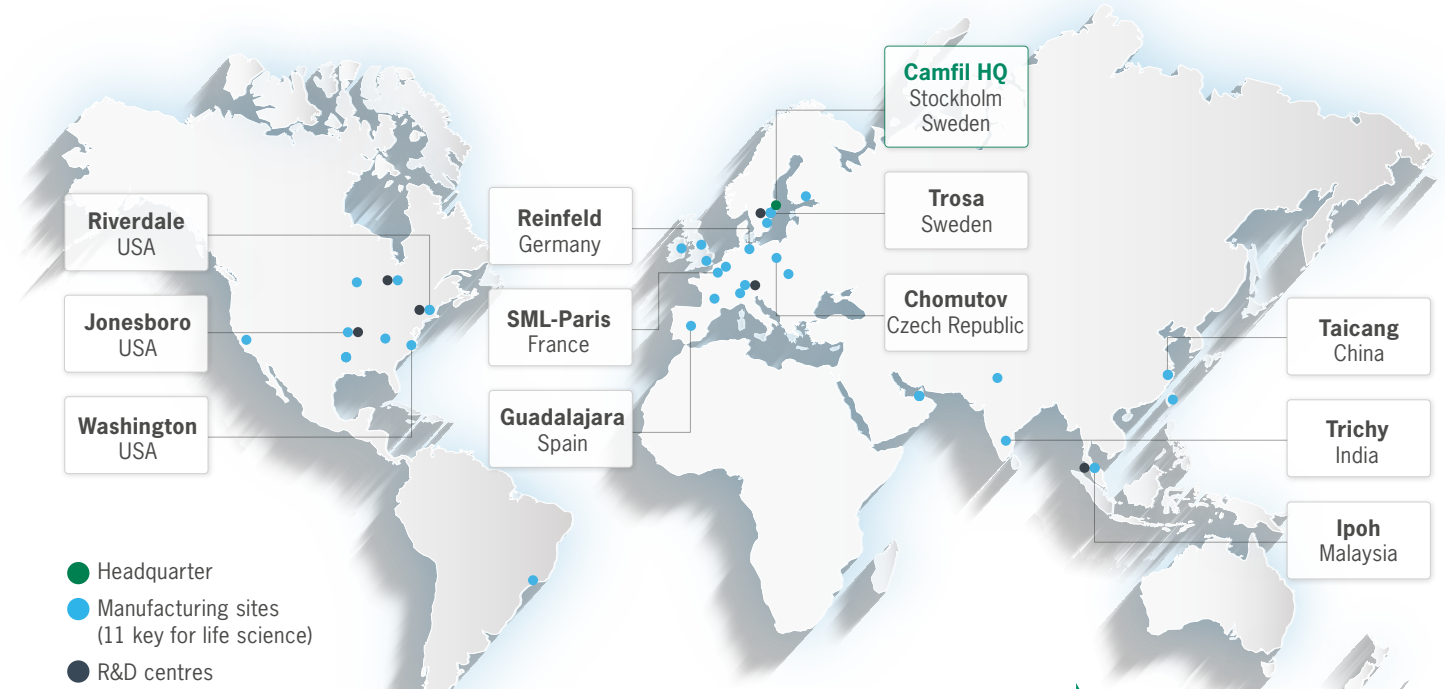
Great products are one thing, the application knowledge and experience to best utilize them is another. This is again where Camfil stand apart, our team of industry experts, our Segment Managers. Armed with knowledge of air filtration as well as real world experience in pharmaceuticals, biotechnology and medical device applications, they can deliver on even the toughest air filtration challenges in your facility.

When you choose Camfil, you choose quality, a partner in excellence. We ensure that every solution exceeds not only application requirements, they also align seamlessly with the highest industry benchmarks, just like you do.

Take a look at [some of the projects we've helped our clients with in the past.](#)



KEY MANUFACTURING SITES FOR LIFE SCIENCE



CAMFIL AROUND THE WORLD

- Headquartered in Stockholm, Sweden
- 30 Manufacturing sites worldwide
- 6 R&D centres
- 35+ Countries with sales offices

Find your local contact with our contact locator:
www.camfil.com/en/support-and-services/support/contact-locator

ENERGY EFFICIENCY & ENVIRONMENTAL IMPACT

FOR OVER HALF A CENTURY, SUSTAINABILITY HAS BEEN OUR WAY – IT DEFINES US.

