PRESS RELEASE

Presentation at the ITMA trade fair

Fraunhofer ITWM, Siriotek and bematic® join forces to advance nonwovens production technology

Today, nonwoven fabrics play a central role in a number of industries, including automotive, healthcare, medical, construction, and filtration. As demand for these versatile materials continues to grow, Bettarini & Serafini S.r.l (trading as bematic®), Siriotek GmbH and the Fraunhofer Institute for Industrial Mathematics ITWM are now joining forces to enhance and develop air-lay technology for production of nonwovens. The joint project will be presented for the first time at ITMA 2023, the trade fair for textiles technology, materials and innovation.

Based in Italy, bematic® have been developing and manufacturing nonwoven production lines for almost 50 years and today their carding machines are in daily use across the world. The company provides turnkey solutions customized to specific production requirements. bematic® bring their expertise in development and construction of nonwoven production lines to the project and will manufacture the new air-lay systems developed through the joint project.

Swiss-based Siriotek specialize in mechanical engineering and product development through practical application of virtual prototyping and testing. Throughout the project Siriotek engineers will use analysis, modelling and simulation to advance and optimize the design layout of the new air-lay system.

Fraunhofer ITWM, in turn, contributes to the project with both knowledge and experience in the textile technology and process optimization, as well as know-how in mathematical modeling and characterization of air-lay processes for staple fibers.

The three partners aim to jointly develop the next generation of air-lay machines to ensure performance and quality in processing with staple fibers whilst reducing energy consumption, waste generation and carbon emissions. The collaboration brings together the expertise and innovation capabilities of three specialist players in their respective fields.

Faster, denser, more efficient

In air-lay processes raw fibres (natural or synthetic) are opened up by a card roller and pulled apart, introduced into a forced air stream and directed onto conveyor belts. The randomly arranged fibres are then compacted by suction and finally bonded together through mechanical, thermal or chemical processes to achieve web consistency.

"Through a collaborative approach, we are pushing the boundaries of air-lay technology to achieve higher production speeds, improved nonwoven uniformity and fibre utilization, and ultimately deliver solutions that are fully tailored to individual production requirements," explains Giovanni Di Lorenzo, Founder and Chief Engineer at Siriotek.

Improved efficiency and sustainability

The project also aims to minimise energy consumption and environmental footprint without compromising performance. "We are driving progress, improving production quality, and contributing to a more sustainable as well as efficient ecosystem in the textile industry" says Dietmar Hietel, Head of the Transport Processes Department at Fraunhofer ITWM. Giovanni Bettarini, Partner and Commercial director at bematic® adds: "Through this collaboration we will be able to offer more efficient and sustainable manufacturing solutions, tailored to specific applications across automotive, construction, filtration and geotextile"

From June 8 to 14, 2023, the project team will welcome industry representatives to their booth in Hall 10-A102 at ITMA in Milan to share details of the project.

Combine their expertise from now on: Dr. Dietmar Hietel, Fraunhofer ITWM, Giovanni Di Lorenzo, Siriotek, and Giovanni Bettarini, bematic

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About the Fraunhofer Institute for Industrial Mathematics ITWM

The Fraunhofer Institute for Industrial Mathematics ITWM in Kaiserslautern is one of the largest research institutes for industrial mathematics worldwide. We see our task in further developing mathematics as a key technology and providing innovative impetus. Our focus is on the implementation of mathematical methods and technology in application projects and their further development in research projects. The close cooperation with partners from industry guarantees the high practical relevance of our work.

Their integral components are consulting, implementation and support in the application of high-performance computer technology and the provision of tailor-made software solutions. Our various competencies address a wide range of customers: automotive industry, mechanical engineering, textile industry, energy and finance. This also benefits from our good networking, for example in the High performance center "Simulation- and software-based innovation".