



FILTECH

February 23 – 25, 2021
Cologne – Germany

The Filtration Event

www.Filtech.de

**Delivers solutions
for current and
future challenges**

Koelnmesse · Cologne · Germany

Innovations+++ Highlights+++ Trends

The background of the entire page is a dark blue gradient with a vertical column of bright blue bokeh lights in the center. The lights are out of focus, creating a soft, glowing effect.

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**Platform
for your
success**

**Join the world's largest
Filtration Event**



Providing all industries with targeted filtration & separation solutions

The Filtration industry provides innovative solutions for current and future challenges. This dynamic industry is of further growing importance and turning into a key industry worldwide. At the **FILTECH 2021** Show the latest innovations will be on display and will provide visitors an exclusive overview and insights of the state-of-the-art science and technologies.

Sophisticated and state of the art filtration and separation solutions play a key role in all industries to achieve cost-effective processing structures as well as reduced risks. FILTECH is a global solution provider for targeted filtration & separation tasks covering all industries.

340+ companies will present their cutting-edge products and innovations for the chemical industry, as food & beverage, life science, minerals processing, pulp & paper, waste management, water treatment, environmental engineering petrochemicals and many more.

The Conference programme features 140+ technical papers and gives a representative cross-section of the different procedures and appliances of separation technology as well as across the industry about the applications, from the preparation of mineral raw materials, the chemistry, environmental technology and water purification down to the pharmacy and biotechnology. Most ongoing problems, which play an important role in the current situation are represented in the programme. Like the research and development of highly efficient respiratory masks and air cleaning solutions as decisive tools against COVID-19, or the cleaning of water polluted with micro pollutants, antibiotic-resistant bacteria/gens and micro plastics.

Solutions for virus-free indoor air

MANN+HUMMEL solutions for air hygiene create almost completely virus-free air indoors. For rooms without central air conditioning, there is the stationary air purifier OurAir SQ 2500 which is suitable for rooms up to approx. 200m² and its mobile pendant, the OurAir TK 850, which filters the air in rooms up to 70m². The heart of the units is its HEPA H14 air filter, which captures more than 99.995% of viruses, bacteria and microorganisms.

The compact filter, Nanoclass Cube Pro Membrane, is designed for HVAC systems working in circulation mode. The H13 filter achieves a separation rate of 99.95%. All air filters are equipped with a new ePTFE media with a 50% lower pressure drop compared to conventional HEPA air filters based on micro glass fiber. This makes the filters particularly energy efficient. The media is fire resistant tested according EN 13501 as class E and with that applicable for all HVAC application in non-residential buildings acc. EN 15423 and VDI 3403-4.



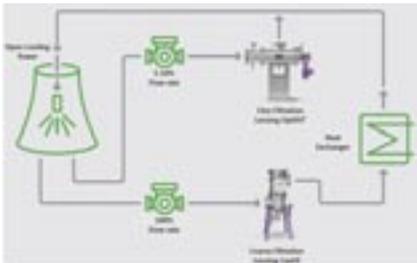
Lenzing Filtration

Automatic Backwash Filter turns Legionella in Cooling Tower Circuits off

Since the first attested Legionella outbreak in the US in 1965, there have been numerous cases of legionellosis all over the world with an average lethality of 1,500 deaths per year.

One of the preferred breeding grounds for legionella bacteria are open cooling tower circuits. Corroded surfaces, fouling in the heat exchanger or the presence of microorganisms like ameba boost the growth while at the same time the evaporative cooling towers release the legionella bacteria in form of aerosol to the surrounding environment.

Fine filtration is able to eliminate fouling, prevents corrosion or the building of microorganism, whereas conventional media filters offer even more breeding ground in their inside or on its surfaces. Our patented Lenzing OptiFil®, however, is the only system that offers an all-in package. It filters with a fine filtration of down to 5µm and even below, 5% to 10% of process water installed in a side stream and reduces evidently the number of colony-forming units.



As an example, we may state a chemical plant in Europe that is operating several open cooling towers throughout its site. Some are without side stream filtration; some operate with media filters; one tower has our Lenzing OptiFil® installed. Although all cooling towers are below the governmental limits (which are becoming more and more strict) for colony-forming units, it is only the operating OptiFil® circuit that is even below the detection limit.

New Mobility – New filtration offering for Electric Vehicles

Ahlstrom-Munksjö, one of the global leaders in filter media manufacturing, has applied its deep knowledge of the automotive industry to develop a range of reliable filtration solutions for Battery and Fuel Cell Electric Vehicles. This includes:

- a new generation of Cabin Air Filter Media delivering higher efficiency on fine particles (HEPA), microorganisms and harmful gases for a safer journey.
- a Premium range of Transmission Oil Media for suction and pressure filters delivering better protection of the powertrain and longer lifetime.
- a complete portfolio of Air & Liquid Filter Media for Thermal Management delivering reliability and extended performances to the cooling unit.
- a modular concept of Fuel Cell Air Intake Filter Media protecting the circuits and the catalyst against finest particles and critical molecules.

To complement the Filtration offering for Electric Vehicles, Ahlstrom-Munksjö has introduced Forticell®, a new product platform designed for energy storage applications. Covering a complete portfolio of fiber-based materials for the lead acid battery industry in addition to new solutions in development for Lithium Ion Batteries.

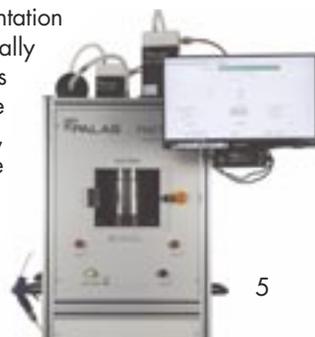


Test of Respiratory Masks – Better than the Standard

The Palas® respiratory mask filter test rig PMFT 1000 allows a reliable control of the filter performance and enhances quality assurance.

The current spread of the new corona virus CoVid-19 is leading to a massive increase in demand for respiratory masks worldwide. Manufacturers of filter media and respiratory masks are increasing their production capacities to the maximum. However, reliable protection is only offered by masks that have undergone special tests during production. To support manufacturers, Palas has introduced the newly developed PMFT 1000 respiratory mask filter test rig, which enables both quality assurance in production and product improvement in the development department. A special advantage of the PMFT 1000 from Palas compared to other filter test rigs is that additionally to the penetration by mass, the exact representation of the separation per size class of the particles can be detected. Especially regarding the effectiveness of the breathing masks for the corona virus (size: approx. 120 nm - 160 nm), such an exact measurement of the particle size distribution is essential. The fractional efficiency is tested, e.g. the efficiency in the whole size range of 100 nm up to 5 µm (size range spectrometer 100 nm up to 40 µm*).

PMFT 1000 is future proof: It works with any kind of aerosol, it can be used for all kinds of face masks and is also easy to handle.



Wasser 3.0 PE-X® - first filter free removal of microplastics from various waters

Wasser 3.0 gGmbH is a non-profit research organization developing future-oriented and eco-friendly tools, materials and technologies for water treatment with a focus on detection, analysis, removal and reuse of microplastics and micropollutants.

With Wasser 3.0 PE-X®, we demonstrate the world's first filter free low-tech process that removes microplastics from various waters (wastewater, industrial water, seawater): Procedurally very simple, cost-effective and low-maintenance.