At Camfil, our commitment to sustainability, energy efficiency, productivity, and health is not a mere checkbox; it's the very essence of who we are. These foundational principles resonate in every solution, service, and product we manufacture. We are already partnered with some of the biggest names in the industry to reduce their carbon footprint, lower their energy costs and reduce logistics and landfill waste.

The call to slash CO₂ emissions is growing louder, energy costs are escalating, and the awareness of negative health impacts from poor air quality is widespread. As such, the role of energy-efficient air filtration takes center stage. Recognizing the impact of life cycle cost (LCC), Camfil provides the lowest total cost of ownership (TCO) air filtration products.

When you analyze the life of a filter, the spotlight inevitably falls on energy consumption, the most critical factor regarding its operational costs. Astonishingly, over 80% of the cost is tethered to energy!

Something as simple as selecting a superior air filter, with a lower differential pressure (energy needed to push air through it), a longer life span and better filtration efficiency can rapidly push forward you and your organization's sustainability goals!

In the realm of life sciences, where compliance is paramount, our mission extends beyond regulatory adherence. It's about curbing environmental impact. Any batch you destroy impacts the environment, as well as your bottom line. Quality first. At Camfil, we recognize this, and keep your manufacturing environment top of mind while designing better solutions for air filtration.

Sustainability isn't just a practice; it's a relentless pursuit, shaping a future. At Camfil, our solutions not only meet compliance standards but also pioneer a new era of efficiency, cost-effectiveness, and waste reduction. In short, saving the world, one filter at a time!

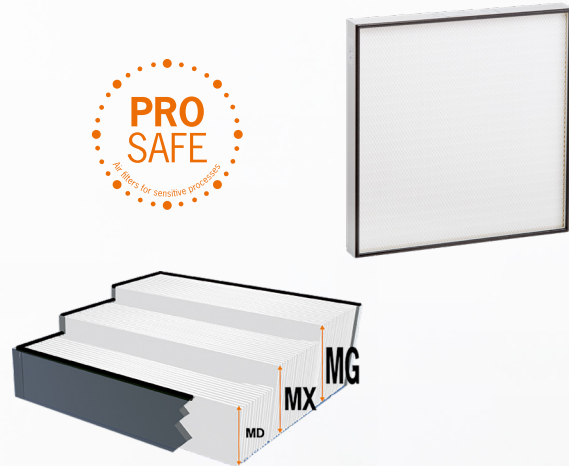
IN FOCUS: STERILE FILL – INJECTABLES FACILITY

For more than a decade, Camfil has lead the way in this complex environment with the best in class HEPA filtration products, backed by the most advanced and user-friendly terminal HEPA housing solutions. Designed for, and with, the pharmaceutical industry, to minimize downtime and risk.

Testing and validation of your high efficiency filters should be accurate, efficient and repeatable. Our filtration solutions help you maintain regulatory compliance while meeting even your most challenging production goals.

MEGALAM

Critical areas require reliable air filtration. “No other filter manufacturer in the world tests every single HEPA they produce to ensure top performance and efficiency. Megalam panels also boast a lower average differential pressure, meaning less energy consumption for your critical processes, without compromising safety or quality.



①



HIGH TEMPERATURE FILTERS

Applications that require thermal, or higher temperature environments need specific filters, designed for the challenge of heating and cooling cycles. Camfil offers the widest array of high temperature HEPA filters designed for today’s most efficient ovens/dryers.



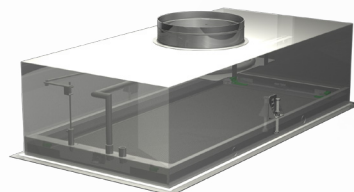
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CLEANSEAL

Our most versatile family of supply and exhaust air HEPA housings for ceiling and wall installation controlled environments. Available with or without integrated ISO 14644-3 compliant filter validation features.



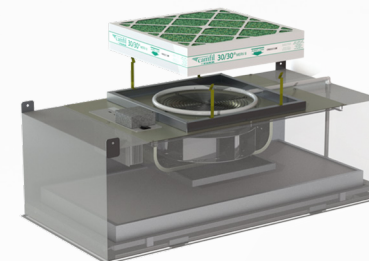
PHARMASEAL

A fully welded ducted filter module for HEPA or ULPA filter installations. Available with bubble-tight, guillotine or radial blade bow tie damper for precise air volume control.



