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TECHTEXTIL 2026
BETWEEN INNOVATION PRESSURE AND MARKET REALITY

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TEXPROCESS 2026
AUTOMATION, DIGITALISATION AND AI REDEFINE TEXTILE PROCESSING

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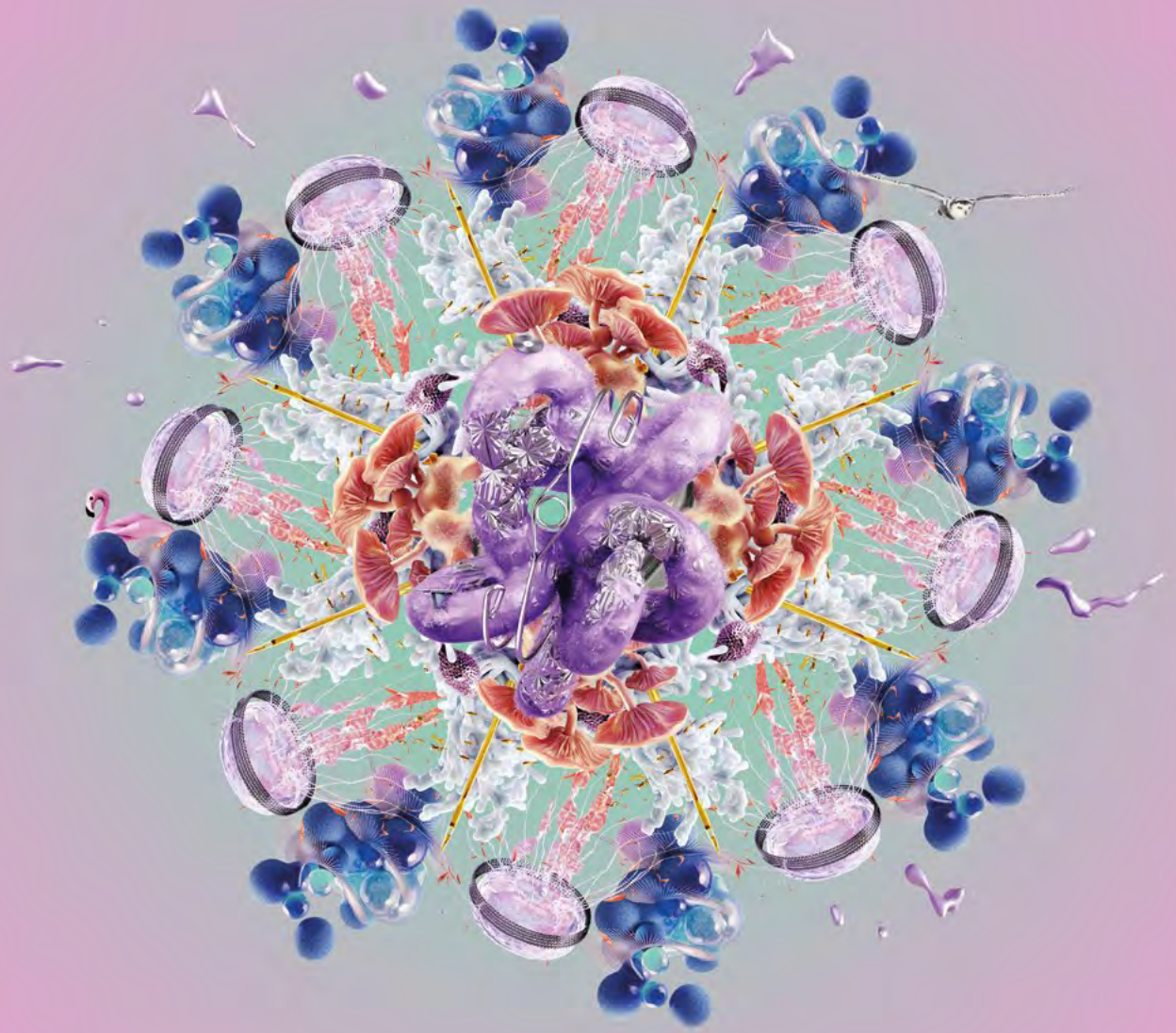

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FROM THE EDITOR

DEAR READER,

Expectations of a sustained global economic recovery have so far not been fulfilled. Instead of the anticipated stabilization, new geopolitical tensions and military conflicts continue to shape the overall picture. Uncertainty remains high—making it all the more important to look ahead with the hope that pathways toward greater peace and stability will emerge.

In this challenging environment, innovation, collaboration, and technological progress are becoming increasingly important. This is precisely where the leading trade fairs Techtextil 2026 and Texprocess 2026 come into play, opening their doors next week. Both events stand globally for innovation and serve as key meeting points for the international textile and apparel industry.

Technical textiles are playing an ever more significant role in this context. With new applications, they are helping to address complex challenges across a wide range of industries—whether in handling demanding materials or in areas where conventional materials reach their limits. At the same time, their developments increasingly influence other textile segments, including apparel and home textiles, which are adopting trends and impulses from technical applications.

The sense of anticipation is also clearly visible on the organizer's side. "I am ready!" said Olaf Schmidt, adding: "I am very much looking forward to meeting you in person from 21 to 24 April in Frankfurt am Main, Germany. Innovations in technical textiles and textile processing will once again be the focus at the world-leading trade fairs in this segment." As Vice President Textiles and Textile Technologies at Messe Frankfurt, he succinctly captures the expectations ahead of the show.

For textile.4U, the two fairs form the central theme of this issue. We take a differentiated look at the relevant industries, provide a comprehensive preview of exhibitors and developments, and classify current trends. This is complemented by two interviews with renowned industry experts from the VDMA: Dr. Janpeter Horn, Chairman of the VDMA Textile Machinery Division, and Elgar Straub, Managing Director Bavaria and responsible for Textile Care, Fabric and Leather Technologies as well as honorary sponsor of Texprocess. Both provide well-founded insights into the current situation and the outlook for the industry.

With that, the stage is set. Now it is time to look ahead—and, in the best sense, to dive headfirst into the action.

Yours sincerely

OLIVER SCHMIDT

#Editor-in-chief

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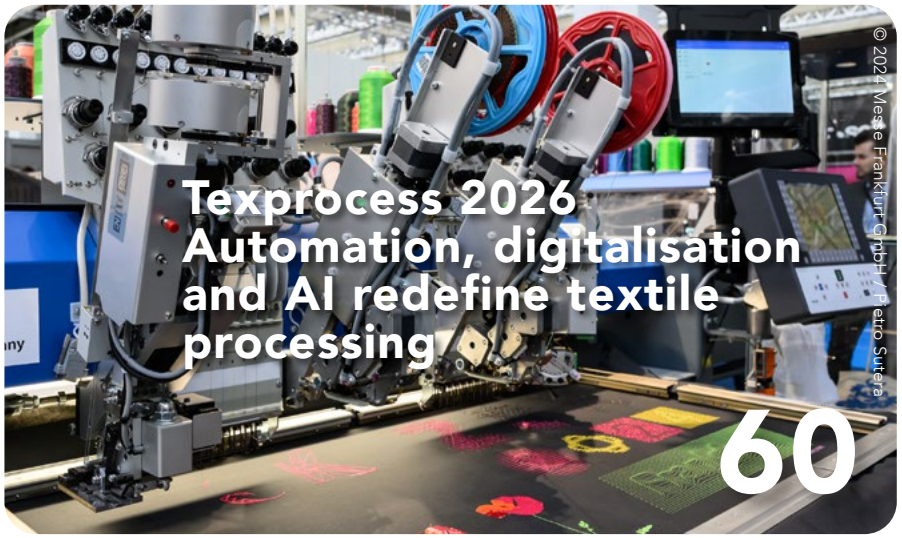

TECHTEXTIL 2026

BETWEEN INNOVATION PRESSURE & MARKET REALITY

WHY THE LEADING TRADE FAIR IN FRANKFURT IS BECOMING MORE DECISIVE THAN EVER FOR SUCCESS, DIFFERENTIATION, AND NEW TEXTILE SOLUTIONS IN A DEMANDING MARKET ENVIRONMENT.

From 21 to 24 April 2026, Techtextil in Frankfurt am Main will once again become the central meeting point for the international technical textiles and nonwovens industry. Running in parallel, Texprocess will focus on the industrial implementation of textile processing technologies as the leading platform in this field. Together, the two trade fairs form a closely integrated presentation and working platform along the entire textile value chain – from material development to finished applications.

As the leading international trade fair in its segment, Techtextil has traditionally showcased the technological developments shaping the industry. The focus lies on functional materials, high-performance textiles, and innovative applications in areas such as mobility, construction, medical, protection, and apparel. It is precisely here that it becomes evident which developments are successfully making the transition from research into industrial processes, thereby triggering real market change.

The 2026 edition takes place in a market environment shaped by several transformation processes occurring simultaneously. In addition to a strained economic situation and increasing trade policy pressure – including tariffs, regional market fragmentation, geopolitical conflicts, and volatile supply chains – regulatory requirements across the entire textile value chain are also intensifying. Issues such as PFAS regulation, supply chain legislation, and new sustainability requirements are having an ever greater impact on material decisions and product development.

At the same time, technological development continues to accelerate. New fibre and material concepts, advances in textile chemistry, bio-based raw materials, as well as digital and automated production processes are significantly expanding the possibilities of technical textiles. At the same time, however, expectations regarding industrial feasibility are increasing: innovations must not only deliver functional performance, but also be reproducible, economically viable with sustainable margins, and compliant with regulatory requirements at scale.

Against this backdrop, Techtextil is gaining further importance – not only as a showcase for new materials, but as a platform where it becomes clear which technologies will actually make their way into industrial applications and markets.

Exhibition ground © 2026 Messe Frankfurt GmbH / Thomas Freda and Jean-Luc Valentin

WHY VISITING IN 2026 IS PARTICULARLY WORTHWHILE

There are many reasons to visit Techtextil – but these have shifted in recent years. While in the past the focus was often on showcasing innovation and searching for specific solutions, today many visitors are increasingly looking beyond their own field to explore adjacent areas. With its current motto, Messe Frankfurt deliberately places the importance of serendipitous encounters at the centre. Sabine Scharrer, Director Brand Management Technical Textiles & Textile Processing, explained in an interview (textile.4U Issue 1/2026) that the new Techtextil motto highlights the value of unexpected encounters as a key asset of the event: "Often, the best solutions are found unexpectedly. The opportunity to discover so many innovative textiles for such a wide range of applications exists only at Techtextil. This is where participants find the best conditions for fruitful encounters. We combine a high level of internationality with exhibitors and visitors from over 100 countries and connect the world through serendipity."

A key driver for visiting Techtextil is undoubtedly the increasing regulatory pressure. New requirements – ranging from PFAS restrictions and supply chain legislation to expanded sustainability frameworks – are forcing companies to reassess material choices and product concepts. The trade fair provides an opportunity to directly compare alternatives, evaluate technological options, and discuss their industrial feasibility with suppliers.

At the same time, weak demand in many markets combined with intense competition is forcing companies to differentiate more clearly. Standard solutions are increasingly subject to price pressure, while specialised applications and technically sophisticated products are gaining importance. For many suppliers, this means strategically advancing their portfolios – whether through additional functionalities, higher performance, improved processability, or new properties such as recyclability or biodegradability. As a result, there is a growing need to evaluate innovation not in isolation, but in the context of cost, scalability, and specific application benefits. At the same time, technical textiles – with their unique performance characteristics – are increasingly becoming substitute materials for other, less suitable materials. Techtextil offers a compact overview of current solution approaches and their practical relevance.

Another factor is the need for reliable orientation in an increasingly complex market. The range of new materials, chemical solutions, and processing technologies continues to expand. For many companies, it has become essential not only to understand individual innovations, but also to assess how they interact across multiple stages of the textile value chain. The combination of Techtextil and the parallel Texprocess enables precisely this holistic perspective – from raw materials and functional finishing to industrial production.

A further important aspect is the growing focus on market-ready applications. Many of the developments on display are no longer conceptual studies, but are already geared towards concrete use cases – for example in protective textiles, functional apparel, or industrial applications. For visitors, this means that innovations can be assessed much more clearly in terms of their practical benefits and economic relevance. This is also linked to the fact that, in rapidly changing markets, time-to-market is becoming increasingly critical for companies.

Finally, the trade fair remains a key platform for direct exchange and networking. Particularly in an environment of growing uncertainty, personal interaction is gaining importance – whether for initiating new partnerships, evaluating technologies, or interpreting market trends. Overall, the nature of visiting the trade fair is shifting noticeably: away from pure inspiration towards a more work-oriented platform for well-founded decision-making along the entire textile value chain.

Halls and aisles © 2026 Messe Frankfurt GmbH / Thomas Freda and Jean-Luc Valentin

FIGURES AND DEVELOPMENT: STABILISATION AND STRUCTURAL SHIFTS

A look at recent editions of Techtextil reveals an industry in transition – moving from pandemic-driven recovery towards a phase of consolidation and structural realignment. Following the disruption caused by the pandemic, the international textile trade fairs in Frankfurt marked a clear restart in 2022. By 2024, a process of normalisation had begun to emerge. With around 1,470 exhibitors from approximately 50 countries, the event stabilised at a consistently high level. This was also accompanied by China's return to the international stage: after just 12 exhibitors in 2022, the number rose to 164 in 2024, even exceeding pre-crisis levels. Countries such as Italy, Turkey, Spain, and France also recorded significant increases.

For 2026, moderate growth is expected, combined with further differentiation. More than 1,500 exhibitors from 49 countries are anticipated, including over 120 first-time participants and 16 country pavilions.

A closer look at the key exhibitor countries shows both continuity and shifts in the global industry structure. Germany remains the largest participant with 338 exhibitors, followed by China with 177 and Italy with 167 exhibitors. They are followed by France (93), Turkey (66), India (65), and Spain (62) as other key players. Switzerland is also strongly represented with 49 exhibitors.

These figures highlight several developments. On the one hand, Europe remains the backbone of the event, led by Germany and Italy. At the same time, China continues to strengthen its role as one of the most important global suppliers of technical textiles, while India and Turkey are expanding their positions as high-growth production and sourcing markets. In addition, the geographical base of exhibitors is broadening. New participating countries as well as additional country pavilions – including from the Netherlands and Tunisia – demonstrate that the event is becoming increasingly diversified and is integrating new markets more strongly.
In terms of content, the breadth of application areas remains a defining feature of Techtextil. From mobility and industrial applications to protection, medical, and functional apparel, all relevant segments are represented. However, the focus within these areas is shifting towards more specialised applications and technologically advanced solutions.

An analysis of product segments shows a continued balanced structure along the textile value chain. Particularly well represented are fabrics (318 exhibitors), coated textiles (275), as well as fibres and yarns (265). The segment of performance apparel textiles continues to gain importance with 203 exhibitors, while nonwovens (97) and composites (96) represent more specialised but technologically important segments.

A similar distribution can be observed across application areas. Industrial applications (Indutech, 544 exhibitors) and mobility applications (Mobiltech, 524) remain the largest segments, followed by protective textiles (Protech, 459), clothing (Clothtech, 410), construction applications (Buildtech, 402), and medical textiles (Medtech, 303).

Compared to the previous edition, shifts in exhibitor numbers across application areas can be observed, but they are minimal and do not indicate any fundamental change in weighting. The core application areas of technical textiles remain stable – from industrial uses and mobility to protection and apparel.

With 328 companies, textile machinery manufacturing also remains one of the largest groups at the event. Within Techtextil, it is listed under "Textile Production Technology and Processes." Together with the 200 exhibitors at Texprocess, the textile value chain is therefore comprehensively represented – from fibre production and textile manufacturing to application production and the final textile product. For the production of technical textiles and nonwovens, this coverage is almost complete. In the long term, however, this linear chain is likely to evolve further towards circular value creation.

Applications from the Sporttech sector

HALL STRUCTURE: ORIENTATION AT THE EXHIBITION GROUNDS

Together with Texprocess, Techtextil 2026 will occupy Halls 8, 9, 11, and 12 at the Frankfurt exhibition grounds. The clearly structured thematic layout makes it easier for visitors to navigate and to move through the fair according to their specific interests.

The core of Techtextil is located in Halls 9, 11, and 12, where materials, applications, and technologies along the textile value chain are presented. Hall 9 brings together key segments such as fibres, yarns, and functional materials, as well as application-oriented areas like performance apparel. The Techtextil Forum and the start-up area are also located here.
Halls 11 and 12 expand the spectrum to include additional applications and technologies – ranging from nonwovens and composites to coated textiles and production solutions. Hall 12, in particular, focuses on textile production and processing technologies that enable the industrial implementation of new materials and concepts.

Texprocess is located in Halls 8 and 9.0, complementing the offering with technologies for textile processing and garment manufacturing. The compact use of the western exhibition halls, already introduced in previous editions, also helps to shorten distances, simplify orientation, and make logistical processes more efficient and resource-conscious.

This layout results in a trade fair that is structured both thematically and spatially along the textile value chain. For visitors, it provides the opportunity to directly understand the interconnections between materials, applications, and processes on site.

APPLICATIONS IN FOCUS: FUNCTION, SUSTAINABILITY, AND PROTECTION ARE CONVERGING

Many innovations at Techtextil can no longer be clearly assigned to individual product groups. Instead, they are increasingly emerging as applications rooted in multiple – or even numerous – product categories. This is particularly evident in areas such as functional apparel and protective textiles.

Applications from the Medtech sector

What connects these fields is the growing demand placed on textile systems. Materials are now required to fulfil multiple functions simultaneously, perform reliably under real-life conditions, and at the same time meet regulatory as well as environmental requirements. As a result, the focus is shifting from individual performance characteristics towards integrated solutions. Whether thermoregulation, protection against heat and flames, mechanical durability, or circularity – what matters increasingly is the interaction between raw materials, fibres, chemistry, construction, manufacturing, and processing.

These holistic developments require consistent collaboration between companies along the value chain. Selective partnerships are increasingly evolving into specialised networks involving multiple players. The focus is no longer on individual technologies, but on how they can be combined and translated into concrete products and applications that deliver additional benefits and functionalities. At the same time, efficient and effective production is becoming essential, making full use of the possibilities offered by digitalisation and automation in combination with artificial intelligence. This trend also opens up opportunities to transfer certain product concepts into other tex-

tile sub-sectors, such as home textiles or apparel. A closer look at selected trends highlights these developments.

PERFORMANCE APPAREL: FUNCTIONALITY BECOMES A STRATEGIC VALUE DRIVER

One of the most dynamic areas of innovation can be seen in functional apparel. With the significantly expanded presentation area for Performance Apparel Textiles, Techtextil reflects this development and places a stronger focus on applications where textile functionality becomes directly visible and tangible.

Functional apparel has evolved considerably in recent years. What was once primarily defined by individual performance features such as waterproofness or flame resistance has developed into a complex interplay of multiple requirements. In applications ranging from workwear and protective clothing to outdoor and sportswear, materials must simultaneously provide protection, regulate temperature and moisture, withstand mechanical stress, and at the same time ensure comfort and durability.

This development becomes visible at the trade fair through concrete applications. Examples range from circular polyamide solutions such as Loopamid, presented by BASF, to UV-protective textiles that can be realised without additional chemical finishing, for example using technologies from Karl Mayer.

New approaches are also emerging in the field of thermal management and wearer comfort. Materials incorporating phase-change technologies, such as those developed by Outlast Technologies, enable active regulation of the microclimate in garments. These concepts are complemented by new membrane solutions, for example from Sympatex Technologies, which combine waterproof and windproof properties with PFAS-free and circular design concepts.

Companies such as Concordia Textiles and Klopman International demonstrate how these functionalities can be translated into robust, industrial-grade apparel systems – particularly in workwear and protective clothing, where durability, care properties, and consistent performance are critical. At the same time, the material base itself continues to evolve. Companies such as Lenzing are developing bio-based fibres with functional properties that address both comfort and sustainability requirements, opening up new possibilities for functional apparel.

Overall, a clear technological direction is emerging: high-performance fibres, membranes, functional finishes, and increasingly integrated additional features are being combined into complex, multi-layer systems. The objective is to optimise protection, climate management, and wearer comfort in an integrated manner.

PERFORMANCE APPARELS ON STAGE: MAKING FUNCTION WEARABLE

With the "Performance Apparels on Stage" format, Techtextil 2026 introduces a new platform that deliberately bridges the gap between material development and concrete applications. The focus is on selected textile products and apparel systems from exhibitors and their partners, presented live in a curated format. Unlike traditional product presentations, this format highlights textile innovations within real application contexts. The showcased outfits specifically demonstrate individual functions – such as UV protection, flame resistance, thermoregulation, integrated lighting, or circular material concepts.

The exhibits are selected by an independent expert jury, which places particular emphasis on the combination of functionality, sustainability, and practical applicability. Evaluation criteria include protective performance, comfort and ergonomics, material innovations and new fibre technologies, compatibility with industrial processes, as well as design and usability. Aspects such as care and maintenance are also taken into account. The result is a cross-section of current developments that not only demonstrates technological possibilities, but also their translation into market-ready products.
For visitors, the format provides a compact overview of concrete applications and facilitates the assessment of new materials and technologies.

Applications from the Biuldtech sector

The live shows will take place in Hall 9, Level 0, Stand A07: on 21 April at 12:00 and 14:30; on 22 and 23 April at 10:30, 13:00, and 15:00; and on 24 April at 10:30 and 13:00. This creates a direct link to the exhibiting companies whose materials and components are integrated into the presented products. "Performance Apparels on Stage" thus exemplifies a broader development across the entire trade fair: innovation is no longer understood solely as a material property, but as an integrated system that must prove itself in the final product and in real-world use.

NATURAL AND BIO-BASED MATERIALS: RAW MATERIALS UNDER NEW REQUIREMENTS

Sustainability remains one of the defining themes of Techtextil – but it has evolved significantly in recent years. While the focus previously often lay on individual "green" materials, attention has now clearly shifted towards the systematic integration of sustainability aspects into material development and product design. The main drivers of this development are regulatory requirements and changing market conditions. Regulations on PFAS, increasing demands for recyclability, and new reporting obligations along the supply chain are directly influencing the selection of raw materials, chemical systems, and construction principles. At the same time, textile solutions must continue to meet the high functional requirements of their respective applications.

Sabine Scharrer explained in an interview: "The demand for natural fibres and materials has grown enormously. At the same time, the EU Textile Strategy is driving the need for sustainable materials, while their performance continues to improve. New materials, finishing, and processing technologies are enhancing the performance of natural and biodegradable textiles. We are giving this segment greater visibility through a dedicated area. At the upcoming Techtextil, there will be more suppliers than ever offering natural, bio-based, or biodegradable fibres and materials. For the first time, they will be marked with a special interest label, making them easy to identify both at the exhibition stand and in the online exhibitor search."

Applications from the Protech & Clothtech sector

A visible expression of this development is the "Nature Performance" label, introduced two years ago, under which more than 110 exhibitors present natural and bio-based fibres and yarns for all relevant application areas. International innovators such as Abacell, Basaltex, Cordenka, Karsu Tekstil, Südwolle, and Vombaur are among those represented. These companies are clearly marked both at their stands and in the online exhibitor search, enabling quick orientation, targeted business contacts, and room for discovery. In addition, the trade fair – primarily in Hall 9.1 – brings together materials and solutions that deliberately combine sustainability and functionality. The focus is particularly on bio-based and natural raw materials that are increasingly being used in technically demanding applications.

Terry P. Townsend, statistician at the Discover Natural Fibres Initiative, provides data illustrating current developments: "Fibres such as jute (3 million tonnes/year), coir (1.2 million tonnes), short flax fibres (200,000 tonnes), sisal (300,000 tonnes), industrial hemp (400,000 tonnes), kapok (80,000 tonnes), or abaca (50,000 tonnes) are primarily used in technical applications and offer significant potential for expanded recovery and recycling."

Companies such as CORDENKA and Longcell Europe demonstrate how cellulose-based fibres are being further developed for industrial and technical applications. Providers such as Senbis Polymer Innovations are also working on bio-based polymer solutions that open up new pathways for functional and potentially biodegradable materials. At the same time, traditional natural fibres and their further development are gaining importance. Companies such as Fiacao da Graca and Gülipek Kumas present yarns based on natural raw materials, while suppliers such as Belchem are transferring inorganic natural fibres into technical applications.

At the same time, it becomes clear that a shift in raw materials alone is not sufficient. What is decisive is how materials can be used across the entire value chain. Issues such as processability, durability, and recyclability are moving more strongly into focus, as is compatibility with existing industrial processes.

In the context of a more sustainable society and the associated regulatory framework, the development of circular material concepts is also gaining importance. The aim is to design textile products in such a way that, at the end of their life cycle, they can be recycled as efficiently as possible into new textile products.

This affects not only the choice of fibres, but also the use of chemical finishes and coatings, which must not hinder recycling processes. However, recycling is not limited to natural materials.

On the contrary, the recycling of petroleum-based fibres such as nylon and polyester is a key technology for making the textile industry significantly more sustainable.

At Techtextil 2026, around 90 exhibitors will present recycled and/or recyclable fibres and yarns for various application areas of technical textiles. These include pure recycling companies such as Aquafil, Nilit, Purfi Manufacturing, and Recyc'Elit SAS, as well as established companies actively advancing recycling, such as Freudenberg Performance Materials, Lenzing, Teijin Group, and The Lycra Company.
The diversity and technological sophistication of the field are also illustrated by the "Dutch Circular Textile Pavilion" in Hall 9.1. Here, companies such as SaXcell demonstrate chemical fibre-to-fibre recycling processes that convert textile waste into new fibres of cotton-like quality. The fashion brand Vodde presents its own fibre-to-fibre supply chain, producing yarns from 100% recycled textile waste for its own collections. Additional innovations and a yarn library are presented by co-exhibitors EECOFF, Materialliance, and Tex-tracer.

Econogy icon © 2026 Messe Frankfurt GmbH

Overall, it becomes clear that sustainability at Techtextil 2026 is no longer treated as an isolated topic, but rather as a cross-cutting requirement that permeates all areas of material development and application. The key challenge lies in balancing ecological requirements with technical performance and economic feasibility.

TEXPERTISE ECONOGY – A COMPASS FOR TEXTILE SUSTAINABILITY

Additional guidance in the growing market for sustainable textile solutions is provided by the cross-fair sustainability programme Texpertise Econogy. The term combines ecological and economic aspects and identifies exhibitors that have been audited and certified by experts as operating in a sustainable, ethically responsible, and economically viable manner. At Techtextil, around 120 companies carry the Econogy label and can be identified both in the exhibitor search and via the icon at their stands. Complementary Econogy Talks and guided tours provide valuable insights into new developments and best practices.

Applications from the Mobiltech sector
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COMPREHENSIVE PROTECTIVE TEXTILES: DEFENCE ON MULTIPLE FRONTS

A particularly demanding and at the same time growing application field for technical textiles can be seen in protective and high-performance textiles. At Techtextil 2026, this segment is highly visible: more than ten percent of exhibitors are presenting solutions for protective applications – ranging from industrial workwear to military and security-related uses.

The drivers behind this development are multifaceted. Increasing investments in security-related sectors, stricter occupational safety requirements, and new regulatory frameworks are all driving demand for high-performance materials. At the same time, what was once considered technically feasible is now becoming a requirement: textiles must combine protection against heat and flames, mechanical durability, chemical resistance, and wearer comfort within a single system.

This development is illustrated at the trade fair through concrete examples. Companies such as Lenzing demonstrate how protective functions can be directly integrated into fibres with flame-retardant cellulose fibres. Suppliers such as Hyosung Advanced Materials present

high-performance yarns made from synthetic polymers for demanding technical applications.

Specialised textile components continue to play a central role in the overall performance of protective systems. Companies such as Güth & Wolf, JUMBO-Textil, and Otto Stockmayer & Sohn supply high-strength webbings, fabrics, and knitted structures used in protective clothing and safety-related applications.

At the same time, regulatory pressure is acting as an accelerator of innovation. In particular, the ongoing discussion around PFAS and their potential restriction is calling many existing material solutions into question and forcing manufacturers to develop alternative concepts that can achieve comparable performance without critical chemicals.

Another decisive aspect is the increasing integration with industrial production. The requirements for protective textiles are similar across many applications – including low weight, high durability, and reproducible processing. As a result, the ability to not only develop material solutions but also reliably transfer them into industrial processes is becoming increasingly important. This highlights the close link to textile machinery manufacturers in Hall 12, as well as to the parallel Texprocess exhibition, which addresses the implementation of such materials into scalable production processes.

