



**Fast Forward
Function**

**Smart
Spare Parts**

filtertechnik.Europe
Towards Innovation & Development

News Update III/2016

Introduction

Through our platform News Update we want to keep you - our partners - updated on current activities and developments around filtertechnik.Europe. On a quarterly basis we report about four topics to give insights and an impulse for further thoughts, ideas, and discussions for our future developments together with you.

In the market place we experience a trend towards optimized product function for specific environments and an increasing demand for shortened lead times of spare parts. In the manufacturing sector in Germany "Industrie 4.0" is synonymous with the answer companies are looking for to be able to answer the current market demands. As supplier of components for industrial processes we want to interpret "Industrie 4.0" for our customer sector to establish an infrastructure that allows an enhanced focus on actual customer function and process speed. It is a priority for us to develop with today's market and to offer solutions that are designed to increase our capabilities and the value we offer to our customers. Consequently we are establishing standards in all locations of the fteu© Group – Germany, China, Czech Republic – to allow us to increase speed in our pursuit of tomorrow's product function and smart services.

Our new processes are also yielding impulses for innovation as they facilitate the development of new products and solutions. Our first prototypes and concepts for Smart Filtration that feature in-process flow analysis, material-optimized filtration and demand-based spare part availability represent our latest ideas on tomorrow's better function in metal mesh.

Market-Driven Organization

We have optimized our organization to be able to interact with the market more quickly. For our partners we want to be available and open for orders, inquiries, and impulses. At the same time we want to be able to flexibly exchange information on developments and innovations of ours with customers, potential customers, and all our partners.

Over the last weeks Sabine Dettmar, Julia Königs, and Jenö Inderfurth have joined our sales team that encompasses technical sales, inquiry handling, and order processing. As we are transforming from product manufacturing towards function enabling with metal mesh we have an increased focus on inquiry handling including engineering of products for our customers. From the sales side this aspect of inquiry handling requires fast yet in-depth interaction between the customer and our engineering. This is performed by the newly established position project lead sales. We aspire to improve our performance for all of our partners thereby; especially with regard to the thorough clarification of any queries as well as the development of new solutions.

We hope that our activities are fruitful and are looking forward to your honest feedback that will allow us to fine-tune and improve further. Our entire team will be happy to assist you.



The fteu-sales team based in Heinsberg: Sabine, Jens, Julia, Jenö, and Katrin



Innovation & Development towards Smart Filtration

Fast Forward Function and Smart Spare Parts are the search fields that headline our activities in innovation & development. Our search fields reflect market trends as well as the influence of digitalization that will not only change how we work, but also what we are able to offer in the future. Innovations will address both search fields at the same time and shall result in state-of-the-art technology filtertechnik.Europe brings to the marketplace.

Fast Forward Function represents the functions that bring added value to the processes and systems in the years to come. This poses questions such as: How can metal mesh dispersion yield better product quality? How can metal mesh filtration support an increase in our customers' OEE? How can metal mesh absorption make the work environment more ergonomic?

Smart Sparte Parts addresses the service aspects and mode of interaction of our cooperation with leading production line OEMs and plant operators around the globe. This poses questions such as: How do we know about the customer demand before they have to tell us? How can our customers reduce their stock without risking any availability? How can we quantify how much money our customers can save through new technology?

We are employing processes that engage sales, engineering, and production in our developmental activities. In the first fteu-Innovation Week in September 2016 five teams developed innovative prototypes. The leading team „Unicorn“ made a concept and prototype for **Smart Filtration** that offers in-process flow analysis, material-optimized filtration and demand-based spare part availability. Smart Filtration technology including sales channels as well as integrated sensor and information technology is now being developed in an innovation project at fteu. We have made the first steps towards development & innovation in the digital age. In the following month our development process will be certified to complete the necessary infrastructure.



