Standards are not our Standards.

JACK FILTER

FILTERS FOR CLEANROOMS 2015

www.jackfilter.at

SPECIALIZED ON THE PROCESSES OF OUR CUSTOMERS

FACTS & FIGURES THE JACK FILTER GROUP:

- Founding: 1947
- Total employees: 130*
- Locations:
  Headquarters: Sattendorf / Ossiach in Carinthia
  Cleanroom centre: Steindorf / Ossiach in Carinthia
  Sales branch: Brunn am Gebirge near Vienna
  Production site: Polgárdi in Hungary
- Export ratio: over 50%

*Status 2015

ITS A GOOD FEELING, WHEN YOU MAKE THE RIGHT DECISION

To inspire people is our mission. Therefore, we have decided not to be a “standard manufacturer” of “standard products”. We place great emphasis on personal service and fair prices. In other words: We create a good feeling, whenever possible.

INNOVATION FROM TRADITION

Since the founding in 1947, we have developed from an Austrian family company based in Sattendorf to one of the leading producers of air filters for industrial dust separation, ventilation, air conditioning and cleanroom technology.

As a privately owned medium-sized company, we have built long-standing relationships with our customers. We can refer to a variety of reputable references in various industries. The supervision and project implementation is straightforward, without complex group structure. More than 40% of products are exported.

OUR VISION

The path to the best manufacturer of Air filters for ventilation, clean-room and the dust collection Industry in Europe is far from easy to handle. But we are ready to deal with it uncompromisingly.

Managing directors Alexander Gaggl and Kurt Gaggl

NOT ALL CLEANROOMS ARE THE SAME

Cleanrooms are used in many fields of industry, medical technology and food production. Here, the concentration of airborne particulates is to be kept as low as necessary. Filters are the central elements for air purification in any cleanroom. Wherever ultra clean air is needed EPA, HEPA and ULPA filters are used in addition to many types of coarse and fine dust filters for pre-filtration. To control airborne molecular contamination different types of adsorption filters are used today.

Different cleanroom concepts are followed depending on the application. Besides the cleanroom class and hence the maximum concentration of particles and required filter class of the particulate filter, the configuration of the cleanroom system plays a decisive role in the choice of filter. EPA, HEPA and ULPA filters can be installed in air ducts or as terminal filters, for example in cleanroom ceiling systems. The choice of different frame designs and sealing systems is dependent on the individual installation situation.

Our development focuses on the following areas of application:

- MEDICAL TECHNOLOGY
- PHARMACEUTICAL INDUSTRY
- SEMICONDUCTOR INDUSTRY
- MICROELECTRONICS
- FOOD INDUSTRY

THE MOST MODERN CENTER FOR CLEANROOM TECHNOLOGY

In 2014 we opened the brand new cleanroom technoloy center in Steindorf/Carinthia. We are able to produce high efficiency particulate air filters under clean conditions in the highly efficient Mini-Pleat technology for hospitals, the semiconductor-, pharmaceutical- , food processing industry and many more. The new plant is a future-oriented extension and the highest investment in the history of Jack Filter. Therefore we can improve our strengths in productivity, speed and in our premium customer service.

KEY DATA CENTER FOR CLEANROOM TECHNOLOGY:

- Floor space 3500 m², therefrom 2100 m² production space
- Production and testing of our filters in a cleanroom ISO class 6
- Warehouse of our most popular products

STANDARDS ARE NOT OUR STANDARDS

Jack Filter provides a high-class complete package with an extensive service, which distinguishes through the characteristics of reliability, speed, flexibility and mass customization. For us customer proximity is not necessarily determined in the geographical location.

