

Technical **TEXTILES** international

Summer 2022
Volume 31, Number 2

Informing the industry worldwide



Machinery builders flock to Frankfurt to display their most recent developments

The latest innovations in fibres, fabrics, nonwovens and equipment on-show at *Techtextil*



INSIDE:

**Partners create odour-capturing wound dressing
QMatex targets the technical textiles industry
Fabric-based microphone is developed in the USA**

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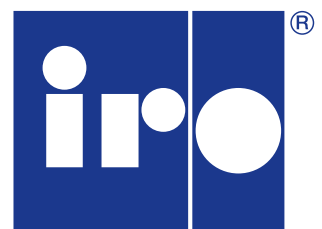
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Summer 2022 (Volume 31, Number 2)

Editor: James Bakewell

Tel: +44 (3301) 335079

Email: james@boughtonmedia.com

Consulting Editor:

Nick Butler

Nonwovens Editor:

Adrian Wilson

USA correspondent:

John W. McCurry

India correspondent:

Samuel Joseph

Regular contributor:

Geoff Fisher

Display advertising sales:

Jill Gwinnutt

Tel: +44 (3301) 335079

Email: marketing@
boughtonmedia.com

David Kay/Maria Box

Tel: +44 (1273) 423512

Email: dkay@fastnet.co.uk

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**Boughton Technical Media Ltd,
PO Box 54, WR15 8XN, UK.**

Tel: +44 (3301) 335079

Email: accounts@

boughtonmedia.com

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In the Editor's opinion

Of all of the things I learned at *JEC World* (which was held in Paris, France, on 3–5 May), perhaps the most striking was the importance of face-to-face meetings in a dynamic, international and collaborative industry. Over the last two years, the human coronavirus (covid-19) pandemic has forced us to withdraw from the world. Discussions with our colleagues and customers had to be conducted over the phone or online. Likewise, exhibitions and conferences moved into cyberspace.

These virtual facsimiles of real-world events served their purpose and many wondered if they would more-or-less replace in-person meetings. My recent experience suggests not. What these platforms cannot replicate are the unscheduled encounters that, at real-world events, can often be some of the most beneficial to business. As I meandered around the show floor at *JEC World* amongst the 32 000 other visitors and 1200 stands, I discovered fascinating technologies, bumped into old acquaintances while queuing for coffee and had stimulating discussions with new contacts over a beer at the end of a long day. These seemingly random, but often important, connections are often difficult to forge online.

It is with great enthusiasm then, that I look forward to *Techtextil*, *Texprocess* and *Heimtextil*, which will be held together in Frankfurt, Germany, on 21–24 June. The timing of the return of these events could not be better, as the technical textiles industry must wrestle with some particularly thorny problems, the key to the solving of which will likely be collaboration. Supply chains have been severely disrupted by the covid-19 pandemic. The costs of raw materials have sky-rocketed and high energy costs have been exacerbated by the ongoing war in the Ukraine. On top of these issues, the technical textiles industry must do its part to revert the harm done to the natural environment since the start of the industrial revolution in the 18th century.

It is no surprise that the organiser of the three events, Messe Frankfurt, has made sustainability a core theme of *Techtextil*. This theme is mirrored in our extensive preview of the show. Machinery builders are striving to make their equipment more efficient, cutting costs for manufacturers and reducing the impact their operations have on the environment (see also, page 6). Manufacturers of fibres (see also, page 26) and fabrics (see also, page 31) are working to incorporate more recycled and bio-based materials into their products. Chemical suppliers (see also, page 39), meanwhile, continue to develop additives that not only add value to textiles, but also reduce the harm to human health of the final products and of manufacturing processes to the environment. Given the importance of making new connections at such events, we also profile two companies making their *Techtextil* debuts: developer of an odour-capturing molecule that could find use in medical and automotive textiles, Aqdot (see also, page 47); builder of weaving machines, Quality Machines Textiles (QMatex) BV (see also, page 51).

Finally, at the time of writing, *Techtextil*, *Texprocess* and *Heimtextil* are less than a month away. We will, however, continue to investigate and report on the plans of exhibitors via our website (<https://www.technical-textiles.net>) so that you will have the most complete information in advance of the shows. I look forward to seeing you in Frankfurt!

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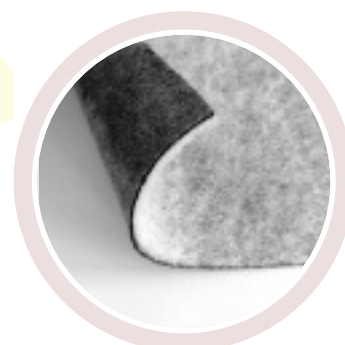
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On the cover:



**At Techtextil, Karl Mayer
(see also, page 18 and page 19)
will present a multi-axial warp-
knitting machine for the
production of fabrics from
flax fibres.**



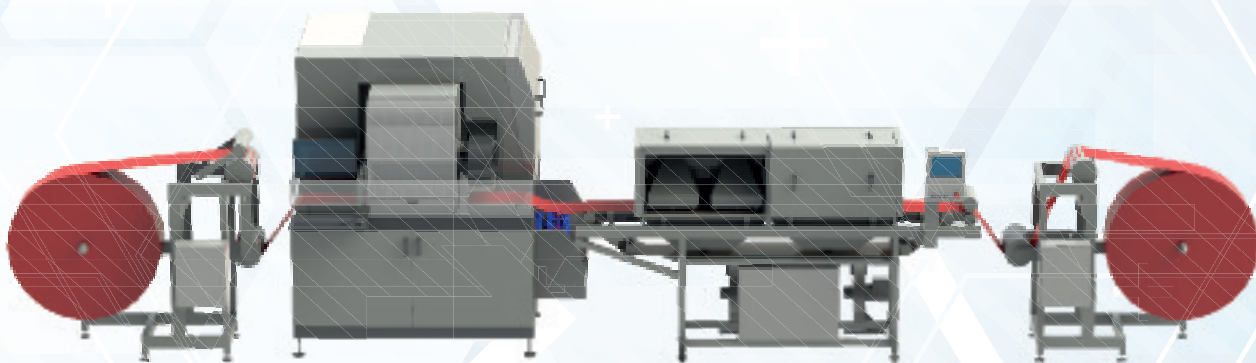
**Exhibits at Techtextil will
include nonwovens for high-
performance applications, such
as this soft and flexible padding
(Filflex) developed by Filc
(see also, page 37) for the
production of seat covers.**

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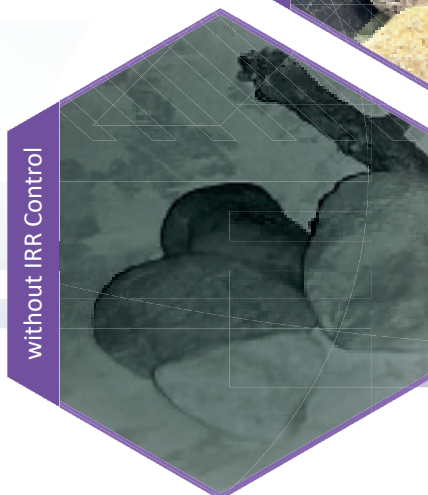
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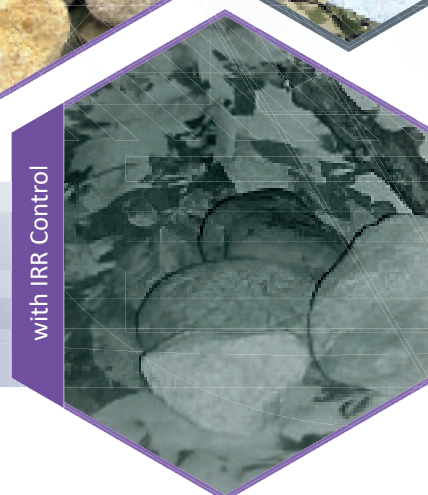
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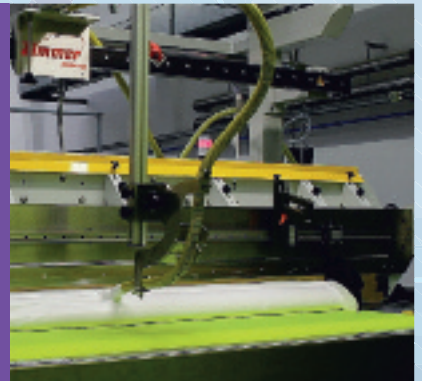
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Specialist machinery builders flock to Frankfurt for *Techtextil*

It is likely that many machinery builders will present their most important developments at *ITMA* (which will be held in Milan, Italy, on 8–14 June 2023), but *Techtextil* and its sister show, *Texprocess*, still provide them with a vital opportunity to showcase their technologies to the technical textiles market. Editor James Bakewell picks-out some highlights.