The removal process uses organosilanes and is based on an agglomeration fixation reaction. The clou: microplastic agglomerates float to the surface and do not sink to the ground. An easy skimmer separation leads to a removal efficiency of reproducible > 95 %, independent of polymer type, pH and pollutant concentration.

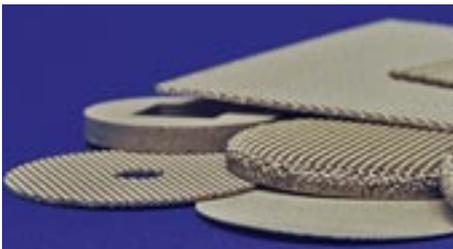
The application is easily adjustable, wherever microplastics need to be removed. Our custom-fit installation is possible as an add-on or as a standalone in a mobile container. With it comes the choice for a smart digitized set-up offering new possibilities to leverage on AI in water treatment and environmental protection or a container operating efficiently without an elaborate process control system.



SinterPore® improves filtration processes

The need for a metal filter media with superior filtration and workability characteristics is the driving force behind the success of the PMF development of products for challenging applications. SinterPore® porous metal filter products can be constructed from one to multiple layers of stainless wire mesh and they are designed for precision, controlled porosity, uniform pore size distribution. SinterPore® laminates are permanently bonded under precise diffusion bonding (sintering) conditions, yielding robust, monolithic materials used in a wide variety of engineering applications ranging from industrial filtration to aerospace transpiration cooling.

2- and 3-layer SinterPore® fluidizing laminates with customer-specific permeability and flow rates are often used in bulk powder handling. Standard 5-layer SinterPore® laminates are used in pharmaceutical, polymer, liquid and gas filtration.



Our SinterPore® cleanable filter element cartridges are available in an infinite range of woven and non-woven metal laminate materials. The cartridge custom designs are highly permeable and back washable with superior cake release properties. SinterPore® filter element cartridges are available in a broad range of micron ratings, permeability and mechanical strength.

Automated device for changing pleating knives

In the pleating machine industry ranges of pleat heights have been established in order to produce appropriate pleat heights from most varied materials. The two types of pleating knives being most frequently used are covering the ranges 5-50 mm and 10-100 mm.

Formerly machine operators had to remove protective guards and the bolts fixing the knives at the cross bars when having to change the range. Even for a machine width of up to 1000 mm it used to be quite difficult for one person to accomplish the change. For a working width of over 1000 mm it was mandatory to involve a second person. An additional potential problem was the challenge to assemble the knife perfectly parallel. Even experienced machine operators



needed about 15 minutes to carry out the exchange.

Roth Composite Machinery has developed an automated device for changing the knives. The upper and lower cross bars are each equipped with two pleating knife ranges. The special drive technology of RCM machines makes it possible to swivel the knife crossbar by 180° and to change between the two pleat height ranges automatically. The whole procedure takes less than 30 seconds and can be performed during the production process (i. e. when having material in the machine) without any problems. As the knives do not have to be removed from the crossbars assembly faults will be prevented. Furthermore a referencing of the machine is not necessary.

Hollingsworth & Vose GmbH

Hall 7 H2

New NanoWave® XT Media: Highest filtration efficiency and unparalleled energy savings

NanoWave® XT is the new NanoWave® filter media series designed for use in various filter configurations for Heating, Ventilation and Air Conditioning (HVAC) systems in residential and commercial buildings as well as industrial applications.

Tests have shown that the new NanoWave® XT series outperforms all other filter media. It features the highest efficiency in protecting people and sensitive components against hazardous PM1 particles as well as double to triple higher dust-holding capacity compared to other premium filter media.

In addition, NanoWave® XT significantly reduces the energy consumption of a building. As much as 30% of energy consumption of an HVAC system happens due to the pressure drop in the air filters. NanoWave® XT media, having up to 40% lower pressure drop compared to other premium filtration materials, will significantly lower the energy consumption of the air filter and thus of the whole HVAC system. NanoWave® XT media can be easily and safely disposed of, without negatively impacting the environment or causing unnecessary disposal costs.

Due to its unparalleled performance, NanoWave® XT sets new standards in both filtration performance and energy efficiency.

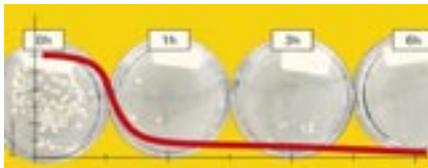


abcr eco_antimic[®] – a multivariable, antimicrobial material – completely without 'nano'

More and more microorganisms are coming into focus because of their health-endangering properties. The formation of multi-resistant germs is one of the big challenges for new, sensible solutions.

To equip all surfaces antimicrobial - even in water-bearing systems - abcr eco_antimic* from abcr GmbH is a proven alternative.

The material provides an enormously wide range of applications as a surface-active substance in respect of incubation time, effectiveness and duration of action. The substance can be used as a coating or as part of the matrix and then shows practically no wear and tear and a long-lasting effect over several years. Challenging applications can be found on all contact surfaces touched by people, e.g. in hospitals, sanitary facilities, on medical equipment. A further field of application is the reduction of biofilms in water-bearing systems.



abcr eco_antimic* has already been successfully used in various applications. A large number of patents and the biocide approval exist. How the material works and what results have been achieved can be found in our presentation and at booth A24.

Your development partner for Filtration Textiles

Seamless Filter sleeves and narrow textiles for fabricating filter media: At vombaur, we develop and manufacture Filtration, Composite und Industrial Textiles – seamless and precisely tailored to your respective applications.

Uniform filtration properties: For filtering oil, water and all other liquids, our round woven tubulars offer numerous advantages over ready-made tubes: our seamless tubular woven fabrics have identical surface properties all around. Flow behaviour, resilience, shrinkage behaviour, material thickness – our filter textiles possess these central properties over the entire surface of the tubular.

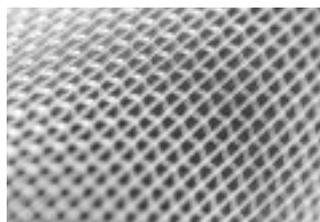
Narrow textiles for assembling filter media: Reinforcing edges, covering seams, dissipating static charge, stabilising star filters ... – our tapes and belts perform indispensable tasks in the assembly of filter textiles from woven, felt and non-woven fabrics.

High performance fibres

For our seamless filter, support and heat-shrink tubulars we use PES, PA, PP, PPS, PVDF, PTFE, PEEK, metallic, and further high performance fibres.

Core competencies:

- Seamless woven tubulars
- Maximum process safety
- Tailor-made
- Uniform filtration
- Precisely specified



Built to purpose solution from a2z Filtration

At the FILTECH 2021, A2Z will be showcasing the high speed A2Z Mini Pleat Line with foamed hotmelt system

A2Z'S Intelligent Servo driven Blade Pleater along with the mini pleat production modules, allows the user to work with a variety of media including glass fiber as well as synthetic, with change overs for pleat depth/pleat pitch, and hot melt patterns on the fly. The operator can save and access up to 2,500 stored product variations, thus allowing multiple combinations/part numbers to be produced. The machine's unique flexible design helps filter manufacturers widen their product range and meet the market's ever changing needs.

The A2Z Mini Pleat production module can be added to any existing blade pleater to produce mini pleat packs with a wide array of media thus further reducing the filter manufacturer's capital expenditure and providing a very flexible production line. This also makes the equipment future-proof with the unique ability to mini pleat a very wide range of media.