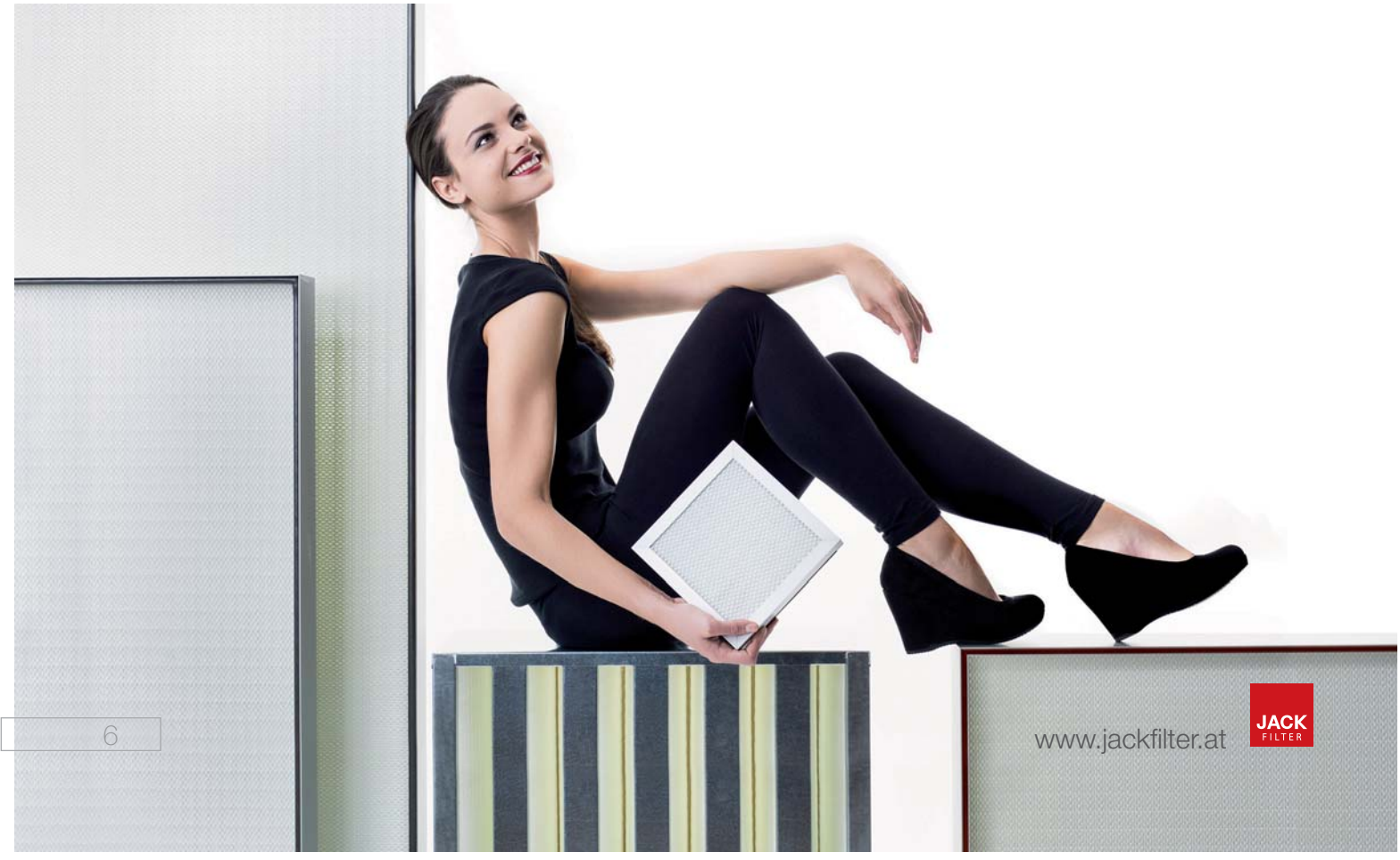
FLEXIBILITY²

With our flexible production technology, we can also produce small batches cost-effectively, and adapt our air filters individually and customised for your specific requirements.

The dimensions range from the smallest filter at 150 x 150 mm up to filters of 1830 x 1220 mm from a number of standard frame profiles made of anodised aluminium, wood or steel. In addition, we offer customer specific customised models.

Do you operate your facility with a specific face velocity and requirement for particulate concentration?