Together, the two trade fairs demonstrate that innovation in this segment is only relevant if it proves itself across the entire value chain.

Overall, it becomes clear that the focus in protective textiles is shifting: away from isolated material innovations towards integrated, industrially viable system solutions that meet both technical and regulatory requirements.

TEXTILE CHEMISTRY: A KEY TECHNOLOGY BETWEEN FUNCTION, EFFICIENCY, AND CIRCULARITY

With the introduction of the new segment "Textile Chemicals & Dyes," Techtextil 2026 consolidates an area that has previously been spread across multiple segments, yet plays a central role in the performance of technical textiles.

Fibres and yarns

Many key properties of modern textiles do not originate at the fibre or construction level, but rather through chemical processes. Whether water repellency, flame resistance, temperature regulation, or durability – textile materials only achieve their specific functional characteristics through finishes, coatings, and dyeing processes.

The spatial proximity to fibres, yarns, and performance applications highlights that textile chemistry is increasingly being understood as an integral part of material and product development. At the same time, the sector is under considerable pressure to transform. Regulatory developments – particularly in relation to PFAS – as well as increasing demands for resource efficiency and circularity are fundamentally changing development targets. The focus is on solutions that combine high performance with improved environmental compatibility.

This is illustrated at the trade fair through concrete approaches. Companies such as CHT and Rudolf present fluorine-free finishing systems that enable water repellency without the use of critical chemicals. Suppliers such as Archroma and Sarex Chemicals are developing dyeing and processing solutions that significantly reduce water and energy consumption. Material development itself is also increasingly shaped by chemistry. Companies such as EMS-Chemie are developing polymer solutions for technical applications, while providers such as Livinguard offer coatings that provide additional protective and hygiene properties.

Another important trend is the development of circular chemical systems. Coatings and finishes must increasingly be designed in such a way that they do not hinder recycling processes – or even actively support them. This expands the role of textile chemistry: it no longer only influences the performance of a product during use, but also its behaviour at the end of its life cycle.

Overall, it is clear that textile chemistry today is far more than a supporting process step. It is increasingly becoming a key technology that determines how high-performing, sustainable, and economically viable textile products can be in the future.

"Apparels on stage"

TEXTILE PRODUCTION TECHNOLOGIES: EFFICIENCY, AUTOMATION, AND DIGITAL CONTROL

In addition to materials and applications, textile production and processing technologies also play a central role at Techtextil 2026. Within the segment "Textile Production Technologies and Processes" in Hall 12.0, companies present solutions along the entire process chain – from fibre preparation and fabric formation to finishing and refining.

Current developments clearly show that efficiency and process reliability are moving significantly into focus. Topics such as energy savings, the use of resource-efficient technologies, and the processing of new – in some cases demanding – materials are shaping the direction of innovation, alongside the continued advancement of automation.

A particular emphasis is placed on the digitalisation of production processes. AI-supported systems for process monitoring and control, data-driven optimisation, and increasingly automated workflows enable higher productivity as well as more stable quality. Especially in the context of complex material systems – for example in functional or sustainable textiles – this precise process control is becoming increasingly important.

The range of technologies on display extends from conventional machinery solutions to integrated systems that combine multiple process steps. This underlines that innovation is not only taking place within the material itself, but equally in the way textile products are manufactured.
For visitors, this segment offers the opportunity to experience the state of the art first-hand and to directly assess the industrial feasibility of new materials. The solutions presented demonstrate how current requirements – from efficiency and sustainability to flexibility in production – can be translated into concrete technical systems.

INTERIM CONCLUSION: ORIENTATION IN A BROAD FIELD OF INNOVATION

The areas presented illustrate where the dynamics of innovation at Techtextil 2026 are particularly evident. A complete overview of all developments is neither possible nor intended. Rather, the aim is to highlight key themes and technological directions that are currently gaining importance – from functional apparel and sustainable materials to protective textiles and textile chemistry.

For visitors, this provides initial guidance on which areas may be particularly relevant and where a closer look is worthwhile. It also becomes clear that the trade fair offers a wide range of solutions that must be evaluated differently depending on individual priorities. The selection of topics presented here is therefore intended as inspiration for planning one's own visit. The next step is to consider additional aspects and formats that offer further insights into current developments and future trends.

INNOVATION AWARDS: BEST PRACTICES AT A GLANCE

A central point of interest for visitors to Techtextil is the presentation of award-winning developments as part of the Techtextil Innovation Awards. In Hall 11.1 (Stand C51), the awarded solutions are displayed together, providing a compact overview of current technological excellence.

The award recognises innovations across key areas of the industry – from new materials and applications to textile chemistry, as well as production and digitalisation solutions. In total, the best submissions are honoured in seven categories, including "New Material," "New Product," "New Chemicals & Dyes," "New Recycled Materials & Recycling Technologies," and "New Production Technology, Digitalisation & AI Solutions."

Techtextil & Texprocess Innovation Award
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The selection is made by an international jury of experts from research and industry, who evaluate the submitted developments based on criteria such as degree of innovation, technical implementation, and application relevance. The result is a curated selection of solutions that not only demonstrate technological excellence, but also highlight concrete application potential across industries such as mobility, construction, and medical technology.

For visitors, the exhibition provides quick access to particularly relevant innovations and facilitates orientation within the thematic breadth of the trade fair. The award-winning examples clearly demonstrate how new materials, processes, and applications interact – and which approaches are currently considered especially forward-looking.

The winners of the Techtextil Innovation Awards 2026 will be announced ahead of the fair on 14 April 2026. The official award ceremony will take place on 21 April 2026 from 16:30 to 17:30 at the Techtextil Forum (Hall 9.1, D50).

START-UPS: NEW IMPULSES FOR THE TEXTILE FUTURE

Alongside established companies and technological market leaders, Techtextil also provides a platform for young companies. In the "Start-up Stars" area in Hall 9.1, dynamic and emerging businesses present new ideas and innovative approaches for the textile industry.

The focus is often on topics such as new materials, digital solutions, or specialised applications that expand or rethink existing processes and business models. For visitors, this offers the opportunity to gain early insights into developments that may become increasingly relevant in the future.

One example is the Swiss company Climatex, which is pursuing a new approach to circular textile construction with its "Dissolvable Thread Technologies." By using specially developed dissolvable bonding yarns, the principle of "design for disassembly" is directly integrated into textile manufacturing processes. Seams, fabrics, or knitted structures can be selectively dissolved at the end of the product life cycle, enabling materials to be separated by type and efficiently recycled.

Start-Ups, Econogy tours and Campus & Research area
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A different approach is taken by the Dutch company Materialliance. With its digital material intelligence platform, it aims to make the development of textile materials more systematic and reproducible. Instead of relying on trial and error, the approach is based on structured data, interconnected material information, and early feasibility assessments. This is intended to shorten development times, reduce missteps, and better align innovation across the entire supply chain.

These two examples illustrate the breadth of approaches – ranging from new construction solutions at the material level to digital tools that fundamentally transform development processes.

At the same time, the area provides space for direct exchange and the initiation of collaborations. Particularly in interaction with established companies, this creates new impulses along the entire value chain.

TECHTEXTIL FORUM: KNOWLEDGE, EXCHANGE, AND CONCRETE SOLUTIONS

At the heart of the trade fair, the Techtextil Forum in Hall 9.1 provides a central platform for professional exchange and in-depth insights. Throughout the duration of the event, international experts present current developments, technological approaches, and research findings in compact presentations and discussion formats.

The topics reflect the full breadth of the industry – ranging from new materials and production processes to digitalisation and circular concepts. For example, Dr.-Ing. Christian Freitag from LightPulse Laser Precision demonstrates in his presentation on the production of cellulose fibres using laser-drilled spinnerets how bio-based materials can compete directly with synthetic fibres through new process technologies.

techtextil Forum

In the field of digitalisation and automation, Massoud Sattari Torki from the ITA Academy addresses why AI and robotics have so far only been used to a limited extent in textile production – and which approaches are required to transfer these technologies into scalable industrial applications. Complementing this, Dipl.-Ing. Michael Lau from Terrot Textilmaschinen demonstrates how AI-supported analysis of acoustic and vibration data can detect faults in circular knitting processes at an early stage, opening up new possibilities for predictive maintenance.

The transition towards a circular economy is also a key topic at the forum. Dr. Guy Buyle from Centexbel presents the CIS-UTAC approach, a concept that systematically links repair, disassembly, sorting, and recycling, thereby opening up new perspectives for closed textile value chains. Additional contributions address topics such as PFAS-free coating technologies, bio-based printing pastes, and the further development of wet spinning processes for regenerated fibres. The forum thus provides a condensed overview of current research priorities and technological developments.

For visitors, the Techtextil Forum is therefore an important complement to the exhibition: it enables them not only to see innovations, but also to better understand their background, potential, and limitations – and to place them within their own context.

CONCLUSION

In a market environment characterised by economic uncertainty, increasing competitive pressure, and growing regulatory requirements, the need for orientation, exchange, and above all for concrete, implementable solutions continues to rise. Techtextil has always been a trade fair where applications and market-ready products take centre stage. Under current conditions, however, aspects such as economic viability, rapid implementation, and clear differentiation are becoming even more important. For many companies in the textile industry, the focus is increasingly on further developing existing solutions, opening up new niches, and positioning their materials in new applications.

Visitors come from a wide range of application industries – from construction and mobility to aerospace and packaging – with the expectation of discovering new textile solutions. In many areas, textiles are increasingly being considered as alternatives to conventional materials, particularly in lightweight, functional, or integrated system solutions.

It is precisely from this interaction that new developments emerge. Projects such as textile components for aircraft cabins illustrate how textile technologies can establish themselves in highly regulated and demanding applications – and how important collaboration along the entire value chain is in this context.

With its broad range of applications, its international exhibitor structure, and its close integration along the value chain, the trade fair provides a platform where these interfaces become visible and usable.

Last but not least, Techtextil thrives on encounters – on targeted discussions as well as on unexpected discoveries that can open up new perspectives and provide impulses for future developments.

We look forward to an event with numerous highlights and many conversations – with established partners as well as with new contacts.

www.techtextil.com

TEXTILES REIMAGINED:
ITA BRIDGES BIOLOGY, TECHNOLOGY AND FUNCTION

The Institut für Textiltechnik der RWTH Aachen University (ITA) presents a wide range of research activities demonstrating how textiles are evolving from passive materials into functional, adaptive and sustainable systems. As part of the Elmatex joint stand, the institute showcases selected demonstrators covering smart textiles, bio-based materials and application-driven developments.

One of the key topics is 4D-printed textiles. These structures are designed to actively respond to external stimuli such as temperature, humidity, light or electrical impulses. Based on materials like shape-memory polymers, shape-memory alloys or hygroscopic fibers, the textiles can change their form or function over time. This approach opens up new possibilities for adaptive systems, including climate-regulating clothing, textile actuators in soft robotics and applications in the medical field. In this context, textiles are no longer static surfaces but become responsive systems with integrated functionality.

A strong emphasis is placed on the use of renewable raw materials. The AlgaeTex project explores algae as a source for thermoplastic biopolymers, offering an alternative to fossil-based feedstocks. Algae cultivation requires comparatively

Biodegradable agrotextiles developed by ITA improve crop growth conditions while reducing environmental impact, offering alternatives to conventional petrochemical-based materials in agriculture. © 2026 ITA

little land, avoids pesticides and can efficiently capture carbon dioxide. Within the project, different polymer synthesis routes are investigated to maximize the share of algae-based content. These materials are processed via melt spinning into textile structures such as knitted components for sports footwear, demonstrating technical feasibility at an early development stage.
The BioPEtex concept addresses the dominance of polyester in the textile market by introducing bio-based polyethylene as an alternative. BioPE can be produced from renewable resources such as fermented sugars and offers advantages in recyclability and processing. Spin-dyed bioPE fibers significantly reduce energy and water consumption compared to conventional dyeing processes and lower CO_2 emissions.

Spin-dyed bio-based PE T-shirt with reduced energy and water consumption © 2026 ITA

In addition, the material enables functionalities such as infrared transparency, contributing to passive cooling effects. The presented T-shirt illustrates the potential of mono-material concepts with improved recyclability.
With FungalFibers, ITA develops a completely new value chain for textile fibers based on chitosan. Derived from chitin, which is abundantly available in natural sources such as fungal biomass or industrial by-products, chitosan enables the production of bio-based and vegan fibers. The project aims to establish competitive alternatives to conventional raw materials while addressing resource scarcity and environmental concerns.

Application-oriented developments are highlighted by the Bionic Oil Adsorber. Inspired by natural surfaces, this textile system enables the separation of oil from water without the use of external energy or harmful substances. The demonstrator achieves significant separation rates and reflects the transfer of bionic principles into technical textiles.

In the field of agriculture, ITA presents biodegradable agrotextiles designed to improve plant growth conditions while reducing environmental impact. These include nonwoven structures for crop protection and temperature regulation, as well as functional nets with protective coatings.

With this combination of material innovation, functional integration and sustainability, ITA demonstrates how textile technologies can contribute to new applications and more circular production systems.

ita.rwth-aachen.de

STFI PRESENTS APPLICATION-ORIENTED INNOVATIONS

FROM RECYCLING TO SMART TEXTILES

STFI will present a range of developments at Techtextil that combine material innovation, functional performance and circular approaches across technical textiles.

SOUND BOOTH – ACOUSTIC SOLUTIONS FROM RECYCLED TEXTILES

A central focus is the utilisation of textile residues from chemical recycling. In cooperation with Refresh Global, STFI is developing processes to convert currently unused material fractions into new nonwoven products. The recyclates are mechanically processed on pilot lines and consolidated into nonwovens, which can be further finished and transformed into sound-absorbing design elements such as acoustic panels or furniture components. A sound booth at the exhibition demonstrates the acoustic performance and application potential of these materials.

Nonwovens made from chemical recycling residues
© 2026 STFI

SMART TEXTILE FOR POSTNATAL REHABILITATION

In the field of smart textiles, STFI presents a textile-based system for postnatal rehabilitation. The knitted belt integrates electrodes for the stimulation of deep abdominal and pelvic floor muscles using modulated medium frequencies. Designed for mobile use, the system combines a textile structure that adapts to changing body shapes with a compact control unit, enabling intuitive handling and high wearing comfort in everyday applications.

Knitted sports belt for postnatal strengthening of the deep abdominal and pelvic floor muscles © 2026 STFI/ Weißensee KHB

ENHANCED PROTECTION FOR DEMANDING ENVIRONMENTS

For applications in forestry and hunting, STFI introduces protective trousers combining stab and cut resistance with additional impact protection. Special spacer fabrics reduce impact forces by up to 20%, increasing safety in high-risk environments. At the same time, textile-integrated hinge structures ensure flexibility and wearing comfort.

Special spacer fabrics provide impact protection that can cushion the im-pact of a wild boar attack by up to 20 per cent. Stab and cut protection are also guaranteed.
© 2026 STFI

MC4 – CIRCULAR SOLUTIONS FOR HIGH-PERFORMANCE FIBRES

Within the European MC4 project, STFI is advancing recycling approaches for carbon and glass fibre composites. Demonstrators show how recycled fibres can be processed into nonwovens and further into functional products, highlighting new pathways for more sustainable composite value chains.

Special spacer fabrics provide impact protection that can cushion the im-pact of a wild boar attack by up to 20 per cent. Stab and cut protection are also guaranteed.
© 2026 STFI

With these developments, STFI underlines its role in translating research into application-ready solutions for technical textiles, combining material efficiency, functional performance and new product concepts.

www.stfi.de

ITM PRESENTS TEXTILE RESEARCH FOR INDUSTRY AND SOCIETY

The Institute of Textile Machinery and High Performance Material Technology (ITM) of TU Dresden will showcase current research developments across the textile value chain. The institute's presentation focuses on the combination of high-performance fibres, digital development tools and advanced machinery concepts to create application-oriented solutions for sectors including construction, medical technology and lightweight engineering.

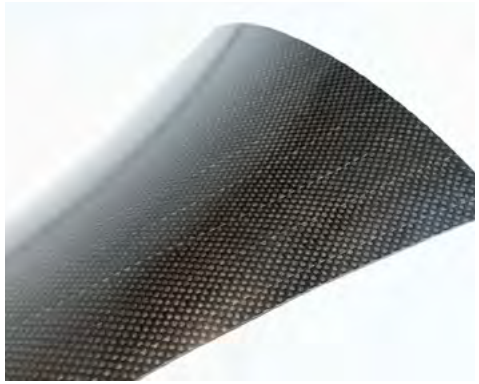
The ITM follows a cross-material and cross-technology approach, covering the entire process chain from material design and machine development to product engineering and industrial application. At the core of its work is the development of high-performance fibres based on materials such as carbon, glass, aramid, steel and ceramics. These are combined into multi-material structures and functionalised through the targeted integration of sensors and actuators into textile surfaces and three-dimensional architectures.

Research activities presented at Techtextil include interactive fibre composites, reinforcement textiles and textile-based architectures. The institute develops preforming technologies and composite structures for a wide range of applications, from carbon concrete in construction to fibre-based implants and textile structures for tissue engineering. In parallel, the ITM is working on recycling approaches for high-performance textile materials, addressing the growing need for circular solutions in advanced material systems.

Another key focus is the use of AI-supported modelling and simulation tools. These are applied to analyse and optimise structures and processes along the textile value chain. Based on this data-driven approach, new material systems such as hybrid yarns and reinforcement structures are developed, including 2D, 3D and programmable 4D semi-finished products.

Woven textile heart valve © 2026 ITM

The institute also designs machine and system concepts that can be integrated into industrial production environments. Among the topics highlighted at the exhibition are high-performance and bio-based fibres, tailored carbon and glass fibres, woven 3D node elements and hybrid fabrics, as well as near-net-shape multilayer weft-knitted structures. Further developments include reinforcement solutions based on braiding, warp knitting and robotic technologies, carbon concrete composites and fibre-based medical applications. In addition, AI-controlled sensor and actuator networks, multi-scale simulation methods and recycling technologies for high-performance textiles will be presented.



Near-net shape woven structure for composites © 2026 ITM

Waste-free multilayer 3D knitted structure © 2026 ITM

Alongside its research activities, the ITM will provide information on academic and professional training opportunities in textile engineering at TU Dresden, including specialised degree programmes in textile machinery and high-performance textile materials.

With its presence at Techtextil, the institute highlights the role of interdisciplinary research in advancing textile technologies for industrial and societal applications.

tu-dresden.de/ing/maschinenwesen/itm

FRAUNHOFER ITWM EXPANDS SIMULATION APPROACHES FOR TEXTILE PROCESSES AND LIGHTWEIGHT STRUCTURES

Fraunhofer Institute for Industrial Mathematics ITWM will present simulation and modelling solutions for textile processes and materials as part of the Fraunhofer TEXTIL research division. The focus is on digital tools that enable analysis, optimisation and virtual development across the textile value chain.

A central topic is the simulation of spinning processes and packages using digital twins. These tools provide insight into internal flow behaviour and support the optimisation of design and process parameters.

Structure generation with the TexMath component MeshUp © DITF

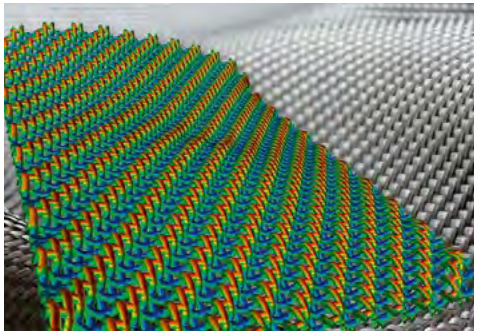
Complementing this, ITWM develops software for mapping and analysing a wide range of spinning technologies, including the VISPI project, which enables virtual representation of spinning processes for applications in textile machinery and technical textile production.

Material simulation is another key area. Here, complex material behaviour is modelled down to the micro level, allowing the calculation of effective properties and the creation of material databases. Tools such as FeelMath enable the analysis of anisotropic mechanical and thermal behaviour based on microstructures. This includes properties such as stiffness, strength, thermal expansion, viscoelastic behaviour, elasto-plasticity and fatigue.

The approach can be used as a digital material laboratory for the development and optimisation of new materials. In addition, ITWM presents simulation solutions for dry spinning processes. These tools model systems with large numbers of fibres and capture both fibre interactions and their behaviour in surrounding gas flows, as well as solvent diffusion within individual filaments.

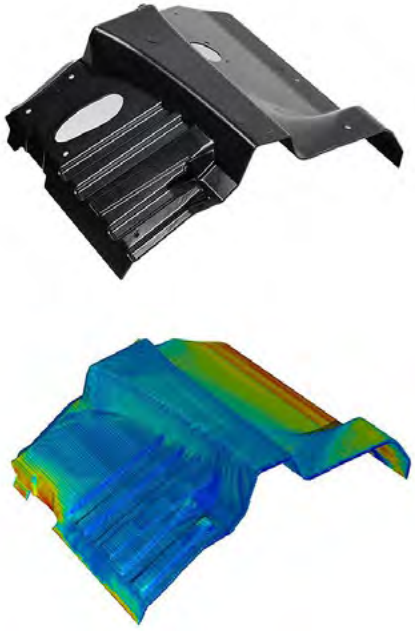
The TexMath software focuses on the mechanical simulation and optimisation of textile structures such as woven, knitted and nonwoven materials. Based on detailed yarn-level simulations, functional properties of applications including compression textiles, protective clothing and e-textiles can be analysed and improved without physical prototypes. Machine parameters can be directly integrated into the simulation process.

A further focus is lightweight construction. Fibre- and particle-reinforced materials are increasingly replacing metals in sectors



Lightweight construction symbol image with example on car with simulations © Fraunhofer ITWM / iStockphoto

such as automotive, construction and consumer goods. Their complex, direction-dependent behaviour requires multi-scale simulation approaches to predict strength and damage. ITWM addresses this with model reduction methods that enable efficient calculation of material behaviour based on microstructure simulations.



SMC Simulation of a Lightweight Component (Car Dashboard) © Fraunhofer ITWM

Additional tools such as FIDYST for fibre dynamics and cashocs for shape optimisation complement the portfolio.
With its presentation at Techtextil, Fraunhofer ITWM highlights how simulation and digitalisation support the development of advanced textile processes, materials and lightweight structures.

www.itwm.fraunhofer.de/en

FREUDENBERG PERFORMANCE MATERIALS PRESENTS MEHLERHEYTEX AND FILC

Freudenberg Performance Materials will showcase textile innovations that enhance efficiency, performance and sustainability across industry and mobility at Techtextil. For the first time since the merger of Mehler Texnologies and Heytex, the MehlerHeytex brand will debut as a leading expert in coated technical textiles. In addition, Freudenberg Performance Materials Filc (Filc), a specialist in advanced needlepunch nonwovens and laminated materials, will present its latest solutions for automotive applications. Filc customers benefit from a well-balanced combination of functionality, comfort and sustainability. Freudenberg Performance Materials welcomes visitors at Stand A11 in Hall 11.0.

MEHLERHEYTEX: MORE TECHNOLOGY, MORE MARKETS, MORE CUSTOMER CENTRICITY

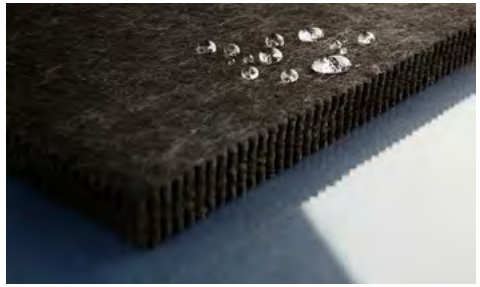
Under the motto "Engineered solutions that move the world", MehlerHeytex positions itself as a strong partner for the development of specialized solutions. The company offers one of the most comprehensive technology platforms on the market, serving a broad range of international industries. Following the merger, Mehler Texnologies and Heytex have combined their expertise, expanding their capabilities and strengthening customer centricity on a global scale. Customers also benefit from an extended international sales network, with local contacts, native-language communication and streamlined processes.

MehlerHeytex offers one of the most comprehensive technology platforms on the market and sales offices in a larger number of countries. © Freudenberg Performance Materials

FILC: HIGH-PERFORMANCE NONWOVEN SOLUTIONS FOR MODERN MOBILITY

Freudenberg Performance Materials Filc (Filc) provides in-depth insights into its innovative nonwoven solutions for the automotive sector, including efficient acoustic materials as well as nonwovens for seating and luggage compartments.

With Finsol, Filc offers lightweight acoustic nonwovens that absorb sound, effectively reduce noise and enhance in-vehicle comfort. The materials support a wide range of automotive applications, including door panels, trunk liners, headliners and wheel-arch liners. Their lightweight design contributes to improved efficiency and extended range in electric vehicles. They are available in 100% polyester versions or with recycled content. For complex seat designs, Filc develops low-emission, low-flammability and shape-stable nonwovens that enhance comfort and climate control while simplifying manufacturing and assembly processes. Selected materials, such as FilFlex, are optionally made from 100% PET, enabling full recyclability. Filc has also developed durable, abrasion-resistant and lightweight nonwovens for luggage compartment linings. These materials perform reliably even under extreme environmental conditions and are fully recyclable. They offer broad design flexibility, including custom colors, flexible embossing and easy-clean finishes.



Finsol: lightweight acoustic nonwovens, effectively reducing noise and improving comfort in vehicles. © Freudenberg Performance Materials

Perform in extreme environmental conditions and are fully recyclable: luggage compartment linings from Freudenberg Performance Materials Filc. ©Freudenberg Performance Materials

CO2-NEUTRAL TRADE FAIR STAND

As at the last Techtextil, Freudenberg's presence at this year's trade fair will be CO2-neutral. The CO2 emissions of materials and activities at the trade fair will be calculated and then offset by planting trees.

www.freudenberg-pm.com

GEBR. OTTO HIGHLIGHTS VERSATILITY WITH

TECHNICAL YARNS, HYGIENE SEGMENT AND REGIONAL SOURCING

Gebr. Otto presents its expanded capabilities in technical yarns, hygiene applications and regional value chains. Traditionally focused on fine cotton yarns, the Dietenheim-based company has significantly broadened its portfolio in recent years. Today, it combines spinning, twisting and dyeing expertise with the development of customised yarn solutions, positioning itself as a partner for both textile processors and technical applications.

FROM COTTON TO TECHNICAL YARNS

With nearly a decade of experience in technical spinning, Gebr. Otto has established strong capabilities in processing demanding fibres such as aramids. These materials require highly precise processing due to their high tensile strength and low elasticity, making stable production a key challenge. Applications include flame-retardant textiles such as protective underwear for firefighters. "We operate within a very narrow process window when working with aramids," explains Oliver Kächler.

At the same time, the company continues to expand its innovation activities, including developments such as recycled cotton yarns like recot² and new material blends.

NEW HYGIENE SEGMENT WITH GROWTH POTENTIAL

Since 2025, Gebr. Otto has been operating a dedicated hygiene production area under controlled conditions, producing yarns for medical and hygiene applications. With strict process controls—including airlock systems and monitored production environments—the company is preparing to address additional markets, including food-related applications.

SUSTAINABILITY AND RECYCLING PROJECTS

Gebr. Otto is actively involved in recycling initiatives. The "Eco Yarn" project, developed with partners including the ITA Augsburg, demonstrates the conversion of used textiles into new yarns blended with virgin cotton. Further developments include cooperation projects such as "Innocell" and ongoing work on blends combining cotton with regionally grown hemp, aiming to improve resource efficiency.

Regional supply chains as a strategic focus
Alongside technical innovations, cotton remains a core business. Since 2025, Gebr. Otto offers EUCOTTON-certified yarns sourced from Greece and Spain, supporting transparent European supply chains. Projects such as "Lokalstoffmacher" further emphasise regional value creation, combining shorter transport routes with improved planning reliability.

www.otto-garne.com

CETEX SHOWCASES "TEXTILE INNOVATION MADE IN SAXONY"

WITH STRONG PARTNER NETWORK

Cetex Institut gGmbH presents a joint booth highlighting textile innovations from Saxony, covering machinery, technical textiles, testing and application-driven research.

FROM MACHINERY TO MATERIALS AND RESEARCH

Partners span the entire value chain: Schmietex Engineering GmbH focuses on stitch-bonding components and systems, while PAMA paper machinery GmbH presents customised solutions for specialty papers and wet-laid nonwovens.

Hegewald & Peschke Meß- und Prüftechnik GmbH contributes testing systems for materials and components. The Chemnitz University of Technology highlights the Carbon LabFactory Saxony, a pilot-scale platform covering the full carbon fibre value chain.