CAM FFU

Fan filter (FFU) unit containing our premium pre- and HEPA filters, integrated fan and control system. Low sound power level, low energy consumption and very easy filter replacement from room-side thanks to the locking bar system.

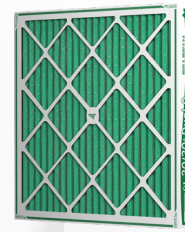


PHARMASEAL FFU

Room side testable fan/filter HEPA ceiling unit. Innovative internal baffles ensure uniform airflow across the filter face and attenuate sound. Includes a proprietary aerosol injection and distribution system for uniform dispersion across the entire face of the filter to certify filter installation.

FILTER STAGE 1

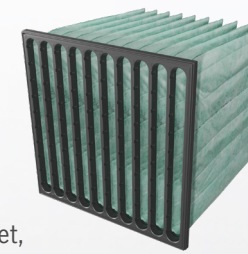
FILTER STAGE 2



⑤

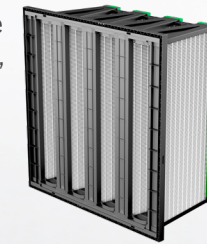
30/30 DUAL 9

Your facilities first line of defense against particles. First stage, or pre-filtration, reduces large scale particles to enhance the life span of your higher efficiency filters. Camfil’s pre-filter solutions last longer than any other in the market, to allow for less frequent change-outs, and a reduction in landfill waste.