No problem! We produce our filters according to your requirements - and with the same high quality.



IN A FLASH...

Speed in our processes is an important differentiating factor of Jack Filter. Thanks to our own engineering and the use of industrial robots, we are able to achieve very short delivery times. Standard filter types are available in the most common dimensions from stock.

SAVE MONEY AND NERVES

Our central concern is that the correct filter is delivered to the right place at the right time. Thus we can save our customers troubles and keep your warehouse costs low.

FULL-SERVICE

To ensure you get the optimum Jack filter for your plant, we will gladly advise you on the filter design and energy optimization and our teams can take over services during the commissioning, maintenance, filter changes and examination.

MORE THAN 3.000 CUSTOMERS WORLDWIDE RELY ON FILTER SOLUTIONS FROM JACK FILTER
MADE IN AUSTRIA

QUALITY BENCHMARK

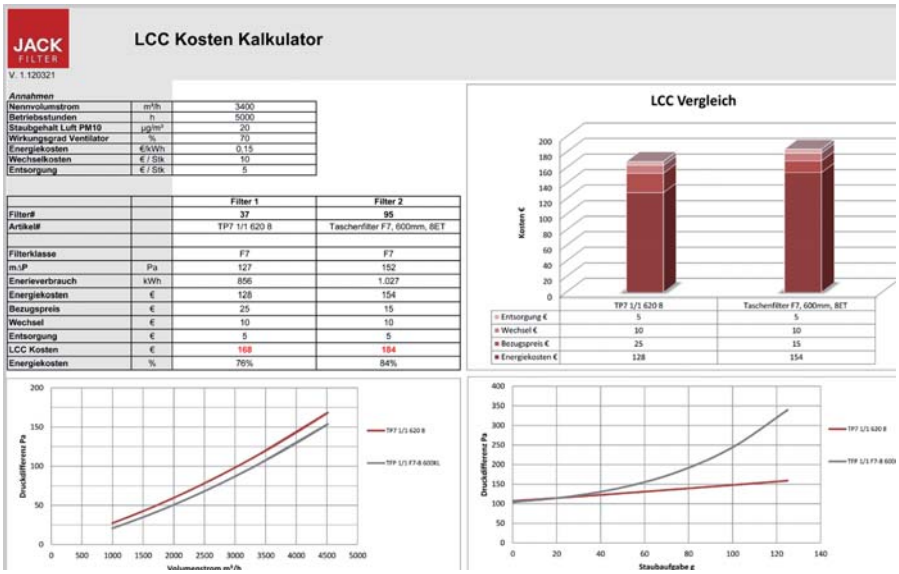
The ISO 9001 certification is the foundation of the quality management system and due to the high level of automation we achieve a consistently high quality level. Each individual factor is crucial when it comes to excellence. Whether strong customer focus, carefully selected raw materials, our expertise in mechanical engineering, accelerating processes or innovative filters, all which rise above the industry standards.

qualityaustria
SYSTEMZERTIFIZIERT
ISO 9001:2008 NR.15449/0

OPTIMIZED LIFE-CYCLE-COSTS

Our high productivity makes it possible to have an outstanding price-performance ratio. As a result, you can significantly reduce procurement costs. Moreover a comprehensive view of the filter lifecycle costs (LCC) is decisive for an economical choice of the right filter. The analysis of numerous application cases shows that energy consumption is responsible for 70 - 85% of the LCC. Through a flow-related, optimised design of our filters as well as the use of innovative filter media, the energy consumption is lowered considerably with the same dimensions and collection efficiency.

We developed our own program to calculate the filter costs using the lifecycle. Up to five filters can be compared using it.



THE TEST METHOD FOR PARTICULATE FILTERS

The European filter test standard EN 1822 is the most important foundation for testing and classifying particulate filters. It consists of a total of five parts. The filter is assigned to the respective filter class with the help of the results of section 4 (local collection efficiency) and 5 (integral collection efficiency).