Andritz operates an airlay pilot line at Andritz Laroche in Cours, France, where it can develop products with its customers.

for such as opening, blending and dosing, airlay web-forming, the recycling of textile waste and the decortication of bast fibres. Andritz says that the acquisition of the French company enables it to sell products and technologies for use along the entire length of the value chain for the production of nonwovens, from the raw materials, to opening and blending, web-forming, bonding, finishing, drying and converting. The acquisition strengthens its ability to supply hydroentanglement, needlepunch and wetlaid production lines.

Further, the two companies have pursued the development of processes for the recycling of textiles. Laroche has recently installed a line comprising equipment for the opening of post-consumer recycled fibres and their mixing with virgin fibres at Renaissance Textile of Laval, France. The line is capable of recycling 3000 t of textiles a year. A further two lines will be installed at the Laval plant in 2023 and 2024.

For the automotive industry, Andritz will showcase its airlay and needlepunch processes; the company has a technical centre for needlepunch processes at Andritz Asselin-Thibeau, in Elbeuf, France, and an airlay pilot line at Andritz Laroche. It will also talk about its ProWin system, which enables the production of homogeneous webs and can reduce the input of raw materials required. ProWin allows a machine to run faster while generating less mechanical stress, and can be retrofitted to recent ProDyn installations.

Targeted at manufacturers of technical textiles (such as sports- and workwear, parachute fabrics and packaging materials), the teXcal Raconip TT calender has an innovative deflection-controlled roll, which, combined with the use of hydrostatic pistons, allows

Fibres and nonwovens

Andritz (Hall 12.0, B99)

A machine builder for the textiles and nonwovens industries, Andritz (see also, facing page and page 58) of Graz, Austria, will be able to discuss:

- technologies for recycling textiles;
- its airlay and needlepunch technologies for the automotive industry;
- a specialist calendar (teXcal Raconip TT).

Since the last edition of *Techtextil*, Andritz has acquired Laroche of Cours, France. Laroche is a supplier of systems



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Autefa Solutions will tell visitors to its stand that its Stylus needlepunching lines, an example of which is shown here, can process a wide variety of fibres.

users to adjust the pressure applied to the fabric in specific areas. Andritz says users can control the roll and pistons to create profiles for treating fabrics in order to produce textiles that are precisely flat and have the desired permeability to air.

Autefa Solutions (Hall 12.0, D85)

Autefa Solutions supplies customised equipment and related services for complete needlepunch lines: combing; opening and blending; chute-feeding; carding; crosslapping; needlepunching; drafting; winding. In addition, the company from Friedberg, Germany, has sold lines for recycling carbon fibre and hydroentanglement machines.

Autefa Solutions says that, as its customers look to reduce the environmental impact of their operations, they are increasingly using recycled polyethylene terephthalate (PET) fibres, carbon fibres, reclaimed fibres and various natural fibres, such as those made from hemp and coconut. It adds that its Stylus needlepunching lines can accommodate these fibres and can be augmented with special bed and stripper plates, advanced needle patterns with conical bed-plate holes, and an optimised feeding system for pre-needle looms. A dust-extraction system can also be specified for its customers processing recycled and natural fibres, glass and short fibres, and carbon and mineral fibres.

DiloGroup Hall 12.0, B95)

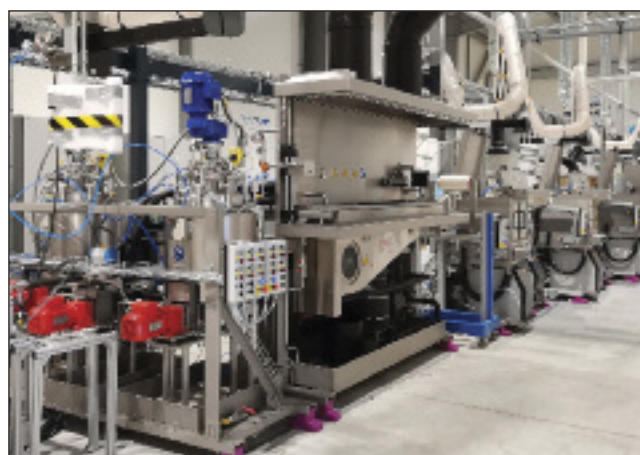
Considering *Techtextil* to be one of the most important events for the nonwovens industry, DiloGroup (see also,

page 15) has participated at every edition since the exhibition's inception in 1986. At this year's show, the company – of Eberbach, Germany – will focus on technologies it has developed to reduce the environmental impact of the production of nonwovens.

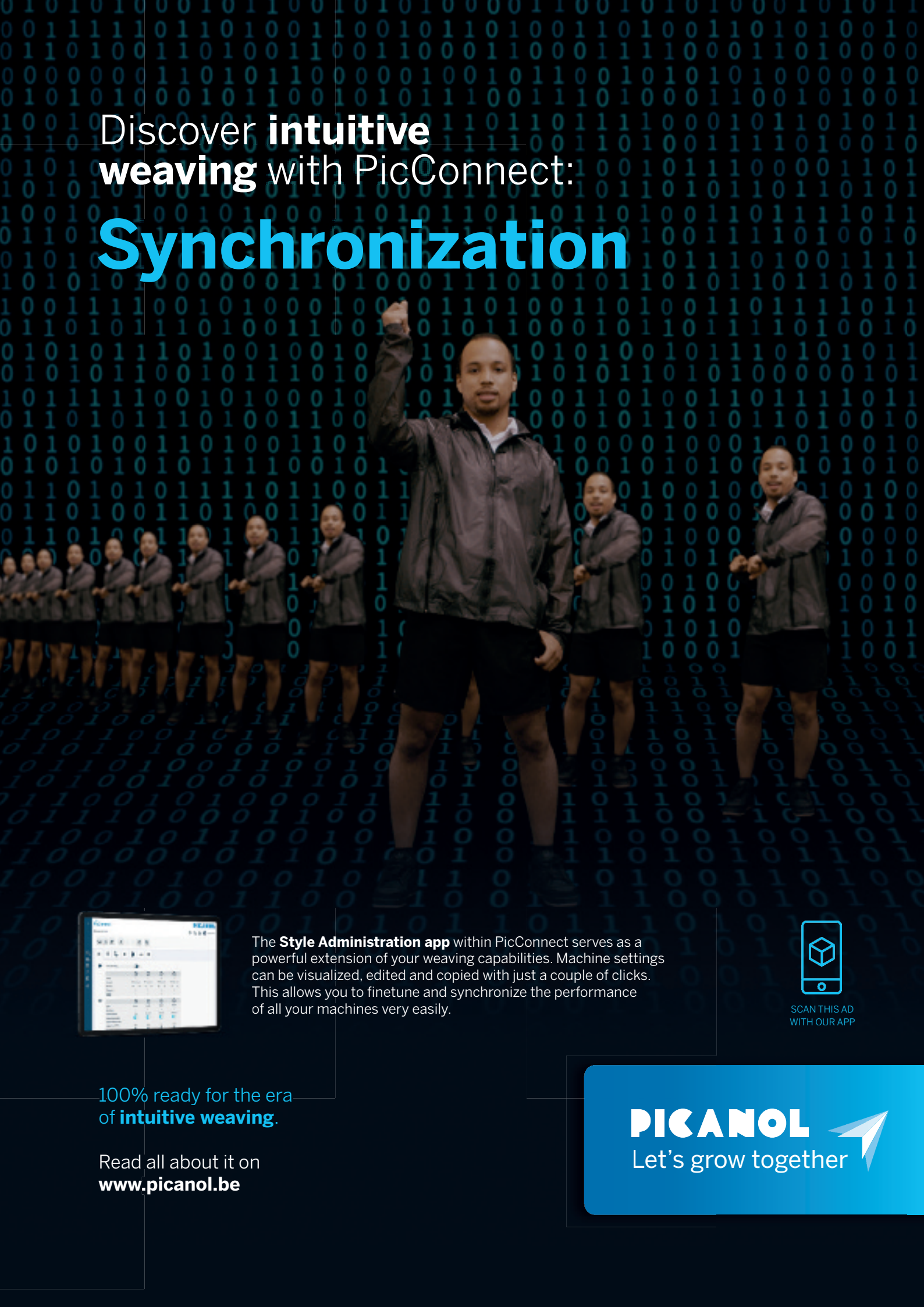
DiloGroup will, for instance, showcase an intense needling process that it is developing that enables lightweight nonwovens (with areal weights of 30–100 g.m⁻²) to be produced for the medical and hygiene sectors. The company will say that the technology is more energy-efficient than the hydroentanglement processes typically used to manufacture such products.

The company will discuss its efforts to develop technologies for tearing end-of-life textiles that yield fibres with longer staple lengths than conventional tearing systems. Fibres with short staple lengths can only be used in low-value applications, such as for the production of thermal or acoustic insulation.