Technitex Sachsen GmbH complements the portfolio with innovations including 3D nonwovens, coating carriers, cleaning textiles and medical applications.

MEASUREMENT AND SPINNING TECHNOLOGIES

Cetex itself introduces the ACPM 200P, a new generation system for automated measurement of bending stiffness in flexible materials such as textiles, films and paper. Based on the cantilever method,

ACPM 200P measuring system for the determination of bending stiffness © 2026 Cetex

the system delivers highly reproducible results and combines automation, digital data output and user-friendly operation for research and quality control.

In addition, the LSE 2000-2 laboratory spinning system will be demonstrated live. Based on ring spinning, the machine processes a wide range of staple fibres and enables flexible production of specialty yarns—including core, siro and effect yarns—through interchangeable drafting systems and modular configurations.

REGIONAL COLLABORATION AS INNOVATION DRIVER

With its joint presentation, Cetex demonstrates how close cooperation between industry and research supports the development of application-oriented textile solutions.

www.cetex.de

CARRINGTON TEXTILES AND PINCROFT INTRODUCE
NEW INHERENT FR FABRIC BLENDS

Carrington Textiles Ltd. will present a new generation of inherent flame-retardant (FR) fabrics, developed in collaboration with fibre and yarn technologies including Lenzing FR and XLANCE. The company will exhibit together with Pincroft Dyeing & Printing Co. Ltd. at a joint stand combining fabric development and finishing expertise.

The focus of the presentation is a series of newly developed inherent FR blends. According to the company, these constructions have been engineered from the fibre stage to provide durability, wearer comfort and long-term protective performance. The materials are designed to maintain flame-retardant properties throughout the full lifecycle of the garment and to meet evolving requirements in protective clothing.

Alongside the new fabric developments, Pincroft will highlight its capabilities as a commission dyer, printer and finisher. The company offers controlled dyeing processes, rotary screen printing and specialised finishing technologies, including flame-retardant and insect-repellent treatments. Key processes such as artwork development, digital file preparation and screen engraving are handled in-house, supporting consistent quality and process control.

Visitors will discover the new generation of inherent FR fabrics at Techtextil 2026, engineered for durability, comfort and long term protection © 2026 Carrington Textiles

The joint presentation reflects an integrated approach that combines material development with downstream finishing processes. By bringing these capabilities together, the companies aim to offer textile manufacturers and garment producers coordinated solutions for protective and technical textile applications.

With their presence at Techtextil, Carrington Textiles and Pincroft emphasise the development of inherent FR materials and the role of integrated production expertise in meeting technical and regulatory requirements.

www.carrington.co.uk

ASGLAWO GROUP PRESENTS
REINFORCEMENT MATS AND LAMINATED GLASS FLEECE SOLUTIONS

The ASGLAWO group presents its latest developments in technical textiles and nonwovens at Techtextil 2026. Represented by ASGLAWO technofibre GmbH and Form- und Technik engineering GmbH, the group showcases its portfolio at the joint stand of the North-East German textile association (vti) in Hall 11.1.

The focus is on material solutions designed to enhance both performance and sustainability across a range of industrial applications. New material compositions and optimized processing technologies underline the company's positioning within the German technical textiles sector. This is supported by established certifications including DIN EN ISO 9001, DIN EN ISO 14001, and IATF 16949.

ASGLAWO's products are used in demanding environments such as automotive, aerospace, mechanical engineering, construction, and industrial manufacturing. Heat protection systems, fire-resistant materials, and sound insulation solutions address safety and performance requirements, while reinforcing materials are applied in composite structures for sectors including boatbuilding and sporting goods.

Among the new developments are stitched-knit mats with multiaxial fiber orientation. These materials are designed for use in fiber-reinforced composites, for example in boat and yacht construction or wind turbine rotor blades. Their structure enables load-optimized design at low weight, while functional finishes such as hydrophobic or flame-retardant treatments allow adaptation to specific application requirements.

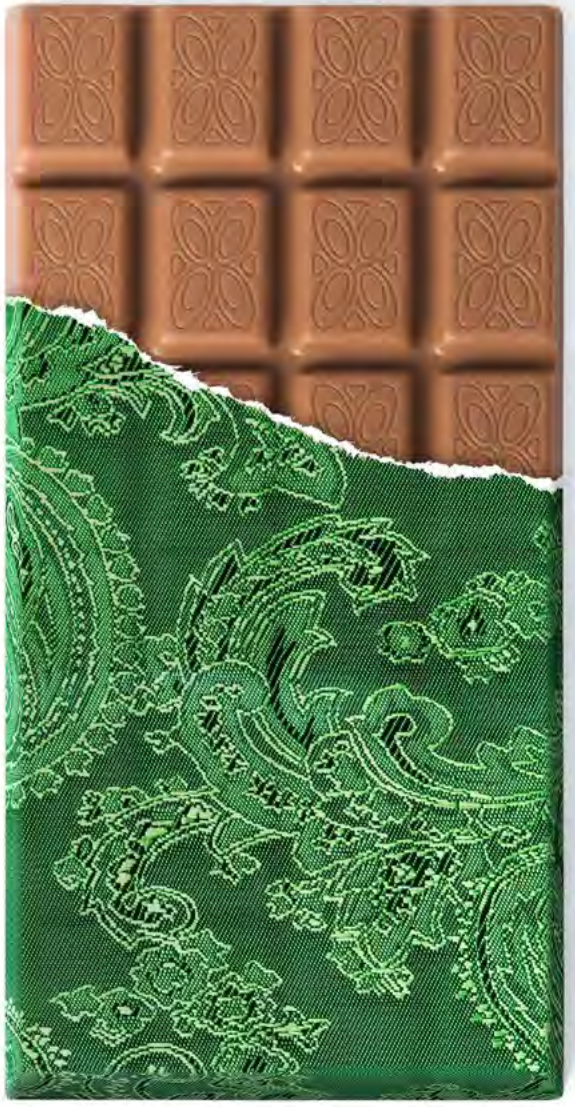
Manufacturing process: Laminating, glass fleece with aluminum lamination
© 2026 Photo: ASGLAWO group, Jan Felber

With its presentation, ASGLAWO highlights its capabilities in engineered textile solutions and its focus on application-driven material development.

www.asglawo-group.de

INNOVATION: IT'S IN OUR DNA

swisstextilemachinery.ch



Vevey, Switzerland, 1819: François-Louis Cailler invents the now-familiar tablet format for chocolate. His simple idea makes chocolate available and affordable worldwide. Today, one billion Swiss-made chocolate bars are produced each year.

Meet our association members at

techtextil
Frankfurt
21 to 24 April 2026

Swiss Pavilion
Hall 12.0 | Booth B01

Invented in Switzerland. Where the same innovative spirit drives textile progress today.

swiss textile machinery

SWISS TEXTILE MACHINERY
HIGHLIGHTS INNOVATION AND COLLABORATION

The Swiss Textile Machinery Association will present its member companies and technologies at a joint pavilion in Hall 12.0. The stand serves as a central meeting point for exchange, showcasing solutions across the textile machinery value chain.

The association represents providers of textile equipment, systems and services and emphasises innovation, precision engineering and digitalisation as key strengths. "Swiss companies are not trading legacy for digital. They are integrating the two," says Davide Maccabruni. Advanced sensors, software integration and data-driven services are increasingly combined with established engineering expertise.

At Techtextil, member companies will address topics such as sustainability, recycling, smart textiles and digital production processes. The focus is on technologies that improve resource efficiency, enable circular production concepts and support data-based optimisation of manufacturing processes.

With Switzerland consistently ranked among the most innovative countries worldwide, the association sees this strength reflected in the solutions presented at Techtextil. The focus is on high-precision technologies combined with increasing digital integration and application-specific solutions.

The joint pavilion in Hall 12.0 (Booth B01) includes the following companies:
Crealet; G. Hunziker; Graf + Cie; Heberlein; Jacob Müller; Retech; SSM; Stäubli; Steiger Participations; Willy Grob; Zeta Datatec.

Additional Swiss member companies exhibiting at Techtextil 2026:
Autefa Solutions (Hall 12.0 / C79); Benninger AG (Hall 12.0 / D05); Itema Group (Hall 12.0 / D05); Karl Mayer (Hall 12.0 / B79); Maag Group (Hall 12.0 / D05); Polytex AG (Hall 12.0 / F25); Santex Rimar Group (Hall 12.0 / E60); Saurer Intelligent Technology AG (Hall 12.0 / B56); Sedo Treepoint GmbH (Hall 12.0 / D05); Mathis AG (Hall 12.0 / A75); Uster Technologies AG (Hall 12.0 / D05); Xetma Vollenweider (Hall 12.0 / A60).

With its joint presence, the Swiss Textile Machinery Association underlines the importance of collaboration, innovation and technology transfer for the future of textile machinery and technical textiles.

www.swisstextilemachinery.ch

ITALIAN TEXTILE MACHINERY INNOVATION
TAKES CENTER STAGE

The Italian textile machinery industry is set to make a strong statement at Techtextil, presenting advanced technologies tailored to the rapidly growing market for technical textiles. A broad and high-quality group of Italian exhibitors underscores the sector's ambition to remain at the forefront of global innovation. Italy continues to rank among the world's leading textile machinery suppliers, driven by a highly specialized industrial base and a pronounced export focus. With 86% of production destined for international markets and a presence in more than 130 countries, the industry combines global reach with a reputation for quality, innovation and reliability.

Germany remains a key market: in the first eleven months of 2025 alone, Italian exports reached 81 million euros. Demand is led by accessories (36%) and finishing technologies (33%)—the latter playing a crucial role in enabling high-performance and functional textiles. A defining strength of the Italian machinery sector is its structure: a network of agile small and medium-sized enterprises with a strong commitment to research and development. This enables close customer collaboration and the delivery of highly customized, application-specific solutions—an increasingly decisive factor in technical textile markets.

"The growing demand for innovative textiles across industrial applications is further strengthening our manufacturers' position," says Marco Salvadè, President of ACIMIT. "At Techtextil, we will once again demonstrate that combining advanced technology with customization is key to meeting the sector's challenges."

This expertise is rooted in long-established textile regions such as Bergamo, Biella, Brescia, Como, Milan, Prato and Vicenza—clusters that continue to define the global perception of "Made in Italy" in textile machinery.

Within the Italy Pavilion, ACIMIT member companies include: Aeris, Aigle, Beschi, Bettarini & Serafini, Bonino, Castello, Ferraro, Gemata, Gualchieri e Gualchieri, Guarneri Technology, Idealtech, IMA, Lonati, Mariplast, MCS Officina Meccanica, Monti-Mac, M.T.V., Noseda, OMMI, Ramatex Italia, Ramina, Salvadè, Simet, S.R.S. Spindle Research & Service, Stalam, Tecnomeccanica Biellese, Tecnorama, Texera, Ugolini, Unitech Industries and Zanfrini.

The Italian presence extends well beyond the pavilion, with a further 20 ACIMIT member companies exhibiting independently or through local partners.

www.acimit.it/en

PRECISION, PERFORMANCE AND PROGRESS: BTMA AT TECHTEXTIL AND TEXPROCESS

As demand for lighter, stronger and more sustainable technical textiles continues to grow, the machinery and testing technologies behind their production are evolving rapidly. At Techtextil and Texprocess, eight members of the British Textile Machinery Association demonstrate how advanced engineering is driving performance, precision and resource efficiency across fibre and fabric manufacturing. Together, they represent a continuous innovation chain—from yarn processing to inspection and quality assurance.

Airbond (Hall 12.0 / Booth E31) delivers advanced pneumatic splicing with 3D-printed systems enabling yarn processing up to 16,000 tex, reducing waste while improving efficiency and material performance. **Ascotex** (Hall 12.0 / Booth C75) provides high-performance ceramic yarn guides that minimise friction and wear, ensu-ring stable processes, consistent quality and reduced maintenance. **Dent Instrumentation** (Hall 12 / Booth E61A) offers contactless yarn sensors for precise, low-maintenance monitoring across a wide speed range and diverse fibre processing applications. **Fibre Extrusion Technologies (FET)** (Hall 12.0 / Booth A78) enables flexible development of advanced polymers such as UHMWPE through scalable gel spinning technology for cost-effective, application-specific fibre production. **James Heal** (Hall 12.0 / Booth B66) combines advanced textile testing systems with improved resource efficiency and automated workflows to increase laboratory productivity. **SDC Enterprises** (Hall 12.0 / Booth B65) supplies certified consumables that ensure consistent, standards-compliant and fully traceable textile testing. **Shelton Vision's** (Hall 12.0 / Booth E86) WebSpector system enables high-speed, adaptive inspection of complex texti-les with reliable defect detection under real production conditions. **VeriVide** (Hall 8 / Booth B79) delivers advanced colour measurement solutions with automated imaging and LED technology for accurate, efficient and sustainable quality control.

ENGINEERING RESILIENCE INTO TEXTILE PRODUCTION

Together, the eight BTMA members highlight how British textile engineering is addressing the dual challenge of performance and sustainability—through reduced waste, longer component lifetimes, smarter inspection and more efficient testing.

"Techtextil provides an ideal platform to demonstrate the depth and diversity of British textile machinery expertise," says Jason Kent, CEO of the British Textile Machinery Association. "Our members are delivering technologies that enhance performance while supporting more sus-tainable and economically efficient manufacturing."

www.btma.org.uk

VDMA HIGHLIGHTS

INDUSTRY PRESENCE AND CIRCULAR SOLUTIONS

The VDMA Textile Machinery Association will present the breadth of its member companies' technologies and activities. In total, 56 VDMA member companies are exhibiting at the show, including seven companies at the VDMA joint stand in Hall 12.0. Participating companies include Barmag, BW Converting, Dienes, Interspare Textilmaschinen, Lenze Vertrieb, Merz Maschinenfabrik, and STC Spinnzwirn. The range of expertise covers areas such as extrusion and spinning, converting processes, cutting technologies, spare parts supply, automation systems, and yarn processing.

The association accompanies the exhibition with a series of events addressing key developments in technical textiles. Ahead of the show, an online webtalk on April 14 will focus on success factors for textile production in Europe. During the exhibition, a panel discussion on April 21 will examine current trends, challenges and future perspectives for technical textiles, including sustainability, recycling and new application areas. The programme concludes with an award ceremony on April 23, recognising young engineers in the textile machinery sector.

Beyond the event programme, the VDMA emphasises the role of its members in advancing circular textile solutions. Textile machinery manufacturers are positioned as key enablers in the transition toward a circular economy, supporting resource-efficient production and recycling processes.

VDMA member companies provide technologies across the entire value chain—from the recycling of production waste and post-consumer textiles to the processing of recycled fibres into new materials. These include mechanical and chemical recycling systems, fibre preparation technologies, sorting solutions and equipment for reprocessing and finishing. Given the wide range of materials used in textiles, the association underlines that no single recycling technology can address all requirements. Instead, complementary processes are needed to ensure efficient material recovery while maintaining quality.

With its presence at Techtextil, the VDMA highlights both the technological capabilities of its members and their contribution to developing sustainable and resource-efficient textile production systems.

www.vdma.eu/de/techtextil

PRECISE TEMPERATURE CONTROL
FOR ADVANCED FIBRE PROCESSING

RETECH Aktiengesellschaft develops godets and draw frames for heated, ambient and cooled processes, enabling precise heat treatment and consistently high yarn quality across a wide range of polymers and applications, with process temperatures of up to 400 °C for high-performance fibres. The company's core expertise lies in highly accurate and stable temperature and speed control, individually adapted to specific material and process requirements.

Advanced induction heating systems—available in single- or multi-zone configurations—ensure precise temperature profiles and uniform heat distribution across the entire godet surface. This allows targeted control of yarn properties such as tenacity, elongation and shrinkage, resulting in highly consistent product quality.
Energy efficiency and durability are integral to the RETECH concept. Optimised heating systems and efficient drive technologies are combined with robust mechanical design to ensure long service life and high machine availability.

A key component is the UTR-6A non-contact temperature measurement and transmission system, which continuously records temperature data directly from the rotating godet and transmits it to the UCR-6 controller. This enables proactive system protection, stable process conditions and contributes to more sustainable fibre production.

www.retech.ch

Retech heated technical yarn godet © 2026 Retech

HEBERLEIN IS EXPANDING
FLEXIBILITY AND CONTROL IN FILAMENT PROCESSING

Heberlein continues to refine its portfolio of air interlacing and texturing technologies for synthetic filament yarns, with a clear focus on process stability, flexibility, and ease of use. Building on developments already presented in 2024, the company is now placing stronger emphasis on simplified handling and broader application ranges.

The AirSplicer-Basix are designed for maximum control with operation reduced to the essentials. Depending on the material and required splice strength, users can flexibly create one or multiple connection points. The system is suitable for a wide range of technical yarns, including aramid, glass, carbon, and high-strength UHMWPE up to 130,000 dtex. Its optimized blow chamber design allows easy yarn insertion and removal without additional handling steps.

AirSplicer-Basix © 2026 Heberlein

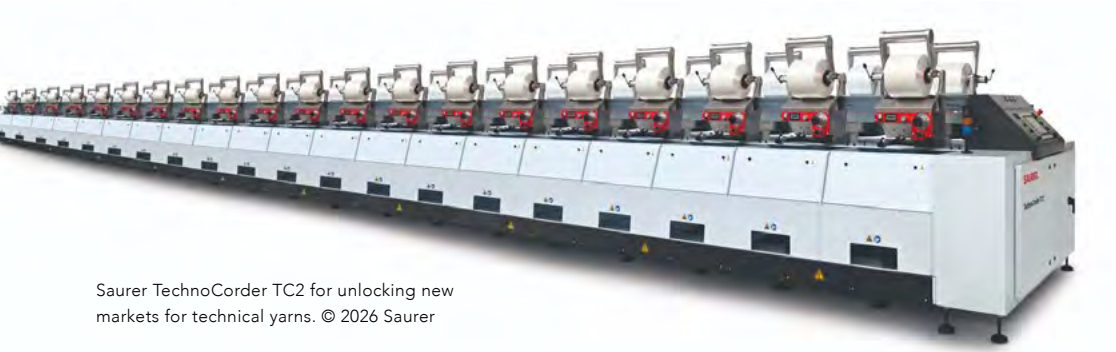
The PolyJet-TG-3, already introduced as a new generation of spinning jets, remains central to the portfolio. It delivers uniform interlacing density and stable knot formation for high-tenacity yarns. More than 12 knots per meter are achievable, while reduced variation in tensile strength, elongation, and elasticity contributes to improved bobbin unwinding behavior—confirming its role as a benchmark for demanding technical applications.
Similarly, the AirSplicer-3 Flex, previously presented as a versatile solution, continues to stand out through its wide operating range from 500 to 30,000 dtex. Its width-adjustable design enables the processing of various materials within a single unit, effectively replacing earlier systems and consolidating functionality.

Complementary splicing and cutting units for staple fiber production further enhance process efficiency by simplifying yarn handling during spinning and string-up.

Overall, Heberlein's latest presentation is less about entirely new machine generations and more about refining proven technologies—extending flexibility, improving usability, and optimizing performance for a broader spectrum of technical yarn applications.

www.heberlein.com

SAURER TARGETS TECHNICAL YARN MARKETS WITH NEW TECHNOCORDER TC2PLUS



Saurer TechnoCorder TC2 for unlocking new markets for technical yarns. © 2026 Saurer

Saurer presents the TechnoCorder TC2plus (Hall 12 / Booth B56), a new twisting and cabling solution designed to meet the increasing demands of technical yarn applications. The system combines flexibility, innovative yarn design capabilities and cost-efficient production.

FLEXIBILITY FOR DEMANDING APPLICATIONS

Technical yarn markets are driven by specialization, customization and efficiency. The TechnoCorder TC2plus addresses these requirements with a high level of process flexibility, enabling the processing of fine and coarse yarns, a wide range of twist levels and diverse material types with stable performance. This ensures consistently high yarn quality at maximum productivity.

FLEXIPLY EXPANDS DESIGN POSSIBILITIES

With FlexiPly, Saurer introduces a concept that allows the dynamic combination of different yarn types and counts. This enables the production of hybrid yarns tailored to specific load requirements, opening new application fields such as rubber reinforcement, tire cord or smart textiles. The approach supports more efficient material use and creates new product differentiation opportunities.

PRECISION FOR HIGH-PERFORMANCE SEGMENTS

For sensitive applications, the TC2plus features a specially developed fine-count spindle for yarns starting at 110 dtex. This supports high process stability and material protection, making the system suitable for medical textiles, protective apparel and lightweight technical fabrics.

NEW OPTIONS FOR ARTIFICIAL TURF

In artificial turf production, the integrated cabling function enables the combination of different PE monofilaments into complex yarn structures that replicate natural optical effects while maintaining high production efficiency.

PROCESS EFFICIENCY AS A KEY FACTOR

The TC2plus also focuses on operational efficiency. Options such as random or precision winding ensure compatibility with downstream processes, while an integrated setup assistant helps define optimal package configurations quickly, reducing changeover times and increasing machine availability.

TECHNOLOGY FOR FUTURE REQUIREMENTS

With the TechnoCorder TC2plus, Saurer underlines its focus on high-performance, flexible and economically efficient solutions for technical textile applications.

www.saurer.com

FROM PREPARATION TO 3D WEAVING:
STÄUBLI'S SOLUTIONS FOR ADVANCED FABRICS

The TF30 weaving system © 2026 Stäubli

Stäubli presents a comprehensive portfolio of weaving solutions for high-performance technical textiles, addressing the growing demand for reinforcement fabrics, multilayer structures and 3D composites across sectors such as aerospace, mobility, construction and energy.

As requirements for performance, flexibility and material handling precision continue to increase, Stäubli positions its technologies as key enablers for next-generation fabric production. Its systems are widely used for applications ranging from lightweight reinforcements and one-piece woven airbags to filtration media, medical textiles and industrial fabrics.

EFFICIENT WARP PREPARATION

With the MAGMA tying machine, Stäubli offers a robust and efficient solution for handling increasingly diverse and demanding yarn types, including polypropylene tapes and complex filament structures. The system ensures consistent tying quality while significantly reducing downtime during warp changes.

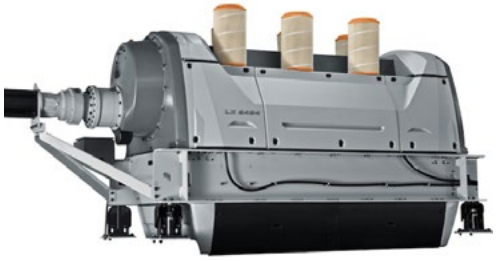
WEAVING TECHNOLOGIES FOR COMPLEX STRUCTURES

The TF series weaving machines are designed for advanced 3D, multilayer and high-performance fabrics made from materials such as carbon, glass and aramid. The TF20 focuses on high-speed production and increased output, particularly for lightweight composite reinforcements, while the TF30 emphasizes gentle yarn handling and the capability to produce highly complex weave structures required in aerospace and industrial applications.

MAXIMUM FLEXIBILITY WITH JACQUARD SYSTEMS

The UNIVAL 100 electronic Jacquard machine enables highly flexible production of complex and 3D fabrics through individually controlled harness cords and precise motion control. It is particularly suited for demanding materials such as glass and carbon fibres. Complementing this, the LX 2494 Jacquard machine offers a robust and wear-resistant solution for heavy technical fabrics, combining long service life with minimal maintenance requirements in continuous industrial use.

UNIVAL 100 Jacquard machine © 2026 Stäubli



LX 2494 Jacquard machine © 2026 Stäubli

POWERFUL DOBBY SOLUTIONS

Stäubli's heavy-duty dobbies provide the strength and precision required for weaving high-tension and structurally complex fabrics. Systems such as the S2688 open-shed rotary dobby and the S4080 closed-shed dobby are designed for demanding applications including forming fabrics, wet felts and dryer fabrics, ensuring stable high-speed operation and long-term reliability.

TECHNOLOGY PLATFORM FOR EVOLVING MARKETS

With its integrated portfolio—from warp preparation to advanced weaving architectures—Stäubli supports textile manufacturers in addressing increasingly complex product requirements while maintaining high productivity and consistent quality.

www.staubli.com

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VANDEWIELE GROUP PRESENTS
INTEGRATED TECHNOLOGIES FOR TECHNICAL TEXTILES

The Vandewiele Group will showcase technologies for technical textile production, bringing together several specialised brands under the theme "Textile Innovations Together". The focus is on solutions for laboratory testing, yarn joining, yarn feeding and thread tension monitoring across the textile value chain.

By combining brands such as Mesdan, IRO AB, Memminger-IRO GmbH and Protechna S.A., the group highlights coordinated solutions for high-performance textile applications.

Mesdan will present laboratory systems for analysing synthetic and man-made fibres, technical yarns, composites and functional fabrics. The portfolio also includes joining devices for a wide range of yarn types, including high-performance materials such as carbon and glass fibre rovings, aramid threads and industrial yarns used in applications from automotive to construction and protective textiles.

Among the exhibits is the TENSOLAB 50kN tensile testing system, designed for different materials and testing requirements. In addition, splicing solutions for glass, carbon and aramid yarns will be shown.

Memminger-IRO focuses on yarn feeding technologies for demanding materials used in technical textiles. Solutions are designed to handle materials such as carbon, copper, monofilaments and polyamide in knitting processes. The range includes storage feeders, electronic feeders and unspooling systems.

Mesdan TENSOLAB 50kN © 2026 Mesdan

Memminger-IRO MTD © 2026 Memminger-IRO

IRO will showcase the XD X4 weft feeder, developed based on the established X4 generation to meet the increasingly diverse requirements of yarn fibres. The system integrates the ATC-W technology, which maintains optimal yarn tension throughout the entire weaving cycle. This contributes to improved performance and enhanced product quality across a wide range of textile applications. The X4 weft feeders feature an integrated display for monitoring current settings and alarms, with adjustments made directly via a control knob.

IRO XD X4 © 2026 IRO

Protechna will demonstrate automated thread tension monitoring with the TENSOSCAN 2 system. A movable measuring unit scans the full width of the yarn sheet, enabling continuous detection of deviations from predefined tension values. The system is designed for flexible use across multiple machines and supports consistent warp preparation.

TENSOSCAN © 2026 Protechna

With its combined presentation, the Vandewiele Group illustrates how coordinated technologies can support efficient, controlled and application-specific production in technical textiles.

www.vandewiele.com

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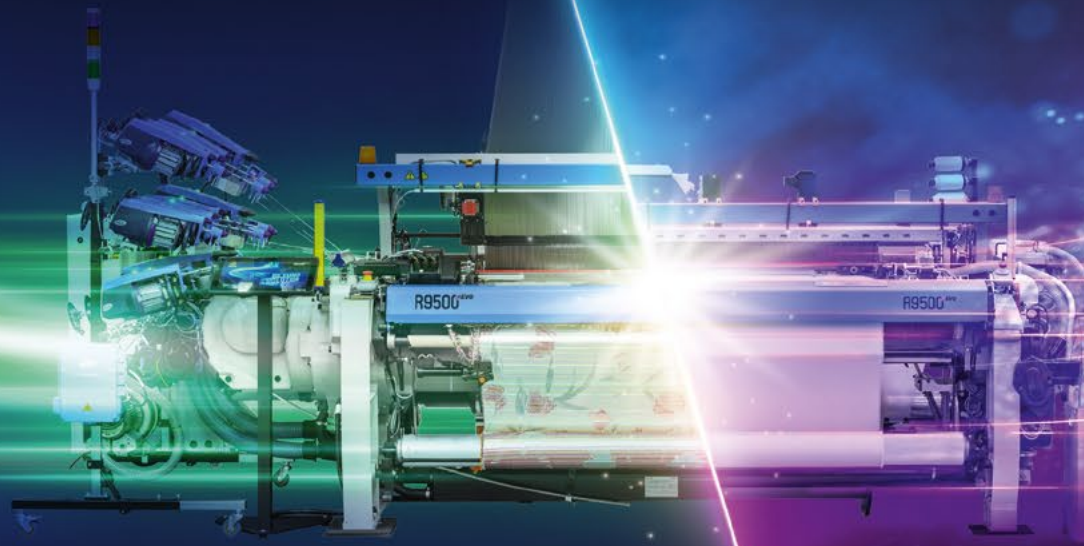

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DORNIER PRESENTS
FLEXIBLE WEAVING TECHNOLOGIES AND 3D SOLUTIONS

Lindauer DORNIER GmbH will showcase weaving technologies designed to meet increasingly dynamic market requirements. The focus is on flexible machine concepts, retrofit solutions, automation and digital networking for modern weaving operations.