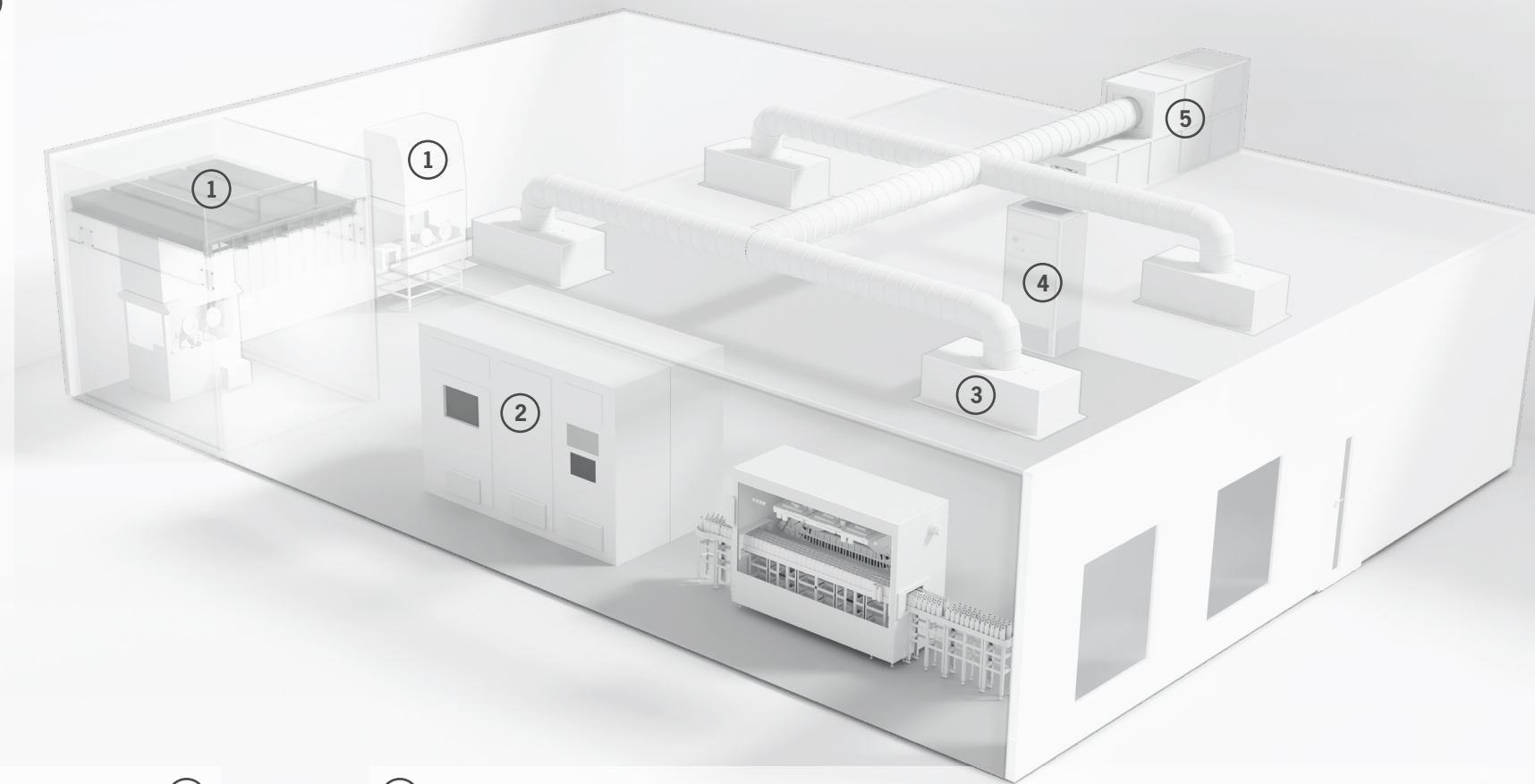
HI-FLO / HI-FLO ES

Designed to last longer while maintaining higher efficiency, the Hi-Flo boasts low energy consumption, high dust holding capacity, so longer service life, while also serving as a pre-filter (can be used with, or instead of, a pre-filter panel).



OPAKFIL / DURAFIL

The lowest differential pressure in the industry. Period. The most sustainable filter ever; longest service life, lowest energy consumption AND best rated efficiency.



④

CAMCLEANER

CamCleaner Vertical is a free-standing mobile air cleaner designed for corrosion control applications in heavy process industries.



CAMCARB XG

The most versatile gas-phase air filter installed in supply, recirculation, and exhaust air systems in commercial, industrial, and process applications. Conical, corrosion resistant molecular filter filled with Camfil’s activated alumina or activated carbon.



IN FOCUS:

ACTIVE PHARMACEUTICAL INGREDIENT (API) ORAL SOLID DOSE (OSD) FACILITY

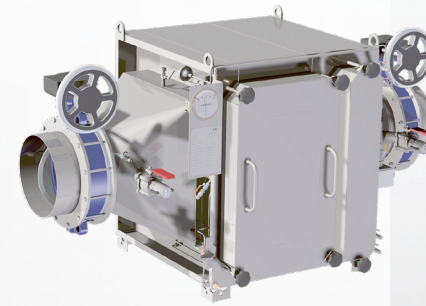
Despite your methodology, wet granulation, dry granulation, direct compression or particle coating, Camfil has a filtration solution to match your application and cleanliness level.

As these applications introduce particulates, specifically during ingredient dispensing/formulation, blending and compression/encapsulation, Camfil offers top class solutions for dust collection and source capture.

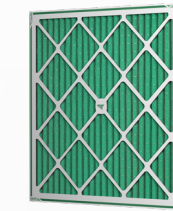
CAMCONTAIN

Fully welded, bubble tight construction; the ideal filter housing for the filtration of radioactive, toxic or biological particles and gases in highly sensitive application.

CamContain filter housings have been designed to meet the highest safety demands, used in applications where people, animals or the environment are endangered by highly infectious microorganisms.



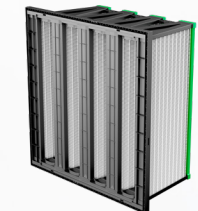
1



30/30 DUAL 9

Your facilities first line of defense against particles. First stage, or pre-filtration, reduces large scale particles to enhance the life span of your higher efficiency filters. Camfil's pre-filter solutions last longer than any other in the market, to allow for less frequent change-outs, and a reduction in landfill waste.