Peak into the Smart Filtration Prototype developed during fteu-Innovation Week

Fluid Filtration

Fluid Dispersion

Precision Assembly

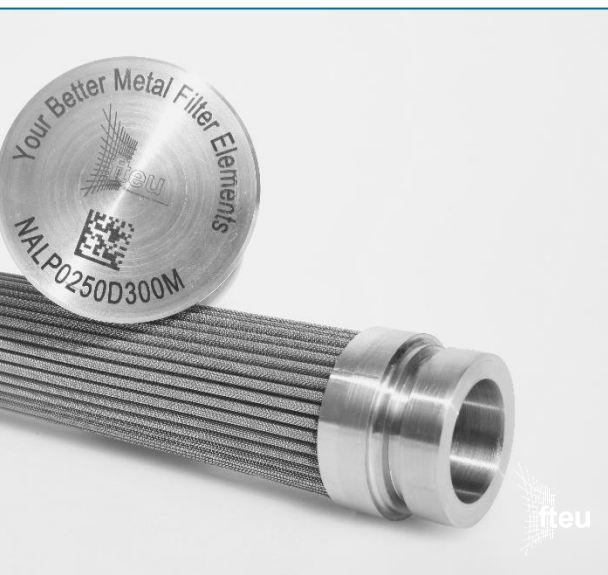
Sound Absorption

Heat Absorption

Pleated Filter Candles with MicroPleats

In the last News Update we introduced our new pleating technology. In the recent months we put that technology to use by designing and manufacturing prototypes for specific filtration environments. Our new technology is especially applicable for processes that require constant availability/machine uptime in order to keep entire systems running. A suchlike application is the oil filtration in cargo vessels where tight delivery schedules and short stoppage times in ports leave no room for unplanned downtime. Together with our partner we developed a filter candle that fits into the existing systems offering three times the surface of conventional filter candles. Increased surface always slows down the pressure increase and leads to more uptime potential in filtration systems. As our prototypes feature a filtration fineness of 34µm we are especially proud of the achieved manufacturing quality with this sensitive material. We presented the prototypes together with our partner at the leading maritime trade fair SMM in September. With the positive feedback from customers at SMM we are now identifying pilot users to optimize our technology and establish a new standard for marine filtration.

Additionally we are in the testing phase for products with MicroPleats (pleating height of 2.3-3.0mm) for plastic melt filtration, automotive oil filtration, and air filtration.



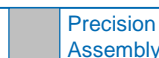
Prototypes of our pleated filter candles with MicroPleats featuring <3mm pleating height



Fluid Filtration



Fluid Dispersion



Precision Assembly



Sound Absorption



Heat Absorption

MASH® Fibre-Free Sound Absorption

MASH® - Material Absorbing Sound and Heat has been one of our technologies for several years. We have tested and sold our material for a variety of different applications ranging from coil material, over automotive spare parts to design sound insulation elements. For sound absorption MASH® competes with other perforated materials that are usually combined with steel wool or similar nonwoven materials.

Together with our metal mesh weavers we have refined the specifications of MASH® this year. Through collaborative engineering with acoustics engineering labs and our customers we have developed and successfully tested a new MASH® material grade. It is being used for pipe sound absorbers (current application i.e. in industrial compressors or household chimneys) and is superior in its sound absorbing compared to conventional sound absorbing materials. It works fibre-free – without any nonwoven to support the perforated material –, its effectiveness does not dissipate over time (sound decomposes nonwoven fibres over time) and is especially suitable for environments requiring explosion control. MASH® remains a solution for very specific requirements that demands individual development and testing steps for each specific application. We are introducing our pipe sound absorbers of MASH® to further machine OEMs. Let us know, if you have thoughts on applications where fibre-free sound absorption brings added value to the market place.



MASH® pipe sound absorbers and material detail

Fluid Filtration

Fluid Dispersion

Precision Assembly

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Heat Absorption

Outlook

The final quarter of the year will bring interesting impulses on market development through leading trade fairs in Europe and Asia. Internally we are working on several manufacturing projects to improve our capabilities regarding precision, efficiency, and flexibility further. Through our new structure in sales we were able to increase the amount of new customer projects we are working on and look to continue this trend. Our developmental processes are an important piece on the way to new solutions in customer projects. Finally, we are excited about shaping the path towards Smart Filtration with our Unicorn project over the next months.

Best regards from Heinsberg,

Dr. Nicolas Komorek



The winning team „Unicorn“ after fteu-Innovation Week

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