Against the backdrop of growing material diversity—from textiles and composites to carbon and fine wires—DORNIER emphasises adaptable and reliable production systems. "At a time when markets and customer requirements are changing ever more rapidly, weaving technology must be both reliable and flexible," says Yvonne Schuberth, Head of the Product Line Weaving Machines.

Samples from the DORNIER weaving world
© 2026 Lindauer DORNIER

A key highlight is the European presentation of the PIRO system for rapier weaving machines. The solution enables individual control of weft insertion timing, reducing material waste and improving reproducibility. In addition, retrofit solutions such as the Electronic Cloth Winder (ECW) support precise and reproducible fabric winding without additional sensors. In the field of composites, DORNIER introduces the TRITOS® FLEX system, designed as an entry solution for 3D weaving applications. The technology enables the production of complex textile structures for high-performance composite applications.

Complementing the machinery, digital solutions such as DoXWeave and DoXNet support data-driven production. These systems enable central data management and secure machine networking within the customer's own IT infrastructure.

With its presentation at Techtextil, DORNIER highlights the integration of flexibility, digitalisation and application-specific solutions in modern weaving technology.

www.lindauerdornier.com

ITEMATECH COVERS
THE FULL SPECTRUM OF TECHNICAL FABRIC PRODUCTION

Itema presents a comprehensive portfolio of advanced weaving solutions for technical textiles, covering weaving machines, spare parts, and integrated services. Itema highlights its dedicated Itematech division, established in 2019 to address the specific requirements of technical fabric production with efficient and flexible solutions.

Today, Itematech offers one of the most complete machine portfolios on the market, including single positive rapier, negative and positive rapier, airjet, and projectile weaving technologies. This broad range enables manufacturers to process highly diverse and demanding materials across multiple applications.

Among the key technologies, the UniRap single positive rapier weaving machine stands out for its ability to handle high-tenacity yarns without weft exchange.

P7300HP © 2024 Itema

The Hercules weaving machine is designed for demanding applications requiring both strength and adaptability. Its reinforced structure and unique weft transfer system allow quick switching between positive and negative rapiers, covering yarn counts from 20 to 48,000 dtex. With working widths up to 6,200 mm and high beating force, it is suited for heavy-duty fabrics such as geotextiles, conveyor belts, and coated materials. For very wide and specialty fabrics, the P7300HP projectile weaving machine remains a benchmark, offering efficient weft insertion without exchange and enabling fabric widths beyond six meters.

The R9500EVO rapier machine, including the iSAVER®tech device, reduces material waste by eliminating left-hand selvedge, contributing to more sustainable weaving. Complementing the range, the A9500EVO airjet machine is tailored for high-density fabrics, including solutions for secondary carpet backing.

With this portfolio, Itema positions itself as a one-stop partner for technical textile weaving, combining versatility, efficiency, and application-specific customization.

www.itemagroup.com

USTER PRESENTS FABRIQ VISION 2 AT TECHTEXTIL
A NEW APPROACH TO FABRIC INSPECTION

Uster Technologies will present its latest fabric inspection system, Fabriq Vision 2, at Techtextil (Hall 12.0 / Booth D05, with Elmatex), highlighting a new approach to automated quality control that builds directly on existing operator expertise. As fabric producers face increasing pressure to ensure consistent quality while improving efficiency, inspection remains a critical but often conservative step in the process. Despite technological advances, many companies still rely on manual inspection, largely due to concerns over reliability, complexity and the need for highly specialized operators.

Fabriq Vision 2 addresses these challenges by enabling a smooth transition from manual to automated inspection—without replacing the knowledge of experienced staff. Instead, the system is designed to integrate human expertise into automated workflows, combining operator know-how with AI-supported detection.

FROM MANUAL EXPERTISE TO AUTOMATED WORKFLOWS

One of the key barriers to wider adoption of automated inspection has been the complexity of system setup and the need for expert configuration. Uster has therefore focused on simplifying workflows and reducing dependence on specialized personnel.

Fabriq Vision 2 is built around intuitive, user-centric processes that allow existing staff to operate the system effectively. Operators can apply their experience in identifying fabric defects while the system handles detection, classification and data processing. This hybrid approach—combining human judgement with automated precision—ensures reliable results while reducing the risk of over-detection and time-consuming review processes.

AI-SUPPORTED SETUP IN MINUTES

A central feature of Fabriq Vision 2 is its AI-supported style tuning. Based on key textile parameters and live camera images, new articles can be configured in less than 10 minutes. A guided setup process enables operators to define defect characteristics step by step. The system then automatically generates and adjusts detection parameters, creating an initial inspection profile that can be further refined visually using real fabric images.

Machine learning-supported classification reduces false detections while enabling real-time defect categorization with customizable codes. At the same time, the "Super Inspection" function allows higher sensitivity background detection, providing additional process and quality insights when required.

These streamlined workflows significantly reduce setup time while improving both inspection accuracy and operational efficiency.

INTEGRATED PLATFORM FOR DATA-DRIVEN QUALITY CONTROL

Fabriq Vision 2 combines inspection hardware, AI-supported workflows and advanced analysis tools into a single integrated platform. This allows fabric producers to monitor quality consistently, increase yield and make more informed decisions based on real-time data.
The system also reduces total cost of ownership through faster implementation, lower training requirements and the possibility of self-maintenance. By leveraging existing staff skills, companies can adopt automated inspection without major organisational changes.

PROVEN CONCEPT, NOW AT TECHTEXTIL

Following its successful introduction at ITMA Asia + CITME 2025, Fabriq Vision 2 now makes its Techtextil debut, where Uster will demonstrate how automated inspection can be implemented without disrupting established processes.

By focusing on usability, transparency and integration of human expertise, Uster positions Fabriq Vision 2 as a practical solution for mills looking to upgrade quality control while maintaining confidence in their results.

www.uster.com

Uster Fabriq Vision 2 - The simplicity of fabric quality assurance © 2026 USTER

GROZ-BECKERT SHOWCASES

CROSS-SEGMENT INNOVATIONS FOR TECHNICAL TEXTILES

Groz-Beckert presents a broad portfolio of innovations across knitting, weaving, nonwovens and sewing, focusing on precision, process reliability and digitalisation for demanding technical textile applications.

KNITTING – PRECISION AND EFFICIENCY IN WARP KNITTING

In warp knitting, Groz-Beckert highlights its modular system approach, ensuring optimal alignment of components and tolerances. This enables high precision, reduced setup times and reliable production—even in fine-gauge applications.

The WarpMasterPlus provides state-of-the art technology to achieve the highest efficiency in the drawing-in process. The machine is characterized by its modular design and simple handling
© 2026 Groz-Beckert

WEAVING – ENABLING HIGH-PERFORMANCE FABRICS

For weaving, the focus is on high-performance reeds designed for fabrics with very high mesh counts, suitable for both wire and synthetic materials. Complemented by healds and drop wires, the portfolio supports a wide range of technical applications with consistent quality and long service life.

The new CB-barb felting needle © 2026 Groz-Beckert

NONWOVENS – EFFICIENCY THROUGH INNOVATION AND DIGITALISATION

In nonwovens, Groz-Beckert introduces a newly developed needle that reduces handling time, extends board lifetime and minimizes bending risk. The Needle Dispenser supports automated needle board management as part of the company's digital ecosystem. Additional solutions include mounting services for carding, the CB-barb felting needle, staple fibre needle punch systems and laboratory services such as fibre analysis for process optimisation.

SEWING – DIGITAL QUALITY MANAGEMENT AND ADVANCED NEEDLES

INH 2.0 (Ideal Needle Handling) enables fully digital lifecycle tracking of sewing needles—from inventory to disposal—enhancing transparency and compliance. New modules increase automation and support data-driven production.

The SAN™ needle series addresses demanding and delicate applications, while the Litespeed™ needle ensures stability in high-speed, heat-intensive and multi-layer sewing processes. Digital tools such as the "Needle Finder" further support application-specific optimisation.

TEZ – PLATFORM FOR INNOVATION AND COLLABORATION

Groz-Beckert's Technology and Development Center (TEZ) will be presented through an interactive 360° experience, offering insights into development capabilities and technical services.

As a central platform for collaboration and application development, the TEZ combines digital tools with expert support to accelerate innovation in technical textiles.

www.groz-beckert.com

INH 2.0 © 2026 Groz-Beckert

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NEW APPLICATIONS ON DISPLAY AND THE LAUNCH OF THE TEXTILE INNOVATION CENTER

KARL MAYER will use Techtextil to present its latest developments in warp knitting, warp preparation and technical textiles, while simultaneously opening a new Textile Innovation Center (TIC) at its headquarters in Obertshausen—positioning innovation even more strongly at the centre of its strategy.

At the exhibition, KARL MAYER will showcase application-driven textile developments that highlight the potential of its core technologies. These include advanced warp-knitted structures such as hollow fibre mats, which are used in demanding applications ranging from medical "artificial lungs" and filtration systems to industrial processes. In addition, multiaxial reinforcement fabrics demonstrate new possibilities in lightweight construction and high-performance composites.

Footwear © 2026 KARL MAYER

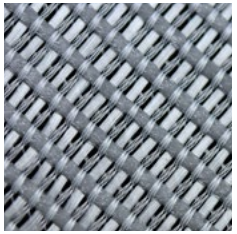
Further highlights include functional textiles for protective clothing, workwear and sun protection, as well as warp-knitted shoe fabrics combining design flexibility with performance. The presentation is complemented by insights into warp preparation technologies, where KARL MAYER positions itself as a full-range supplier.

OPENING OF THE TEXTILE INNOVATION CENTER (TIC)

Parallel to Techtextil, KARL MAYER is opening its new Textile Innovation Center in Obertshausen, creating a central platform for textile development, collaboration and application-oriented innovation.

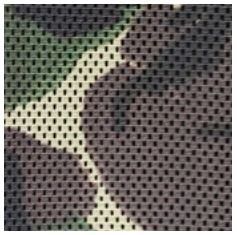
"With our Textile Innovation Center, we are placing textiles at the heart of our industry and the growth of our customers," says Lutz Wolf. "The TIC marks a key milestone in our strategic orientation, combining innovation, quality and partnership-based development."

With a total area of nearly 5,000 m², the TIC brings together the company's core competencies in warp knitting, technical textiles and warp preparation in a single, integrated environment. It is designed as a collaborative space where customers, brands, fibre producers and technology experts can jointly develop new textile solutions and translate them into market-ready applications.



Cut Protection WarpKnit
© 2026 KARL MAYER

Filtration with hollow fibre
© 2026 KARL MAYER



Defense fabric
© 2026 KARL MAYER

Sun protection fabric
© 2026 KARL MAYER

The concept goes beyond a traditional development centre. The TIC combines a showroom and sample archive as an inspiration hub with direct access to KARL MAYER's experts, enabling customers to explore materials, structures and applications while benefiting from in-depth process and machine know-how.

A central element is the ability to accompany the entire innovation process—from initial idea to near-market prototype—on the latest machine platforms. This includes support for new product developments, application-specific solutions and sustainability-driven innovations.

PLATFORM FOR COLLABORATION AND KNOWLEDGE TRANSFER

The TIC is also conceived as an open platform for exchange across the textile value chain. Under the concept of "Connected Textile Innovation", it brings together stakeholders from fibre to end product, fostering collaboration and accelerating innovation cycles.

Training and knowledge transfer are further key components. The KARL MAYER Academy will be integrated into the TIC, offering specialised training programmes for customers, technicians and industry professionals.

During the opening week, visitors can experience guided innovation tours, live demonstrations, expert presentations and networking opportunities in a dedicated environment focused on future textile applications. With the combination of its Techtextil presence and the launch of the TIC, KARL MAYER underlines its ambition to not only supply machinery, but to actively shape the next generation of textile solutions together with its partners.

www.karlmayer.com

SHIMA SEIKI PRESENTS WHOLEGARMENT® AND 3D KNITTING

FOR TECHNICAL TEXTILES

Shima Seiki MFG., Ltd. will present advanced flat knitting technologies with a focus on three-dimensional applications beyond apparel. Together with its Italian subsidiary, the company highlights solutions for technical textiles and industrial uses. A key exhibit is the SWG®-XR WHOLEGARMENT® knitting machine. Featuring four needle beds and the proprietary SlideNeedle™ technology, it enables the production of seamless, three-dimensional products in fine gauges. In contrast to conventional processes—where fabrics are produced as flat sheets and later cut and sewn—WHOLEGARMENT® allows complete items to be knitted directly in one piece. This reduces material waste and supports efficient use of high-cost industrial materials.

The technology is particularly suited to technical textiles requiring complex geometries and functional integration. Additional capabilities such as targeted compression and shaping enable applications in areas including medical textiles, where seamless structures can improve fit and comfort. The process also supports on-demand production of customised items.

Also on display is the SES®-R shaping machine, designed for advanced three-dimensional knitting. Equipped with a spring-type movable sinker system, it expands shaping capabilities and supports a broader range of applications. In combination with loop pressers and automated yarn carriers, it enables efficient production of complex structures such as inverse plating and inlay knitting.

Complementing the machinery, Shima Seiki will present its digital solutions, including SDS® KnitPaint-Online and the APEXFiz® design software. These tools enable virtual sampling and the direct transfer of design data into production, helping to reduce development time and material consumption.

With this combination of machine and software solutions, the company demonstrates the potential of three-dimensional knitting for technical textile applications.

www.shimaseiki.com

SES®-R next-generation shaping machine

BARMAG PRESENTS ADVANCED YARN TECHNOLOGIES AT TECHTEXTIL –

FROM INDUSTRIAL FILAMENTS TO NEXT-GENERATION POY

Barmag presents comprehensive solutions for the production of industrial filament yarns, with a focus on safety-critical automotive applications, geotextiles and next-generation spinning concepts. As modern vehicles increasingly rely on high-performance textile components, industrial yarns play a central role in safety, durability and efficiency. Today's vehicles contain around 30 to 35 kilograms of such yarns, primarily used in airbags and seat belts.

HIGH-PERFORMANCE YARNS FOR SAFETY-CRITICAL APPLICATIONS

For airbag applications, polyamide and increasingly polyester filament yarns are used. Barmag provides energy-efficient and highly productive technologies that ensure stable processes and consistent yarn quality under demanding conditions. "Our solutions meet the stringent requirements for airbag yarns worldwide—over the entire service life of a vehicle," explains Dr. Jen Supra. In seat belt production, process precision is critical. A single belt consists of around 300 high-tenacity filament yarns that must withstand extreme tensile forces while maintaining controlled elongation. Barmag's patented Single Filament Layer technology enables particularly gentle and precise processing of these yarns.

GEOTEXTILES AND INFRASTRUCTURE APPLICATIONS

Industrial yarns also play a key role in infrastructure, particularly in geotextiles used for road stabilisation. These applications require extremely high yarn titers of up to 24,000 denier. Barmag systems efficiently produce multiple filament yarns that can be combined to achieve these high titers in a cost-effective way. Complementing this, the Barmag brand Neumag offers spunbond solutions for polyester and polypropylene geotextiles, combining high production capacity with low energy consumption.

With its PP inline technology, Neumag further expands performance limits in staple fibre production. The system enables fibre strengths above 6 cN/dtex with high residual elongation, exceeding established standards in geotextile applications. Supporting technologies such as the EvoDuct air guidance system and the EvE-2 suction concept improve airflow, reduce energy consumption and enhance fibre homogeneity.

Today's modern vehicles contain an average of 30 to 35 kilograms of technical yarns, most of which are used for safety-related components such as airbags and seat belts © 2026 Barmag

POY 2.0: NEXT-GENERATION SPINNING CONCEPT

In addition to industrial yarn solutions, Barmag introduces POY 2.0, a newly developed spinning concept for partially oriented yarn that significantly improves efficiency, process stability and automation. The system is based on a comprehensive redesign of the entire spinning and winding process. Key components include an optimised DIO spin pack with improved rheology and a more compact design, reducing material consumption and enabling energy savings of up to 10%. The EvoQuench 2.0 system enhances cooling stability while simplifying operation, reducing setup times and waste. At the take-up stage, the WINGS POY 2.0 winder introduces automated string-up for the first time, lowering manual intervention, reducing waste and addressing labour shortages.

Barmag presented its innovative POY 2.0 spinning concept at ITMA Asia + CITME 2025 © 2026 Barmag

Additional features such as improved yarn path stability, optimized bobbin formation and enhanced yarn end fixation further increase process reliability and overall productivity.

DIGITAL INTEGRATION AND PROCESS TRANSPARENCY

POY 2.0 is fully integrated into the atmos.io digital ecosystem, providing real-time monitoring of process and quality parameters from polymer to finished yarn. This enables faster intervention, reduced waste and improved product consistency. Technology platform for future applications With its combined focus on industrial yarns and advanced spinning concepts, Barmag demonstrates how textile technologies continue to evolve as key enablers for safety, infrastructure and efficient production.

www.barmag.com

AUTEFA SOLUTIONS PRESENTS
COST-EFFICIENT NONWOVENS LINE CONCEPTS

Autefa Solutions needle loom Stylus ONE © 2026 AUTEFA Solutions

AUTEFA Solutions will present its LineONE concepts for cost-efficient nonwoven production, alongside upgrade and retrofit solutions designed to maximise performance with minimal investment.

As a full-line supplier covering the entire process chain—from fibre opening to web bonding—AUTEFA Solutions addresses the growing demand for flexible, scalable and economically viable production systems in the nonwovens industry.

LINEONE: BALANCED SOLUTIONS FOR EFFICIENT PRODUCTION

With its LineONE concepts, AUTEFA combines proven technologies into turnkey systems tailored for capacity expansions, modernisation projects and new production lines. The focus is on robust design, operational reliability and flexibility across a wide range of applications, including filtration, geotextiles and automotive materials.

The concept reflects current industry requirements: high productivity, low maintenance costs and the ability to process a broad spectrum of raw materials—from synthetic fibres such as PP, PES or viscose to glass, carbon and natural fibres including hemp, jute and flax. Basis weights range from lightweight webs to heavy technical materials, underlining the versatility of AUTEFA systems.

STYLUS ONE: PRODUCTIVITY AND DURABILITY IN NEEDLEPUNCHING

A central component of the LineONE portfolio is the Stylus ONE needle loom, based on proven Fehrer technology. Designed for basis weights up to 1,800 g/m² and operating at speeds of up to 1,500 strokes per minute, the system combines high productivity with long service life. Its robust, vibration-optimised design ensures stable operation, while maintenance-free gearboxes and enclosed drive systems reduce downtime and protect against contamination. Available in working widths up to 6.7 m, the Stylus ONE can be configured for both pre-needling and finishing. Different variants allow adaptation to specific production requirements, covering applications from automotive felts and filtration media to insulation materials, artificial leather and technical felts. High rigidity, low vibration and precise needling ensure consistent product quality and efficient operation. A recent order from Zhejiang Heading Filter Material underlines the system's suitability for large-scale industrial applications.

AIRLAY AND SUSTAINABLE FIBRE PROCESSING

In response to growing sustainability demands, AUTEFA offers compact airlay systems for processing natural and recycled fibres such as hemp, jute, flax and textile waste. Solutions like the Airlay V12/R and V21/-K 12 enable cost-efficient production of high-quality nonwovens from bio-based feedstocks.

UPGRADES AND RETROFITS: EFFICIENCY WITHOUT FULL REINVESTMENT

AUTEFA also focuses on upgrade and retrofit solutions as an alternative to full system replacement. Electrical, mechanical and software upgrades extend machine lifetime, improve performance and reduce energy consumption—allowing manufacturers to increase productivity with lower capital investment.

FLEXIBLE PRODUCTION FOR DIVERSE APPLICATIONS

From filtration and hygiene products to automotive and insulation materials, AUTEFA's line concepts are designed for maximum flexibility. As a full-line supplier across needlepunching, spunlace and thermobonding, the company supports integrated, future-oriented production—from "bale to fabric".

www.autefa.com

FUTURE-READY NONWOVENS AND FIBRE PROCESSING
TRÜTZSCHLER PRESENTS INTEGRATED SOLUTIONS

Trützschler Nonwovens T-SUPREMA needle punching line © 2026 Trützschler Nonwovens

Trützschler Group presents a comprehensive portfolio of solutions for efficient, flexible and future-oriented nonwovens production—combining advanced machinery, digital tools and recycling concepts.

TRÜTZSCHLER NONWOVENS: SCALABLE PERFORMANCE ACROSS APPLICATIONS

At the centre is the T-SUPREMA needle punching line, already proven in industrial operation. It covers a wide basis weight range—from below 50 gsm to above 2,000 gsm—highlighting the versatility of needle-punched nonwovens. New configurations featuring the compact NC-Xe card reduce footprint while maintaining high process stability and consistent product quality.

The portfolio is complemented by upgrades across the single-machine range, including the X-Series cards (NCT-X, NC-X and NC-Xe), the MPD high-performance dryer and the compact AquaJet-X. These systems combine compact design with high reliability and performance across spunlace, needlepunching and air-through bonding processes.

A further focus is advanced ATB technology for hygiene applications, enabling the processing of ultra-fine fibres down to 0.4 dtex. This allows the production of particularly soft nonwovens meeting the high performance and comfort requirements of hygiene products.

DIGITALISATION AND PROCESS TRANSPARENCY

With T-ONE, Trützschler provides a digital working environment that connects and optimises nonwoven production lines. New features include energy monitoring with CO2 footprint calculation and camera-based anomaly detection, enabling early identification of fibre accumulations and process deviations.

These tools improve process stability, reduce downtime and support more transparent, data-driven production.

Trützschler Nonwovens NC-X card
© 2026 Trützschler Nonwovens

In parallel, Trützschler supports manufacturers with tailored modernisation and development solutions, enabling optimisation of existing installations and efficient scale-up of new products.

CARD CLOTHING FOR HIGH-PERFORMANCE APPLICATIONS

Trützschler Card Clothing introduces a new card wire with a specially engineered surface for hygiene, spunlace and ATB applications. The design reduces contamination, extends service intervals and increases overall line productivity.

CLOSING THE LOOP: TRUECYCLED

With TRUECYCLED, Trützschler presents an integrated solution for textile recycling. The system covers the entire process—from cutting and tearing textile waste to carding and drawing secondary fibres—ensuring consistent quality of recycled materials.

By combining machinery, process know-how and application expertise, the concept supports the transition towards more circular textile production.

www.truetzschler.com

MODERNIZING NEEDLING

DILOGROUP EXPANDS PERFORMANCE, FLEXIBILITY AND APPLICATION RANGE

DiloGroup presents a significantly enhanced portfolio for needlefelt production under the theme "Modernizing Needling", targeting higher productivity, greater process flexibility and expanded application potential in technical nonwovens.

As demand grows for both lightweight functional materials and dense, high-performance structures, needlepunching technologies are required to cover an increasingly wide spectrum—from energy-efficient production to new product functionalities.

DiloGroup addresses this with a combination of modular machine concepts, higher mechanical performance and expanded design capabilities.

MODILOUS: MODULAR NEEDLE CHANGE CONCEPT

A key development is the new "Modilous" needle module system, designed to simplify and accelerate needle changes. By enabling off-machine preparation—either fully or semi-automated—the system reduces downtime, lowers operating costs and increases process stability.

Dilo MicroPunch introduction at ITMA 2023 © 2026 TexData International

Shorter cleaning cycles and more consistent needle conditions also contribute to improved product quality and extended machine lifetime—factors that are becoming increasingly relevant in high-throughput production environments.

SUPERPUNCH AND POWERPUNCH: PERFORMANCE FOR LIGHT AND HEAVY APPLICATIONS

With SuperPunch and PowerPunch, DiloGroup introduces two system concepts covering opposite ends of the application spectrum.

SuperPunch is designed for high-speed production of lightweight nonwovens, where throughput and energy efficiency are critical. PowerPunch, in contrast, focuses on maximum penetration force for heavyweight materials, enabling the production of dense, highly compacted structures. Both systems target demanding applications such as filtration media, automotive components and geotextiles, where uniformity, mechanical strength and process reliability are key performance criteria.

NEW DESIGN POSSIBILITIES WITH 3D STRUCTURING

Beyond pure performance, DiloGroup is also expanding design capabilities in needlepunching. The combination of "Sliding Colors" technology with the 3D-Lofter enables the production of three-dimensional surface structures and integrated colour effects.

This opens up new possibilities for applications such as acoustic panels and decorative technical textiles, where functional properties and visual appearance are increasingly combined.

FOCUS ON SUSTAINABILITY AND DIGITALISATION

In parallel, DiloGroup is advancing solutions for processing renewable raw materials as well as automation and AI-supported process control. These developments aim to stabilise production, reduce operator workload and improve overall equipment efficiency.

Against the backdrop of increasing sustainability requirements, the ability to process recycled and bio-based fibres efficiently is becoming a key factor in nonwoven production.

www.dilo.de

ANDRITZ PRESENTS
SUSTAINABLE NONWOVENS AND TEXTILE TECHNOLOGIES

ANDRITZ showcases its latest solutions for nonwoven production and textile processing, with a focus on sustainability, circularity and advanced fibre technologies.

FOCUS ON SUSTAINABILITY AND CIRCULARITY

Key topics include textile sorting and recycling, natural fibre processing and complete man-made cellulosic fibre (MMCF) production plants. The aim is to enable circular production concepts and long-term value creation across the textile industry.

MMCF PRODUCTION: GROWING RELEVANCE OF LYOCELL

ANDRITZ presents its capabilities in complete lyocell production plants, covering engineering, equipment and plant optimisation. With expertise from the pulp and paper sector, the company supports both new installations and upgrades of existing lines. Lyocell is gaining importance as a sustainable fibre with high-quality performance.

ANDRITZ X-Pro™ crosslapper © 2026 ANDRITZ

NATURAL FIBRES FOR DURABLE NONWOVENS

The company also highlights the use of bast fibres such as hemp, flax, jute and kenaf for durable nonwovens. These materials offer low environmental impact and strong application potential in automotive, construction and technical textiles. ANDRITZ provides complete processing solutions, which can be combined with airlay technologies for efficient production.

TEXTILE RECYCLING AND AUTOMATED SORTING

With over a century of expertise, ANDRITZ Laroche provides solutions covering the entire textile recycling chain – from automated textile sorting and advanced fiber preparation to mechanical and chemical recycling, as well as integrated process combinations. At the fair ANDRITZ places a strong focus on predictive and automated textile sorting – key elements in closing the gap toward true circularity in the textile industry. The AI-based ANDRITZ teXscan unit evaluates fabric quality prior to recycling, enabling efficient material routing for chemical recycling, nonwoven or spinning. Complementing this, the automated sorting system classifies garments by composition and color, removes hard components such as buttons and zippers, and prepares materials for further fiber processing.

Together, these technologies create an efficient pathway for transforming post-consumer and post-industrial textile waste into fibers suitable for spinning, nonwovens, and composite applications.

HIGH-PERFORMANCE PRODUCTION TECHNOLOGIES

A key innovation is the X-Pro™ crosslapper, designed to increase speed, productivity and web quality. Its "X-path" design ensures precise fibre control and uniform layering, supporting high throughput and consistent material properties.

In addition, ANDRITZ presents complete lines for processing technical fibres such as carbon, glass and aramid, enabling reliable production for demanding applications.

LIFECYCLE SERVICES

With its SYNERGY™ service concept, ANDRITZ offers lifecycle-oriented support including maintenance, upgrades and retrofits, ensuring long-term performance and efficiency of installed systems.

www.andritz.com

INTERSPARE HIGHLIGHTS

MODERNIZATION AND PROCESS CONTROL IN TECHNICAL TEXTILE FINISHING

iNTERSPARE Managing Director Dirk Polchow in front of a Krantz Syncro shrink dryer ready for delivery

iNTERSPARE Textilmaschinen GmbH will present solutions for technical textile finishing with a focus on efficiency, process stability and the modernization of existing installations. Exhibiting at the VDMA joint stand, the company will showcase developments across the Krantz, Artos and Babcock (BTM) product lines, alongside approaches in automation and digitalization. A central theme of the presentation is the adaptation of installed machinery to evolving production and regulatory requirements.

"The modernization of existing machinery is one of our central topics at Techtextil 2026," says Managing Director Dirk Polchow. "This includes all forms of EMU – expansion, modernization and upgrading – with a particular emphasis on automation, control and drive technology. Increasing digitalization is creating new requirements, for example through the EU's Cyber Resilience Act. Techtextil provides an ideal platform to discuss these topics together with our customers."