DiloGroup will promote its 3D-Lofter, which employs a series of single web-forming units to place defined fibre masses in varied patterns on base needlefelts. This can be used to reinforce areas of a nonwoven that will experience high concentrations of stress and strain in use, or to fill spots in webs to increase the homogeneity of hydroentangled or airlayed products. The company will say that the system is particularly suitable for the production of nonwovens for the automotive industry, but also has potential for use in the apparel and footwear sectors.



Dienes Apparatebau GmbH (Hall 12.0, D70) supplies heated godets, control systems, lines (such as this wet-spinning line) and other equipment for the spinning of fibres.



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Following an agreement reached at the end of 2020 with SICAM Srl (Hall 12.0, E16) of Milan, Italy, DiloGroup can now supply lines that have hydroentanglement machinery. In Frankfurt, the company will say that by combining SICAM's hydroentanglement capability with its own high-speed cards and layering technologies, customers can produce fabrics with good tensile-strength profiles.

Finally, the company will show a card-feeding system (IsoFeed) that ensures the consistency of fibre mass in the cross-machine direction—reducing the consumption of fibres and ensuring the quality of the end-product.

Farè SpA (Hall 12.0, C97)

In business since 1970, Farè SpA of Fagnano Olona, Italy, currently has more than 500 of its lines in operation around the world. The company manufactures complete spunbond, meltblown and composite lines for the production of a wide variety of nonwovens, from lightweight (8 g.m^{-2}) fabrics for hygiene applications to heavyweight (1000 g.m^{-2}) nonwovens for technical applications. The company also manufactures machines for the production of staple fibres.

Oerlikon Polymer Processing Solutions (Hall 12.0, C60)

A wide range of technologies for the production of technical textiles are to be shown by Oerlikon Polymer Processing Solutions at *Techtextil*. The company's Oerlikon Barmag and Oerlikon Neumag divisions will share a stand at the show.

Oerlikon Barmag, of Remscheid, Germany, will highlight its systems for the production of polyester (PES) yarns for automotive airbags and seatbelts. Seatbelts have to withstand tensile forces in excess of 3 t and simultaneously stretch in a controlled manner in the event of impact, in order to reduce the load experienced by the passenger. A seatbelt comprises approximately 300 filament yarns, which are spun from around 100 individual filaments. Oerlikon Barmag's Technology Manager IDY and R&D Filament Processing, Roy Dolmans, says: "With our unique, patented Single Filament Layer Technology, we offer a sophisticated and simultaneously gentle high-tenacity (HT) yarn process for manufacturing these lifesavers and other applications made from industrial yarn". Oerlikon Barmag will also show systems for the cost-effective production of yarns for geotextiles.



Oerlikon Neumag's hycuTEC system for the hydrocharging of meltblown nonwovens can be integrated easily into existing production lines, according to the company.

Oerlikon Neumag, of Neumünster, Germany, will highlight a system for the hydrocharging of meltblown nonwovens that can be integrated easily into existing production lines. The company claims that by using the system (called hycuTEC), the pressure-drop in typical FFP2 filter media (as defined in EN 149, *Respiratory protective devices—Filtering half masks to protect against particles—Requirements, testing, marking*) can be reduced to less than a quarter and filtration efficiencies of more than 99.99% can be achieved for filter media of 35 g.m^{-2} at 35 Pa. Oerlikon Neumag adds that tests at the facilities of its customers who manufacture FFP2 face masks have confirmed that the system improves the filtration efficiency of media while cutting use of material by 30%. Further, the company says that the system consumes less water and energy than other hydrocharging systems.

Whereas traditional hydrocharging systems apply a charge to the finished nonwoven, the hycuTEC system charges each fibre in the fabric. Through controlled atomisation, a charge is evenly transferred to the fibres from the water-spray and an additive is used to bond the charge permanently to their surfaces. The result is filter media with a uniformly stable charge over its entire cross-section and an effective fibre surface area of about ten times greater than that of surface-charged media.

Oerlikon Neumag will also be able to discuss the capabilities of its new, 2100-m² technology centre for staple fibres in Neumünster, which is now open for trials with its customers (see also, page 12). The centre has been designed so that process parameters defined there can be simply and reliably transferred to production systems. The

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Oerlikon Neumag's new, 2100-m² technology centre for staple fibres in Neumünster, which is now open for trials with its customers (see also, page 10).

company's Technology Manager - Head of Staple Fiber Process, Tilman Reutter, says: "We are not only able to run all standard products available on the market at our technology centre, it also offers us the perfect prerequisites for the development of new processes and products."

The technology centre is equipped with a modular fibre-tape processing line and two spinning positions for mono- and bicomponent processes.

Reifenhäuser Enka Tecnica (Hall 12.0, E72)

Reifenhäuser Reicofil's (see also, Outside back cover) subsidiary, Enka Tecnica of Heinsberg, Germany, will exhibit from its own stand, displaying its spinnerets, spin packs, distributor and perforated plates, die tips, spinning beams and jet strips for melt-, and wet- and dry-spinning. The company will also introduce its Refresh Service for restoring customers' spinnerets.

Retech AG (Hall 12.0, B11)

From Meisterschwanden, Switzerland, Retech AG will exhibit its range of heating, drawing and monitoring components for processing man-made fibres. The display will include a godet roll that is able to process eight or twelve threads at a time.

Saurer Twisting Solutions (Hall 12.0, D77)

The focus of the exhibit by Saurer Twisting Solutions (see also, page 16) will be its two-for-one twisting machine (TechnoCorder TC2). The company, from Kempten, Germany, will highlight the machine's latest capabilities as well as novel and important applications for the yarns it processes.

With the newly developed take-up area from Saurer, twist packages with precision winding can now be produced on the TechnoCorder TC2. With their compact shape, high density and an exact edge structure, the packages demonstrate good unwinding behaviour. For finishing twisted polypropylene (PP) yarn, Saurer has developed an oiling device that can be installed directly after the twisting process. Further, it will showcase sensors for quality control.

Trützschler Nonwovens & Man-made Fibers (Hall 12.0, D80)

From complete production lines to single components, Egelsbach, Germany-based Trützschler Nonwovens & Man-made Fibers (see also, page 17 and page 60) supplies machines for opening and blending fibres, forming and bonding (hydroentangling, and thermally and chemically bonding), drying, finishing and winding webs. At its headquarters, customers can perform process trials at an industrial scale, visitors will learn. Products to be highlighted by the company will include:

- the company's range of carding machines, specific cards and crosslappers designed to allow customers to process numerous fibre types to create unique nonwovens;
- lines combining wet-laying and hydroentanglement to create flushable wipes, which were developed in partnership with Voith Paper of Heidenheim, Germany. The exhibitor will be able to show such wipes made using pulp- and lyocell-based materials with sufficient strengths to compete with those made using polyester (PES)/viscose blends;
- complete production lines for making nonwovens using sustainable materials including cotton, natural fibres, viscose and wood pulp. The resulting fabrics can be used for biodegradable, single-use products such as medical textiles, face masks, wipes (wet and dry) and feminine care items.

Weaving

Itema Group (Hall 12, A50)

Itema Group of Colzate, Italy (see also, page 11), makes airjet, rapier and projectile looms, which are widely used for traditional textiles, but in adapted forms are also capable of manufacturing technical textiles. Adaptations of the R9500 rapier, for instance, can weave glass fibre (R9500 fibreglass) and one-piece woven (OPW) airbag fabrics.