We will show case the foamed hot melt system which has many advantages of lower cost of production, lighter weight and lower pressure drop with options such as Intermittent and spot beading.

3D High Performance Metal Filter Cloth

Where conventional filter cloths have reached their limits, MINIMESH® RPD HIFLO-S opens up new dimensions for filtration. Using new weaving technology developed by Haver & Boecker, a three-dimensional pore geometry is created that makes industrial filtration processes more efficient, faster and more economical than ever previously possible.

The open surface over an area is significantly increased. The medium's flow-through rate can be doubled when compared to conventional filter cloth having the same pore size. In addition, the flow conditions are optimised and turbulence around the filter cloth is effectively avoided. The pore size within a batch can be calibrated as desired from 5 µm to 40 µm.

The new filter cloth can be manufactured from standard diameter wires. This has a positive effect on cost. Moreover it is now possible to weave special materials such as Avesta, Hastelloy, Inconel or titanium in the small pore size range. Thus for the first time RPD HIFLO-S offers a corrosion and temperature resistant filter cloth with pore sizes below 40 µm.

The depth structure of RPD HIFLO-S offers a high separation effect without rapid blinding. Dirt holding capacity and cleaning capability have proven to be excellent.

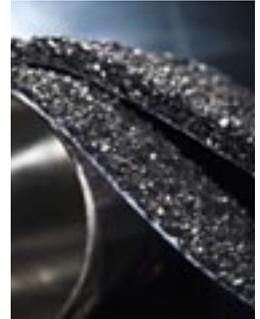


Solutions for effective formaldehyde removal from indoor air

The company helsatech GmbH is a specialist in designing and producing air filtration media based on activated carbon as well as other adsorbents. Our filtration media are multifunctional and reliably remove a wide variety of odors and pollutants from air: Particles, VOC's, basic gases like ammonia or amines and acid gases like H₂S, SO₂ and NO₂.

Formaldehyde is contained as binder or preserving agent in many plastics, paints, cloths, floorings and furniture made of flake boards. Since 2015, it is classified as category 1B which means it can cause cancer in the nasopharyngeal zone when inhaled.

Therefore, we developed filtration media based on impregnated activated carbons for the enhanced removal of formaldehyde from indoor and cabin air. Within this filtration process, the formaldehyde molecule is bonded irreversibly to the impregnation substance. We developed pleatable media as well as impregnated foams or non-wovens for V-cells or air purification devices. We also offer the impregnation on an activated carbon honeycomb, which results in a filter medium having high capacity and excellent breakthrough behavior combined with a very low pressure drop and thus a low noise level in air purification devices.



Wastewater treatment - solution to remove micro pollutants, antibiotic-resistant bacteria/genes and micro plastics

The need to reduce micro pollutants, antibiotic-resistant bacteria/genes and micro plastics significantly from treated wastewater led to a rising demand for additional filtration processes and triggered the development and application of membrane-based filtration processes which provide a physical barrier for harmful substances.

The BIO-CEL® Activated Carbon process, a combination of submerged ultrafiltration (UF) membranes, the dosage of Powdered Activated Carbon (PAC) and precipitants represents an innovative solution to protect the aquatic environment by further purifying treated wastewater. As an additional treatment step, the process is located downstream the biological treatment in wastewater treatment plants. A simultaneous removal of following substances is achieved by implementing the BIO-CEL® Activated Carbon process:

- Micro pollutants (>80% for selected substances)
- Nutrients e.g. phosphorus (≤0,1 mg/l total phosphorus in effluent)
- Bacteria e.g. E. Coli and Coliform bacteria
- Antibiotic-resistant bacteria /genes
- Micro plastics



Ceramic hot gas filters for the recovery of reusable materials in industry and agriculture

Fraunhofer IKTS develops and improves materials and processes for hot gas filters and their applications, such as the dedusting of exhaust gases from the steel and lime industry. A further process development at IKTS focuses on the environmentally relevant topic of phosphorus recovery from the mono-combustion of sewage sludge:

By modifying the sewage sludge with special additives, the heavy metal load of the ash fractions-containing phosphate will be significantly reduced. The process is based on the targeted generation of volatile heavy metal compounds that pass into the gas phase at high temperatures and are separated from the combustion ash by hot gas filtration. The harsh conditions require the use of ceramic filters that are particularly resistant to high temperature as well as chemicals attacks. Realistic load situations can be simulated with special test benches in order to specifically improve the chemical and mechanical resistance as well as the filtration properties of the hot gas filters. In-situ modification makes it possible to reduce the specific energy consumption required for recovering valuable materials compared with processing the ash separately. By combining hot gas filtration with membrane-supported processes, it is also possible to extract CO₂ from hot and dust-enriched exhaust gases to meet the emission regulations.



POROMETER NV

Hall 8 C35

First Bubble Point Tester: POROLUX™ 50

We continue to expand our portfolio!

The POROLUX™ 50 is our newly developed first bubble point (FBP) tester, and is used to detect only the largest pores (FBP) in filtration and separation media. With a pressure going up to 5 bar (75 PSI), the instrument is able to detect pores down to 0.1 µm.

Ideal for applications where knowledge of only the largest pore is important, the POROLUX™ 50 offers quick and accurate result on

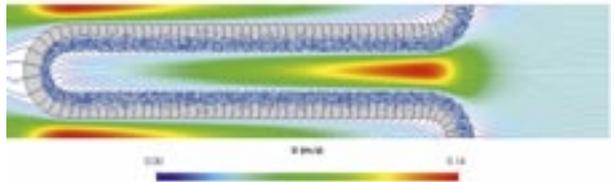
- Measured first bubble point
- Calculated first bubble point

Curious to see how the POROLUX™ 50 can serve your business? Contact us today for your demo and sample testing at info@porometer.com!



Filtration modelling tools based on computational fluid dynamics (CFD)

CFD simulations provide a deeper understanding of the process and allow it to be optimised without the need to build a prototype first. However, the simulation of filtration applications requires special tools in the field of particle modelling, deposition and resistance build-up. DHCAE Tools has created a special tool for such filtration simulations with the capability to model a wide range of filtration processes such as surface and depth filtration on the device scale. This simulation tool has been considerably extended so that the specific requirements in the filtration process can be reproduced individually and precisely to the objective: A detailed modelling of penetration depths in a pleated filter is just as possible with the tool as a filter system with thousands of bag filters can be evaluated with regard to the uniformity of the filter loading. We would be pleased to discuss your filtration application at our booth at Filtech and demonstrate the modelling options with our simulation tools.



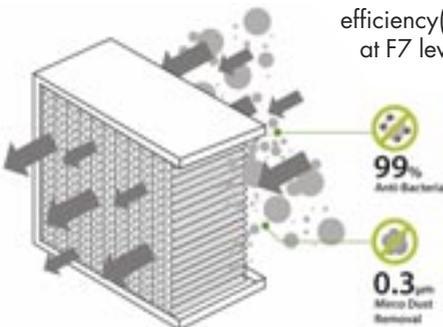
Antibacterial Nanofiber HVAC Filter Media

The proper filtration of circulating indoor air become more important because, today people spend more than 80% of their daily lives indoors and The HVAC systems are referred as the respiratory system of modern buildings. However, during HVAC operation, the microorganisms may obtain suitable environmental conditions such as temperature, moisture level and nutrient to grow and they can diffuse into the filter components in the form of bio-aerosols or accumulated dust and then spread into the indoors.