6



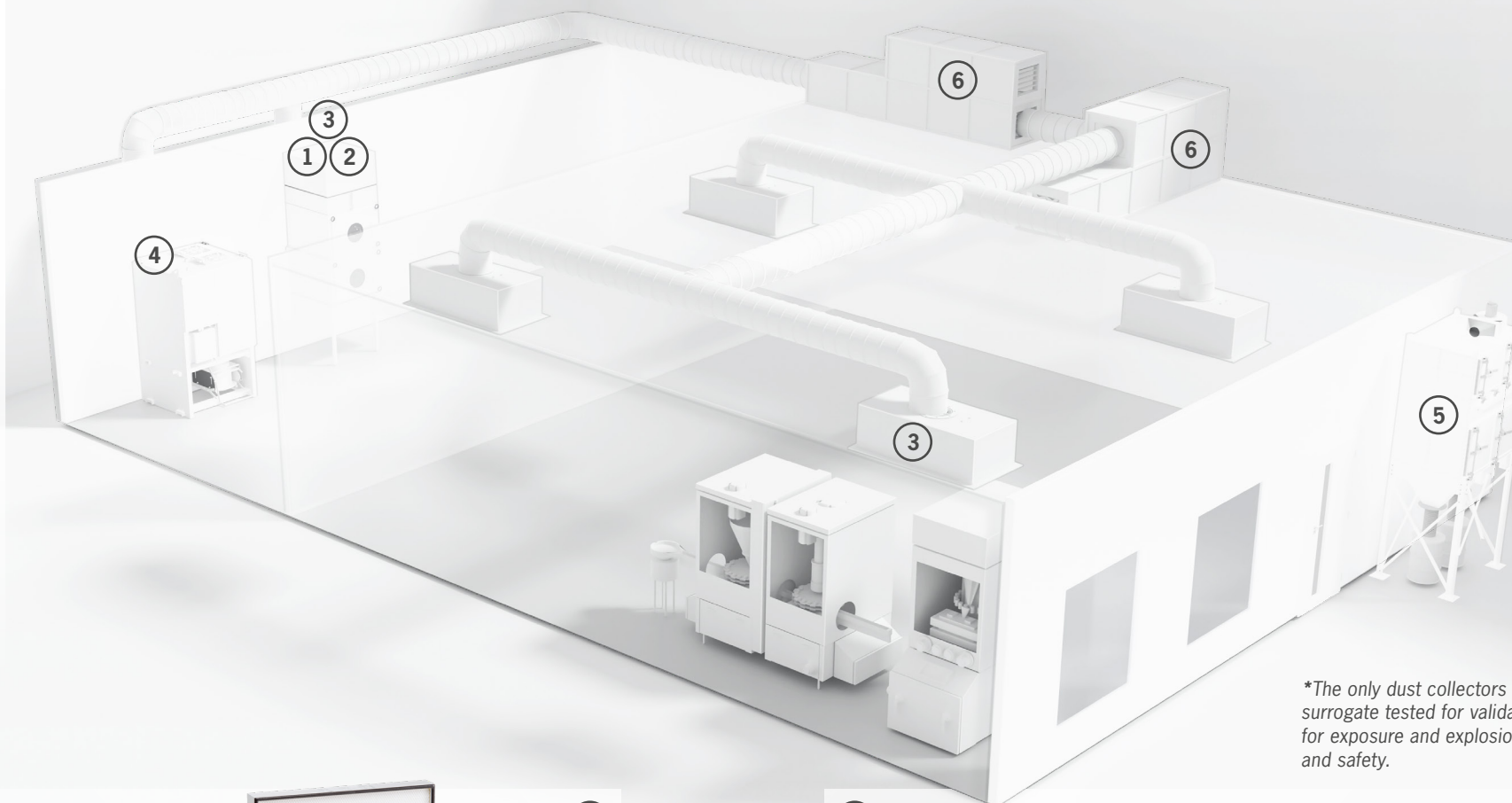
OPAKFIL / DURAFIL

The lowest differential pressure in the industry. Period. The most sustainable filter ever; longest service life, lowest energy consumption AND best rated efficiency.

2

CAMSAFE 2 WALL MOUNTED

Modular HEPA filter housing system for a contamination-free filter change, designed for containment applications with moderate to high safety demands. Optionally with integrated MIP manual filter testing system.



5

GOLD CONE CARTRIDGE

Gold Cone filter cartridges include an open bottom, pleated conical addition to the inside of the filter cartridge which adds more usable media. This configuration increases the amount of air each filter can clean.



GOLD SERIES*

The industry's leading industrial dust and fume collection system which handles all kinds of toxic and combustible dusts, smoke and fumes from various applications. Available in different configurations.



**The only dust collectors in the industry that are potent compound surrogate tested for validated performance, in addition to testing for exposure and explosion, providing unprecedented piece of mind and safety.*

3

CLEANSEAL

Our most versatile family of supply and exhaust air HEPA housings for ceiling installation controlled environments. Available with or without integrated ISO 14644-3 compliant filter validation features.



MEGALAM

Critical areas require reliable air filtration. "No other filter manufacturer in the world tests every single HEPA they produce to ensure top performance and efficiency. Megalam panels also boast a lower average differential pressure, meaning less energy consumption for your critical processes, without compromising safety or quality.