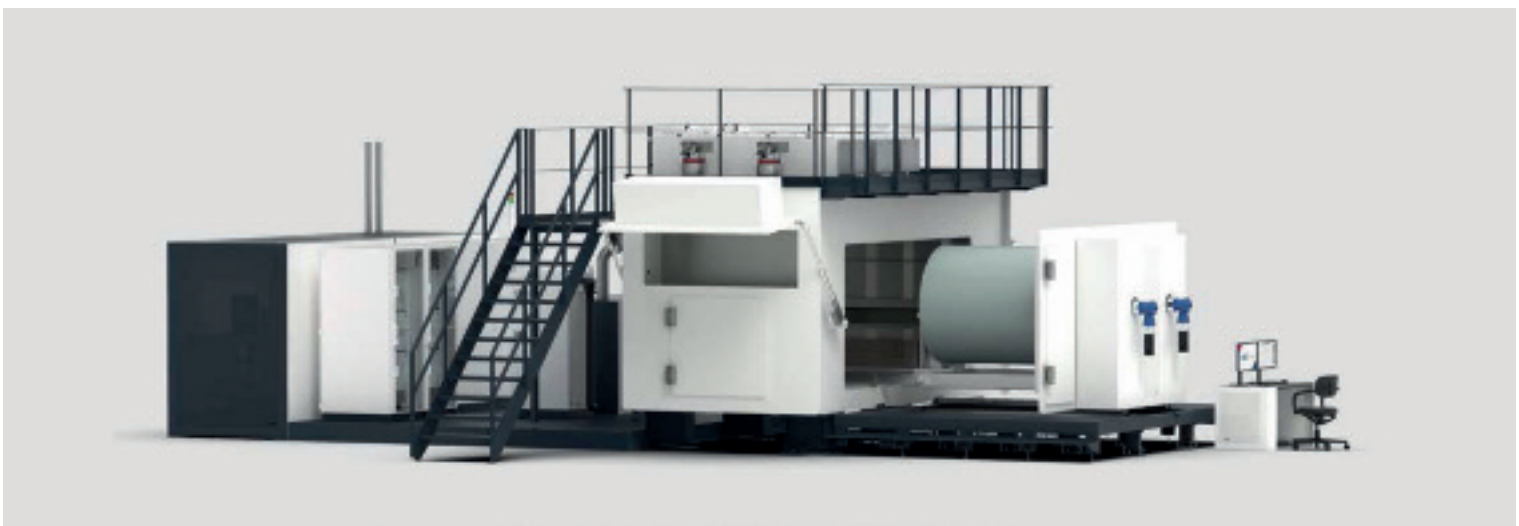
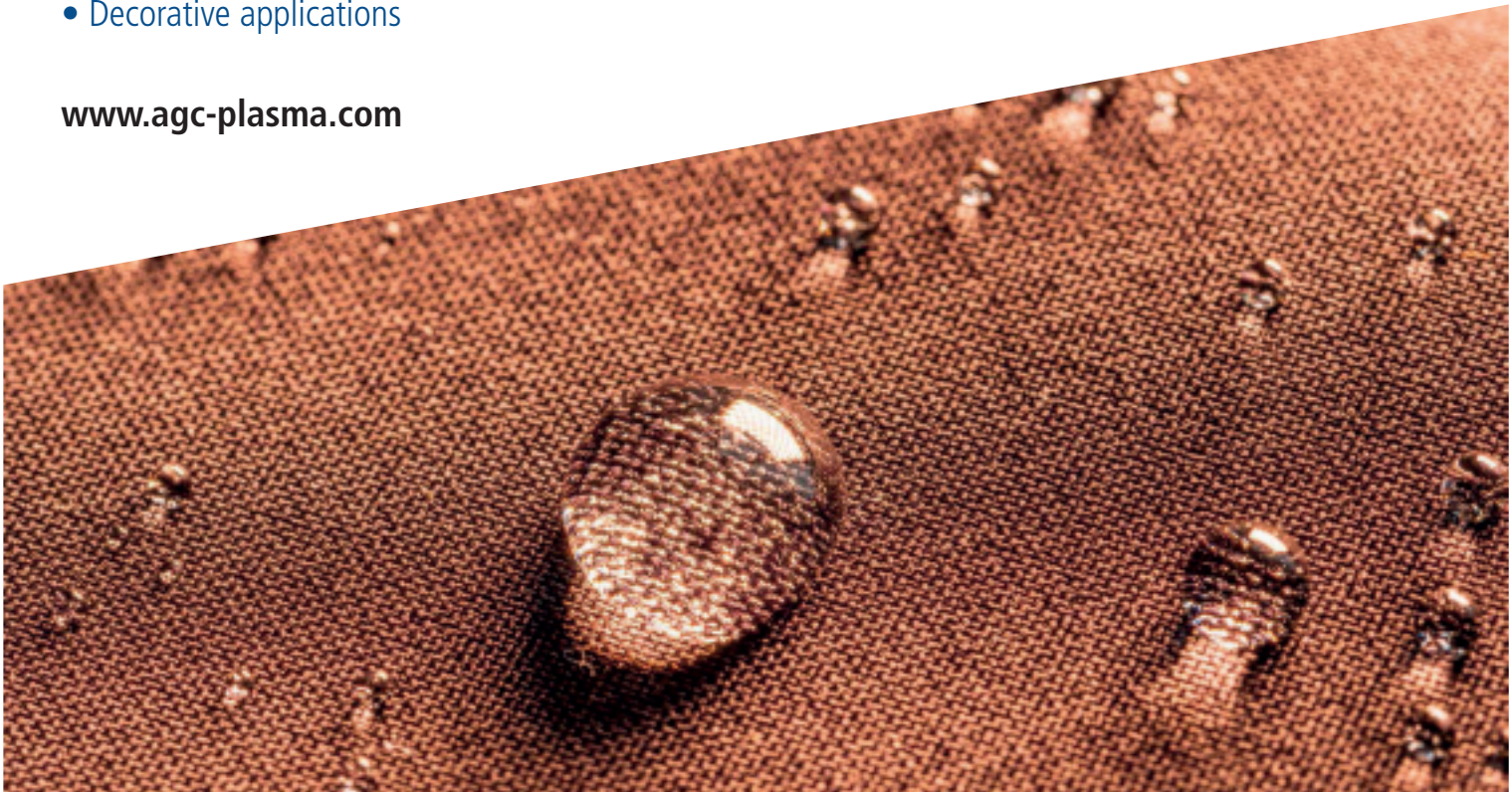
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The R9500 fibreglass loom exploits its extremely sensitive whip-roller to control the tension of the warp, and has weft cutters and rapiers that are specially designed for use with glass fibres. In addition, Itema has developed a rotary spread-bar to facilitate weaving mesh fabrics. The sturdy structure of the R9500 keeps it stable when making OPW airbag fabrics at high speeds. Nevertheless, the company's engineers reinforce the components of looms intended for this application to make them even more suitable.

Since the last edition of *Techtextil*, the company has made a number of acquisitions. On 29 July 2020, it completed its purchase of PTMT, which added a number of machines suitable for weaving technical fabrics to its portfolio, including the Hercules loom, which allows the operator to switch between positive and negative rapier mechanisms.

The intention to acquire PTMT of Gandino, Italy, was made in April 2019, when Itema Group said that the portfolio of technology it was buying would bolster its

own, particularly in the market for technical fabrics. At the same time, Itema created a subsidiary, Itema Tech srl, dedicated to the manufacture of looms for weaving technical textiles, which was to be built around the acquisition.

In December 2021, it completed the acquisition of Italian producer of composite components for use in such as weaving machines and aerospace applications, Lamiflex of Ponte Nossia. Founded in 1976 by Luigina Bernini and Luigi Castelli, Lamiflex also has offices in Hong Kong, China. Itema Group says that its purchase of the company, and the combination of expertise that the deal created, will enable it to develop new composite products for the aerospace, medical and industrial sectors.

Picanol (Hall 12.0, D35)

Picanol (see also, page 9 and page 34) of Ieper, Belgium, will show its latest generation of airjet and rapier weaving machines, which feature numerous technologies for their automation, and the gathering and exchange of data related to their operation.

Automation and Vision Systems



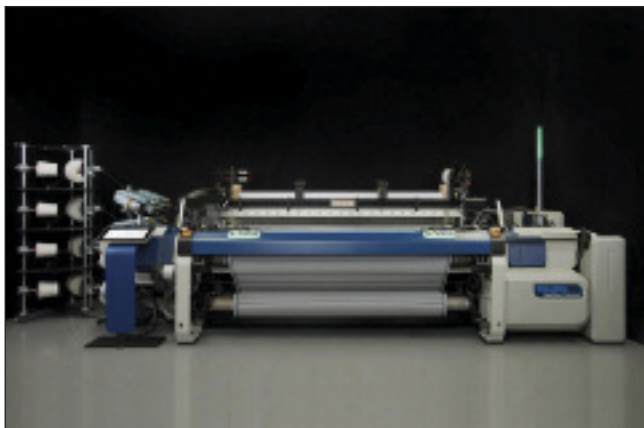
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Picanol's new OptiMax-i Connect rapier weaving machine.

Speaking at the time of their launch in November 2021, the company's Vice President of Weaving Machines, Johan Verstraete, said: "Following the successful launch of our digital platform PicConnect earlier [in October 2021], we have now released a new generation of weaving machines, which are known as the Connect generation. Our Connect-generation weaving machines can provide the correct data and are loaded with new and never-before-seen functionalities."

From now on, the names of Picanol's weaving machines will have the "Connect" suffix. Its airjet weaving machines are now known as OmniPlus-i Connect and TerryPlus-i Connect, while its rapier weaving machines are now called the OptiMax-i Connect and the TerryMax-i Connect.

On the OptiMax-i Connect, Picanol has introduced a lubrication-monitoring sensor and a temperature sensor. The data they gather in combination will help the user to ensure that the gripper tapes are in optimal condition. Further, as an option, a gripper-stroke measurement sensor can be fitted, which Picanol says not only dramatically simplifies the setting of the gripper stroke, but also enables the user to realise higher machine speeds when weaving narrow widths.