The emergence of the deadly virus Covid-19 points to the need to move the efficiency level of indoor ventilation systems to the next level. Bacteria or viruses do not move in the air on their own and are usually accumulated on dust, saliva or droplets. Airborne-sized particles were considered to be particles $<5 \mu\text{m}$ in size and droplet-sized particles were considered to be particles $>5 \mu\text{m}$ in size. Challenge controls are maintained at 1700 – 3000 colony-forming

units with a mean particle size of $3.0 \pm 0.3 \mu\text{m}$ at "Bacterial Filtration efficiency(BFE), EN 14683 Standard". HIFYBER HVAC products at F7 level can hold more than 90% of $3 \mu\text{m}$ particles. It is also

possible to increase the BFE to over 99% with HIFYBER HVAC products. SPP65-AB is an innovative product that combines nanofiber with antibacterial technology. In addition to its high pleatability, it has 4 times more air permeability at the F7 level than non-antibacterial and widely used glass fiber products. HIFYBER cleans the air with its nanotechnological products and also prevents the growth of microorganisms with its antibacterial filter media.



Continuous thickening, washing & clarification of challenging suspensions

Dynamic crossflow filtration with the BoCross Dynamic filter is a unique process for microfiltration and ultrafiltration of microfine to nanoscale suspensions. In many production processes fine and difficult to separate particles have to be filtered and demanding process results have to be achieved. Be it a high final concentration or high yield, the production of purest solids through intensive washing (diafiltration) or the generation of a pure, particle-free liquid - the dynamic cross-flow filtration with the BoCross filter technology from BOKELA enables new and future-oriented solutions for such tasks.

The dynamic shear gap principle ensures almost ideal physical conditions for the separation process. Under the influence of the shear forces, the concentrate still remains flowable even with high thickening. Therefore, highly viscous and highly concentrated suspensions can still be processed. Compared with conventional crossflow filtration, five to six times higher concentrations are achieved with the BoCross Dynamic filter.



The BoCross Dynamic Filter proves its efficiency in the thickening, washing and clarification in different areas of applications for a wide variety of products e.g. white and color pigments, metall powders, APIs, cosmetic ingredients, fungicides and many more.

Mikropor

Hall 8 E33

Better Indoor Air Quality Decreases the Risk of Coronavirus

ASHRAE, mentioned that indoor air handling units must be restored with new filtration systems featuring maximum possible efficiency and portable air purifiers with HEPA efficiency should be used in indoor environments ("ASHRAE Position Document on Infectious Aerosols" published in April, 2020). Furthermore, REHVA (Federation of European Heating, Ventilation and Air Conditioning Associations) points out that AHU Filters must have maximum possible efficiency and should be replaced on a regular basis.

According to the EN1822 standard the minimum efficiency of HEPA filters are 99.95% for class H13 at the overall value of most penetrating particle size (MPPS).

Mikropor, has been offering solutions to the needs of several different industries and keeps on dominating the market with its innovative products including HEPA, ULPA and variety of other HVAC filters and also next generation Compressed Air Equipments. The brand new Mia Air (developed by Mikropor) has the privilege to be the first ever air purifier to include H13 efficiency class Hepa Filter in Turkey.

Mikropor is delighted and proud to announce that Mia Air captures up to 99.99% of the smallest airborne particles even in this ongoing pandemic, supplies clean air to indoor spaces and offers healthy and peaceful living quarters to people.



Nanofics K - a new nanocoating to boost performance of HEPA filters

Plasma is a unique technology to deposit ultra-thin coatings on all exposed surfaces of a material or product. It is increasingly used in manufacturing of filtration media and elements to achieve functionalities such as hydrophilic, hydrophobic or oleophobic. Improvements in process and machine design allow to deposit the coatings in a very cost effective way, with a process that is completely dry and clean. The technology is giving an increasing number of producers of technical nonwovens, membranes, mesh or nanofibers a clear competitive edge. One of the key areas of interest is the nanocoating of electrets used in HEPA filters.

A new generation of plasma nanocoatings (Nanofics K) specifically designed for electrets is launched at FILTECH 2021. Advances in process chemistry allow to deposit coatings which boost and maintain filter efficiency over time, while not affecting the pressure drop.



IREMA-FILTER GmbH



Latest synthetic innovation - high efficiency filter media with > 99,99 % particle separation!

IREMA is one of the world's leading manufacturers of synthetic filter media based on a proprietary and unique technology for different applications. In the field of high efficient filter materials, we developed a proprietary synthetic material with particle separation of up to 99,99%. The media can be used e.g. in medical and consumer electronics applications. Also we are able to support the filtration business with pleatable synthetic material.

New filter generation - BLU Hybrid filters!

BLU Hybrid filters represent a new generation of filters based on a proprietary and patented pleating technology. The rigid pleat design results in minimized air flow resistance and due to the optimal filter media usage and construction, Hybrid filters do not clog during lifetime and provide a high service life. To achieve that, BLU Hybrid filters utilize our most recent 3-layer synthetic media design, which means each layer features its own characteristics (1st layer: G4 prefilter layer - 2nd & 3rd layer: proprietary technology for more filtration efficiency also for smallest particles).



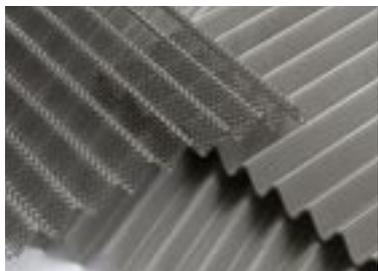
Metal Filtration Media is hard to beat when applications are challenging

For more than 100 years, Dorstener Drahtwerke has been manufacturing wire products of superior quality.

Woven wire cloth – filter cloth and square weave mesh is a strong and precise filtration media and can be produced as fine as 3 micron. The cloth is woven in a wide range of stainless steel, corrosion resistant and heat resistant alloys. DDD designs, weaves and fabricates mesh in a ready to use form.

The DDD Group has worked for years to enhance the filtration capabilities, workability, mechanical strength and the overall performance of their media. The most important new media for the DDD Group is diffusion bonded (sintered) woven wire mesh. The opportunities to enhance performance are unlimited, from basic filtration to space travel applications. Sintered metal fibers have filtration characteristics that add to the range of sintered media we supply.

Another DDD development is woven mesh sandwiched into light gauge welded mesh. The product is used in applications, where larger woven mesh partitions need stability, often a requirement for air intake applications as a pre-filter.



DDD knows how important the certification of the characteristics of the filter mesh has become. Chemical analysis of the alloy, automated camera inspection of the woven rolls, filtration cut point and flow analysis are performed in house. We cut our filter media to any shape, calander, heat treat or fabricate it to the semi finished or finished product that our customers require.

Quality respiratory filter testing in the production process

TSI will show the new model 8150 automated in-line filter tester for quality assurance of P100 and FFP3 respiratory filters and cartridges in the production line for the first time. This oil-only filter tester is optimized for remote operation, non-destructive penetration testing, and 24/7 use with a high number of tests each day. It is controlled by a PLC for fast integration into existing manufacturing control and data acquisition systems.

The model 8150 features fast measurement and cycle times down to 6 seconds, very low relaxation time after defective filter tests, and matching results to the Model 8130A. While significantly smaller in footprint than the model 8130A, it shares the same architecture and even uses the same photometer box with two simultaneous measuring photometers. It will ensure that each of your respiratory filters comply with standards such as NIOSH 42 CFR 84, GB2626, and EN143/EN149.