These developments are closely linked to broader changes in technical textiles. New material concepts, increased use of natural fibres and growing demand for functional finishes are raising the requirements for finishing processes. Applications such as UV protection, thermal insulation or insect-repellent treatments require precise and reproducible drying conditions combined with high energy efficiency.

In this context, iNTERSPARE will highlight the Krantz K30 stenter, designed for demanding finishing applications. The system enables high throughput with reduced energy consumption while maintaining consistent product quality. Its airflow system ensures uniform distribution of air and temperature across the entire fabric width, supporting stable and reproducible drying processes. The machine also features a robust chain system designed for low wear and smooth operation, allowing low-tension fabric transport even at higher production speeds and reducing downtime.

In addition to new machinery, the company places strong emphasis on retrofit solutions under the EMU concept. Modular upgrades allow existing installations to be adapted to current requirements, particularly in control, automation and drive technology. Typical measures include replacing legacy control systems with modern, globally available platforms, updating frequency converters and integrating new operator interfaces. Adjustments can also be made to heating systems, for example switching between thermal oil and gas heating. According to the company, such measures can significantly improve energy efficiency and machine availability while offering shorter payback periods compared to new investments.

Another highlight is the reintroduction of the Artos Vari-Flex foulard. Designed for dyeing and finishing of woven and knitted fabrics, the system offers flexible process control and stable liquor application. A pneumatic system enables precise adjustment of application parameters, helping to ensure uniform results and compensate for variations in upstream processes. The compact design, stainless-steel construction and compatibility with existing stenter lines support long service life and straightforward integration.

With its presentation at Techtextil, iNTERSPARE underlines the importance of modernization strategies, flexible machine concepts and process control in addressing the increasing complexity of technical textile finishing.

www.interspare.com

MAHLO PRESENTS
NEW SENSOR PLATFORM AND AI-BASED WEFT STRAIGHTENING

Basis weight is an essential parameter for nonwovens © 2026 Mahlo

Mahlo showcases new solutions for digital process control and fabric quality optimisation, with a focus on sensor technology and automated weft straightening.

The presentation takes place under new leadership: since January 2026, Stefan Moll has taken over as CEO, bringing extensive experience in machinery and plant engineering and a strong focus on innovation and strategic development.

GRAVIMAX MMX-R: NEW STANDARDS IN PROCESS MEASUREMENT

A central highlight is the new Gravimax MMX-R sensor platform, designed for precise measurement of basis weight and material composition across a wide range of applications.

Based on X-ray technology and advanced signal processing, the modular system enables highly accurate measurements from lightweight nonwovens to heavy materials exceeding 15,000 g/m². Different sensor variants—including absorption, backscatter and hybrid configurations—allow flexible adaptation to specific applications.

The system also enables simultaneous analysis of parameters such as fibre and binder content, expanding its functionality beyond traditional measurement systems. In many cases, it can replace conventional beta-based technologies, reducing regulatory requirements and simplifying operation. Designed for easy integration, the platform can be implemented in both new and existing systems. Combined with real-time data visualisation, trend analysis and predictive maintenance functions, it forms a key building block for data-driven process control.

ORTHOPAC RVMC-20 PLUS: AI-SUPPORTED WEFT STRAIGHTENING

In fabric finishing, Mahlo introduces the Orthopac RVMC-20 plus, an evolution of its established weft straightening systems. The new solution combines proven technology with AI-supported double scanning. Two scanning units—at fabric inlet and outlet—enable a combination of feed-forward and closed-loop control. Distortions are detected early and corrected in real time, ensuring precise results even at high production speeds and with variable fabric conditions.

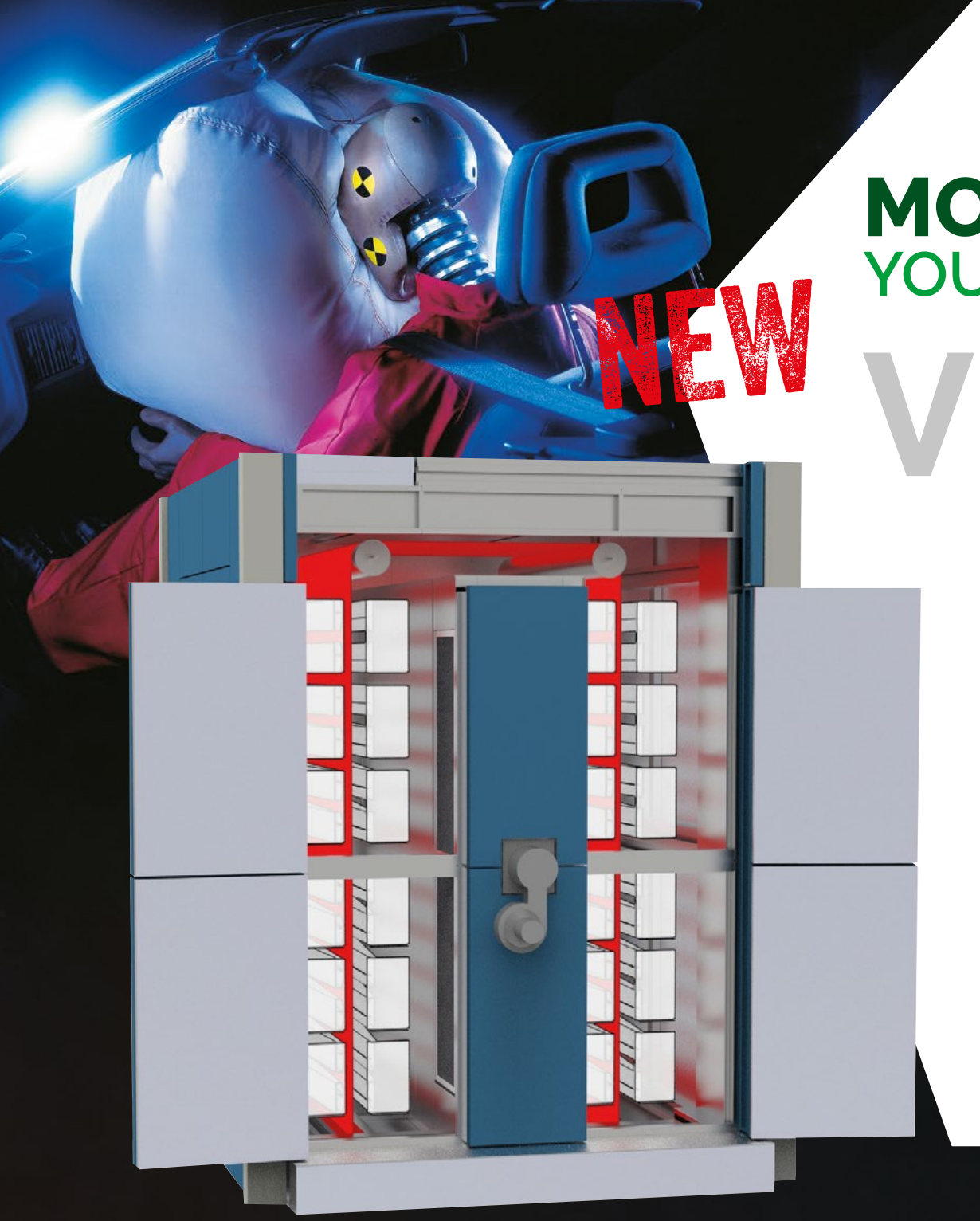
The Orthopac RVMC-20 plus from Mahlo delivers precise weft straightening at high production speeds.
© 2026 Mahlo

The system improves fabric quality, reduces waste and increases process reliability. A key advantage is its retrofit capability: existing Orthopac systems can be upgraded with minimal effort, extending machine lifetime while providing access to the latest technology.

TOWARDS DATA-DRIVEN TEXTILE PRODUCTION

With its latest developments, Mahlo continues to expand its portfolio from measurement technology towards integrated, digital process control. The combination of precise sensor data, intelligent analysis and adaptive machine control enables more transparent, efficient and stable production processes.

www.mahlo.com



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Visit us at techtextil: hall 12.0, booth C60

www.monforts.de

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MONFORTS TO SHOWCASE ADVANCED COATING SOLUTIONS

The MontexCoat coater serves a very diverse number of markets © 2026 Monforts

Monforts will present its latest developments in coating technologies, including the MontexCoat, coaTTex and VertiDry systems, combining flexibility, precision and energy efficiency for technical textile applications. Monforts experts will be on hand at the forthcoming Techtextil 2026 in Frankfurt from April 21-24, to discuss the virtually endless possibilities these advanced coating and drying technologies open up for adding functionality and performance to textile substrates.

APPLICATIONS

In outdoor and architectural textiles, for example, typical coated products include tents, awnings, sailcloth and blackout blinds, with coating providing the desired combinations of water resistance, dimensional stability, opacity or weather durability. A second major field is in transport interiors, particularly automotive upholstery and interior fabrics, with coatings having a positive influence on parameters including abrasion resistance, tactile feel, stain behaviour and long-term durability.

Automotive suppliers also demand absolute reproducibility across batches, which Monforts addresses through digitally-stored coating recipes that can be reloaded for identical results every time.

Beyond consumer-visible products, a large share of applications are in industrial applications, with Monforts coating ranges processing materials such as high-temperature filter media, flame-retardant barrier fabrics and heavy membranes for biogas storage systems. The technology is also used for carbon fibre prepregs and composite reinforcement fabrics, where coating precision is the key to mechanical performance.

MONTEXCOAT: FLEXIBILITY ACROSS COATING PROCESSES

The Monforts flagship MontexCoat coater serves a very diverse number of markets and enables full PVC coatings, pigment dyeing or minimal application surface and low penetration treatments as well as solvent coatings. Knife coating, roller coating or screen printing can also all be accommodated with this system

In addition, the MontexCoat provides the ultimate in flexibility and the ability to switch quickly from one fabric run to the next, without compromising on the economical use of energy or raw materials.

MontexCoat unit installed in front of a MONTEX stenter © 2026 Monforts

COATTEX: TARGETED FUNCTIONAL COATINGS

The coaTTex coating unit is meanwhile exclusively dedicated to air knife and knife-over-roller coating for single-sided application with paste or foam to add properties such as waterproofing, liquid and gas protection and breathability.

The coaTTex is dedicated to air knife and knife-over-roller coating © 2026 Monforts

Both coating units are suitable for incorporation into existing finishing ranges as well as installation with new Monforts lines, notably the industry-leading MONTEX stenter systems.

VERTIDRY: ENERGY-EFFICIENT DRYING

A further recently-introduced technology complementing these coating units is the VertiDry, a fully contactless and energy optimised convection dryer.

The VertiDry is intended for use in combination with a stenter, either before or after it, depending on the specific application, for the essential pre-drying of sensitive fabrics, as well as after the coating of airbags, denim fabrics and glass-fibre substrates. Other envisaged applications include the finishing of sportswear, outerwear, carpets, geotextiles and tarpaulins.

VertiDry fully contactless and energy optimised convection dryer © 2026 Monforts

INDUSTRY STANDARDS

For over 40 years, Monforts machines have been manufactured at Montex Maschinenfabrik based in St. Stefan, Austria, and while there is standardisation across series-produced machines, the company is increasingly being called upon to construct bespoke machines with unique designs, according to the special needs of customers in the technical textiles sector.

"MONTEX stenters and THERMEX dyeing systems are the industry standards for the dyeing and finishing of technical textiles, providing a number of advantages in terms of production throughput and especially in energy efficiency and savings," says Monforts Marketing Manager Nicole Croonenbroek. "These machines remain unmatched in terms of their robustness and long service life, as well as resource-efficient productivity. As a third strand of our business, our coating technologies are now being rapidly adopted by technical textile manufacturers, as the industry recognises their benefits. We look forward to discussing all possibilties for both established and new applications with interested parties in Frankfurt."

DIGITAL PLATFORM FOR CUSTOMER INTERACTION AND SUPPORT

Monforts has also launched a new digital platform featuring interactive 3D tours of its technologies and simplified access to spare parts, service support and modernisation solutions.

www.monforts.de

SMART SENSORS

REDUCE ENERGY AND COSTS IN TEXTILE FINISHING

Pleva GmbH will present sensor-based solutions for energy-efficient and stable textile finishing. The focus is on intelligent measurement systems and automated process control designed to improve transparency, reduce energy consumption and ensure consistent product quality.

As energy costs, sustainability requirements and quality expectations increase, manufacturers of technical textiles face growing pressure to optimise processes while maintaining reliability. PLEVA addresses these challenges with modular sensor technologies combined with integrated control systems.

"In times of economic pressure, PLEVA's smart sensor and control solutions turn process transparency into measurable savings — reducing energy consumption, ensuring consistent quality and increasing productivity in technical textile production", states Managerin Kathrin Pleva.

A central element is the PLEVATEC smart platform, which combines multiple sensor technologies within a single system. These include exhaust humidity measurement for optimised energy use, temperature monitoring for controlled heat transfer, residual moisture measurement for precise drying results and camera-based systems for distortion detection and fabric monitoring.

The aim is continuous process control and reproducible production conditions.

According to the company, the use of such systems can lead to measurable efficiency gains, including reduced energy consumption, lower emissions and improved product consistency. Practical applications indicate productivity increases of up to 16% alongside reduced electrical and thermal energy demand.

In addition, PLEVA will showcase camera-based straightening systems for woven and knitted technical textiles. A traversing camera captures measurement data across the full fabric width, enabling precise detection and correction of distortions, even in complex or dense materials.

With its presentation at Techtextil, PLEVA highlights how sensor-based automation can support more efficient and resource-conscious textile finishing processes.

www.pleva.org

BENNINGER TO PRESENT
INNOVATIVE WET PROCESSING SOLUTIONS

Benninger AG will showcase solutions for continuous and discontinuous wet finishing, focusing on resource efficiency, process control and flexibility for a wide range of textile applications, including technical textiles.

A central highlight is the FabricMaster jet dyeing machine, designed for high-speed and versatile processing of different fabrics and blends. The system enables significantly shorter cycle times while reducing water, energy and chemical consumption. Its design supports stable processes and high first-time-right rates, addressing increasing demands for efficiency and reproducibility in textile dyeing. In discontinuous dyeing, the JigMaster system enables low-tension processing of sensitive and complex fabrics. Its design ensures uniform dyeing results while reducing resource consumption. The TwinJig concept with independent troughs contributes to lower water and energy usage as well as shorter processing times. Integrated control systems support precise adjustment of fabric tension and process parameters.

Benninger FabricMaster – fastest and most versatile "Jet" of the industry © 2026 Benninger Group

For washing processes, Benninger will present the modular BEN-WASH system. With established components such as EXTRACTA, TRIKOFLEX and INJECTA, the system covers a wide range of washing requirements. It ensures high uniformity and reproducibility while achieving significant savings in water and steam consumption compared to conventional processes.

For continuous dyeing, BEN-COLOUR covers applications such as cold pad batch processes, enabling flexible and cost-efficient dyeing with reduced resource input. In addition, Benninger will present solutions for technical textiles and tire cord production, underlining its system approach across the textile value chain.

Across its portfolio, the company focuses on minimising the use of water, steam, chemicals and energy while maintaining consistent product quality. Digital control systems further support precise process management and reproducibility in industrial environments. With more than 160 years of experience, Benninger positions its technologies as solutions for current and future requirements in textile finishing.

www.benningergroup.com

SANTEX RIMAR GROUP HIGHLIGHTS
COATING AND PREPREG TECHNOLOGIES FOR HIGH-PERFORMANCE APPLICATIONS

Santex Rimar Group highlights its expertise in coating, laminating and impregnation technologies through its brands Cavitec and Isotex. The focus is on high-performance applications and customized machine concepts for technical textiles and composites.

Cavitec represents advanced systems for coating, laminating and prepreg production. The company is regarded as a leading supplier of prepreg lines for composite applications in aerospace, automotive and wind energy, as well as for the impregnation of carbon, aramid and glass fiber materials. Each system is tailored to specific customer requirements, reflecting the high degree of process specialization in this segment.

With the Cavipreg technology, a wide range of fiber materials – including fabrics, nonwovens and papers – can be impregnated with polymer-based resins such as epoxy or phenolic systems. These prepregs serve as key intermediate products for structural composites, printed circuit boards and other high-performance applications. Complementing this portfolio, Cavimelt Plug & Play systems offer compact hotmelt coating solutions with integrated unwinding and rewinding units. Designed for short installation and commissioning times, they support flexible processing of thermoplastic and reactive adhesives. In coating technology, Cavitec also advances precision processes such as its screen-based hotmelt application systems, enabling controlled adhesive distribution for breathable laminates used in sportswear, rainwear and protective clothing.

Cavimelt Pro for multi-functional coating
© SANTEXRIMAR Group

Isotex contributes long-standing expertise in coating, embossing and printing technologies. The company is particularly established in complete coating lines for airbags, where precision, reproducibility and process stability are critical to meeting stringent safety requirements.

Together, the technologies of Cavitec and Isotex cover a broad spectrum of applications – from functional textiles to high-performance composites – positioning Santex Rimar as a specialist for demanding coating and impregnation processes.

www.santexrimar.com

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INTERSPARE
TEXTILMASCHINEN
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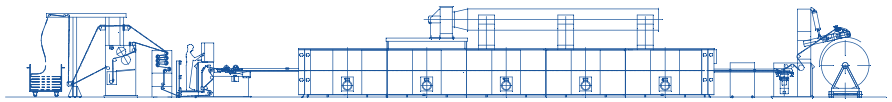

Still the peak in finishing machinery.

FINISHING Hall 12.0 B58

BRÜCKNER WILL SHOWCASE **VERSATILE FINISHING SOLUTIONS**

Bruckner POWER FRAME SFP2 © 2026 BRÜCKNER

Brückner will present the full range of its solutions for the finishing of technical textiles, focusing on efficiency, process reliability and sustainable production concepts.

Rising demands in terms of functionality and resource efficiency are addressed through customized line configurations and energy-optimized systems. A key focus lies on tailored coating solutions, covering virtually all common processes – from foam and paste applications to laminating adhesives and full impregnation. Typical applications include airbags, geotextiles, tarpaulins and membrane materials.

The portfolio is complemented by specialized drying and thermal processes. The POWER-FRAME stenter represents the core of many finishing lines, serving both conventional apparel textiles and technical applications such as filter media or nonwovens. For the nonwovens sector, the range includes SUPRA-FLOW thermofusion ovens as well as spunlace lines for hygiene and wipe products. Brückner also demonstrates extensive expertise in the finishing of textile floor coverings. The DUO-THERM dryer enables differentiated temperature control and is widely used for carpets, artificial turf and automotive textiles.

Digitalization is becoming an integral part of process optimization. With the ExperTex simulation tool, drying, heat-setting and finishing processes can be digitally mapped, analyzed and optimized in terms of energy consumption, production costs and CO_2 footprint.

At the same time, the company addresses key challenges in energy efficiency. Its systems are designed for a wide range of heating media – including gas, steam, electric and hybrid solutions – enabling flexible adaptation to changing energy requirements.

With this broad and modular portfolio, Brückner positions itself as a system supplier for diverse finishing processes across the technical textile industry.

www.brueckner-textile.com

DYEING Hall 12.0 B58

THIES FOCUSES **ON EFFICIENCY AND PRECISION**

Thies Signature © 2026 Thies

Thies GmbH & Co. KG presents a broad portfolio of dyeing and finishing technologies for technical textiles. The systems are designed to process a wide range of yarns, fibers, nonwovens and fabrics, including high-performance materials such as aramids used in protective apparel and automotive applications.

A key innovation is the Signature Series, introduced as a new approach to fabric dyeing. The technology enables precise dosing of concentrated chemicals and operates with extremely low liquor ratios starting at 1:2.3. This significantly reduces water consumption while improving dyeing uniformity and shortening batch times. Additional benefits include reduced dye usage of up to 20%, lower energy demand and decreased wastewater loads, supporting both economic and environmental targets. The system is designed for seamless integration into existing dye houses.

For yarn processing, Thies offers iCone dyeing machines, enabling consistent color distribution across a variety of applications, including technical textiles and medical cotton. In fabric dyeing, the HT-Jigger provides high-quality results for woven fabrics and nonwovens at temperatures up to 143°C, making it suitable for demanding applications such as automotive interiors and filter materials.

The soft-TRD SIII further extends the portfolio with a universal solution for woven, knitted and nonwoven fabrics. Designed for sensitive materials, it ensures uniform treatment through gentle fabric transport and high processing flexibility.

The HT and NT jigger range further complements the portfolio with a flexible solution for open-width dyeing. Based on extensive industry experience and advancements in control technology, the systems are designed for both low-temperature processes up to 98°C and high-temperature applications up to 143°C.

With its focus on low-resource dyeing and process stability, Thies addresses key industry requirements for efficient and sustainable textile finishing.

www.thiestextilmaschinen.com

VDMA

ADVANCING EUROPE'S MACHINERY INDUSTRY

TEXTILE MACHINERY

VDMA members @ techtextil, Smart technologies for technical textiles

Visit the VDMA group stand in the heart of hall 12.0

Herzog

VDMA Services GmbH

TANATEX PRESENTS

COMPLIANCE-DRIVEN CHEMISTRY SOLUTIONS

TANATEX Chemicals focuses its Techtextil presentation on a central industry challenge: combining performance, sustainability and regulatory compliance in textile finishing. Under the theme "Where Chemistry Meets Compliance," the company highlights how application expertise and regulatory know-how can support manufacturers in adapting to increasingly complex requirements across global markets.

Two key areas reflect current industry transitions:

- durable, non-PFAS water repellency
- antimony- and halogen-free flame-retardant solutions

Both address the growing need to replace established chemistries while maintaining performance, process stability and certification readiness.

"For many customers, the challenge is no longer just performance or sustainability alone, but achieving both while staying aligned with evolving regulations," says Rene Hermse.

FROM CHEMISTRY TO APPLICATION SOLUTIONS

TANATEX positions its offering beyond individual products, focusing on practical implementation. In water repellency, the company presents non-PFAS solutions designed to meet demanding durability requirements. In flame retardancy, it highlights alternatives that enable the transition to halogen- and antimony-free systems without compromising safety-critical performance.

This approach reflects a broader shift in the market: textile producers increasingly require not only new formulations, but also guidance on how to integrate them into existing processes and meet certification standards.

SUPPORTING THE TRANSITION TO COMPLIANT TEXTILES

At Techtextil, TANATEX brings together expertise from product development, application technology and compliance to support customers in evaluating options and identifying viable pathways forward.

The aim is to align performance targets, sustainability goals and regulatory requirements—turning compliance from a constraint into a manageable and structured process.

www.tanatexchemicals.com

CHT PRESENTS

INTELLIGENT SPECIALTY CHEMICALS FOR TECHNICAL TEXTILES

CHT presents its portfolio of specialty chemicals and process solutions for technical textiles, covering the full value chain from pretreatment and dyeing to finishing, coating and fibre auxiliaries. The focus is on solutions that combine functionality, sustainability and process reliability. CHT's products are used across a wide range of applications—from high-performance coatings and composites to recyclable textile systems.

EXPERTISE ACROSS DIVERSE APPLICATION SEGMENTS

CHT supports customers from development to industrial implementation, addressing major technical textile sectors:

- **Mobiltech:** flame-retardant coatings and adhesives for automotive interiors and composites
- **Medtech:** coatings and auxiliaries for hygiene, mattress protection and medical textiles
- **Protech:** protective finishes for chemical resistance, weather protection and workwear
- **Hometech / Interiortech:** coatings for furniture, carpets and event textiles
- **Indutech:** high-performance finishes for filter media and conveyor systems
- **Buildtech:** solutions for architectural membranes, facades and textile-reinforced concrete
- **Sporttech & Outdoor:** coatings for tents, awnings and protective covers

This breadth highlights the role of chemical auxiliaries as a key enabler of functionality in technical textiles.

FOCUS ON PERFORMANCE AND SUSTAINABILITY

A central element of the portfolio is the combination of water-based and silicone-based coating and printing systems, including the ALPATEC range, designed to extend functional possibilities in technical textile applications. Sustainability is a core development focus. With its TUBICOAT PET range, CHT supports mono-material polyester solutions that facilitate recycling and circular product design. In addition, the ECOPERL range offers PFC-free hydrophobic finishes, partly based on bio-based raw materials, for a wide range of applications. Many products comply with established industry standards such as ZDHC, bluesign®, GOTS, Oeko-Tex® Standard 100, Cradle to Cradle® and GRS, underlining the company's focus on transparency and environmental compatibility.

CHEMISTRY AS A DRIVER OF TEXTILE INNOVATION

With its integrated portfolio and application expertise, CHT positions itself as a development partner for technical textiles, enabling manufacturers to translate functional requirements into scalable, sustainable solutions.

www.cht.com

COVESTRO PRESENTS ADVANCED MATERIALS
FOR SUSTAINABLE AND HIGH-PERFORMANCE TEXTILES

Covestro showcases innovations in textile coatings, TPU films and adhesive solutions, focusing on durability, recyclability and efficient processing. With the integration of Pontacol, the portfolio now includes thermoplastic adhesive films, expanding applications across automotive, protective apparel, infrastructure and sportswear.

FUNCTIONAL COATINGS AND SMART APPLICATIONS

The Textile Coatings segment highlights waterborne, partially bio-based and mass-balanced polyurethane technologies for demanding applications. A concept automotive interior, developed with partners, demonstrates how transparent INSQIN® coatings enable the integration of color-changing e-paper displays while maintaining required haptic and performance properties. In addition, antimicrobial coatings combining INSQIN® with AGXX technology enable durable, hygiene-enhancing solutions for high-contact textile applications, supporting compliance with regulatory requirements.

SPECIALTY FILMS: PERFORMANCE AND SMART FUNCTIONALITY

Covestro presents its Dureflex® and Platilon® TPU films, designed for high-performance applications ranging from automotive interiors to sports equipment and pipe rehabilitation systems.

Platilon® TPU Films enable electroluminescence for protective apparel. © 2026 Covestro

A key highlight is the use of Platilon® films as substrates for flexible electronics. Integrated electroluminescent functions enhance visibility in protective apparel, demonstrating the potential of smart textile concepts.

TPU INNOVATIONS FOR CIRCULAR AND LIGHTWEIGHT DESIGN

In addition, Desmopan® AIR supports recyclable cushioning and mono-material designs, while Desmopan® FLY enables lightweight, flexible structures for advanced processing technologies.

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MATERIAL INNOVATION AS A KEY DRIVER

Covestro highlights how advanced materials support the transition towards more sustainable, high-performance and efficient textile production.

www.covestro.com

BASF PRESENTS
CIRCULAR MATERIALS AND FUNCTIONAL SOLUTIONS

BASF SE will showcase material innovations for textile applications, with a focus on circularity, low-emission products and functional performance. The presentation includes application examples ranging from apparel and outdoor equipment to nonwovens and composites.

A central topic is Ultramid® Ccycled®, a polyamide based on chemically recycled feedstock. The material is used in products such as clothing, footwear and climbing ropes, while maintaining consistent quality through a mass balance approach. In addition, BASF presents Ultramid® ZeroPCF, a polyamide 6 with a certified zero product carbon footprint, used in applications such as backpacks.

Further developments include Ultramid® BMB, enabling the use of biocircular raw materials and reducing CO_2 emissions compared to conventional materials. With loopamid®, BASF introduces a solution for recycling polyamide 6 textile waste into new fibres for apparel applications. In the field of technical textiles, BASF highlights binder technologies such as Acronal®, Styrofan® and Acrodur® for nonwovens and composites. These are used in applications including construction materials and filtration media. The acForm® technology supports the production of three-dimensional components for furniture and interior design.

The loopamid shirt has been created with BASF's partners Fulgar and Pompea. © 2026 Photo: BASF

Another focus is on functional membranes. In cooperation with dimpora AG, BASF presents an elastic, microporous membrane based on Elastollan® TPU, combining waterproofness, breathability and stretch properties without the use of solvents or PFAS.

loopamid is BASF's innovative solution for recycling polyamide 6 (PA 6) textile waste and thus promoting circularity in the fashion industry. The first PA6 made exclusively from textile waste is featured in the Zara jacket launched in 2024, in an adidas tracksuit resulting from the T-Rex project, and in a T-shirt produced together with Fulgar and Pompea.