Picaol's Sumo Drive machine drive has been updated with a sheet-metal package that reduces its energy consumption, an optimised oil-cooling circuit to improve its performance and a built-in sensor for monitoring its temperature.

Further, the Connect machines can be equipped with a power-monitoring module, which allows the user to

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P.O. Box 1551
69405 Eberbach / Germany
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info@dilo.de, www.dilo.de



A complete weaving system (TF20) from Stäubli has been installed at the Hof University of Applied Sciences in Germany.

keep track of the power consumption of each machine over time. Every Connect machine also has a built-in ambient-temperature and -humidity sensor, which will help the user to optimise the climate control in the weaving shed. Each machine can also be equipped with a sensor for monitoring the amount of raw materials it uses.

To enable a fast reaction to the data gathered by the many sensors on the new machines, Picanol has also updated its BlueBox control unit. A sensor dashboard screen has been developed for the BlueTouch display; with a simple touch of the screen, the current and historical power consump-

tion, temperature, humidity, material consumption, and – on the OmniPlus-i Connect – also the air consumption of the machines can be monitored. The BlueTouch display is now also equipped with an action centre, an electronic logbook where all actions such as maintenance interventions can be logged or scheduled.

The machine manual is also now available on the BlueTouch display and with a context-based help function, the help pages related to the operation the user wants to perform appear with one touch. The built-in Internet browser even allows the user to consult, for example, on-line tutorial videos to guide them through a setting procedure.

Picanol has also introduced a variety of new tools that enable the weaving of high-quality fabrics. The harness frame stroke measurement system was, until recently, only available on the SmartShed machine, but it is now

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also available on the cambox and dobby machines. Combined with technologies for visualising and simulating the shed, it enables the user to optimise their shed settings without losing any time or taking any risks. Finally, a fully-fledged access-control system not only limits the access to certain pages and settings depending on the user, but also allows a tailored dashboard to be established for each user profile.

Quality Machines Textiles BV (Hall 12.0, E99)

In 2015, QMatex BV was established in Waragem, Belgium, to exploit the double-shed formation found in wire looms in the development of looms for the production of technical textiles. The company is exhibiting at *Techtextil* for the first time (see also, page 51).

Stäubli AG (Hall 12.0, D89)

Founded in 1892, Stäubli of Pfäffikon, Switzerland, manufactures high-speed shedding and weaving-preparation machinery. The company's machines are used for the production of such as one-piece woven (OPW) airbags, custom fabrics for use in lightweight construction and artificial grass.

At *Techtextil*, Stäubli will discuss the installation of one of its complete weaving systems (TF20) at the Hof University of Applied Sciences in Germany. The machine is being used to weave fabrics from carbon and ceramic fibres. The TF20 weaving system comes with a shedding solution that offers a wide range of binding options and is encapsulated in order to process conductive fibres such as carbon.

Vandewiele Sweden AB (Hall 12.0, D35)

Iro AB (Vandewiele Sweden AB, see also, Inside front cover and page 45) from Ulricehamn, Sweden, is a maker of weft-yarn feeds and tension controllers, and a member of the Vandewiele group of Marke, Belgium. At *Techtextil*, it will, for instance, be able to discuss an efficient weaving-machine feeder it has developed for use in the production of reinforcements for composites. When weaving fibres such as carbon, glass and aramids, as well as thermoplastic tapes, for reinforcement fabrics, it is essential that there is no twist in the feed, which Iro says its new machine guarantees.

The ZTF Zero Twist Feeder keeps the tape yarns or fibre tows constantly stretched to avoid the risks of any

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snarls or twisting. The unit can accommodate tapes in widths up to 10 mm, weights up to 7 kg and insertion lengths of up to 3.4 m. It is equipped with a buffer arm that is synchronized with the movement of the rapier on a weaving machine to deliver the exact amount of yarn from the bobbin required for the weft insertion. A tension and sensor arm ensures that constant yarn tension is maintained during the entire insertion cycle.

Knitting

Karl Mayer (Hall 12.0, C93)

Producer of warp-knitting machinery, Karl Mayer (see also, facing page) of Obertshausen, Germany, has purchased flat-knitting machinery manufacturer and compatriot, Stoll of Reutlingen, since the last edition of *Techtextil*. It will use this year's event to promote the latest developments of both companies.

In 2021, for instance, Karl Mayer launched a platform designed to encourage the exchange of ideas and enable the testing of new technologies. Called Textile Makerspace, the platform showcases a number of

technologies being developed by the machinery builder, including those for the production of smart textiles, called Textile Circuit. At the end of 2020, Karl Mayer installed a modified machine and trained service technicians at its facility in Greensboro, North Carolina, USA, so that it can work on Textile Circuit technologies with its customers there.

Karl Mayer says that Textile Circuit technologies enable electrically conductive yarns to be incorporated directly into a textile, in any location and in any design, during the warp-knitting process. Functional elements, such as sensors, electrical conductors and coils, can be placed exactly where they are needed, with no additional production sequences required. Further, the technology can produce fabrics with typical textile characteristics, such as softness, flexibility, elasticity and breathability.

Through the *Rapid Textile* project, Karl Mayer is working to integrate additive manufacturing processes into textile production.

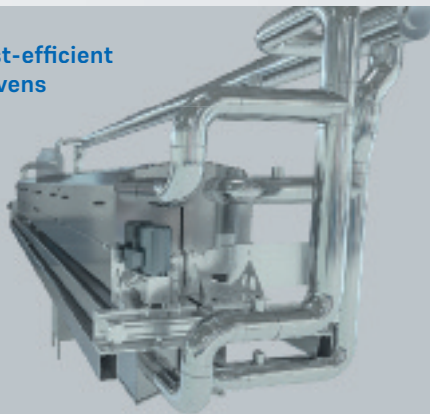
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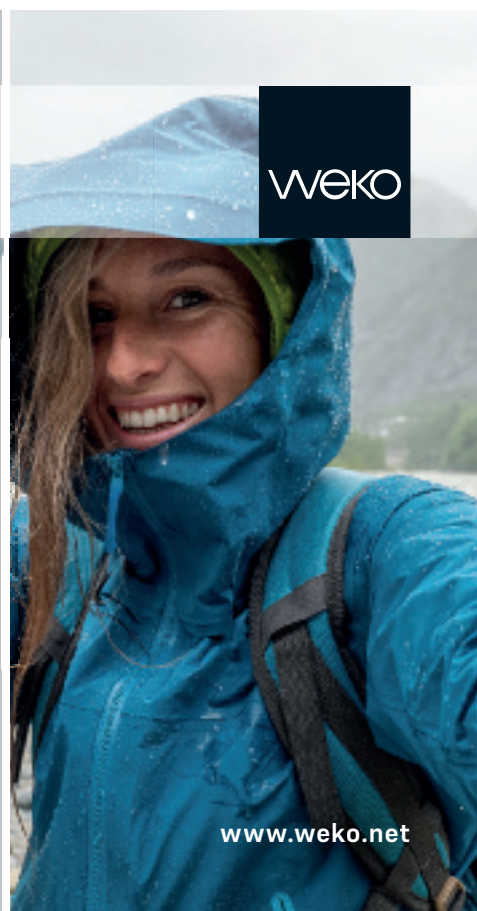
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For the production of biaxial non-crimp fabrics (NCFs), Karl Mayer has launched an updated warp-knitting machine. Using the machine, called the Biaxtronic II and designed for the manufacture of glass-fibre NCFs, wefts can be inserted in both course-oriented and non-course-oriented directions. The new weft-insertion system can handle glass fibres with a linear density of up to 2400 tex to create reinforcements with a maximum density of 500 g.m⁻². Glass mats with densities of up to 600 g.m⁻² can be integrated into these reinforcements by means of a chopping unit, while a maximum output of 1100 m².h⁻¹ can be achieved. Despite this high working speed, Karl Mayer says that the Biaxtronic II handles the fibres extremely delicately.

Finally, the company will be able to discuss a guide-bar arrangement for a double-needle-bar raschel machine that enables, among other things, the spaces between the cover surfaces of a spacer fabric to be filled with a bulked yarn – yielding voluminous fabrics with a number of novel surfaces. The cover surfaces of the



Through its Rapid Textile project, Karl Mayer has warp-knitted this upper for a training shoe and reinforced it in select places using an additive manufacturing process.

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textiles – produced on an RDPJ 6/2 EL FB using a process called 4D-Knit – can be enhanced with two-tone colouring, zones of breathable mesh and pronounced relief designs. Depending on the amount of filling and the design of the reliefs, a wide range of fabrics can be produced using the process, from cosy padded fabrics to breathable textiles for functional shoes.