The new 8150 Automated Filter Tester takes high performance and reliability from the lab to the production line. Visit our booth to learn more!



The World's Finest Sieving Meshes: SV-13/13 tw with 977 wires per inch

Asada Mesh is an ultra-fine woven wire mesh manufacturer with more than 80 years of history. Our company has been again the first to successfully produce a precision woven stainless-steel (SUS) wire cloth with a square opening size of 13 μm and 977 wires per linear inch (named SV13/13 tw).

Furthermore, a technique was also developed in our facilities for weaving 977 mesh in a roll width of 1220 mm.

So far, the international standard E-11, developed by ASTM, recognize nominal opening sizes of industrial Woven Wire Sieve Cloth down to 20 μm (635 wires per inch). However, our product list also includes a SUS mesh with a square opening size of 16 μm and 795 wires per linear inch (named SV16/16tw).

Backed by results from independent testing labs, it is confirmed high accuracy on pore size distribution and excellent separation and classifying performance.

Moreover, the SUS wires used on the production of our meshes, due to its thermal and mechanical strength and its high chemical stability, make the range of our sieving and filtration meshes useful in demanding conditions, such as at high temperatures and pressures. SUS is also referred by its mechanical stability and excellent cleaning behaviour. Therefore, our woven SUS wire mesh has a wide range of applications as sieves and filters.



Dürkopp Adler AG

M-TYPE DELTA D867 - Your perfect assistant and partner for the new era of digitalised sewing production

A machine that leads into a new era is something very special. It allows things that were previously not possible or difficult to reach. It makes working significantly easier. It makes processes many times better, faster and more effective. For that, it uses forward-looking mechanic and electronic technologies.

Previously, the operator had to know a sewing machine well in order to get a good result. The M-TYPE DELTA, on the other hand, knows the operator and helps her or him actively and easily



to do the right thing right. This machine is a knowledge store and automatically adjusts to the next task. But not only the work process, but also the seam quality has become even better: We have combined the best available technologies to create a perfect seam, even in the most difficult situations. And we actively help to quickly realize the benefits of a digitized production.

Discover the difference!

Eco-filters: Automatic production process

The integration with AUTEC and GUSBI let to automate and have the production process under control from the loading of the paper to the unloading of finished products. The load of the media on the rotary table is automatically performed through the use of an anthropomorphic robot: the concentricity and the repeatability of the coupling of the paper with the endcap is ensured. The vertical press of the paper with the endcap is independent for each side of the filter. The load cells installed on the press allow to check each filter pressed; even the heating of the endcaps is controlled station by station setting the percentage of power for each single IR lamp and setting the height of the lamps. The load of the endcaps on the rotary table can be done automatically, with different solutions for loading the rotary table, with different level of automation and production autonomy. At the end of the production process the dimensional check is carried out automatically: a dimensional non-conformity is detected and the not compliance product is expelled from the unloading conveyor.



Flexible automatic loader of endcaps for eco-filters production



A new space-saving and flexible solution to load endcaps in the Gusbi table for the eco-oil filters production. A system that singularize and orientate the parts using our experience of drop-down conveyors joined with vibration system and vision camera. Easy to set up for model changes and new models.

Industrial Mesh Trimetric: Positive Properties Combined In a Single Medium Trimetric

At FILTECH 2021, the innovative, highly porous filter medium Trimetric will be presented. Trimetric combines in one medium everything that efficient hot gas filtration requires: high retention rates, thermal resistance up to 600°C, mechanical robustness to vibrations, regenerability during operation; and external cleaning. With this new product range, GKD is making combinations of Optimized Dutch Weaves and nonwoven metal fiber mesh available for practical applications. Adaptable to specific applications, the inherently stable filter elements can be employed in all economical designs of standard dust filters – and also in bag filter systems with minimal adjustments to fixtures.



We are your specialist for magnetic filtration solutions!

Far too often, when people think of magnets they only think of sensors, lifting- or holding magnets. But a very relevant but mostly unknown type of filtration is the magnetic filtration. This type of filtration is practically relevant and adaptable for every industry. We would like to introduce two highlight products to you:

1. Our funnel magnets are particularly suitable for the filtration out ferritic impurities in plastics processing, on injection molding machines, extruders and for special processing types of granules, regrind, powder or liquids.

2. Our filter rods are an effective, unproblematic and cost-effective method of removing ferritic impurities from coolants, hydraulic fluids and lubricants, sliding emulsions and much more.

And the best of all: their service life is practically unlimited.

The above variants are explicitly tailored to your production needs and produced in your desired size and shape. Accordingly, they are real adaptive talents and super strong.

2.1. There is also an "easy clean" variant for the filter rods: So-called magnetic racks ensure easy and time-saving cleaning of the filter rods. Simply place the rubbish bin underneath, pull out the filter rod and let the dirt fall off.

We are your specialist for magnetic filtration solutions!



Best oil cleanliness and optimal oil control for eMobility

MANN+HUMMEL as a technology leader has transferred its extensive expertise in the area of oil filtration for combustion engines to the modern drivetrains and developed a product which impresses through its compact design while fulfilling manifold functions.

The plastic oil filter system for eAxles and hybrid transmissions includes an oil reservoir and one oil filter element each on the suction and on the pressure side for highest system cleanliness and reliability with smallest energy dissipation.



In addition, the system has moisture, pressure and temperature sensors, a switchable electric pump and an oil cooler with optional thermostat control. An oil dryer is part of the oil filter system and constantly maintains the oil quality at a high level and efficiently separates any water which has dissolved in the cooling oil. The highly efficient adsorber material of the oil dryer removes even the smallest amount of water from the oil.

Efficient and environmentally friendly continuous filtration

Continuous filtration without the need to changing or backflushing the filter media at 10 micron presents many challenges. Assonics re-engineered liquid solid separators offer a sustainable and economical solution. The crossflow filtration process in our RoSL 700 is supported by a patented ultrasonic technology to energize the filter media to achieve high throughputs. The heart of the unit is a woven stainless filter or a sintered laminate for fine filtration. A capacity range of 5000 - 6000 liters per hour and a filter rating of 25 micron have been achieved. The separator supports a wide range of processes including chemical processing, water treatment and beverage production.

The more robust RoSL 710 can be equipped with a wedge wire screen. It is ideal for filtering high viscosity fluids with high solids contents. The applications range from biogas energy processes to chocolate production.

The advantages of the improved Assonic technology:

- No filter media to dispose of
- Low energy motors drives the machine
- Continuous process with no screen changes
- Economical solution with a small footprint
- Ease of cleaning and long service life

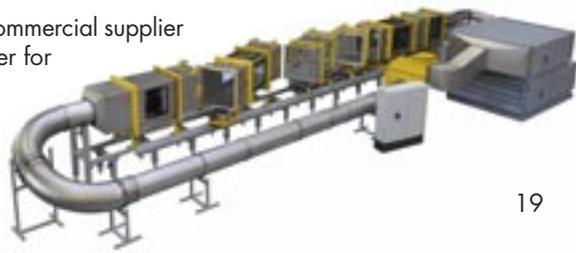


Water, dust, salt – challenging gas turbine filters with new GTS 114

Topas looks back to a long-term expertise in the field of development, construction, manufacturing and installing of air filter test systems. Based on the new normative regulations from ISO 29461 we have been requested by our key customers to offer a technical solution to test gas turbine filters. The new GTS 114 is based on the successful ALF 114 test system concept. Therefore it also follows testing requirements of ISO 16890 and ASHRAE 52.2. Main new features are related to increased air flow rates up to 11.000 m³/h in recirculation mode with test air conditioning. Furthermore a list of different test aerosols such as oil droplets, salt and dust particles can be applied in combination with multiple measurement technologies such as optical particle counting, optical photometer or flame photometer. The major customer benefit will be the all-in-one solution we propose different from the various test setups described in the different parts of the ISO 29461 standard. Especially doing the water spray performance testing in the same duct required all our construction skills.