4

QUAD PULSE

Industry proven dust collectors that provide a cleanable filter system that allows continuous manufacturing processes and prevents regular, expensive filter replacements.

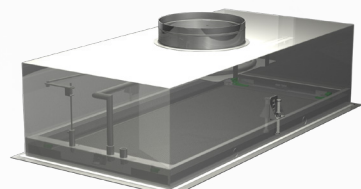
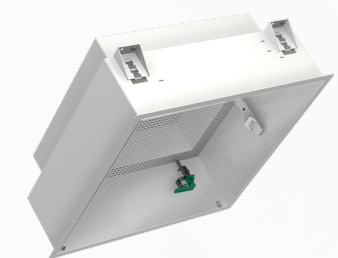


The filter cartridges are divided into four segments which are continually cleaned, one at a time, by the unique Quad Pulse system, ensuring constant air flows during operation.



ABSOLUTE VG

Prosafe certified HEPA filter for hygienic and aseptic supply- or exhaust air systems that require a very high airflow and low pressure drop.



PHARMASEAL

A fully welded ducted filter module for HEPA or ULPA filter installations. Available with bubble-tight, guillotine or radial blade bow tie damper for precise air volume control.

HEPA/ULPA APPLICATIONS

HEPA FILTER / ULPA FILTER							
TEMPERATURE 70 C°			110 C°	230-250 C°	350 C°	350 C°	350 C°
ABSOLUTE		STANDARD CLEAN ROOM APPLICATION	ABSOLUTE	SOFILAIR HT/FRSI	TERMIKFIL	F SERIES / FRK	ABSOLUTE D-PYRO
HIGH AIR FLOW > 2500 M3/HR (1500 CFM) FILTER CLASS E10-H14		-0,45 M/S (90 FPM) FILTER CLASS H13-U17	250 PA FILTER CLASS E10-H14				
ABSOLUTE C SERIES	ABSOLUTE D SERIES	ABSOLUTE V SERIES	MEGALAM	CLOSEPLEAT			

HEPA and ULPA filters are used in a wide variety of applications, different components are utilized in the filter's construction depending on its application. Camfil manufactures specific grades of filters to meet local, regional and international standards, including, but not limited to, EN-1822, IEST CC 034 and ISO 29463.

To verify efficiency and function, Camfil constructs proprietary, in-house scanning and pleating machines. Our designs ensure consistency of product quality and construction throughout the world. Applications that require shake table testing, high airflow, burst pressure tests, high temperature tempering are also available upon specific request.



Scan to learn more or go to:
www.camfil.com/Filter-technology/Filter-testing/HEPAULPA-Testing

MINI ENVIRONMENTS

At times, critical pharmaceutical manufacturing protocols require special filtration. Camfil produces custom HEPA/ULPA filter solutions for isolators, restricted access barrier (RABS) systems, depyrogenation and drying ovens and more.



GASKET

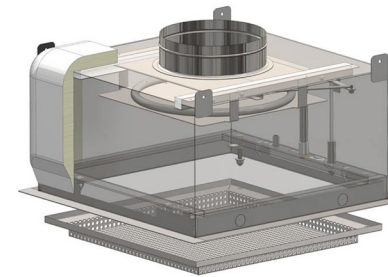
Installations mainly utilize a Gel or PU endless gasket system as seen below.



GEL

PU ENDLESS GASKET

HOUSINGS FOR CONSISTENCY AND COMPLIANCE

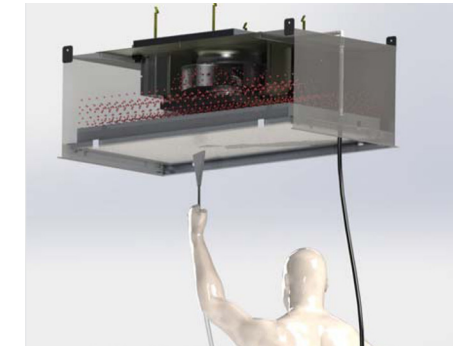


Consistency is critical in any pharmaceutical application. Pharmaseal/Cleanseal housings allow operators to reduce their risk of contamination, while simultaneously allowing for faster HEPA validation and change.