In August 2021, Karl Mayer moved its headquarters to a building sitting at the heart of its new campus in Obertshausen.

Coating, laminating and finishing

AGC Plasma Technology Solutions (Hall 11.1, A05)

Supplier of industrial vacuum-coating equipment, AGC Plasma Technology Solutions (see also, page 13), will be able to tell visitors to its stand about a roll-to-roll pilot line for the coating of textiles it has installed at its demonstration centre in Lauenförde, Germany. The company says that vacuum-coating processes can be used to apply nanoscale layers of metals, oxides and nitrides to the surfaces of textiles to make them thermally reflective, electrically conductive and/or

water- and oil-repellent. It adds that the processes are energy-efficient and do not require the use of water and solvents, but – despite their widescale use in the glass industry – they have seen limited application in the technical-textiles industry.

With its pilot line, AGC Plasma Technology Solutions will demonstrate the potential of vacuum-coating technology to prospective customers though the manufacture of proof-of-concept and prototype products. The line is capable of applying thin-film coatings to textiles of up to 1.6 m in width using physical vapour deposition (PVD) and/or plasma-enhanced chemical vapour deposition (PECVD) processes.

A. Monforts Textilmaschinen GmbH & Co KG (Hall 12.0, B69)

Finishing and coating technologies for the production of technical textiles are to be highlighted by Monforts.



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Techtextil preview: Machinery

The company, of Mönchengladbach, Germany, will tell visitors to its stand that its Montex stenters – which have been supplied to producers of airbags, flame-retardant barrier fabrics and spacer fabrics, and high-temperature filter materials – are robust, reliable and economical to run.

With prices for energy soaring, Monforts will emphasise the systems for energy- and heat-recovery that can be fitted to Montex stenters, such as the MonforClean system, which uses waste heat from the drying process to pre-heat the drying air. This reduces the supply of conventional heat required.

The company's representatives will also discuss software for controlling its systems (called Qualitex 800) that enables article-specific settings to be stored and formulations for thousands of treatment processes to be accessed at any time. Individual operators can also personalise their dashboards in the software with their most important machine functions and process parameters.

AGC Plasma Technology Solutions' roll-to-roll pilot line for the vacuum-coating of textiles at its demonstration centre in Lauenförde, Germany (see also, page 13).

Monforts will also showcase its MontexCoat coating units, which it says are used to produce an equally diverse range of products as its stenters—including tents, tarpaulins and awnings, black-out roller blinds and sail cloth, automotive interior fabrics and medical disposables.



Baldwin Technology (Hall 12.0, D79)

Baldwin has its global headquarters in St Louis, Missouri, USA, and its product and technology centre in Arlöv, Sweden. The company, which is owned by the multi-billion-dollar global manufacturing and engineering consultancy Barry-Wehmiller of St Louis, is

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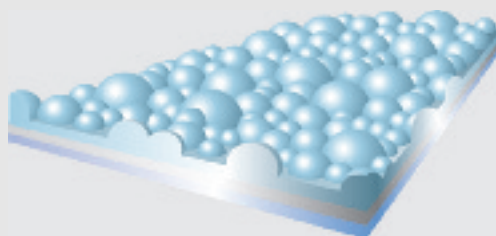
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Monforts (see also, page 20) will tell visitors to its stand that its EcoApplicator is an energy- and water-efficient alternative to conventional padding systems.



a major manufacturer and supplier of process automation equipment, and related consumables for printing, packaging, converting and film extrusion, as well as textiles.

During *ITMA 2019*, held in Barcelona, Spain, on 20–26 June, the company introduced its latest non-contact spray model (TexCoat G4) and championed the technology's numerous advantages compared with conventional methods of applying finishes. TexCoat G4 uniformly distributes chemicals across the textile's surface and applies them only where required, on one or both sides simultaneously, claims Baldwin. Localised application is beneficial when working with water-repellents on fabrics intended for lamination, for instance, because it greatly reduces the problem of the finishes affecting the quality of the adhesion layer.

In addition, the non-contact technology lessens the dilution of chemicals in wet-on-wet processes and, with no contamination of the baths used in conventional finishing processes, which then require cleaning, the downtime between different production runs is kept short.

Using the TexCoat G4, only small amounts of chemicals need be applied to the fabric for a given effect and any that are lost ("over-sprayed") are collected in a trough for recycling. As a result, compared with traditional bath-based applications, the volumes of chemicals required for full coverage of the textiles are halved.

Brückner Textile Technologies (Hall 12.0, B60)

Brückner Textile Technologies of Leonberg, Germany, is a specialist in coating and finishing lines for textiles and

nonwovens. In 2021, the company developed a line for the coating of bi-elastic knitted fabrics (which stretch in both warp and weft directions) with Portuguese textile company Tintex Textiles SA. The companies say that the line enables knitted fabrics with high elastane contents to be coated or functionalised directly, rather than through the use of more expensive indirect coating processes. Such fabrics are used for the production of garments and for such as adhesive bandages.

Fibroline (Hall 12.0, A65)

Fibroline (see also, page 47) of Limonest, France, has developed and patented an impregnation method for dry powders. Using alternating electric fields, the company's D-Preg, S-Preg, T-Preg and Y-Preg technologies can permanently embed various additives into porous structures, including nonwovens up to 10 cm in width, on lines running continuously at 10–300 m.min⁻¹.

IPCO Germany GmbH (Hall 12.0, E87)

IPCO Germany GmbH (see also, facing page) of Göppingen, Germany, is a supplier of double-belt presses and scattering units for the production of single-layered and multi-layered products, including technical textiles, nonwovens and composites. The company's modular press systems are based on polytetrafluoroethylene (PTFE), stainless and carbon steel belts and can combine a number of processes – heating, pressing, cooling and tempering – in one efficient, continuous line.

The company will use the exhibition to tell visitors to its stand about its range of pilot systems at its productivity centre in Göppingen, where it can work with its customers on the research, development and prototyping of new materials.

Santex Rimar Group (Hall 12, B35)

Santex Rimar Group of Vicenza, Italy, consists of:

- Cavitec, a specialist in prepreps for composites;
- Isotex, which makes coating, printing and embossing machinery;
- Santex Nonwovens a maker of ovens for thermobonding nonwovens;
- SMIT, a manufacturer of rapier looms used to make technical textiles such as airbags, glass fibre fabrics and conveyor belts;



- Sperotto Rimar, which makes machinery for finishing textiles;
- Solwa, a specialist in environmental technologies, including water treatments.

In Frankfurt, the Group stand will feature Cavitec, Isotex and SMIT.

Weko – Weitmann & Konrad GmbH & Co KG

Weko – Weitmann & Konrad GmbH & Co KG (see also, page 18) is a specialist in the selection and integration of non-contacting systems for the application of small amounts of functional additives/finishes during production. Based in Leinfelden-Echterdingen, Germany, the company offers test services at its technical centre.

A highlight of its exhibit will be the Weko-ProTec system for applying functional fluids for the finishing of webs. The company will say the system applies the finishes reliably and reproducibly. It also has an encapsulated unit allowing users to handle safely substances that should not be exposed to the working environment.

Zimmer Austria (Hall 12.0, B84)

With sites in Klagenfurt and Kufstein, Zimmer Austria (see also page 4) produces machines for the digital printing and functionalisation, flat-screen and rotary screen-printing, coating, steaming, washing and drying of textiles and carpets.

Texprocess

Zünd (Hall 8.0, C57)

Zünd of Altstätten, Switzerland, will present software tools for its high-performance digital cutting systems.

In 2021, it launched software that can compile production data from its cutting machines and display it in easy-to-understand form, enabling users to identify ways in which they could improve their operations. Zünd says that by using the software – called Zünd Connect – users can see at a glance when and, more importantly, why machine interruptions occur, how much time is spent in set-up and what the availability of each machine is. Zünd Connect records productivity levels over a definable period using Zünd



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Cut Center – ZCC (Version 3.4 or later) as a data source and provides information users need to make informed decisions. Indeed, Zünd says that this comprehensive overview of production data reveals connections that are often overlooked.

That same year, it unveiled software that facilitates the preparation of cut files for unprinted materials. Called PreCut Center and available through a yearly subscription, the software enables fully nested cut files to be prepared in a few simple steps—reducing the amount of work needed to prepare files, optimising the amount of material used and eliminating any potential for error. A fully nested file can be created in just a few simple steps. After importing the desired shapes into PreCut Center, the user assigns them to the corresponding recipes, which are road-maps for creating cut paths based on specific parameters. The recipes can be imported or created by the user. The next step entails defining the materials and material parameters. The shapes are subsequently nested on the unprinted material in a manner that generates minimal waste.