Good to know: Topas is the first and global commercial supplier of such a test system and an important partner for filtration applications in this field.

Topas – the air filter testing experts



FireTex Fulfills Railway Fire Protection Demands

Air hygiene plays a pivotal role in rail cars, as passengers and staff are continuously exposed to indoor air for extensive periods of time. The guideline VDI 6032 - Room Air Hygiene in Vehicle Interiors - sets minimum requirements for air quality in railways. It requires the use of inert materials in order to minimize metabolization by microorganisms.

To this end, the implementation of effective fire protection requirements is a fundamental obligation on all European railway networks. EUROSPEC requires the certification of all construction materials in rail cars that are acknowledged according to the European fire safety regulation EN 45545-2. By now, air filters failed to fulfill these requirements and could only selectively be used to the full extent of the requirements.

At FILTECH 2021 DELBAG GmbH presents debuts its FireTex air filter series, as the first filter manufacturer to produce a full range of filter designs. Their range include from bag filters K85



FireTex for the filters class ePM1, FireTex filter mats and FireTex Z-Line filter cells. DELBAG's entire FireTex air filter range is certified according to the European fire safety regulation EN 45545-2. All DELBAG ePM1 - ePM10 air filters are, needless to mention, subject to the supervision of the EUROVENT certification scheme and therefore, while being tightly checked for filter efficiency, DELBAG GmbH also documents an energy efficiency class for its entire ePM1 to ePM10 range of air filters.

Synthetic Wave System Cartridges – made for efficient dedusting and high cleanability level

The Synthetic Wave System was developed to enhance the removing of fumes and fine dust, produced in challenging application segments as laser-, plasma-, welding- and flame cutting operations. The Synthetic Wave System is available for both standard polyester- as well as high efficiency ePTFE membrane media and has the following advantages:

- higher dust collection - employees and environment will be effectively protected from harmful emissions.
- help to successfully comply with general dust limits, as for example the German dust limit (ASGW).
- the wave formed polyester media with surface treatment reduces power consumption as well as compressed air, thus improves energy efficiency.

Combining superior electro spinning technology with a known base carrier, the Synthetic Wave System will bring a higher efficiency, enhanced filter life, and cost savings for industrial filter collectors.



Innovative two stage water filter

“Water is life!” this simple sentence shows how important clean drinking water becomes, even in industrial countries. Due to this, the company Grünbeck, as a leader in water treatment solution and the company Hengst, known for leading filtration solutions in industrial and automotive applications, joined to start a cooperation to develop an innovative filter solution for hygienic water treatment applications.

The result of this development is a mobile filtration solution for leisure vehicles, which can adapt to nearly all drinking water tanks to provide hygienic and pure water.

The two-stage filter system - with a minimum amount of auxiliary materials - is reliable for nearly all drinking water standards.

The filter element consists of two innovative filter stages with active carbon as, for example, an agent for the removal of chlorine and an additional material for the removing of pathogens and colloids.

Due to the use of the Hengst Energetic concept and ultra-sonic welding processes it is possible to produce a filter element that only consist of the filter materials and plastic components (end cap and inner tube), without any kind of glue or further materials.



Sani Membranes ApS

Hall 8 F63

Innovative Free Flow Plate™ technology & the disruptive Vibro™ technology

SANI Membranes ApS is a Danish cleantech company producing innovative continuous Micro- and Ultrafiltration solution for the Biotech, Pharma, Food and Process industries.

Vibro-LE is the perfect benchtop filtration solution for process development and small-scale filtration applications. Low fouling continuous filtration where the filter is kept clean by vibration shear. Vibro-I is our industrial MF and UF solution. The Vibro-I is perfect for difficult MF applications where high transmission is crucial and can concentrate your valuable products to extreme concentrations in UF.

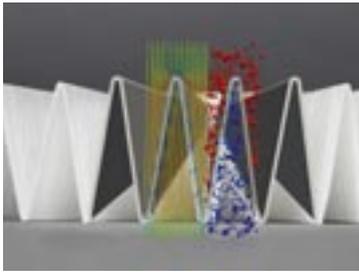
The patented Vibro technology creates the needed turbulence on all membrane surfaces by vibrating the membrane relative to the media. The Vibro technology eliminates the need for a cross flow pump and delivers uniform TMP throughout the system at exceptional low energy consumption.



- Ideal Separation
- Unique Microfiltration
- Low Energy Consumption
- High Concentration, Viscosity and Solids Load
- Better Product Quality
- Higher Yield
- Sanitary

Simulation tools for filtration, separation and purification

The design of filters is a challenging task which can become time-consuming and costly. When optimizing a filter element, it is crucial to find a good combination of the geometry of housing and media, together with material properties such as filtration efficiency, permeability and mechanical strength. In order to accelerate the product development, problem-adapted simulation tools are required. Based on more than 20 years of experience in the field, Fraunhofer ITWM offers a range of simulation tools, from the filter media up to the final filter element: FIDYST simulates the production process of nonwovens, allowing to study the influence of process parameters on the resulting material. Based on the microstructure of a nonwoven, the software



FeelMath computes its mechanical properties. FiltEST is a simulation toolbox for the prediction of the lifetime of filter elements. The software PoreChem simulates flow and surface reactions in porous media and allows for the evaluation of purification processes. Our competences in the filtration and separation processes are applied also to challenging questions related to the pandemic, such as the simulation of the recommended wearing time and protection capabilities of face masks and face shields as well as the optimization of face mask materials.

Entec International B.V.

Hall 7 M51

High-end filtermedia: PAARS® Excellent. The new standard for the oxidation of gaseous contaminants at the highest level.

Main target: Gaseous contaminants oxidation. Reducing bad odour from wastewater treatment plants, refineries, chemical plants, airports and much more. PAARS® is designed to permanently remove a broad spectrum of harmful gases from the air:

- Hydrogen sulphide (H_2S)
- Sulphur dioxide (SO_2)
- Sulphur trioxide (SO_3)
- Formaldehyde (CH_2O)
- Oxides of nitrogen (NOX)
- Chlorine (Cl)
- Ethylene (C_2H_4)
- Light VOCs

The granulate has a porous structure which is impregnated with potassium permanganate ($KMnO_4$), visible as the specific purple colour.

- PAARS® does not burn, suitable in environments prone to fire.
- PAARS® does not support microbial colonisation.
- PAARS® is very effective against cigarette smoke.
- PAARS® provides essential protection for artefacts in museums, art galleries and archives against acid gases.



In addition to the active oxidation effects, the purple colour is part of innovative "ENTEC Consumption indication system". The colour change that occurs during operation serves as a visual indicator that indicates the consumption level of the product at all times.

UHT Pleated Bag System - Highly efficient filter system built to handle the hot & heavy-duty industries

The UHT pleated cartridge is a new concept in baghouse filter elements, capable of operating at peak temperatures up to 250°C showing significant improvements in baghouse capacity and filter performance compared to the standard filter bag systems.