Filters of classes as of H13 receive an individual test report and serial number. Individual testing of EPA filters is not necessaryaccording to the standard. EPA filters are tested within the framework of type testing, whereby the collection efficiency results from the mean values of random sampling based measurements.

Part 1: Classification, performance testing, marking

EN 1822-1:2009 differentiates 3 groups of airborne particulate filter: Group E: EPA filters- high-performance particulate filters (Efficient Particulate Air Filter)
Group H: HEPA filters - airborne particulate filters (High Efficiency Particulate Air filter)
Group U: ULPA filters - high-performance airborne particulate filters (Ultra Low Penetration Air filter)
The classification of airborne particulate filters is based on the local and integral collection efficiency determined during testing.

Part 2: Aerosol production, measuring equipment, particle counting statistics

This part describes the conditions of the test as well as the aerosol generators that are to be used, the particle measuring technology and the statistical procedures for analysing the counter results.

Part 3: Testing flat sheet filter media (MPPS determination)

The content of this test is the determination of the fractional collection efficiency and determination of the particle size with the highest level of penetration MPPS (Most Penetrating Particle Size) for the flat filter medium. For this purpose, the filter medium is applied with the nominal face velocity specified later in the filter and charged with a test aerosol. Partial flows of the test aerosol are taken on the incoming and outgoing sides of the filter sample. The particle concentrations contained in it are determined by means of a particle counting procedure, and the fractional collection curve is determined. The particle size at which the fractional collection curve reaches its minimum is called the MPPS. Simply said, it is the particle size for which the filter medium has the worst collection for a specific face velocity.

Part 4: Determining leakage of filter elements (scan test)

This section deals with testing the filter for freedom of leaks. Leaks can result from faults in the filter medium, improper sealing of the pleat pack to the frame or through irregularities when handling the parts. Due to the high collection efficiencies that are to be expected of HEPA and ULPA particulate filters, even the smallest leaks that are hardly perceivable to the naked eye lead to excessive particle concentrations.

For the automated process (scan test), the filter element is set up in a test rig and a DEHS (Di-2-Ethylhexyl-Sebacat) test aerosol is then applied. The average particle size of the aerosol must be in the range of the MPPS here. The clean-air side of the filter is traced with sensors by means of traversable, computer-controlled linear axes. In the process, the local aerosol concentrations are measured at every point of the clean air side so that the local level of penetration can be determined. If the aerosol concentration does not exceed the required threshold values at any point, then the filter is considered to be leak-free. Hence, the necessity of determining the local individual efficiencies implies the necessity of individually testing every filter element as of filter class H13. Jack Filter tests all filters as of filter class H13 by means of a scan test.

Part 5: Determining the efficiency of filter elements

Part 5 describes the determination of the integral filter collection efficiency. Mostly, this value is shown by the mean value of the local individual efficiencies measured in part 4. A permissible alternative is an individual measurement with fixed sampling probes.

FILTERS FOR CLEANROOMS

EPA-/ HEPA-/ ULPA-filters are able to reach efficiency up to 99.99995% and are installed, where there is a specified air purity to the protection of human beings and/or production processes. The use and requirements for cleanrooms are very diverse, among others in hospitals and medical engineering, food processing industry, semiconductor- and microelectronic industry, pharmaceutical and optical industry.

The high separation efficiency can be achieved with special and very fine fibers filter media in combination with the Mini-Pleat technology. This technology allows the assembly of compact filter elements with a large filter surface. Due to the large surface the flow velocity is extremly reduced, which supports the diffusion separation of sub-micron particles. With the pleat distancing by the use of hotmelt spacers a high stability, consistent pleat geometry and therefore a laminar flow can be achieved. To guarantee a permanent optimised geometry of the pleat packs to the selected frame, we can produce pleat packs with a height up to 280 mm und a pleat distance of maximum 11mm.

Usually the filter medium is a high efficient microglass fibre paper. If you need a high separation efficiency and at the same time a low pressure drop, we suggest the Composite-ePTFE-Membran filter medium.

Every single filter higher H13 is tested to be leak-free according to EN 1822-4 and labelled with an enclosed test certificate.