Other machinery, equipment and accessories Erhardt+Leimer (Hall 12, A61)

Erhardt+Leimer (see also, page 14) of Stadtbergen, Germany, will exhibit products that it designs, makes and supplies for automated measurement and control technologies for nonwovens and textiles, as well as plastics, paper and tyres. These products include cutters, spreaders, guides, devices to measure tension and control webs, and monitors to check printed images. The company recently introduced its latest metal detector, the Elmeta MDA1005/1006, which it claims can detect small metal particles across the width of a web running at between 2 and 500 m.min⁻¹.

Groz-Beckert (Hall 12.0, B90)

A specialist in industrial machine needles and accessories for processing fabrics based in Albstadt, Germany, Groz-Beckert will exhibit its portfolio covering knitting, weaving, felting, carding and sewing products.

Topocrom GmbH (Hall 12.0, D93)

Topocrom (see also, page 21) will exhibit its coatings for the guiding parts and surfaces of filament processing machinery. The coatings decrease the damage and breakage to high-performance fibres.

Further information

Fibres and nonwovens

Michael Buchbauer, Head of Corporate Communications, Andritz AG.
Email: michael.buchbauer@andritz.com;
<https://www.andritz.com>

Jutta Soell, Head of Marketing, Autefa Solutions Germany GmbH.
Tel: +49 (821) 2608-138. Fax: +49 (821) 2608-299.
Email: jutta.soell@autefa.com;
<http://www.autefa.com>

Andrea Wunder, Marketing, DiloGroup.
Tel: +49 (6271) 940-239.
Email: wunder@dilo.de;
<http://www.dilo.de>

Andrea Prina, Sales Manager, Farè SpA.
Tel: +39 (0331) 617155. Mobile (cellular): +39 (3) 3571-60135.
Email: fare@farespa.com;
<https://www.farespa.com>

André Wissenberg, Vice President and Head of Marketing, Corporate Communications and Public Affairs, Oerlikon Polymer Processing Solutions.
Tel: +49 (2191) 67-2331.
Email: andre.wissenberg@oerlikon.com;
<https://www.oerlikon.com>

Reifenhäuser Heinsberg GmbH.
Tel: +49 (2452) 98896-0.
Email: sales@reifenhauser.com;
<https://reifenhauser.com/en/company/reifenhauser-group/extrusion-systems>

Tamara Kramis, Sales Assistant, Retech AG.
Tel: +41 (56) 676-6633.
Email: info@retech.ch;
<https://www.retech.ch>

Karl-Heinz Sandholzer, Vice President, Product Management, Saurer Technologies GmbH & Co KG, Twisting Solutions. Tel: +49 (831) 688-0.
Email: karl-heinz.sandholzer@saurer.com;
<https://www.saurer.com>

Weaving

Valentina Brignoli, Marketing and Communications Manager, Itema SpA.



Tel: +39 (035) 728-2111. Fax +39 (035) 740505.

Mobile/cellular: +39 (348) 516-6835.

Email: valentina.brignoli@itemagroup.com;

<http://www.itemagroup.com>

Erwin Devloo, Marketing Communication Manager, Picanol.

Tel: +32 (57) 222090.

Email: Erwin.devloo@picanol.be;

<http://www.picanol.be>

Henk Lambrecht, Chief Executive Officer, Quality Machines Textiles (QMatex) BV.

Tel: +32 (472) 185820. Email: henk@qmatex.com;

<https://www.qmatex.com>

Fritz Legler, Head of Marketing, Sales and Customer Support, Stäubli AG.

Tel: +41 (81) 725-0101.

Email: Fritz.legler@staubli.com;

<http://www.staubli.com>

Iro AB (Vandewiele Sweden AB).

Tel: +46 (321) 29700,

Email: info@iro.se; or: info@vandewiele.se;

<https://iroab.com>;

<https://vandewiele.se>

Knitting

Ulrike Schlenker, Karl Mayer Textilmaschinenfabrik GmbH.

Tel: +49 (6104) 402-274. Fax: +49 (6104) 402-73274.

Email: ulrike.schlenker@karlmayer.com;

<http://www.karlmayer.com>

Coating laminating and finishing

Jeroen Schotsaert, Marketing, Sales and Business Development, AGC Plasma Technology Solutions.

Tel: +32 (499) 993009.

Email: jeroen.schotsaert@agc.com;

<https://www.agc-plasma.com>

Nicole Croonenbroek, Marketing Manager, A. Monforts Textilmaschinen GmbH & Co KG.

Tel: +49 (2161) 401408.

Email: marketing@monforts.de;

<http://www.monforts.com>

Rick Stanford, Vice President, Global Business Development, Textiles, Baldwin Technology Company Inc.

Tel: +1 (913) 888-9800. Fax: +1 (913) 888-4015.

Email: rick.stanford@baldwintech.com;

<https://baldwintech.com>

Verena Ruckh, Head of Advertising and Marketing, Brückner Textile Technologies GmbH & Co KG.

Tel: +49 (7152) 12-334. Fax: +49 (7152) 12-9334.

Email: vruckh@brueckner-textile.com;

<https://www.brueckner-textile.com>

Jérôme Ville, Chief Executive Officer, Fibroline.

Tel: +33 (4) 2829-8534; Mobile/cellular: +33 (6) 7408-2184.

Email: jville@fibroline.com;

<http://www.fibroline.com>

Melanie Wandres, Manager Marketing and Communications, IPCO Germany GmbH.

Tel: +49 (711) 5105-148.

Email: melanie.wandres@ipco.com;

<https://www.ipco.com>

Santex Rimar Group Srl.

Tel: +39 (0445) 176-1469. Fax: +39 (0445) 176-1478.

Mobile/cellular: +39 (347) 672-4097.

Email: press@santexrimar.com;

<http://www.santexrimar.com>

Jessica Deiss, Marketing Department, Weko – Weitmann & Konrad GmbH & Co KG.

Tel: +49 (711) 7988-219.

Email: jessica.deiss@weko.net;

<https://www.weko.net>

Texprocess

Daniel Bischof, Media Relations, Zünd Systemtechnik AG.

Tel: +41 (71) 554-8342.

Email: Daniel.Bischof@zund.com;

<http://www.zund.com>

Other machinery, equipment and accessories

Isgrit Bloch, Corporate Communications,

Erhardt+Leimer GmbH.

Tel: +49 (821) 2435-636. Fax: +49 (821) 2435-682.

Email: i.bloch@erhardt-leimer.com;

<https://www.erhardt-leimer.com>

Birte Kleefisch, Corporate Communications, Groz-Beckert KG.

Tel: +49 (7431) 10-2277. Fax: +49 (7431) 10-62277.

Email: birte.kleefisch@groz-beckert.com;

<http://www.groz-beckert.com>

Marina Lehmann, Chief Marketing Officer, Topocrom GmbH.

Tel: +49 (7771) 9363-32. Fax: +49 (7771) 9363-10.

Email: m.lehmann@topocrom.com;

<http://www.topocrom.com>



finishing) industrial filament yarns made from PA 6, PA 6.6, PES, aramids, UHMWPE, polypropylene (PP), spun fibres, partially oriented yarn (POY) PA and hybrid fibres.

FibrXL consists of two business units:

- FibrXL Industrial for industrial fibres (such as PES, PA and viscose) will be based in Almere and Richmond;
- FibrXL Performance in Beek and Richmond for high-performance fibres and finishing processes.

IFG International Fibres Group (Hall 9.1, D26)

IFG International Fibres Group (see also, page 29) is based in Bradford, UK, and specialises in the global supply of polyolefin staple fibres, as well as polyamide (PA), biopolymer and recycled fibres. The exhibitor will say it focuses on research and development (R&D) in order to create innovative fibres that meet the exact demands of its customers. Technical textile markets for the fibres include automotive, geotextiles, sports and leisure, filtration and construction. The Group includes three European fibre companies:



The spinning system on IFG International Fibres Group's research and development line in Linz, Austria.

- IFG Drake of Huddersfield;
- IFG Asota of Linz, Austria;
- IFG Exelto of Zwijnaarde, Belgium.

There are also two other members: IFG Cresco, a weaver of technical textiles in Lokeren, Belgium; Drake Extrusion, a supplier of PP fibres and yarns from Martinsville, Virginia, USA.

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The company will show a viscose fibre embedded with minerals from Hologenix that convert body heat into infra-red (IR) radiation. It will tell visitors to its stand that the fibre (Celliant Viscose) blends well with cotton, modal, lyocell and wools such as cashmere. It is suitable for the manufacture of sportswear, luxury loungewear, casual wear and bedding. Hologenix, of Santa Monica, California, USA, says that when its minerals (called Celliant) are embedded in fibres used to manufacture garments worn close to the skin, the IR radiation from the minerals is absorbed by the wearer's body tissue, boosting oxygen levels, improving athletic performance and quality of sleep, and reducing recovery times, as well as promoting general health and wellness. Further to these properties, Celliant Viscose is – like all viscose fibres – soft, lightweight, breathable, absorbent and biodegradable.