With its presentation at Techtextil, BASF highlights material solutions supporting circular and performance-oriented textile applications.

www.basf.com


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The situation remains challenging, and it is shaped less by technology than by framework conditions.
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Interview
Dr. Janpeter Horn
Chairman
VDMA Textile Machinery Division
by Oliver Schmidt
©VDMA

Dr. Horn, when we last spoke three years ago, you had just taken over the chairmanship of the Textile Machinery Division within the VDMA. Looking back on your first term, which developments have most strongly shaped the work of the association during this period?

1 Three developments have shaped our work most strongly. First, geopolitics has become a defining framework condition: sanctions, export controls and growing fragmentation of markets have made political advocacy and reliable trade rules more important than ever for a highly export-oriented sector. Second, Europe's sustainability agenda has moved from aspiration to regulation. With the EU textile strategy and circular-economy requirements, our role has increasingly been to translate policy into practical, technology-driven pathways that strengthen competitiveness instead of adding bureaucracy. Third, the domestic location question has sharpened: energy costs, permitting procedures, skills shortages and investment uncertainty are now central topics in every member discussion. Against this backdrop, the VDMA has intensified dialogue with Berlin and Brussels, coordinated positions across the value chain and strengthened international visibility at key platforms. In short, our association work has become more political, more European and more focused on safeguarding industrial strength.

The global textile industry – and with it the textile machinery sector – has been facing a difficult environment for quite some time: geopolitical tensions, shifting trade relations, weak demand and restrained investment in many markets. How would you describe the current situation for German textile machinery manufacturers?

2 The situation remains challenging, and it is shaped less by technology than by framework conditions. Our member companies are operating in an environment of subdued global investment, while geopolitical tensions, currency volatility and more restrictive trade policies increase planning risk and transaction costs. At the same time, competition is intensifying—especially from suppliers that benefit from strong industrial policy and, in some cases, non-market conditions.

But nevertheless, German manufacturers continue to be highly competitive in innovation, quality and reliability. Our ability to innovate is still strong, and with their comparatively high R&D investment, our member companies are laying the foundations to ensure that this remains the case in the future.

At the ITMA ASIA, there were also discussions about whether German textile machinery might be "too good" in some segments. While many markets demand simple and low-cost solutions, German manufacturers often offer highly sophisticated machines delivering the highest quality – and therefore at a corresponding price level. How do you view this debate? Do German manufacturers need to adapt more strongly to such market segments, or is the focus on high technology still the right strategy?

3 I understand the concern, but I would be careful with the conclusion. "Too good" often means highly efficient, resource-saving, reliable and compliant with demanding standards. That is exactly what many markets will need as energy prices, carbon constraints and due-diligence requirements tighten globally. At the same time, we must acknowledge that parts of the market are extremely price-sensitive and that competitors are increasingly supported by industrial policy. The right response is therefore not to abandon high technology, but to broaden the portfolio intelligently: modular platforms, scalable automation and service concepts that allow customers to start with a robust basic configuration and upgrade as their business grows.

This enables German manufacturers to address more segments without diluting their brand promise. Also, we must not forget that especially the bigger German companies are increasingly producing "local for local". That means producing locally for the markets their customers are being found. It is also the declining competitiveness of Germany as a business location which supports this. From a policy perspective, the key is ensuring fair competition and open markets—so that quality, total cost of ownership and sustainability performance are rewarded, rather than short-term price alone.

If we take this discussion a step further: what does the German textile machinery industry stand for today in the global market? What do you see as its particular strengths compared with other suppliers?

4

German textile machinery stands for "superior technology with responsibility": engineering excellence that delivers measurable productivity gains while meeting rising expectations on energy efficiency, traceability and compliance. Our particular strength is not only the machine itself, but the ability to provide integrated solutions—process know-how, automation, digital services and lifecycle support—that reduce total cost of ownership and operational risk for investors. Our companies listen to their customers and take up market demands.

A strength compared with other suppliers is also the unique German education and research landscape. Renowned institutions like ITA Aachen, DITF Denkendorf, ITM Dresden and Hochschule Niederrhein among others have always produced qualified engineers who have the know-how that it takes to convert the results of scientific research into marketable machinery for the textile industry.

„German textile machinery stands for "superior technology with responsibility."

The ITMA ASIA + CITME in Singapore last October aimed to strengthen connections between the Asian textile industry and the international textile machinery sector and to generate new growth impulses. From your perspective, did the event achieve this goal? Were there concrete project discussions or even new orders – and what signals did the exhibition send for the Asian market overall?

5

ITMA ASIA + CITME 2025 was a truly international show while the last few editions of the fair in Shanghai became increasingly a Chinese exhibition. Visitors came with clear project ideas, leading to many inspiring and fruitful discussions. Numerous VDMA members reported closed orders and deals – a positive sign for the machinery sector. "Better than expected": this was a frequent statement from exhibiting companies. Visitors and exhibitors alike request another ITMA ASIA outside China.

Automation, digitalisation and artificial intelligence are increasingly entering textile production. At trade fairs we now hear terms such as "dark factory" or "fully automated spinning mill". How realistic are these visions today, and how profoundly will they transform textile manufacturing in practice?

6

The vision is realistic in parts, but it will not arrive everywhere overnight. Only a few years ago, many digital technologies were still confined to pilot projects. Today, they are increasingly moving into industrial scale application. Data integration, traceability systems and smart manufacturing solutions are now widely recognised as essential building blocks for efficient, sustainable and future proof textile and apparel production. First dark factories are in operation. As a result, digital technologies are clearly gaining traction among visitors and exhibitors e.g. at Techtextil in Frankfurt.

Circularity is moving to the centre of the European textile strategy. Recycling technologies and circular production concepts could fundamentally change material flows within the industry, while new companies and business models are emerging. How do your member companies view this development? What role will the textile machinery industry play in this transformation?

7

The companies of VDMA Textile Machinery develop processes and technologies for recycling and provide the technical prerequisites for the efficient reuse and recycling of textile raw materials, whether natural or man-made fibres. They offer equipment and technologies for recycling textile production waste and end-of-life textiles, recovering textile auxiliaries and waste heat, producing recycled fibre feedstock and processing recycled materials into high-quality textiles. However, they also have to be aware of the limitations of recycling such as high energy demands and increasing prices as well as the limited willingness of consumers to pay higher prices.

Technical textiles are often seen as a major growth field because of their ability to solve highly specific problems across many industries. With Techtextil 2026 approaching, many new developments in this segment will be presented. What expectations do you associate with this market, and what impulses do you hope the exhibition will provide?

8

I am convinced that the importance of technical fibres and textiles will continue to grow as new applications emerge. The textile machinery industry plays a decisive role in this development. On the one hand, it enables highly resource-efficient production processes, many of which are already in use today. On the other hand, it makes applications possible that would simply not exist without textile technologies. Offshore wind farms, for example, rely on high-performance textile ropes, while fibre composites are indispensable for rockets and satellites. Above all, we hope that Techtextil 2026 will provide impetus for implementation: concrete project initiatives with end-users, strong partnerships across the value chain, and clear examples of best practice showing how innovation can be scaled up industrially.

The European Union has recently concluded major free trade agreements with India and the Mercosur countries. What opportunities do companies in your sector associate with these agreements? Could they generate new investment impulses for the textile machinery industry?

9

Free trade agreements can be a real lever for our industry if they reduce tariffs, simplify customs procedures and, above all, create predictable rules for investment and local production. India is a key growth market with rising domestic demand and an expanding manufacturing base; better market access would support new projects. Mercosur is different, but equally relevant: it offers potential for modernising existing capacities and for more resilient transatlantic value chains. Whether this translates into investment impulses will depend on the concrete implementation—especially on non-tariff barriers, local-content requirements and reliable protection of intellectual property. If these points are addressed, we expect faster project decisions and a measurable increase in demand for high-efficiency machinery and technology upgrades. Germany's business model depends on exports. Free trade and a competitive business location are key factors for that.

„ I am convinced that the importance of technical fibres and textiles will continue to grow as new applications emerge! “

What would need to happen for the textile machinery sector to return to a stronger growth path? If you had three wishes for the industry, what would they be?

10

We will return to a stronger growth path if investment becomes less risky again—through predictable trade rules, fair competition and a regulatory framework that rewards efficiency and circularity instead of adding complexity. If I had three wishes, they would be: first, a more reliable international framework, second, a reliable and innovation-friendly policy environment in Europe (energy costs, permitting and smart regulation); third, stronger investment momentum in key customer markets, supported by financing instruments and modernisation programmes. We need a location upgrade!

In 2027, ITMA will take place in Hanover – in Germany and therefore closely connected with the VDMA. What expectations do you associate with this exhibition? What role could ITMA 2027 play for the industry in a period of technological and structural transformation?

11

ITMA in Hanover will be a flagship moment for our industry - and a strong signal for Europe as an industrial location. We expect it to be the global marketplace where investment plans are turned into concrete projects, and where the next generation of machinery proves that productivity and sustainability go hand in hand: energy and material efficiency, circularity-ready processes, automation and data-driven quality. In a phase of structural transformation, ITMA 2027 can act as a connector and accelerator - bringing together machine builders, textile producers, brands and policymakers, setting technology benchmarks and giving companies the confidence to modernise, scale and invest. We expect a strong turnout from exhibitors and visitors alike, despite these globally challenging times.

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TEXPROCESS 2026

AUTOMATION, DIGITALISATION AND AI REDEFINE TEXTILE PROCESSING

Making investment decisions in textile processing has become significantly more demanding. Increasing energy costs, a shortage of skilled labour and ongoing geopolitical uncertainties are compelling companies to focus on technologies that deliver clear gains in efficiency and process reliability. This applies equally to apparel manufacturing and to the processing of technical textiles and high-performance materials. As a result, modernisation initiatives are assessed more carefully – even as the need to upgrade production systems continues to intensify.

Within this context, Texprocess 2026 offers a structured overview of available technologies for future-oriented investment decisions. Taking place from 21 to 24 April 2026 in Frankfurt, the leading international trade fair for the processing of textile and flexible materials will host around 200 exhibitors from 28 countries. The event reflects current developments across the sector, particularly in the fields of automation, digital integration and artificial intelligence.

Spanning 15 product groups, the exhibition covers the entire processing chain – from CAD/CAM and digital product development through to cutting, sewing, embroidery and finishing. Alongside established industry players, new exhibitors and international start-ups are contributing fresh perspectives. In dedicated areas, companies such as Prodactive Solutions, Qsee.ai and White Pattern present emerging solutions while engaging with partners from industry and research.

Held in parallel, the co-located Techtextil broadens the scope to include materials, nonwovens and application-oriented developments. Together, both exhibitions represent the full textile value chain and bring more than 1,700 exhibitors to the Frankfurt exhibition grounds. An optimised hall layout, including a closer alignment of apparel-related segments, further strengthens the connection between material innovation and processing technologies.

Texprocess thus mirrors a market situation defined by both restraint and necessity: while companies are becoming more selective in their investments, the demand for efficient, interconnected and scalable production technologies continues to rise.

INVESTMENT STRATEGIES BETWEEN CAUTION AND TRANSFORMATION

Beyond technological developments, Texprocess also reflects a shift in how companies approach investment decisions. Rather than large-scale modernisation projects, many manufacturers are increasingly prioritising targeted upgrades that deliver measurable improvements within existing production environments.

This includes modular automation solutions, scalable software platforms and technologies that can be integrated step by step without disrupting ongoing operations. Flexibility and interoperability are becoming key criteria, particularly in view of uncertain market conditions and fluctuating demand.

At the same time, delaying investment is becoming increasingly difficult. Rising labour costs, energy prices and quality requirements are placing pressure on manufacturers to improve productivity and resource efficiency. As a result, companies are navigating a narrow corridor between cautious spending and the need to remain competitive.

Texprocess provides a framework for these decisions by enabling direct comparison of technologies and offering insights into practical implementation strategies across different segments of the industry.

Textile machines (Hall 12) or Textile Processing (Hall 8) ? © 2026 Messe Frankfurt GmbH / Jean-Luc Valentin

Artificial intelligence is opening up a wide range of new possibilities for textile design across the various process stages © 2026 Messe Frankfurt GmbH / Pietro Sutera

AUTOMATION STABILISING PRODUCTION PROCESSES

Automation continues to be one of the most prominent drivers of change in textile processing.

Technologies designed to automate material handling, cutting or sewing operations aim to minimise manual intervention while improving consistency and output.

Companies such as bullmer demonstrate how cutting room solutions are evolving into integrated systems that combine spreading, cutting and sorting within a single workflow, capable of handling a wide variety of textiles and technical materials.

Automation is also making significant progress in material handling – traditionally one of the most labour-intensive areas. Robotextile, for example, develops systems that automatically separate and position individual fabric layers for subsequent steps such as sewing, printing or laminating.

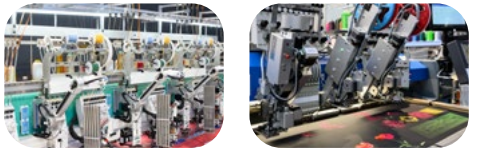
The sewing stage is likewise becoming increasingly automated. Dürkopp Adler focuses on CNC-controlled and automated sewing technologies for diverse applications, while specialised providers such as RSG Automation Technics develop tailored solutions for narrow fabrics like belts and tapes, combining machinery with integrated monitoring systems.

Efficient transport between production stages represents another key component of automated manufacturing. Eton Systems offers unit production systems in which individually controlled carriers move materials through the production process, reducing manual handling and increasing machine utilisation.

DIGITAL PROCESS CHAINS FROM DESIGN TO PRODUCTION

In parallel with automation, digital connectivity across the production chain is becoming increasingly important. Tools for digital product development, CAD/CAM systems and workflow platforms are progressively linking design, planning and manufacturing into continuous, data-driven processes.

The sewing sector delivers countless innovations at Texprocess every year. © 2026 Messe Frankfurt GmbH / Pietro Sutera



Embroidery is always another highlight that attracts attention. © 2026 Messe Frankfurt GmbH / Pietro Sutera

This integration allows manufacturers to shorten development cycles, improve planning accuracy and enhance transparency across operations. Data generated during product development can be transferred directly into downstream production stages, reducing errors and increasing overall efficiency.

Digital platforms are also enabling the simulation of garments and manufacturing processes before physical samples are produced. Companies such as Style3D | Assyst provide environments that combine 3D simulation with CAD-based pattern development, enabling digital design and visualisation prior to physical production.

Design and pattern development solutions play a central role in this transformation. NedGraphics offers specialised software that connects creative design workflows with digital product development, helping to reduce sampling efforts and accelerate time-to-market.

Digitalisation further extends to product data management and collection planning. Koppermann Computer Systems develops PLM and visualisation platforms that support the management of product data, digital assortment planning and early-stage visualisation before physical development begins.

ARTIFICIAL INTELLIGENCE ENTERS TEXTILE PRODUCTION

Artificial intelligence is emerging as an additional optimisation layer within increasingly digital production environments. While automation and digital systems generate the necessary data, AI technologies analyse this information in real time to improve process stability, reduce waste and support decision-making.

One key application is automated quality inspection based on image recognition. Start-ups such as Qsee.ai develop AI-based vision systems capable of detecting defects during production and enabling real-time quality control.

Similar approaches are being implemented earlier in the value chain. Uster Technologies has introduced Fabriq Vision 2, combining automated inspection with machine-learning-based defect classification. The company, a leading provider of quality control systems, is exhibiting at the parallel Techtextil, highlighting the close relationship between the two events.
In product development, AI tools are increasingly supporting creative processes. Platforms such as Style3D | Assyst integrate algorithms that can generate garment designs, visual concepts and even digital photoshoots.

AI is also transforming shopfloor management. Prodactive Solutions has developed a platform that provides real-time transparency across workers, machines and processes, while automatically initiating corrective actions and optimising task allocation. By shifting from intuition-based to data-driven decision-making, such systems aim to enhance productivity and operational performance.

Data-driven analysis is also changing planning and costing processes. Coats Group plc has introduced the AI-based tool GSDQuest, which analyses garment images, identifies construction elements and automatically generates standardised Bills of Labour.

Beyond industrial applications, research initiatives are exploring broader AI potential. The AiDLab, a collaboration between The Hong Kong Polytechnic University and the Royal College of Art in London, focuses on interdisciplinary approaches linking AI with design, quality control and ergonomic product development.

INNOVATION AWARD HIGHLIGHTS TECHNOLOGICAL PROGRESS

Technological progress at Texprocess is further reflected in the Texprocess Innovation Award, which recognises forward-looking developments in the processing of textiles and flexible materials. The award focuses on solutions that successfully translate new ideas into practical industrial applications.

Winners are selected by an international jury of experts across categories such as digitalisation and AI, automation and process optimisation, sustainability and quality enhancement. The emphasis lies on innovations that combine economic efficiency with ecological benefits while improving production performance.

The 2026 award winners will be announced shortly before the exhibition and presented during the opening days. Visitors can explore the awarded solutions directly at the exhibitors' stands, gaining insight into current innovation trends and their industrial relevance.

EXPERT EXCHANGE SUPPORTING INVESTMENT DECISIONS

The Texprocess Forum complements the exhibition with a targeted programme addressing central challenges in textile processing. Located in Hall 8.0, it brings together industry experts to discuss strategies for increasing efficiency, advancing digital integration and implementing more sustainable production methods.

The programme focuses on integrated process chains, automation and data-driven production. Particular emphasis is placed on the role of artificial intelligence and digital product development in connecting design, pattern development and manufacturing processes.

Practical presentations demonstrate how these approaches can be implemented in real-world production environments – from fully digital, AI-supported product development to automated sewing technologies and integrated systems that eliminate data silos.

By linking innovation with practical application, the forum provides guidance for companies assessing future investments and creates opportunities for exchange with industry partners and experts.

FROM MATERIAL INNOVATION TO INTELLIGENT PRODUCTION

Overall, these developments illustrate how textile processing and apparel manufacturing are entering a new phase of technological transformation. Automation reduces manual intervention, digital platforms connect processes into continuous workflows, and artificial intelligence increasingly supports both operational and creative decision-making.

At the core of this transformation lies a changing understanding of productivity. Efficiency is no longer defined solely by output, but by how effectively resources such as materials, energy, time and labour are utilised throughout the production process. Technologies that improve productivity per unit of resource input are therefore becoming key drivers of investment decisions.

In combination with the parallel Techtextil exhibition, Texprocess highlights the technologies required to translate material innovation into efficient and competitive manufacturing processes. Together, the two events provide a comprehensive picture of the industry's development – from advanced materials to increasingly automated, digital and intelligent production systems.

TOWARDS A RECONFIGURED SUPPLY CHAIN

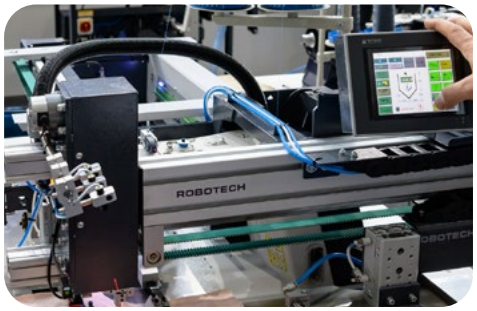
Beyond individual technologies, developments at Texprocess also point to a broader transformation of the textile supply chain. Increasingly, the focus is shifting from globally fragmented production models toward more localised, demand-driven and highly automated manufacturing structures.

One example of this shift is the US-based company unspun, which is working to establish automated, local production hubs using AI-enabled 3D weaving technology. The approach aims to move manufacturing closer to end markets while significantly reducing production lead times and excess inventory. By producing garments directly from yarn in a largely automated process, traditional multi-step cut-and-sew operations can be condensed into a single production stage.

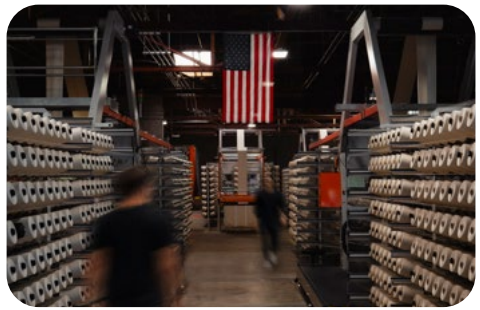
At the same time, automation efforts continue to address one of the most persistent bottlenecks in apparel manufacturing: sewing.

Companies such as Softwear Automation are advancing fully automated sewing systems, supported by recent investments aimed at scaling industrial deployment. These developments indicate ongoing efforts to overcome technical limitations that have historically constrained automation in this area.

In parallel, solutions for handling flexible materials are gaining importance. Exhibitors such as Robotextile focus on robotic systems capable of reliably separating and positioning individual fabric layers – a prerequisite for further automation in downstream processes.



Automation presentation at last Texprocess
© 2026 Messe Frankfurt GmbH / Pietro Sutera



unspun's 3D weaving facility in California © 2026 unspun

Taken together, these approaches illustrate a potential shift toward shorter, more responsive supply chains. However, their broader implementation will depend on how effectively automation technologies can be integrated across all process stages – particularly in sewing and assembly, which remain critical constraints for large-scale reshoring strategies.

CONCLUSION

Texprocess 2026 reflects an industry undergoing structural transformation. While economic pressures are making investment decisions more selective, the technological direction is becoming increasingly clear: automation, digital integration and artificial intelligence are evolving into key pillars of competitive textile processing.

For visitors, the exhibition offers several points of orientation. It provides a structured overview of available technologies across the entire process chain, enables direct comparison of solutions in a rapidly evolving market environment, and offers insight into how digital and AI-driven systems can be implemented in practice.
Companies that understand how to integrate these technologies into coherent production systems will be better positioned to respond to shifting market conditions and rising efficiency requirements.

VEIT GROUP HIGHLIGHTS ENERGY-EFFICIENT FINISHING AND LAMINATING TECHNOLOGIES

The Veit Group will showcase a range of machines and solutions for textile processing under the motto "LOVEIT oder LOVE IT". The presentation covers technologies for ironing, fusing, pressing and textile finishing, as well as applications in automotive and interior textiles.

The company will present both new and further developed systems aimed at improving efficiency, process stability and ergonomics in industrial garment and textile processing. The exhibit includes a selection of finishing and handling equipment such as shirt finishers, laminating systems and ironing workstations.

A key highlight is the SF 27 shirt finisher, developed with a focus on airflow design and emission optimisation. The system is designed to improve finishing quality while reducing energy consumption, noise and heat generation. Features include adjustable sleeve tensioning, optimised airflow for faster drying and optional heat recovery. The SF 27e variant extends the concept with electric heating, enabling operation without a central steam supply.

Another focus is the LM laminating and bonding machine, designed for gentle processing of flexible materials such as textiles, leather, films or nonwovens. The system enables durable material bonding while preserving surface structures. A continuous operating mode supports shorter process times compared to conventional solutions, while adjustable heating zones allow material-specific processing.

The Varioline ironing workstation series will also be presented. It combines suction and optional blowing functions with low noise levels and is designed for ergonomic operation. Features include automatic switching between functions and height adjustment for operator-specific setup.

Across its portfolio, Veit addresses key industry requirements such as energy efficiency, process reliability and ease of use. With its presentation at Texprocess, the company highlights practical solutions for modern textile finishing and processing environments.

www.veit.de

Ironing Table Varioline S/S+B © 2026 VEIT

PFAFF INDUSTRIAL HIGHLIGHTS WELDING TECHNOLOGIES FOR TECHNICAL TEXTILES

PFAFF Industrial will showcase solutions for joining and processing technical textiles, with a focus on welding technologies that operate without consumables such as thread, needles or adhesives. The presentation includes applications for joining technical textiles, continuous seam sealing and the application of reflective elements.

A central exhibit is the 8311 series of programmable ultrasonic welding machines. These systems enable reproducible welding processes through programmable seam lengths and controlled energy input adapted to production speed. Features such as seam end detection and material recognition support stable processing, while differential feed allows distortion-free seams or the integration of fullness. At Texprocess, both a standard version and a dual-wheel CUT & SEAL configuration will be presented, enabling cutting, sealing and welding in a single operation.For seam sealing applications, PFAFF Industrial will present the 8333 hot-air tape welding machine. The system is designed for process reliability and precise control in demanding applications. An adjustable nozzle system allows parameter settings to be defined for specific welding processes. Additional features include an energy-saving mode that reduces consumption during idle phases, as well as an adjustable tape guidance system for different tape widths.

PFAFF 8323-040-005: Modern hot-air welding machine for welding reflective strips onto workwear, sportswear, protective & safety clothing in the highest quality

Another focus is the 8323 series for applying reflective strips to workwear, sportswear and protective clothing. The system enables programmable strip application and supports both flat and tubular textile components. According to the company, the process can significantly reduce production time compared to conventional methods.

PFAFF Industrial will exhibit as part of a joint presentation together with Dürkopp Adler, KSL Keilmann Sondermaschinenbau GmbH, Richpeace Group, Habraken Machinery and Liersch Nähtechnik. Around 50 solutions for textile and leather processing will be presented at the shared booth.

www.pfaff-industrial.com

CAD / SOFTWARE
Hall 8.0 D40

STYLE3D | ASSYST FOCUSES ON
AI-DRIVEN PRODUCT DEVELOPMENT

Assyst GmbH together with Style3D will present solutions for AI-supported design and product development. The focus is on connecting digital workflows from concept to production.

The presentation shows how artificial intelligence can be integrated into different stages of the product lifecycle. Applications at the booth illustrate how AI supports design processes in areas such as workwear, retail and brand development while improving efficiency and consistency.

A central element is the integration of digital tools into end-to-end workflows. In cooperation with bullmer GmbH, a process chain from AI-based design and 3D simulation to CAD and automated cutting is demonstrated. A further workflow, developed with Zünd Systemtechnik AG, combines digital design with fabric printing and single-ply cutting for prototype development. The presentation also includes approaches in physical AI and humanoid robotics, illustrating the extension of digital technologies into production.

With this, Style3D and ASSYST highlight the role of AI in linking design, development and manufacturing processes.

www.assyst.de

THREADS
Hall 8.0 H30

DURAK TEKSTIL SHOWCASES
IR AND FUNCTIONAL THREADS

Durak Tekstil Sanayi ve Ticaret A.Ş. will present functional threads with a focus on IR technologies. A key highlight is the Poly-Strong PC-IR thread, designed to reduce visibility under infrared light for protective and technical applications.

The portfolio also includes flame-retardant, cut-resistant, conductive, reflective and laser-safe threads. Additional functions such as UV resistance and colour-changing properties expand application possibilities.

"Texprocess is one of the key exhibitions we prioritize," said Yiğit Durak, Vice Chairman of the Board.

www.durak.com

Durak Tekstil IR threads © 2026 Durak Tekstil

SEWING Hall 8.0 / Booth G75

BROTHER PRESENTS
AUTOMATION AND CUSTOMISED SEWING SOLUTIONS

Brother presents its latest innovations in industrial sewing technology. The exhibition highlights Brother's commitment to reliable, high-performance machines, advanced automation, and customized production solutions designed to support manufacturers across apparel and non-apparel industries.

At this year's show, Brother demonstrates a comprehensive portfolio of industrial sewing machines and intelligent automation systems engineered to increase productivity, precision, and workflow efficiency. From high-speed single-needle lockstitch machines to programmable pattern sewing systems, Brother's technologies are designed to support manufacturers in industries such as apparel, automotive interiors, furniture, protective equipment, and technical textiles.

A key highlight is Brother's K series pattern sewing machine, featuring the unique DigiFlex Tune system, an industry-first innovation that enables digital adjustment of sewing parameters, monitors upper thread tension in real time, and helps prevent sewing defects—delivering greater precision, consistency, and process reliability.

Following the integration of Busche Automation into the Brother Group, Brother now brings even stronger expertise in automated production systems. This expanded capability enables the company to deliver integrated solutions that combine industrial sewing with intelligent automation for improved efficiency and streamlined workflows.

For automotive Tier 1 interior manufacturers who struggle to automate labor-intensive textile processes and maintain consistent quality amid skilled labor shortages, ABB Robotics' OmniVance™ Sewing Cell provides a fully automated, standardized solution with a 4-axis SCARA robot. It seamlessly integrates handling, feeding, inspection, and sewing, delivering high repeatability and fast changeovers.

Brother is also joined at Texprocess by its partner Sip Italy, a specialist in denim production technologies. At the booth, visitors can explore innovative solutions designed specifically for high-performance and fashion-driven denim manufacturing, highlighting how collaboration between industry experts can deliver tailored solutions for specialized production needs.