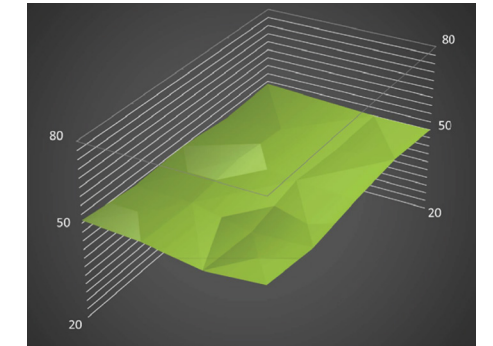
Full welded for long term function and security. Easy access test ports and internal manifold for uniform test aerosol dispersion. Available as a terminal housing or with a fan, to meet the challenges of any facility.



CLEANSEAL EXHAUST INTEGRITY



UNIFORM AEROSOL DISTRIBUTION



TESTING

CONTAINING YOUR PROCESS BIOSAFETY & CONTAINMENT



PHARMATAIN

- When working with potent active pharmaceutical ingredients (APIs), or viral vectors, biocontainment is key. Camfil has been the first choice of biosafety professionals around the world because of our commitment to quality; fully welded and bubble-tight construction, internal validation options, and state of the art space saving technologies.
- The Camfil Pharmatain and CamSafe are Bag-In, Bag-Out (BIBO) wall mounted housings typically used where hazardous compounds or vaccines are in production.
- The Pharmatain can be manufactured in stainless or painted steel, options include of Pre & HEPA filters sections, filter scan section, inlet grill with banded welds, levelling feet, photohelic gauges, bubble tight damper & cosmetic door.

CamSafe is a modular and highly flexible product family, designed for exhaust of contaminated air in containment applications like biosafety L1 to L3+, safety laboratories, pharmaceutical and chemical industries, hospitals, animal facilities.



CAMSAFE 2

PROTECTING THE PROCESS FROM HARMFUL DUST

Camfil air pollution control (APC) has been an expert in the pharmaceutical dust space for over 25 years. **The Gold Series Camtain** can be used in a wide array of applications, tablet presses, coating, fluid bed and spray drying, blending, granulation, raw API processing and general ventilation. For smaller sized applications, the **QPP system** can fit directly into the preparation space, saving you cost on retrofit and outdoor ductwork. The option of safe-change **bag-in, bag out (BIBO)** systems provide a critical safety barrier, minimizing the potential for contamination of your process and helping you adhere to biosafety guidelines for your staff. These systems are the only dust collectors that are potent compound surrogate tested for validated performance, exposure and explosion.



QUAD PULSE PACKAGE SYSTEM



GOLD SERIES CAMTAIN WITH BIBO SYSTEM



ATEX BACK FLOW VALVE

PROCESSES INVOLVING PHARMACEUTICAL DUST

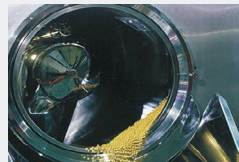
- Tablet presses
- Tablet coating
- Fluid bed drying
- Spray drying
- Blending
- Granulation
- General room ventilation



Blending application



Granulation application



Coater application



Tablet press application

PROTECTING FROM MOLECULAR CONTAMINATION

Molecular contamination (gases) concerns are present in many different formats; from supply air concerns of neighbouring industrial facilities, to exhaust air requirements (regulations) ensuring molecular contaminants are not released into the environment, to dealing with vapours from sterilization processes and protecting products from contamination. Airborne molecular contamination control plays a significant role in pharmaceutical production facilities, and only Camfil has the solutions and knowledge to support your control efforts.



AIRIMAGE-COR SENSOR



CAMCARB XG MOUNTED ON BASEPLATE

FOUR PRINCIPAL AREAS OF MOLECULAR CONTAMINANTS:

- 1. Odour** - Often at an elevated level in industrial facilities
- 2. Irritant** - Some molecular pollutants can cause long-term health effects such as loss of smell and lung damage
- 3. Toxicity** - The most dangerous category of air pollutants are the toxic ones. Can cause serious health effects and even death
- 4. Corrosive** - Biggest threat to equipment and machinery and often a problem in microelectronics, pulp and paper and museums

TYPICAL MOLECULAR CONTAMINANTS:

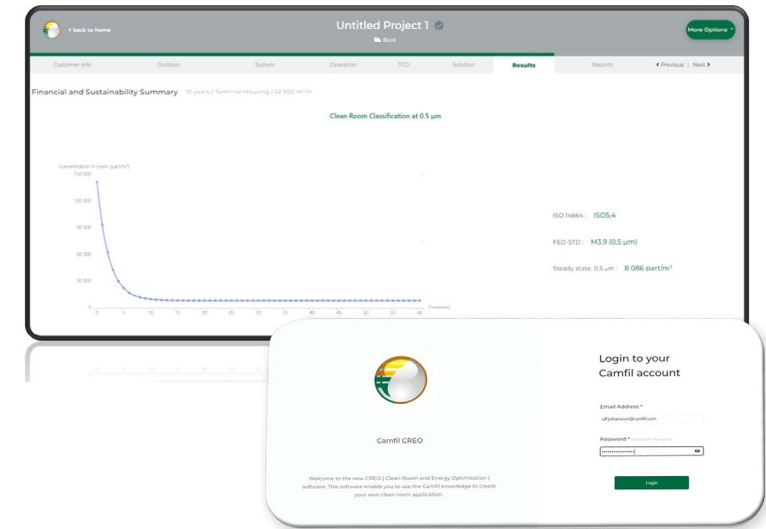
- **Peracetic Acid (PAA)**: odour, irritation issues (eyes, lungs, skins) and potential corrosion risk
- **Ethylene Oxide (EtO)**: health issues for the workers, health issues for the adjacent area
- **Decontamination Chemistries**: Hydrogen Peroxide (H₂O₂) and Chlorine Dioxide (ClO₂), removal from sterilized areas for faster/safer return to operations
- **Nitrogen Dioxide (NO₂)**: filtration in make-up air to prevent the formation of Nitrosamine in API or products
- **Volatile Organic Compounds (VOCs)**: potential for better lab chemistry due to removal, better employee health, removal of nuisance odours

ENGINEERING TOOLS

Constantly looking to improve our own offerings while optimizing the time and resources of our clients, Camfil offers various facility modelling platforms, backed by over 20 years of real-life and lab testing.

LIFE CYCLE COST (LCC) GREEN provides a facility-wide assessment of your filter spend and how to best reduce your operation costs and CO₂ footprint.

CLEAN ROOM ENERGY OPTIMIZATION (CREO) offers a user-friendly method to model utility use in your critical environments, while maintaining clean room classification/cleanliness levels.



LEADING EXPERTS IN CLEAN AIR TECHNOLOGY

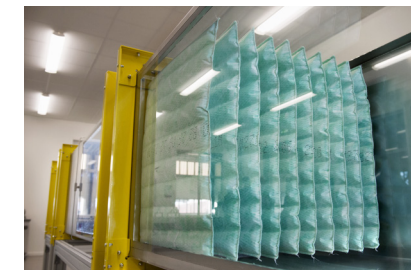
From the beginning, Camfil has stood apart by seeking innovative technology, creating new, user friendly and sustainable solutions.

Our promise to challenging the status-quo, to create more value for our customers and to protect people, processes and the environment is behind everything we do.

Our state-of-the-art tech centers is but one key example of the commitment we maintain, to bring the very best solutions to the critical life science industry, all around the world.



- 1. Molecular Lab**
 - Development of molecular filters
 - Climate controlled test rigs for carbon media and full-size molecular filters
 - Porosity meter



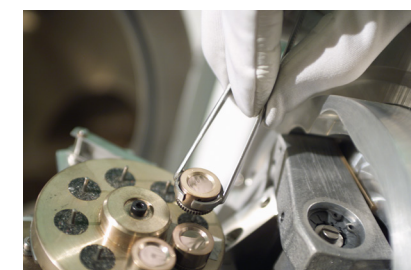
- 2. APC Lab**
 - Development of filter solutions for dust collection
 - High-Speed filter rig
 - Climate simulation



- 3. Process Development Workshop**
 - Development of process equipment for manufacturing filters
 - Fully equipped machine shop
 - 3D printer for prototyping



- 4. Particle Lab 1**
 - Development of comfort and HEPA filters
 - Aerosol research
 - Test rig for full-scale filters and smaller filters
 - Nano particle measurements using an electrostatic classifier with CPC
 - Filter media testing and development
 - Accredited to ISO 17025 for EN1822 and ISO 29463 testing



- 5. IAQ Lab**
 - Quantitative and qualitative air quality analysis
 - Media and fibre development
 - Air quality research
 - Scanning Electron Microscope, SEM

Find your local contact with our contact locator:

www.camfil.com/en/support-and-services/support/contact-locator

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 centers, local sales offices in 35+ countries, and about 6,000 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.com.

www.camfil.com



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