OVERVIEW

TESTING METHOD	ARTICLE	E10 ≥ 85 % GA	E11 ≥ 95 % GA	E12 ≥ 99.5 % GA	H13 ≥ 99.95 % GA	H14 ≥ 99.995 % GA	U15 ≥ 99.9995 % GA	U16 ≥ 99.9995 % GA
EN 1822:2009	HEPA-FILTER HA				■	■	■	■
EN 1822:2009	HEPA-FILTER HM		■		■	■		
EN 1822:2009	HEPA-FILTER HFV	■			■	■		
EN 1822:2009	KOMPAKTFILTER JCF	■			■			

EPA-/ HEPA-/ ULPA-FILTERS

FILTER TYPE HA

Typically, HA particulate filters are used as terminal filters in ceiling systems or in laminar flow boxes. HA particulate filters (laminar flow) achieve a collection efficiency of up to 99.9995% and are used in cleanroom systems with the highest demands. These high-performance filters are used primarily where a low-turbulence laminar flow is required.

Typical application areas are surgery rooms in hospitals, the semiconductor, pharmaceutical or food industry.

All common frame types made of anodised aluminium profiles are available. The following sealing options can be selected depending on the frame type: PU foam continuous seal, neoprene flat gasket and PU gel seal.

FILTER TYPE HM

HM particulate filters are mainly used in duct and ceiling outlets and many other cleanroom applications or in clean workbenches. They consist of highly efficient micro-glass fibre paper that uses minipleat technology to process it into a 240 mm deep pleat pack with thermoplastic spacers and a high filter area. The pleat pack is sealed leak-free into a frame made of MDF (medium density fibreboard).

FILTER TYPE HFV

HFV particulate filters are characterised by the large range of applications with face speeds of up to 3 m/s (4000 m3/h and 610 x 610 x 292 mm). They are often used as end filters for duct air systems.

Due to the large surface area that is created with the mini-pleat technology, the face velocity is reduced extremely, which supports the diffusion collection of submicron particle. Through the use of 12 pleated pleat packs that are built into a frame in a V-shape, a very high filter area of about (or approximately) 40 m2 is created with a compact construction method.

JCF-COMPACT FILTER

Compact filters are used in all kinds of ventilation and air-conditioning systems, above all in difficult conditions such as increased face velocities, multiple load changes, shutdowns or in high humidity. They are very stable and with flow surfaces on both sides. In contrast to pocket filters, the installation position is variable. They can be installed both horizontally as well as vertically.

Through its optimised flow properties, the newly developed 3V compact filter achieves a considerably lower pressure difference, optimum utilisation of the entire filter area and hence a longer service life with the highest energy efficiency. A moisture-proof glass-fibre paper is used as a filter medium.