A simple retrofitting of the operating filter bags can be done easily, and the bag house system is equipped with twice as much filter cloth compared to when utilizing normal bag system.

The unique design features of the UHT-Pleated Bag are to be found in the high durable heavy-duty components utilized within crafting of the product:

- ✓ The media ensures temperature stability over a wide range of operating conditions and chemical environments being a preferred material in dry filtration processes.
- ✓ 100% metal top and bottom cap design with integrated locking function for non-detachment
- ✓ Specialized high flexible Ultra High temperature potting compound providing enhanced pulse dynamics to the pleat pack
- ✓ Outer stainless-steel bandings to ensure stability of the pleat pack

The UHT Pleated Bag System was created to ensure high durability and prolonged lifetime primarily focusing on the Cement industries, Waste to Energy, Incinerators and Metallurgical industries where UHT is capable to deal with different compositions of flue gases, and high temperatures.



Hengst SE

Hall 7 K13

Reduction of indoor airborne viruses during Corona pandemic

Highly effective protection against viruses in closed rooms with antiviral air filtration system Blue.care+ from Hengst Filtration

The indoor air purifier Blue.care+ from Hengst combines a Class F7 prefilter with a Class H14 high-efficiency particulate air (HEPA) filter featuring a filter capacity of $\geq 99.995\%$. The system effectively filters indoor air to remove particulate matter, allergens, bacteria and especially minuscule aerosol droplets and viruses in the critical size range of 0.1 microns. The highly effective HEPA filter eliminates the need for UV-C radiation to kill viruses, preventing the release of toxic substances such as ozone.

Hengst Blue.care+ is also very quiet and highly efficient: The whisper fan achieves an air exchange rate of up to 1,800 m³ per hour. With six-fold air exchange Blue.care+ reduces the virus load by more than 50 % after 10 minutes of operation. As opposed to the small and portable units available, the flow-optimized design with Power Diffusor technology achieves optimal air circulation throughout the entire room with no drafts.





100X Automated Filter Tester Validates Filter Efficiency of Respirator Masks

Air Techniques International (ATI) has been a global leader in the design and manufacture of specialized test equipment for HEPA filters, media, filter cartridges, respirators, and protective masks since 1961. The 100X Automated Filter Tester combines ATI's core technologies into a single, compact test unit to test and validate filter media, cartridges, and masks in production, quality control, and R&D applications.

Its innovative design allows it to meet a wide range of global industry standards including EN 13274-7:2019, NIOSH 42 CFR Part 84, GB 2626, and more. During the COVID-19 pandemic the 100X has been widely used to validate the filtration efficiency of N95, FFP2/3, and KN95 style facemasks. Filter media and mask manufacturers worldwide depend on the accuracy and efficiency of the 100X.

Ultra-precise and ultra-simple density measurement of polymers and porous solids

Gas pycnometry is used extensively for determining the true density of solids. That allows for the evaluation of the chemical purity and determination of, e.g. the relative amounts of crystalline and amorphous phases within polymer materials. This technique is also used to assess the porosity of filters, membranes etc. We understand that you handle many measurement technologies, sample types, and responsibilities during your laboratory workday. Instruments that have complicated analysis routines and clutter valuable workspace are not welcome. That's why the Ultrapyc series of gas pycnometers is the solution for you. We have developed the most precise and user-friendly gas pycnometer on the market today. You benefit from maximum flexibility and can carry out precise measurements with small (from 0.1 ccm) and also large sample amounts (up to 130 ccm). The patented lid closing mechanism guarantees the maximum reproducibility of the results and ergonomic handling of your pycnometer. Thanks to the integrated Peltier temperature control external water baths are a thing of the past. Discover all the benefits of our maintenance-free gas pycnometer in your laboratory and enjoy a 3-year warranty!



JP Air Tech Invests in Face Mask Production

Face mask construction, nonwoven material type, air permeability, filtration capability, basis weight, fiber properties and mechanical properties are all key factors effecting the overall performance of a face mask. In this scope, JP Air Tech's multi-layered face mask construction is engineered to provide not only enhanced protection but also maximum wearability. Each layer is specifically designed to ensure maximum protection, comfort wear, easy breathability and improved durability.



In response to the COVID-19 pandemic and increasing demand for face masks, JP Air Tech, the Danish filter media manufacturer, has invested in two fully automated face mask production lines. With this investment, company has a daily capacity of producing up to 50,000 pcs of particulate filtering half mask (FFP1/FFP2/FFP3) and 150,000 pcs of non-sterile medical face mask (Type-II, Type-IIR). Company has the bandwidth to exponentially expand the current face mask production capacity based on customer needs and market demand.



Thanks to its 30 years of experience and expertise in air filtration, JP Air Tech has designed and engineered high performing face masks which are approved, certified and meets the PPE (Personal Protective Equipment) and MD (Medical Device) regulation requirements of the European Commission. Customers can expect the highest quality made-in-Denmark face mask products and a swift delivery.

Lydall

Hall 7 R51

Lydall's Filtration Center of Excellence

In June 2021, Lydall will open the doors to its new Filtration Center of Excellence in the United States in Rochester, New Hampshire. This state-of-the-art facility has been under construction since July 2020, and it will be solely dedicated to advancing filtration science and media innovation for products that make the world cleaner, safer and quieter.

The Lydall Filtration Center of Excellence will focus on the technologies and innovation needed to rapidly bring world-class products to market in the focused areas of personal protective equipment (PPE), indoor air quality (IAQ), liquid filtration, and coalescing. Lydall will also engage in forward-thinking joint development programs in partnership with its customers. Additionally, Lydall will increase capabilities in materials testing, rapid prototyping, application testing, science and engineering talent, and global market understanding.

The new facility is also home to two new fine fiber meltblown productions lines – making this site the largest for meltblown filtration media production site in the United States.





The Conference

The FILTECH Conference is the globally acknowledged platform for scientific exchange of the latest research results and knowledge transfer between theory and practice. It provides a representative survey of current research and state-of-the-art developments for filtration and separation targets in a wide range of sectors and covers all relevant subject areas and techniques for the separation of particles from liquids and gases.

More than 140 Technical Papers

An exciting programme gives a representative cross-section of the different procedures and appliances of separation technology as well as across the industry about the applications, from the preparation of mineral raw materials, the chemistry, environmental technology and water purification down to the pharmacy and biotechnology.