With its presentation at Texprocess, Brother highlights the role of automation and system integration in addressing current challenges such as labour shortages, process stability and efficiency in industrial sewing.

www.brother-industrial.com

DÜRKOPP ADLER PRESENTS
AUTOMATION & DIGITAL SEWING TECHNOLOGIES

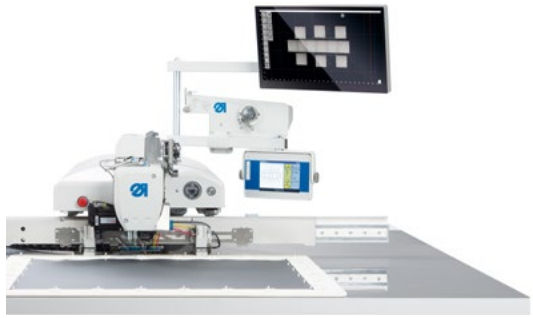
Dürkopp Adler will present a broad portfolio of solutions for automated sewing, digitalised production and process control in textile and leather processing. Together with partners KSL Keilmann Sondermaschinenbau GmbH, Richpeace Group, Habraken Machinery and Liersch Nähtechnik, around 50 machines and systems will be demonstrated at the joint stand.

The presentation reflects the ongoing transformation of industrial sewing, where automation, digitalisation and reproducibility are becoming central requirements. Dürkopp Adler addresses this with integrated machine platforms, programmable systems and digital interfaces designed to stabilise processes and increase productivity in global manufacturing environments.

A key focus is the CNC sewing platform, which enables the industrialisation of complex sewing operations across a wide range of materials. Systems such as the 910, 911 and 911R are designed for applications from light to heavy textiles and leather. The fully digitalised 910 unit supports automated processes with consistent seam quality and integration into connected production systems.

The 911 platform targets medium to heavy applications, combining established sewing technology with flexible clamping systems. The 911R extends this concept with a rotating sewing mechanism, allowing seams to be executed in multiple directions with consistent visual quality. Complementary tools such as the DA SPOT system support precise seam positioning and reproducibility, particularly in visually demanding applications.

For safety-critical applications, Dürkopp Adler will present the 550-D800 workstation, developed for documented sewing processes in areas such as automotive airbag production.



Winner of the TEXPROCESS Innovation Award 2024, the 911R is the world's first CNC sewing unit with a rotating sewing mechanism for medium-heavy applications. Unlimited clockwise and counter-clockwise rotation enables decorative seams with perfect visual quality in all directions. Key application areas include automotive interiors and high-end leather goods. © 2026 Dürkopp Adler

Its modular design allows adaptation to different configurations, including flatbed or post-bed setups, various feed systems and needle arrangements. The system supports traceable and reproducible seam quality in line with increasing safety and documentation requirements.

In the segment of medium-heavy sewing, the M-TYPE series covers a wide range of industrial applications. The portfolio extends from entry-level configurations to fully digitalised systems with advanced control functions. For heavy-duty applications, the H-TYPE platform is designed for processing thick and demanding materials. The 969 cylinder arm machine, as part of this series, enables reliable handling of bulky components while maintaining consistent seam quality under high load conditions.

Automation solutions for apparel production form another core element of the presentation. Systems for pocket production, seam closing and serging operations are designed to increase efficiency and ensure consistent quality in garment manufacturing. Digital interfaces support intuitive operation and facilitate integration into global production environments.

910 CNC platform © 2026 Dürkopp Adler

In addition, Dürkopp Adler will present a portfolio of standard sewing machines for apparel applications, including lockstitch and overlock machines designed for reliable operation and consistent results in daily production.

"TEXPROCESS is the ideal platform to demonstrate how sewing technologies are evolving in modern textile production," says Mr. Sebastian Kinnis, Sales Director at Dürkopp Adler GmbH. "We offer manufacturers a comprehensive portfolio that combines automated sewing with digital solutions – helping customers worldwide increase productivity, ensure consistent quality and further develop their production processes."

www.duerkopp-adler.com

BULLMER PRESENTS NEW R 90 PRO

CUTTING SYSTEM FOR AUTOMATED MATERIAL PROCESSING

bullmer GmbH will introduce the new R 90 Pro cutting system. The machine is designed for high-precision and efficient processing of textile and flexible materials and represents a further development of the company's high-layer cutting technology.

The R 90 Pro is aimed at applications in apparel, upholstery and automotive materials, which will also be demonstrated at the exhibition. The system combines continuous cutting processes with optimised knife guidance and a redesigned sharpening unit to ensure consistent cutting quality and stable operation. Features such as segmented cutting and improved vacuum technology are designed to enhance material utilisation and process efficiency.

With high positioning speeds, precise repeat accuracy and the ability to process thicker material layers, the system addresses the requirements of industrial cutting applications. A gantry drive supports stable movement and accuracy, while integrated software enables intuitive operation and process control.

The new system is part of bullmer's broader portfolio covering automated cutting and material handling solutions. The company develops machines and systems for the processing of textiles and flexible materials, including technical textiles, composites, foils and leather. Its solutions range from single-layer to multi-layer cutting, complemented by spreading and material flow systems.

In addition to high-layer cutting, bullmer offers modular systems such as the PREMIUMCUT single-layer cutter. Designed for a wide range of materials—including composites, technical textiles, leather and coated fabrics—the system enables flexible and customised production setups. Features such as modular construction, high cutting speeds and automated material transport support efficient processing across different industries.

With more than 80 years of experience in cutting and material handling technologies, bullmer focuses on integrated process solutions that connect individual modules into efficient production chains. The company emphasises automation concepts designed to increase productivity while maintaining flexibility for different materials and applications.

With the presentation of the R 90 Pro at Texprocess, bullmer highlights its focus on precision cutting, process integration and the efficient handling of complex materials in industrial production environments.

www.bullmer.de

ZÜND SHOWCASES

AUTOMATED CUTTING AND AI-SUPPORTED WORKFLOWS

Zünd Systemtechnik AG will present digital cutting technologies for a wide range of textile applications. The focus is on integrated solutions combining automated cutting, optical capture and software-supported workflows.

At the centre of the presentation is a Zünd G3 cutter equipped with table extension, integrated lighting and the MindCUT software. The system enables precise optical detection of patterns and contours, supported by uniform illumination and shielding from ambient light. This ensures consistent capture quality, even for complex or detailed geometries.

In cooperation with Mind Technology GmbH, Zünd will demonstrate digital workflows for upholstered furniture production. The MindCAD 2D software supports the design and preparation of cut parts and integrates directly into the cutting process.

A further focus is the processing of digitally printed textiles. Together with Assyst GmbH, Zünd presents AI-supported functions for automated cut preparation. Features such as shape vectorisation enable the automatic conversion of printed motifs into cutting contours, while recognition tools identify and position patterns across the material.

Support rack for optimal lighting conditions during material capture—one of many technological innovations on display at Zünd Booth D78 in Hall 8. © 2026 Zünd

These functions reduce manual intervention and support consistent, repeatable results, particularly in on-demand production.

For the first time at Texprocess, Zünd will also demonstrate an integrated conveyor belt cleaning system. The solution removes residues automatically during operation using compressed air, ensuring a clean cutting surface and stable vacuum performance. This supports consistent cutting quality, especially when processing lint-forming or sensitive materials.

With its presentation at Texprocess, Zünd highlights the role of automation and digitalisation in increasing efficiency and reliability in textile cutting processes.

www.zund.com

> When we talk about efficiency today, we do not mean speed alone. It is about productivity per unit of resource input.

Interview

Elgar Straub

VDMA

Managing Director Bavaria,
Managing Director Textile Care,
Fabric and Leather Technologies

by Oliver Schmidt

In just a few weeks, from April 21 to 24, the trade fair duo Techtextil and Texprocess will once again take place. The last edition was held in 2024 – a year you once described as the most challenging you had experienced in your 25-year career. Where do we stand today? Is the textile industry still under pressure from recession, high energy costs and restrained investment? And how would you currently assess the situation in your specific segment, Textile Care, Fabric and Leather Technologies?

1 Yes, the pressure is still clearly noticeable – however, compared to 2024 the starting position in our Textile Care, Fabric and Leather Technologies sector has changed. Investments continue to be made cautiously and very selectively, driven by cost pressures, uncertainty and longer decision-making processes. At the same time, the need for modernization among our global customers is increasing significantly: companies are investing where technologies demonstrably improve efficiency, flexibility and process stability, as well as sustainability. This very tension currently characterizes our industry – and it lies at the heart of Texprocess.

Further challenges for the industry have emerged with the return of U.S. President Trump and the introduction of new tariffs, which are making business with the U.S. more difficult – in some cases even grinding it to a halt. How strongly are your member companies affected by these measures, and what disadvantages do they create not only for European suppliers but also for the U.S. market and consumers?

2 For companies in the Textile Care, Fabric and Leather Technologies (TFL) sector, US tariffs have a twofold effect: they increase the cost of machines and components in the US target market while simultaneously raising uncertainty regarding investment decisions among global customers whose products are in turn delivered to the US. Particularly in a technology-driven segment such as TFL, this leads to modernization projects being postponed or subjected to very careful scrutiny.

For the US market itself, this has long-term consequences: if investments in efficient and productive technologies fail to materialize, productivity and competitiveness come under pressure – an effect that becomes noticeable along the entire value chain and is also clearly addressed in the context of Texprocess.

At the same time, the European Union has concluded two free trade agreements with Mercosur and India, both intended to have a positive economic impact. How are these agreements viewed by your members, and what expectations are associated with them?

3 For our member companies, reliable and openly structured trade relations represent an important opportunity – especially in an internationally interlinked market environment. Improved market access can facilitate investments, strengthen cooperation and accelerate technological innovation. What is crucial is a practical implementation: if tariff reductions take effect effectively, procedures are efficient and technical as well as regulatory requirements are well aligned, tangible planning security emerges. This creates stable framework conditions for our members, promotes competitiveness and supports sustainable growth. Both regions are important trading partners and we expect a lasting investment boost. Accordingly, we also call on the EU Commission to bring the free trade agreement with Mercosur into provisional force as quickly as possible.

Turning to the trade fair itself: as early as August 2025, Messe Frankfurt reported a very strong booking situation for Texprocess. How do you assess the current state of preparations? What are your expectations for this year's edition of Texprocess?

The signs are very positive. A strong booking status was communicated at an early stage: more than 200 exhibitors from 24 countries, including many new exhibitors as well as established brands. In terms of content, Texprocess 2026 is clearly positioned as a platform where the industry provides answers to the major challenges: automation, digitalization and AI, as well as sustainability, are at the center, because these are precisely the drivers of efficiency and flexibility gains.

I therefore expect a trade fair of very high relevance for decision-makers: concrete solutions that can be translated into investment decisions – ranging from intelligent material flow systems and robot-assisted units to AI-based real-time quality control.

Texprocess is regarded as the world's leading trade fair for your industry – making it worthwhile to visit almost every time. Why might this particular edition be even more relevant than usual?

Texprocess is fundamentally always worth attending, because it is the only global platform that brings together all technologies and services of textile processing – from design and cutting to sewing, finishing and digital printing.
In 2026, from my perspective, an additional factor comes into play: the combination of economic pressure (budget constraints, volatile demand, tariffs/geopolitics) and, at the same time, a strong surge in innovation makes visiting the trade fair particularly valuable. Visitors will find exactly the technological answers that are currently needed to stabilize processes, use resources more efficiently and reduce dependencies in order to remain competitive.

Technologies aimed at increasing efficiency are expected to play a key role at Texprocess 2026. What exactly does this mean in practical terms? Which developments or approaches should visitors pay particular attention to?

When we talk about efficiency today, we do not mean speed alone. It is about productivity per unit of resource input – in other words, technology that helps to use materials, time, energy and labor more effectively under real-world conditions while at the same time ensuring quality.

This orientation is explicitly emphasized for Texprocess 2026: the focus is on efficiency-enhancing technologies – driven by automation, digitalization and AI – as concrete responses to requirements such as efficiency and flexibility. These include, for example, end-to-end process chains, intelligent material flows, data-based control systems and automated quality control.

Automation and digitalisation are also among the technologies shaping the show. We often hear that the factories of the future will be able to manufacture textile products – or at least semi-finished goods – in an almost fully automated way. Where does the industry stand today in this respect? How advanced is automation in your field, and are there any lighthouse projects you could highlight?

We are significantly further along than just a few years ago. However, the degree of automation depends heavily on the product and the material. Very concrete examples are highlighted in Texprocess communications: exhibitors are showcasing intelligent material flow systems, robot-assisted sewing units and AI-based real-time quality control. These are precisely the building blocks that enable the transition from isolated solutions to scalable production systems.

It is crucial to assess actual progress realistically: today, automation is increasingly being deployed even in areas that were long considered particularly complex. This includes, for example, more stable and flexible sewing processes, better-coordinated material flows and continuous, data-based quality monitoring. The goal is to make production processes overall more resilient and at the same time more flexible, to reduce manual interventions and to ensure reliable production even when frequent material or product changes are required.

In addition to well-known megatrends, artificial intelligence has emerged over the past two to three years as a new transformative force. In which areas will we see AI applications at Texprocess, and how do you expect this development to progress in the coming years, based on what we can already anticipate today?

In 2026, AI will primarily be visible where it already delivers measurable benefits today: real-time quality control is a prominent example. Beyond that, AI is typically used in data and image processing tasks, process control and assistance functions – wherever it helps to reduce waste, increase repeatability and make production more robust.

Development is moving toward more tightly integrated systems: not AI as an "add-on," but as an integral part of end-to-end digital process chains, with the aim of making systems run more stably, respond more quickly and embed know-how more firmly within processes – from design through production to logistics.

Your industry – and Texprocess itself – thrives on innovation. New products, processes and solutions repeatedly provide answers to changing challenges. How innovative will this year's edition of the fair be? What truly groundbreaking developments can visitors expect, and what impressions have you personally gained from the submissions for the Texprocess Innovation Award?

Texprocess thrives on innovation, and we will see that again this year. On the one hand, because the trade fair explicitly addresses innovation as a response to recession, tariffs and investment restraint. On the other hand, because the Innovation Awards are positioned as a high-profile highlight, with submissions possible until mid-December 2025.

My impression from the context of the submissions is that many ideas are application-driven and focus on "economic quality" – meaning cost, time and process optimization as well as automation. What is often groundbreaking is not just a single component, but system integration: the interaction of machine, software, data and quality assurance. This application-oriented way of thinking is currently decisive for the industry.

Finally, on a more personal note: what are you most looking forward to at Texprocess 2026?

I am looking forward to two things: first, direct exchange with our members, users and international partners. Especially in challenging times, dialogue about "what works and where things are heading" is enormously valuable. And second, the live experience of integrated solutions: when you see how automation, digitalization and AI interact in practice, it becomes clear just how rapidly the technology is evolving.

In our role as an honorary sponsor, we support Texprocess intensively in terms of content – with our own on-site formats, contributions in the forum, press activities and service offerings directly at the trade fair.

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INDEX™26

NONWOVENS BETWEEN MARKET PRESSURE AND INNOVATION MOMENTUM

HOW THE INDUSTRY IS REPOSITIONING ITSELF UNDER CHANGING CONDITIONS – AND WHICH TECHNOLOGICAL SOLUTIONS WILL BE VISIBLE IN GENEVA

Less growth, more complexity: the nonwovens industry is being forced to recalibrate. Between cost pressure, sustainability targets and ongoing technological progress, a new balance is emerging. Which solutions have the potential to succeed in the market? INDEX™26 will serve as a benchmark for the next phase of development.

MARKET UNDER PRESSURE – INDUSTRY REMAINS RESILIENT

The European nonwovens industry continues to operate in a challenging environment. Rising costs, weaker demand in selected segments and increasing international competition have recently slowed market development. According to the latest figures from EDANA, production in 2025 declined moderately by 2.2% to around 2.9 million tonnes – a setback, but not a collapse.

What stands out is less the overall volume than the growing differentiation within the market. While spunmelt processes experienced a more pronounced decline of 3.3%, other technologies remained stable or showed slight growth. A similarly mixed picture emerges on the application side: hygiene, still the largest segment, is losing momentum—particularly in the baby diaper market—while areas such as wipes continue to grow slightly. In contrast, construction and furnishing applications have weakened significantly.

These shifts highlight an increasingly fragmented market. Traditional volume drivers are losing stability, while specialized applications and differentiated technologies are gaining importance. At the same time, the pressure to align material usage, cost structures and regulatory requirements is intensifying.

Against this backdrop, a defining strength of the industry becomes clear: its adaptability. Despite declining volumes, the sector remains innovation-driven and flexible. This is precisely where INDEX comes in—as a platform that demonstrates how companies are responding to changing market conditions and what technological and strategic answers are emerging.

INDEX 2026: A PLATFORM FOR AN INDUSTRY IN TRANSITION

With INDEX™, the world's leading exhibition for nonwovens, the industry will gather in Geneva from 19 to 22 May 2026 to address these very developments. Around 600 exhibitors across the entire value chain—from raw material suppliers and machinery manufacturers to converters—make the event a central meeting point for international decision-makers.
The focus is no longer limited to the presentation of individual products or technologies. Instead, INDEX is increasingly positioning itself as a platform for discussing structural changes within the industry. A clear shift is visible: away from volume-driven standard applications and towards high-performance, increasingly specialized solutions across a wide range of sectors—from hygiene and medical to construction, mobility and filtration.

At the same time, efficiency and sustainability are becoming ever more critical. One key topic is the reduction of the carbon footprint per kilogram of nonwoven fabric—an indicator that is rapidly emerging as a new benchmark across the entire value chain. This brings not only materials, but also processes, equipment concepts and supply chain structures into sharper focus.

It is also evident that innovation is rarely developed in isolation. Instead, closer collaboration between stakeholders—from raw material development to final application—is shaping the industry. INDEX reflects this interconnectedness and makes visible how the sector is repositioning itself in response to cost pressure, regulatory demands and sustainability targets.

MATERIALS, PROCESSES, PERFORMANCE: INNOVATION ACROSS THE VALUE CHAIN

The developments presented at INDEX™26 clearly show that innovation in the nonwovens industry now goes far beyond the substitution of individual materials. Increasingly, the focus is on holistic approaches that integrate material development, process engineering and end-of-life concepts.

A key area of focus is the development of new bio-based and biodegradable polymers. Companies such as Kaneka are advancing the industrial scaling of sustainable alternatives through fer-

mentation-based materials, while others are developing bio-based additives and functionalized cellulose solutions to tailor properties such as hydrophilicity, skin compatibility and barrier performance. One thing is clear: sustainability only becomes viable in the market when it is combined with defined performance.

At the same time, process-related challenges are gaining importance. New adhesive systems, for example, address the growing demand for short fibres from renewable sources, which have traditionally been difficult to process. The goal is to continue using existing production lines efficiently while optimizing material consumption and costs.

Clear trends are also emerging in raw materials and semi-finished products, particularly towards simplified, recycling-friendly structures. New polypropylene grades enable mono-material solutions instead of complex multilayer systems, while efforts continue to reduce basis weights. Lighter, thinner and at the same time high-performance nonwovens are seen as key to improving both resource efficiency and carbon footprint.

Advances in machinery support these developments. New spunmelt technologies aim to increase throughput while producing finer fibres, while innovative line concepts integrate additional functionalities such as embossing or perforation directly into the process. These are complemented by material innovations that enable extreme fibre fineness and new tactile qualities.

Finally, the substitution of critical chemicals is gaining momentum. The replacement of PFAS in medical and protective applications is a clear example of how regulatory pressure is accelerating innovation and driving the development of solutions that meet both functional and environmental requirements.

PRACTICAL EXAMPLES: INNOVATION IN ACTION

The developments presented at INDEX™26 are not only conceptual but are also reflected in tangible solutions across the value chain. Many exhibitors use the event to demonstrate new technologies and materials under real production conditions.

In machinery, the focus is on further improving production processes. New generations of spunmelt lines aim to combine higher throughput with finer fibres while enhancing ease of operation and reducing maintenance requirements. Integrated line concepts add further value by incorporating additional processing steps such as embossing or perforation directly into production.

In the field of mechanical bonding, existing technologies are being systematically refined. The DiloGroup, for example, is presenting new solutions for modernizing needlefelt production at INDEX™26.

A modular needle technology enables faster and more cost-efficient needle changes, improving process stability and machine availability. In addition, new machine concepts address both high-speed applications for lightweight nonwovens and high-strength requirements for heavy technical applications such as filtration, automotive and geotextiles.

At the same time, material suppliers are driving weight reduction and structural simplification. New solutions enable lighter, breathable nonwovens while maintaining performance, and mono-material concepts are increasingly replacing complex multilayer structures to improve recyclability.

Edana booth at INDEX 2023 © 2026 EDANA

In terms of product properties, new benchmarks are also being set. Advances in fibre fineness and processing technologies are enabling ultra-soft, skin-contact materials that require no additional binders while still meeting high functional requirements.

Complementing these developments, Trützschler Nonwovens is showcasing a broad range of innovations across different processes. These include a compact and energy-efficient hydroentangling system for the production of nonwovens used in dry and wet wipes, as well as technologies for processing extremely fine microfibres to enable super-soft hygiene applications.

A further focus lies on the digitalization of production. Advanced energy monitoring tools provide real-time transparency on consumption and CO_2 emissions, while camera-based systems detect process deviations early, helping to reduce downtime. At the same time, the company is expanding its service portfolio to include consulting, upgrades and retrofit solutions alongside traditional maintenance.
These examples illustrate that innovation in the nonwovens industry increasingly emerges from the interaction between materials, processes and applications—and that technological progress is measured more than ever by its performance under real industrial conditions.

KNOWLEDGE, REGULATION, MARKETS: THE SEMINAR PROGRAMME AS A STRATEGIC COMPASS

Alongside technological developments, the INDEX™26 seminar programme forms a central pillar of the event. It goes beyond knowledge transfer and serves as a strategic guide in an increasingly complex market environment.

At its core are data-driven insights into global market developments. Based on comprehensive industry intelligence, the programme analyses key trends and shifts across major application areas—from hygiene and wipes to filtration and construction. It becomes clear that sustainability has evolved from a differentiating factor into a central driver across the entire value chain.

Another major focus is the growing importance of sustainability and regulatory compliance. Reducing carbon footprints, improving resource efficiency and developing viable end-of-life solutions are key topics, alongside the increasing complexity of international regulations. The sessions highlight how companies can not only meet these requirements but also use them strategically to strengthen their competitive position.

In addition, the programme addresses specific high-growth application areas. In filtration, new solutions for demanding industrial and environmental requirements are presented. Sessions on geosynthetics explore different approaches to infrastructure development, comparing established methods with rapidly evolving practices in other regions. In mobility, nonwovens are positioned as key enablers for next-generation transportation concepts, particularly in lightweight construction, acoustics and filtration.

Across all sessions, one central theme emerges: innovation is increasingly driven by collaboration across disciplines and stakeholders. The seminar programme reflects this development and positions INDEX™26 as a platform where technological progress, market understanding and regulatory expertise converge.

OUTLOOK: BETWEEN ADAPTATION AND TRANSFORMATION

Current developments make it clear that the nonwovens industry is undergoing a phase of realignment. Growth can no longer be taken for granted, while requirements for materials, processes and business models continue to increase. Efficiency, resource conservation and regulatory compliance are becoming equally important objectives that must be balanced.

In this context, the ability to integrate becomes a key success factor. Materials, machinery, applications and market requirements must be considered more holistically than ever before. This represents both a major challenge and a significant opportunity for the industry.

INDEX™26 will show how far this transformation has progressed. It will highlight which technological solutions are proving themselves in practice, how companies are responding to changing conditions and which strategies are gaining traction across the value chain.

In doing so, the exhibition once again becomes a benchmark for an industry evolving under pressure—one whose capacity for innovation will determine how quickly and sustainably the transition towards more efficient and circular structures can be achieved.

www.indexnonwovens.com

LEGAL NOTE

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INDEX™26 AWARDS:
SETTING THE DIRECTION

FROM BIO-BASED MATERIALS TO CIRCULAR PROCESSES – THE NOMINEES HIGHLIGHT WHERE THE NONWOVENS INDUSTRY IS HEADING

With the nominees for the INDEX™26 Awards, EDANA provides a concise overview of the key innovation trends shaping the nonwovens industry. Selected from a record number of entries, the finalists reflect the technological and strategic transformation currently underway across the sector.

A clear pattern emerges: sustainability is increasingly being addressed at a systemic level. Bio-based and plastic-free materials, PFAS-free functional textiles and new approaches to recycling and circularity are defining the landscape. At the same time, functional performance remains a decisive factor—whether in hygiene applications, protective textiles or industrial processes.

Beyond materials, process and machinery innovations are gaining importance. More efficient production technologies, reduced resource consumption and new product designs illustrate how progress is being driven across the entire value chain. The nominees therefore represent not just individual products, but tangible solutions to the evolving challenges of the industry.

The INDEX™26 Awards make these developments visible—and provide a clear indication of which technologies and concepts are likely to shape the future of nonwovens.

1. NONWOVEN ROLL GOODS

LENZING – LENZING™ DUALWIPE

A cellulose-based cleaning wipe combining abrasion and absorbency in one material. One side enables effective mechanical cleaning, the other ensures high liquid uptake. The solution eliminates synthetic fibres, binders and chemical additives while remaining compatible with existing converting processes. The jury highlighted its ability to combine performance and sustainability through innovative fibre architecture.

MAGNERA CORPORATION – NEXT-GEN FLUID BARRIER TECHNOLOGY

A PFAS-free barrier solution for medical textiles offering reliable liquid repellency against water, oil and other fluids. Designed to meet strict healthcare requirements, the technology combines high performance with regulatory compliance and environmental responsibility. The jury emphasized its relevance as a scalable alternative to conventional PFAS-based materials.

WOOLCHEMY – NEWEFLEX™ ADL

A plastic-free acquisition distribution layer based on wool and plant fibres. The material offers breathability, thermal regulation and skin compatibility while meeting hygiene standards. Designed for use on standard nonwoven equipment, it enables manufacturers to replace fossil-based materials. The jury recognized its ability to unlock wool as a viable option for disposable hygiene applications.

2. FINISHED PRODUCTS – SINGLE-USE

CORMAN – ORGANYC LIGHT INCONTINENCE PADS

Light incontinence pads combining a skin-friendly cotton cover, optimized absorbent core and natural odor control. The product addresses leakage, comfort and skin irritation while offering clinically proven performance. The jury highlighted its user-focused design and combination of functionality and sustainability.

TEKNOMELT TEKNIK MENSUCAT – FIBRASIV®

An abrasive spunlace material combining a soft base with controlled mechanical cleaning performance. It enables effective removal of dirt while minimizing surface damage and reducing the need for chemical cleaners. The jury praised its multifunctionality and efficiency in cleaning applications.

3. FINISHED PRODUCTS – DURABLE

CONFITEX – REUSABLE NONWOVEN BED PADS

Machine-washable nonwoven bed pads enabled by a proprietary fibre-stabilisation technology. The product withstands multiple wash cycles while maintaining absorbency and leak protection. The jury recognized its potential to open new reusable market segments for nonwovens.

DUPONT – TYCHEM® 6000 SFR

Protective garments combining chemical resistance with secondary flame protection. The lightweight material provides barrier protection against a wide range of chemicals while ensuring safety in high-risk environments. The jury highlighted its multi-hazard protection and contribution to workplace safety.

PELSAN TEKSTIL – METABREATHE™

A breathable insulation composite for cold chain logistics, combining high solar reflectance with recyclability. The material reduces heat exposure while allowing moisture transport and lowering material usage. The jury emphasized its environmental and practical impact.

4. RAW MATERIALS & COMPONENTS

BOSTIK – KIZEN™ MILES 9.0

An adhesive enabling controlled debonding for improved recycling of hygiene products. It maintains strong bonding during use but allows separation under defined conditions. The jury highlighted its role in enabling circular solutions.

FIBERPARTNER – POLYPLANT®

A PLA-based fibre with enhanced mechanical and processing performance. Designed to overcome limitations of conventional PLA, it enables the use of renewable materials without compromising efficiency. The jury praised its practical relevance for industrial production.

THE LYCRA COMPANY – LYCRA® ADAPTIV FIBRE

A fibre delivering adaptive elasticity for improved fit and comfort in hygiene products. It adjusts to different body shapes, enabling consistent performance across size ranges. The jury highlighted its potential to improve user experience while simplifying product design.

5. MACHINERY INNOVATION

KANSAN – HYDROENTANGLEMENT FILTRATION SYSTEM

A mechanical filtration system replacing chemical-based solutions in nonwoven production. It enables water and fibre reuse while reducing energy consumption and chemical input. The jury recognized its strong environmental and operational benefits.