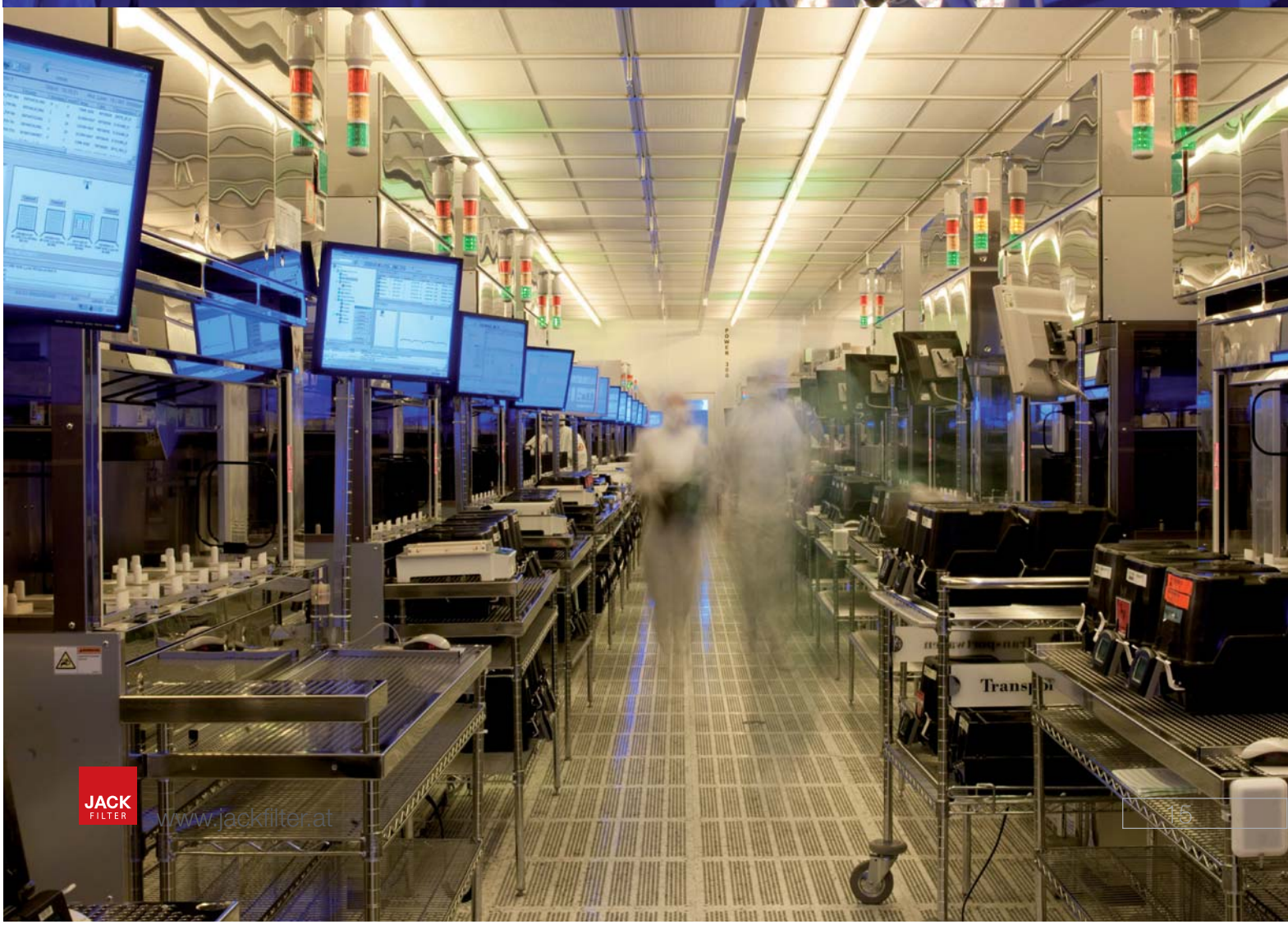
ADSORPTION FILTERS

Besides pure particle collection, the collection of substances that are harmful to the process in the form of airborne, gaseous molecules is becoming increasingly important today in cleanroom technology. The term AMC (Airborne Molecular Contamination) is used for this in cleanroom technology. AMC generally exists in all cleanrooms. However, the harmfulness of the substances contained in the air is very dependent on the materials and processes that are used. In accordance with SEMI F21-95, AMC is broken down into four categories: Substance classes: acids (class A), bases (class B), condensable substances (class C) and dopants (class D).

It becomes a problem when AMC molecules react with critical surfaces (e.g. semiconductor wafers or optical components) and form thin chemical films.

Especially in the semiconductor industry today, AMC control and the related AMC collection through filter elements has become indispensable due to the structural size reduction and the consequences of defects caused by AMC. However, the requirements are constantly increasing in the pharmaceutical industry and medical technology, and hence the use of adsorption filters will be unavoidable in the future.

Activated carbon with and without impregnation is often used for the collection of airborne molecules. In addition, there is a selection of ion exchange media for special applications.



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Is it time to replace your filters?

Medical Pharmaceutical Semiconductor
Shopping Automotive Industry
Food-Processing Conference
Hotel Fair Made in Austria

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