For full programme and compendiums of all abstracts visit www.filtech.de

Conference Fees

Early Bird until 14.01.2021

Day-Ticket € 300

3-Day-Ticket € 630

Short Course € 480

Regular Price from 15.01.2021

Day-Ticket € 395

3-Day-Ticket € 810

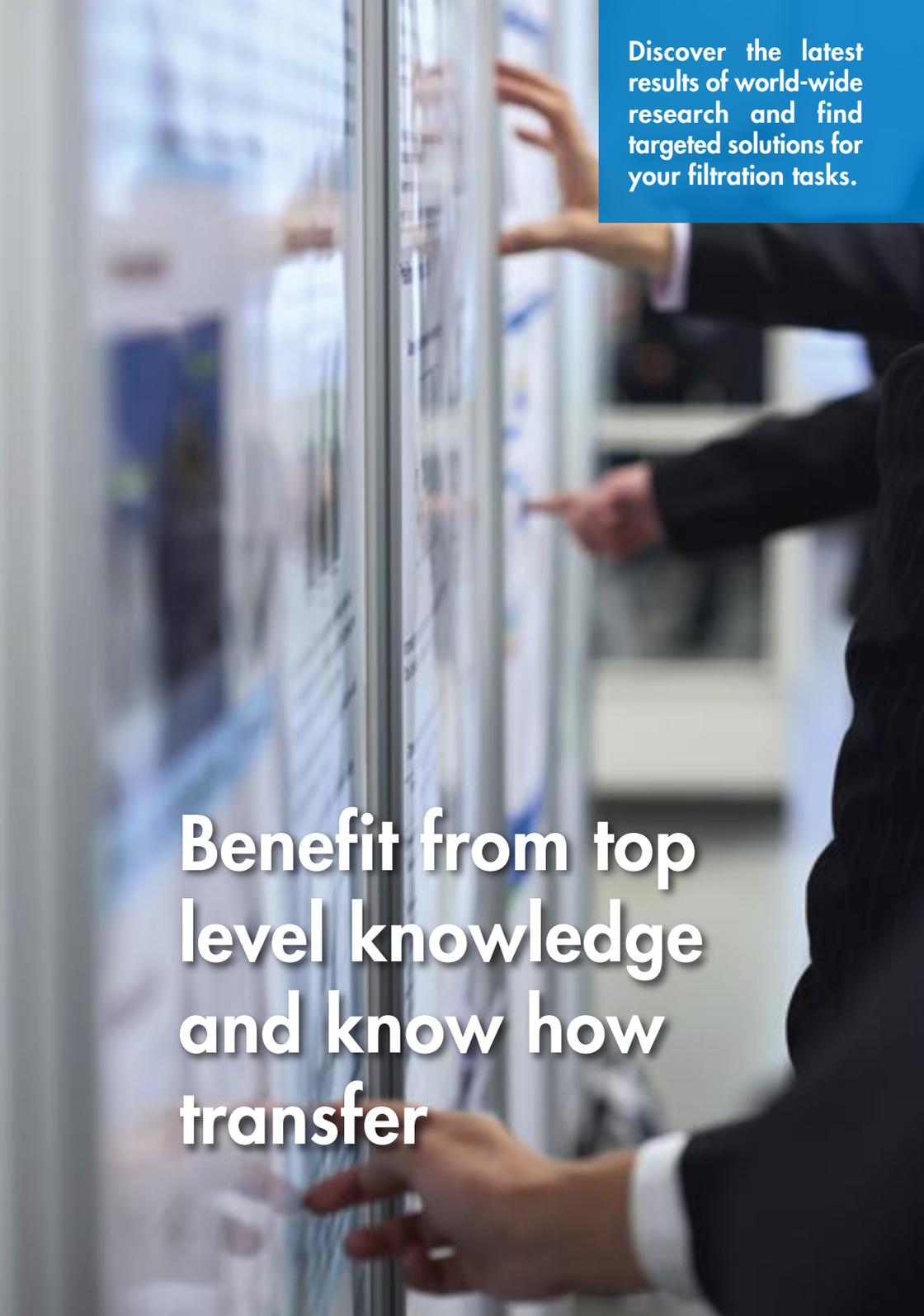
Short Course € 580

(all prices including German VAT).



Your Conference Registration includes:

- Proceedings featuring all papers in an abstract book & personalized download-link
- Refreshments during breaks & lunch/es
- Entrance to the FILTECH 2021 Exhibition & Catalogue
- Cologne Public Transport Ticket (February 22-25, 2021)



Discover the latest results of world-wide research and find targeted solutions for your filtration tasks.

Benefit from top level knowledge and know how transfer

Short Course 1

9:00 am - 6:00 pm

Solid/Liquid Separation

This 1-day Course "Solid/Liquid Separation" is of interest to engineers, scientists, managers and other technical personnel involved in solid-liquid separation in the process and other industries. They will find the course informative, regardless of whether they design, purchase, research or use filtration and separation equipment. Plant engineers, technicians and operators should find the course materials directly applicable, and graduate research students will value the expert introduction to the technologies. It is a comprehensive review of the processes involved in the separation of solids from liquids, which will emphasise practical aspects and present appropriate theoretical information as necessary.



Course Presenter

Dr.-Ing. Harald Anlauf was till March 2020 Academic Director at the Karlsruhe Institute of Technology (KIT), Institute of Mechanical Process Engineering and Mechanics and since more than 40 years active in the field of solid liquid separation technology. He earned his academic degrees as Chemical Engineer 1980 and 1985 at Karlsruhe University. 1999-2006 he was Chairman of the VDI-GVC working party „Mechanical Liquid Separation“, since 2000 Co-Chairman of the FILTECH Congress Scientific Committee. 2004-2008 he was Chairman of INDEFI and President of the 10th World Filtration Congress 2008 in Leipzig, Germany. He published more than 190 technical papers, books etc. and is internationally active in giving consultations and lectures.

Short Course 2

9:00 am - 6:00 pm

Fine Dust Separation

This 1-day "Fine Dust Separation" Short Course is of interest to engineers, technicians, scientists, managers, and other personnel involved in gas-solid separation in the process and other industries. They will find the course informative, regardless of whether they design, purchase, research, or use dust separation equipment for product recovery, emission control, air cleaning or process gas cleaning. It is a comprehensive review of the processes involved in the separation of solid or liquid particles from gases, which will emphasise practical aspects and present appropriate theoretical information as necessary.



Course Presenter

Prof. Dr.-Ing. habil. Eberhard Schmidt is Full Professor for Safety Engineering/ Environmental Protection at Wuppertal University. His academic degrees he earned 1991 and 1998 at Karlsruhe University. From 1993 to 1994 he was affiliated with the Joint Research Centre in Ispra/Italy. In the years 1998 and 1999 he was with Degussa company in the department of process engineering/ particle technology.

He is Co-Chairman of the FILTECH Conference and was Scientific Secretary of 10th World Filtration Congress. He has published more than 100 technical papers, books, patents, etc. and consulted and lectured throughout the world.

Travel & Accommodation

Travel Restrictions do not apply for trade fair visitors, delegates and exhibitors. Trade fair participants can enter into Germany, as they are considered business travellers with an urgent need to travel. Further regulations and testing obligations for business travellers are currently developed. As regulations can change, attendees are urged to inform themselves before travelling.

FILTECH 2021 will be held again at the venue Koelnmesse in Cologne. Due to Koelnmesse's central location, which is conveniently situated for all transport links, visitors can quickly reach the exhibition centre by car, train and plane.

Train travel time from Airports to Cologne

- From **Frankfurt Airport (FRA)**:  Approx. 50 min.
- From **Cologne-Bonn Airport (CGN)**:  Approx. 12 min.
with train line S13 – Ticket Category 1B
- From **Düsseldorf Airport (DUS)**:  Approx. 45 min.

koelnmesse Hotel Service

Find, compare, and book at your hotel with the online portal of the Koelnmesse Travel & Hotel Service. Make your online hotel accommodation reservation easily, securely and profit from favourable prices:

The Koelnmesse Travel & Hotel Service does everything to make your stay at **FILTECH 2021** as pleasant as possible. Use their experience and profit from particularly favourable prices.

For assistance please contact:

Ms. Sara Langiu-Kollack

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E-mail: s.langiu-kollack@koelnmesse.de

For online booking visit:
www.filtech.de → plan your trip