TEKNOWEB CONVERTING – OCEAN

A converting system for absorbent products enabling thinner, lighter designs with reduced material usage. Advanced core formation improves performance while lowering energy consumption. The jury emphasized its contribution to efficiency and sustainability.

ZUIKO – RECLOSEABLE DIAPER CONVERTING LINE

A production system for adjustable pant diapers combining fit and flexibility. Innovative tension control and folding processes enable high-speed production without added complexity. The jury highlighted its technical ingenuity and scalability.

The jury recognized the technical ingenuity of ZUIKO's approach, particularly how the machine merges two product attributes efficiently. They highlighted the asymmetric folding and tension-control mechanisms as practical solutions to a long-standing industry challenge. The innovation offers a new product format for consumers and provides manufacturers a method to produce it at scale without added complexity.

The winners in each category will be announced during a special ceremony at the INDEX™26 exhibition, the world's leading nonwovens event, which will take place on the first day of INDEX™26, Tuesday, 19 May at 10:30 CET, on the EDANA stand. These awards serve not only to honor the ingenious engineering of the finalists but also to provide a roadmap for the future of the entire nonwovens supply chain.

The INDEX Award winners 2023 © 2026 EDANA

Quality control on a rolling basis

How AI can be used to manage production in a targeted manner along the circular value chain

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Defect detection on web materials – from paper to textile production

In the industrial production of fibre-based sheet materials, defects are one of the main causes of quality loss, production stoppages and increased waste. In the paper industry, typical defects occur, for example, in the form of tears, holes and light or dark spots. Such defects arise, for example, due to contaminants in the raw material, process settings, maintenance requirements or local mechanical stresses during manufacture [BLE21]. Particularly when processing recycled raw materials (in this case: waste paper), the high variability of the fibres used can lead to unpredictable defects that spread along the production web and, in the worst case, cause web breaks.

Modern production machines are therefore equipped with high-resolution inline web inspection systems that detect and classify defects during production. However, simply detecting a fault is often not enough to identify the underlying cause. To address this, AI methods have been developed to support operating personnel in the age of big data and to create a window of opportunity to react by predicting critical defect patterns.

This issue is not limited to paper production. In the textile industry, semi-finished products for numerous items are continuously manufactured in web form, such as nonwoven fabrics, coated textiles or technical textile webs. Characteristic defects also occur in these processes, for example fibre agglomerations, holes, variations in thickness, foreign particles or coating defects [KUM08].

Figure 1: Digital networking of a paper machine (illustrative image), Copyright: ITA

Although the physical causes differ in some respects from those in paper manufacturing, the structural challenges of process monitoring are comparable: high production speeds, extensive sensor data and complex interactions between raw materials, machinery and process control.

Given the similar challenges involved in process control, there is considerable potential for applying these methods to textile web processes. The AI methods developed open up new possibilities for stabilising production processes at an early stage, reducing waste and providing targeted support to operating personnel in process control.

The KIBAPap Project: AI-based process support

The KIBAPap research project is developing an AI-based assistance system for the paper industry that helps operating personnel to detect and assess critical process conditions at an early stage. The aim of the project is to reduce production interruptions caused, for example, by defects in the paper web, particularly when these are attributable to contaminants in the s paper used. To accomplish this, data from in-line web inspection systems, raw material composition, and machine and process parameters are collated and analysed using multi-stage machine learning methods.

The core of the system is a data-driven link between detected defects on the paper web, such as tears, holes or optical inhomogeneities, and the prevailing process conditions. Based on the recurring defect patterns identified, conclusions regarding the causes can be drawn using Explainable AI methods, thereby enabling the proactive optimisation of raw material composition or process settings. The results are provided to operating personnel in the form of warnings and recommendations for action, thus enabling faster and more targeted process intervention.

Figure 2: The paper recycling cycle, as examined in the KIBAPap project, Copyright: ITA

The circular economy as a driver of digitalisation

The paper industry is regarded as a prime example of an industrial circular economy. A large proportion of the paper and cardboard products produced worldwide are based on recycled fibres obtained from collected waste paper. After use, paper products are returned to the raw material cycle, processed and fed back into the production process as fibre material. This closed-loop material cycle reduces the demand for primary fibres, lowers energy and resource consumption, and contributes significantly to the industry's sustainability. Textile production is facing comparable

fundamental transformation processes as a result of current sustainability requirements. The manufacture of high-quality textiles from recycled fibres requires adapted process control as well as intensified quality control throughout the entire value chain to ensure both economic efficiency and verifiable sustainability.

As recycling rates rise, so does the challenge of removing contaminants and contaminants from the recycled raw material. Plastics, adhesives, coatings or foreign fibres cannot always be completely eliminated during processing and sometimes end up in the manufacturing process. Effective process monitoring and early identification of these interrelationships are therefore crucial to ensuring production stability despite varying raw material qualities. Digital analysis techniques and AI-based methods offer new opportunities here to integrate recycling processes into production in a data-driven manner and to ensure quality throughout the entire material cycle. The operator assistance system enables structured alerts to be sent to operating personnel regarding critical process conditions, accompanied by targeted recommendations for action. This not only reduces the time spent on troubleshooting, maintenance and repairs but also makes knowledge available in a standardised form, independent of specific individuals or shifts. This helps to address the shortage of skilled workers and demographic change in the manufacturing sector.

Raw materials in transition – using data to drive circular production

Using state-of-the-art image processing methods based on deep learning, the quality of raw materials can be assessed using camera data. To achieve this, the materials intended for recycling are separated and detected.

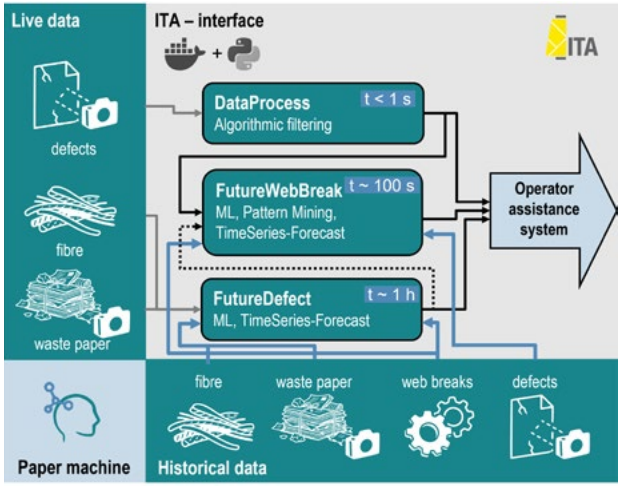

Figure 3: ITA-interface between live data and the operator assistance system, Copyright: ITA

By recognising factors such as colour and shape, the type of paper (e.g. card-board or office paper) can be identified. Through the specific mapping of data on raw material composition to the resulting baled waste paper, digital processing can take place even before the raw material arrives at the paper mill.

The KIBAPap project implements a combination of defect detection, fibre morphology analysis and raw material characterisation across three modules. These enable critical process influences to be identified at an early stage and with low latency (DataProcess), future defect patterns to be predicted (FutureDefect) and potential web break scenarios to be determined (FutureWebBreak). The early evaluation of data streams provides operating personnel with a time window of more than an hour to adjust process settings. The combined use of the modules helps to prevent machine downtime and reduce both downtime and production waste, thereby increasing plant effectiveness.

The modules developed in the project demonstrate that systematically linking production data opens up new possibilities for analysing and predicting production disruptions. Looking towards the future, this approach offers prospects for further digitalisation and networking of the circular value chain. In particular, the continuous expansion of the database and the integration of additional sensor data can further improve the models predictive capabilities. At the same time, the developed concept has considerable potential for transfer to other continuous production processes, such as in the manufacture of nonwoven fabrics, coated textiles or technical web materials. Fluctuating qualities of recycled fibres often still lead to production risks today, where the developed AI-based analyses can help to increase process stability, reduce waste and boost production efficiency in a data-driven manner. In the next stages of the research, targeted adaptations to textile manufacturing contexts will be investigated.

The integration of science and industrial practice paves the way for the production of fibrebased fabrics that remain sustainable, digitally connected and globally competitive. The use of AI modules is not merely a technological experiment, but a necessary response to rising production demands and personnel shortages.

If your company is also exploring the use of AI-based assistance systems, we warmly invite you to join us for a discussion. Let's work together to identify opportunities, share experiences and develop specific areas of application. Please feel free to get in touch; we look forward to speaking with you.

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Innovative synthetic anterior cruciate ligament replacement – braids for orthopaedic surgery

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The incidence of anterior cruciate ligament (ACL) tears in Germany is approximately 46 cases per 100,000 inhabitants per year, making it one of the most common orthopaedic sports injuries. Treatment usually involves surgical reconstruction of the ligament; however, this is associated with an increased risk of re-tearing. Autologous grafts, i.e. tendons taken from the patient's own body, are currently considered the gold standard in the treatment of cruciate ligament ruptures.

However, these are associated with disadvantages such as limited availability, morbidity at the donor site and possible weakening of knee stability. Synthetic implants have so far been rarely offered on the market or used due to inadequately adapted mechanical properties and a lack of long-term stability. [1, 2]

To address these shortcomings, the Institut für Textiltechnik of RWTH Aachen University is developing a long-term resorbable implant that fully replaces the damaged ligament structure. The approach is based on the principle of tissue engineering, whereby the implant acts as a scaffold, providing the body with a structure for tissue regeneration.

This supports the body in rebuilding a new cruciate ligament and ensures that the implant bears the physiological load during the transitional phase. By mimicking the mechanical profile of the native ligament, the body builds up the appropriate tissue structure so that it can later bear the necessary loads independently. [3]

The implant developed at the ITA is braided from melt-spun poly-ε-caprolactone (PCL) monofil-aments and can be flexibly scaled to suit various applications during the manufacturing process. The PCL filaments used were also developed at the ITA and mechanically engineered to meet the specific application requirements.

Thanks to the in-house development of both the raw ma-terial and the textile scaffold, it was possible to closely align the filament morphology, surface structure and mechanical properties with the requirements of the textile structure.

This results in a holistic coordination between material and structural design, which contributes significantly to the functionality of the implant.

The use of textile structures offers a promising strategy for developing suitable implants. Natural ligaments consist of collagen fibres arranged in parallel, organised into fibre bundles, which en-able high tensile strength and elastic elongation. Textiles also have a fibrous structure and are therefore particularly well-suited to mimicking this structure. Braids, in particular, represent a suitable structure, as they can absorb high tensile forces with adjustable elongation due to the fibres being aligned in the direction of the load.

Figure 1: Principle of False-Twist Texturing (Credit: ITA based on [1, 3])

Through the targeted arrangement of the fibres and the construction in bundles and layers, the structure can be biomimetically modelled on the natural organisation of ligament tissue. The mechanical design of the implant is of central importance. Parameters such as maximum tensile force (Fmax), elongation and stiffness can be specifically adjusted through the choice of material, braid parameters and structural design. This makes it possible to adapt the mechanical behaviour of the implant to the physiological proper-ties of the natural cruciate ligament, thereby ensuring functional support during the long-term healing process. [3, 4]

The s-shaped profile of the implant's stress-strain curve corresponds to the mechanical profile of a native cruciate ligament and exhibits physiological behaviour in both static and cyclic tests. A characteristic feature is an initial 'toe region', followed by a virtually linear elastic region, which enables controlled force transmission. This behaviour is crucial for supporting the natural range of motion of the knee joint whilst ensuring sufficient stability.

For application-oriented biomechanical testing, rotational tests, abrasion tests and compatibility with currently used fixation methods are also being investigated. In particular, the research examines how the implant behaves under complex loading conditions, such as those encountered during the physiological movement of the knee joint. In addition, long-term cyclic tests are be-ing carried out to evaluate the structure's endurance under repeated stress.

The suitability of PCL as a material for ligament replacement is demonstrated at both the biolog-ical and mechanical levels. In cell culture studies using primary tenocytes, the PCL-based braided structure exhibits good cell viability and proliferation [5]. Furthermore, the open, fibre-based structure promotes cell adhesion and allows new tissue to grow into the implant structure.

Furthermore, a degradation study demonstrated that the material exhibits suitable degradation behaviour. PCL degrades over the long term, thereby ensuring temporary mechanical stabilisa-tion during tissue regeneration, whilst the implant is completely degraded in the long term. The rate of degradation allows the implant to retain its supportive function during the early healing phase and be gradually replaced by newly formed tissue. This prevents the implant from remain-ing in the joint as a foreign body and causing subsequent problems later on.

The current stage of development demonstrates the feasibility of the mechanical design for the human anterior cruciate ligament, as well as the scalability required for upcoming animal trials.

To identify a suitable braid structure, both two-dimensional and three-dimensional braids were developed and tested. In addition to circular meshes, complex three-dimensional braid structures were also created and analysed in terms of their mechanical properties and manufactura-bility. This enabled the identification of a structural design that exhibits biomimetic stress-strain characteristics whilst also offering sufficient porosity for cell infiltration and tissue regeneration.

Initial trials regarding handling during implantation have shown that the novel implant can be inserted and fixated in the knee without difficulty. Handling in the surgical setting and integra-tion into established surgical techniques also appear promising. This represents an important prerequisite for future clinical application.

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TRIBOLOGICAL STUDIES TO DETERMINE FIBRE-FIBRE FRICTION IN NATURAL FIBRE YARNS

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A major deficit in yarn production has traditionally been the "trial-and-error" process. In this approach, material combinations and process parameters are tested and iteratively adjusted during the spinning process. Problems at the start of the spinning process, such as yarn breaks, yarn irregularities, or fibre-related defects, can result in significant costs due to labour, material, and time expenditures. The goal of the research is to predict the processability of materials or material compositions in advance.

To conclude, the fibre-fibre friction coefficients of fibres and fibre slivers are analysed to ensure processing in the spinning process that is as free of disruptions as possible. To this end, tribological tests are conducted on a test rig designed by the Institut für Textiltechnik der RWTH Aachen University (ITA), as well as adhesion-slip tests on fibre slivers. Based on this, a process-reliable setting of the parameters can be achieved without time-consuming "trial-and-error" cycles.

INTRODUCTION

In the industrial production of, for example, wrapped yarns (up to 200 m/min), rotor yarns (up to 300 m/min), or air-spun yarns (up to 400 m/min), high drafting speeds are required in the drafting process due to high take-up speeds. Due to the continuous reduction in the number of fibres in the sliver cross-section during the drafting process, the cohesion of the fibre sliver is compromised by reduced fibre-to-fibre friction, which leads to uneven drafting and reduces yarn quality. To predict yarn quality and processability, as well as process parameter settings, friction coefficients are therefore analysed before spinning.

TEST METHODS

To determine fibre-fibre friction and analyse the resulting cohesion of the sliver, adhesion-slip tests are first carried out on fibre slivers. Friction coefficients are then measured using the Lünenschloss test rig developed at the ITA. These measurements are used for a more detailed analysis of fibre interactions. The Lünenschloss testing rig uses a stationary tensile force measurement to determine the coefficient of friction of the tested fibre materials. A key advantage is that this testing rig allows for testing with small quantities and delivers reliable and reproducible results even with minimal sample sizes, such as individual fibres or short yarn segments.

The following section discusses both testing methods using a concrete example. In this example, samples with varying hemp and polypropylene (PP) content are used.

FIBRE-FIBRE FRICTION USING ADHESION-SLIP TESTS

Adhesion-slip tests are conducted to determine fibre-to-fibre friction. For this purpose, a fibre sliver is clamped into the Favimat+ tensile testing machine manufactured by Textechno. The clamping points of the Favimat+ move apart at a speed of v = 20 mm/min, stretching the sliver until the fibres slip past one another and the sliver breaks. The force applied until rupture and the resulting elongation of the tape allow conclusions to be drawn about the adhesion-slip behaviour of the fibres. The higher the force and elongation values, the higher the fibre-fibre friction in the sliver. Figure 1 shows the test setup (left) and a momentary picture during the test (right). The material samples used consist of various types of hemp-based slivers (Table 1).

The results of the adhesion-slip tests are shown in Figure 2. A higher tensile force indicates the surface properties of the sliver. It was demonstrated that the stability of the sliver is increased by adding PP fibres. This promises a more stable drawing process, improved drawing quality, and enhanced spinning stability in the subsequent process steps.

FRICTION MEASUREMENT ON THE LÜNENSCHLOSS TEST RIG

The previous adhesion-slip tests show increased tensile forces in the fibre sliver samples with PP additive. These results are probably due to fibre-fibre interactions. To verify this hypothesis, measurements are being conducted on the Lünenschloss test rig. This will allow further conclusions to be drawn regarding fibre interactions. Figure 3 shows the developed Lünenschloss test rig with a corresponding schematic diagram.

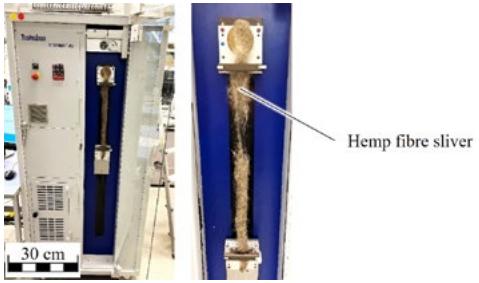


Figure 1: Microscopic image of a non-woven fabric made from a PLA-PBAT blend © 2026 ITA

In this test setup, a yarn approximately 20 cm long is attached to a force sensor, guided over a steel test specimen, and weighted down at the other end with a test weight. The measured force values are proportional to the coefficient of friction of the fibres. The test specimen rotates at a constant peripheral speed of 0.1 m/min.

To evaluate fibre-fibre friction, reference values are first determined on the bare steel test specimen. The surface of the test specimen is then coated with a uniform layer of fibres, resulting in the following test series:

Sample No.	Material designation
1	Fibre sliver made at the ITA from 100 % hemp from European cultivation
2	Externally purchased finished fibre sliver made from 100 % hemp
3	Fibre sliver made from a mixture of hemp & PP **without** finishing
4	Fibre sliver made from a mixture of hemp & PP **with** finishing

Tab. 1: List of samples tested in adhesion-slip tests © 2026 ITA

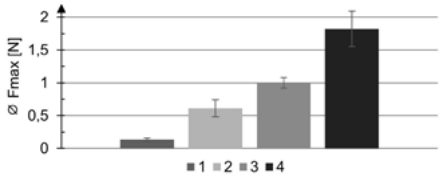


Fig. 2: Results of the adhesion-slip tests © 2026 ITA

a. Test specimen without fibre layer (reference values)
b. Coating layer of roasted hemp fibres
c. Coating layer of PP fibres without finishing
d. Coating layer of PP fibres with finishing

The yarn samples used are made of the same materials as the slivers in the adhesion-slip test (see Table 1). Figure 4 shows all four test series.

The friction coefficient results from this test show that the samples of yarns with PP finishing (samples 3 & 4) exhibit the greatest fibre cohesion and thus produce higher-quality yarns. This result is consistent with the results of the adhesion-slip tests, in which the slivers with PP finishing exhibited the highest values. The adhesion of the sliver with PP additive with finishing (Sample 4) is the highest. These fibre properties result in fewer interruptions during the drawing process as well as during yarn spinning.

Small amounts of yarn may not be sufficient for standard measurements of the coefficient of friction. This problem was circumvented using the developed Lünenschloss test rig. Thus, reliable conclusions about future yarn production could be drawn based on the fibre-fibre properties of short sample lengths.

ABSTRACT

To make the yarn production process more efficient, research at the ITA considers the coefficient of friction between individual fibres before the spinning process. The goal is to systematically investigate the processability of natural fibres in short-staple spinning to minimize the "trial-and-error" cycle.

Fibre-fibre interaction is based on the friction between the fibres. A higher coefficient of friction leads to improved stability of the slivers produced from these fibres, which in turn improves the drawing process and thus has a positive effect on yarn production.

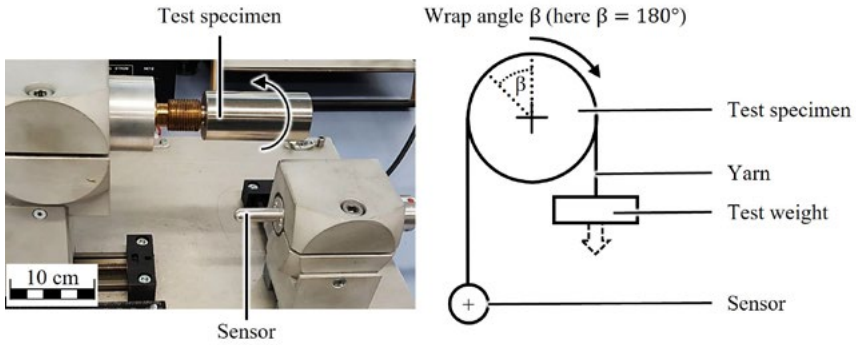
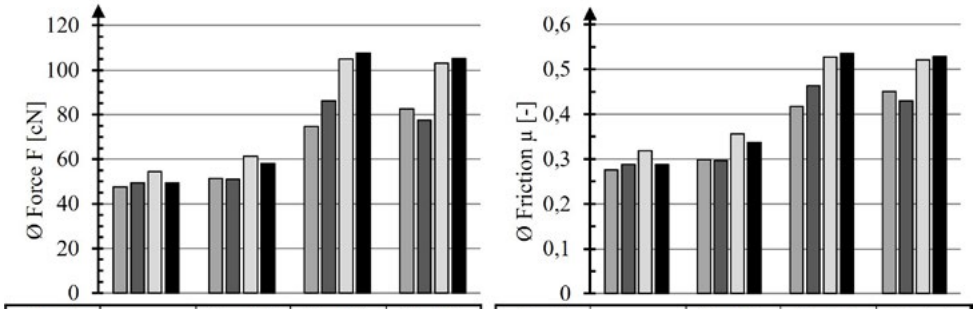


Fig. 3: Test setup for the Lünenschloss test rig © 2026 ITA



Test specimen	Steel	Steel & hemp	Steel & PP(w/o f.)	Steel & PP(w.f.)
Sample nr.	Ø Force F [cN]			
1	47,62	51,40	74,72	82,69
2	49,52	50,95	86,20	77,55
3	54,62	61,50	105,06	102,97
4	49,52	58,04	107,67	105,32

Test specimen	Steel	Steel & hemp	Steel & PP(w/o f.)	Steel & PP(w.f.)
Sample nr.	Ø Friction μ [-]			
1	0,2758	0,2993	0,4182	0,4502
2	0,2881	0,2964	0,4636	0,4298
3	0,3191	0,3558	0,5274	0,5209
4	0,2877	0,3378	0,5357	0,5284

Fig. 4: Friction and force values, Lünenschloss tests © 2026 ITA

Reduced yarn breaks and increased spinning stability lead to fewer interruptions in the drafting process and during yarn spinning.

At the same time, these investigations allow conclusions to be drawn in advance regarding the processability of novel materials or material blends, for example, to determine optimal mixing ratios. Since only small sample quantities are required for this, different material-blend combinations can be tested efficiently and quickly.

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Development of environmentally friendly agricultural nonwoven fabrics from biogenic polymer blends for agricultural applications

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Polymer-based agricultural nonwovens are an integral component of modern cultivation systems. However, their use contributes to the accumulation of microplastics in agricultural soils. This is primarily caused by mechanical damage during application and by residual material remaining in the field after removal. The resulting effects impact the environment, soil structure, and agricultural productivity.

The BioVlies project within the BIO-TEXFUTURE innovation space therefore aims to develop biodegradable alternatives to polypropylene (PP)-based agricultural nonwovens that can be integrated into existing processing routes.

Material development and experimental approach

Bio-based polymer blends were investigated with the aim of combining the requirements for harvest-accelerating non-woven fabrics with process feasibility. Development took place along the entire process chain, from polymer formulation through melt spinning to non-woven fabric production.

Five material systems were characterised on a laboratory scale, three of which were based on polylactide (PLA) and two on polybutylene adipate-co-terephthalate (PBAT). Filament formation tests were subsequently carried out. Spinning stability and filament properties were evaluated. On this basis, suitable materials were selected for pilot-scale investigations. Of all the biopolymer systems investigated, a blend of PLA and PBAT exhibited the best properties.

Fibre production and non-woven fabric formation for practical trials

The selected blends were processed into multifilaments on a pilot melt-spinning line. The PLA-PBAT blend enabled stable process control over extended periods and was therefore selected for further processing.

The fibre fineness of approximately 7 dtex achievable with conventional PP nonwovens was not attained. However, stable processing was possible at 15 dtex.

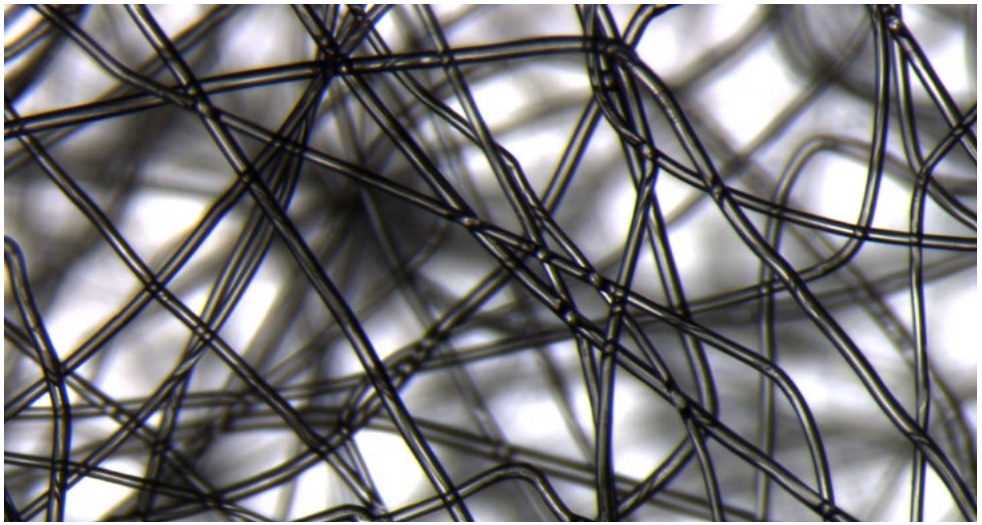

Figure 1: Microscopic image of a non-woven fabric made from a PLA-PBAT blend © 2026 ITA

Figure 2: Demonstration of the use of a harvest-accelerating nonwoven © 2026 ITA

This fineness represented a viable compromise between process stability and mechanical properties. To produce the demonstration nonwovens, the filaments were processed into staple fibres 63 mm in length and formed into nonwovens using the carding process. Following mechanical consolidation, a surface weight of 80 g/m² was achieved. Compared to PP nonwovens, the coarser fibres resulted in a more open structure with larger pore spaces.

The suitability of the non-woven fabrics was investigated in strawberry cultivation under field conditions. The non-woven fabrics were used temporarily in late winter and spring. A PP non-woven fabric produced using the same process served as a reference.

The measured average temperatures beneath the non-wovens were comparable. Differences were observed in moisture behaviour, which was influenced by the more open structure of the bio-based materials. Overall, the trials confirmed their fundamental suitability as a harvest-accelerating non-woven.

Scale-up

During scale-up trials on a semi-industrial plant, the fibre fineness was reduced to approximately 10 dtex without compromising process stability. The filaments produced were further processed into staple fibres (64 mm) and, at a throughput of up to 30 kg/h, were processed into non-woven fabrics with a basis weight of 80 g/m².

Conclusions and further research needs

The results indicate that biobased polymer blends are suitable for the production of agricultural nonwovens. Stable processing was achieved at both pilot and semi-industrial scale, and subsequent conversion into nonwovens was feasible. Further work will focus on reducing fiber fineness and optimizing process parameters. In addition, different nonwoven manufacturing routes will be compared. A comprehensive assessment of biodegradability is still pending and is required for a final evaluation of environmental performance and comparison with conventional materials.

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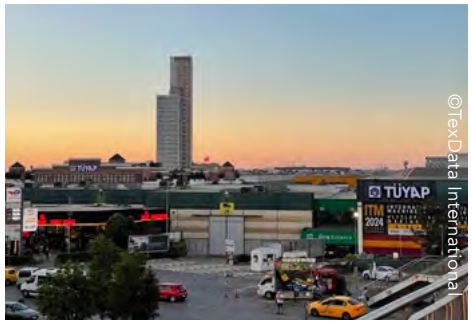

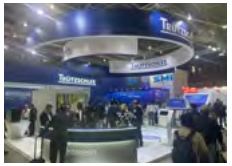

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