For hygiene applications, Kelheim Fibres will also highlight a trilobal viscose fibre (Galaxy)⁽⁵⁾ that absorbs 25–30% more fluid than cotton or standard viscose fibres and a viscose fibre (Bramante)⁽⁶⁾ with a hollow cross-section where fluid is stored. Kelheim Fibres says that Bramante not only delivers an excellent absorption capacity, but also



From slim, flexible protective layers to thick cushions, PHP Fibers' Breathair can be used in place of polyurethane foams.

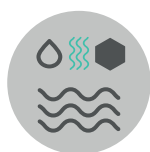
a moisture-retention level of 260%—in contrast to 50% in cotton fibres. The liquid remains inside the fibre, even under pressure. As a result, the wearer feels comfortable and dry.

Lenzing AG (Hall 9.1, C21)

Lenzing is celebrating the construction of a production plant for its Tencel-branded lyocell fibre in Prachinburi, Thailand. The company, which specialises in cellulosic fibres and has its headquarters in Lenzing, Austria, says



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Innovations abound in knitted, woven and laminated fabrics

Examples of innovation from manufacturers of knitted, woven and laminated fabrics will be plentiful at *Techtextil*. James Bakewell provides a guide to companies to look for on the show floor.

Carrington Textiles (Hall 11.1, C56)

In late 2021, manufacturer of textiles for workwear, Carrington Textiles of Adlington, UK, launched eight fabrics that feature sustainable fibres – including recycled polyester (PES) and cotton – and synthetic fibres containing an additive that causes them to biodegrade⁽¹⁾. It will promote these fabrics on its stand at *Techtextil*.

The company has introduced two stretchable fabrics, Constance 210 g.m⁻² and Balaton 255 g.m⁻², that are made from PES fibres produced through the recycling of plastic bottles (Repreve from Unifi of Greensboro, North Carolina, USA), and responsibly sourced cotton from the Better Cotton Initiative (BCI), of Geneva, Switzerland, and London, UK. Elasticity is imparted to the fabrics through the use of fibres from XLance of Varallo Pombia, Italy, the manufacture of which does not require the use of solvents and is powered by renewable energy.

Carrington's Balance Range, meanwhile, now features Kielder 185 g.m⁻², which comprises 50% BCI cotton and 50% Repreve PES, and has a soft feel owing to its 4/1 twill construction, a durable PES face and a comfortable cotton inner face.

Delamere 210 g.m⁻² and 245 g.m⁻² comprise 65% Repreve PES and BCI cotton, while Rivington 205 g.m⁻² and 220 g.m⁻² are made from the same materials in the same proportions as Delamere, have a soft feel and demonstrate mechanical stretch.

The Hawksbill and Orca fabrics, both of 245 g.m⁻², are made using synthetic fibres that feature an additive called CiCLO that its developer – Intrinsic Advanced Materials (IAM) of Gastonia, North Carolina, and Hayward, California, both in the USA – says causes them to degrade in the natural environment in the same way as natural fibres. Hawksbill comprises 65% CiCLO PES and 35% organic cotton, while Orca comprises 26% recycled CiCLO PES, 29% virgin CiCLO PES and 35% BCI cotton.



Image of a parachute made from a version of Heathcoat Fabrics' DecelAir fabric (see also, page 33) taken during the landing of NASA's Perseverance rover on Mars.



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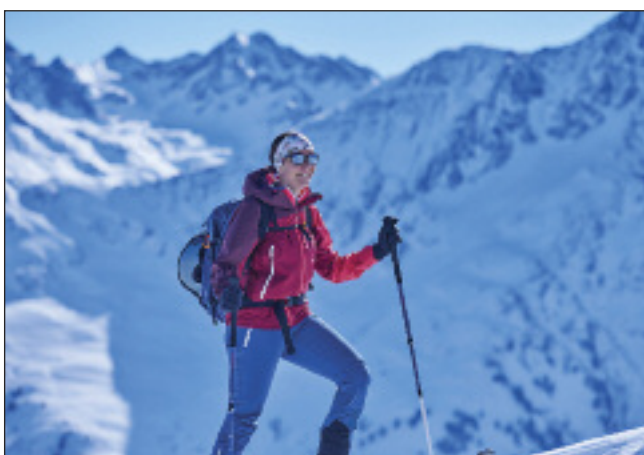
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Getzner Textil can apply a perfluorinated compound-free, water-repellent finish (top) to the textiles it manufactures for outdoor wear (bottom).



Carrington has also launched a highly durable flame-retardant (FR) fabric in an effort to reduce the amount of workwear being sent to landfill. It says that Flamestat 245 g.m⁻² is guaranteed to last the lifetime of the garment it is used to create, owing to the fabric's robust construction.

Cordura Advanced Fabrics/Invista Textiles UK Ltd (Hall 9.1, C70)

Among other products on its stand, Invista's Cordura brand will showcase a range of durable fabrics made from pre-consumer recycled polyamide (PA) 66 fibres.

Invista, which has its headquarters in Wichita, Kansas, USA, will say that the fabrics – called Cordura re/cor RN66 and available in 36 colours – deliver similar levels of mechanical performance to conventional Cordura fabrics. The company adds that, compared with fabrics made from virgin PA 66, the production of Cordura re/cor RN66 generates 83% less greenhouse gas

emissions, consumes 82% less energy and uses 57% less water. The pre-consumer recycled material from which the fabrics are produced is certified according to the Global Recycled Standard (GRS) from Control Union Certifications.

Cordura re/cor RN66 fabrics are suitable for the production of such as apparel and outerwear, bags and packs, luggage and footwear.

Invista will also exhibit fabrics made from GRS-certified post-consumer recycled polyester (PES) and pre-consumer recycled PA 6, both of which have been incorporated into the Cordura re/cor range.

Further, the company will show solution-dyed PA 66 fabrics, called Cordura Truelock. The polymer melts used to produce the multi-filament PA 66 fibres from which Cordura Truelock fabrics are made are coloured before they are extruded—reducing water and energy consumption, as well as carbon dioxide emissions, compared with piece dyeing.

Delcotex Delius Techtex GmbH & Co KG (Hall 11.1, B11)

At its stand, Delcotex Delius Techtex GmbH & Co KG (see also, page 31) of Bielefeld, Germany, will showcase its capabilities for the manufacture of textiles and nonwovens from filament yarns made of such as polyamide (PA), polyester (PES), liquid-crystal polymer, ultra-high molecular weight polyethylene (UHMWPE), aramid and glass. These fabrics are used in the construction, automotive and military sectors, amongst others. The company also manufactures thermoplastic prepreps (DeliComp) for the production of composite parts.

Getzner Textil AG (Hall 11.1, B59)

Based in Bludenz, Austria, Getzner Textil (see also, facing page) is a leading manufacturer of African fashion Damasks, but also has a significant presence in the technical textiles market. In its own laboratories, and research and development (R&D) department, it creates fabrics for personal protective equipment (PPE), workwear and outdoor clothing. It also develops fabrics for industrial applications, sports equipment and architectural use, and markets its own brand of acoustic products under the name acunic.



100% innovation and Made in Europe – Getzner is Europe's leading supplier for individual technical fabric solutions. Getzner Technics manufactures especially hardwearing and highly functional fabrics for demanding applications in the areas of PPE, workwear, outdoor as well as industry, sports and architecture. With our wide range of state-of-the-art machinery, our extensive development expertise and more than 200 years of experience, we are the perfect partner for our customers when it comes to delivering unique solutions in the spectrum of technical fabrics.

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The company can add a wide variety of finishes to the fabrics that it produces. Getzner offers, for instance, two kinds of water-repellent finishes: a perfluorinated compound (PFC)-free finish for the production of machine-washable outdoor apparel; an oleophobic coating that contains PFCs and is used by government organisations.

Further, Getzner can apply special reverse coatings that make its fabrics completely waterproof, up to a certain amount of water pressure. This is an essential property for rucksacks, bags, windbreaker jackets or abrasion-resistant areas on clothing (the knee pads on work trousers, for instance). Depending on the requirements of its customers, the company uses various materials for this purpose, from polyurethane (PU) and silicone to laminates (to impart an extremely high water column) and rubbers.

GKD – Gebr. Kufferath AG (Hall 12.0, C59)

Based in Düren, Germany, GKD weaves industrial materials to make high-performance meshes with a range of technical properties. At the show, its development, sales and process technology specialists will be looking for new problems to solve using this expertise.

The company says it can use its proprietary looms to weave a wide array of materials, including metals, alloys, shape-memory alloys, polymers, ceramics and

glass, in cable, wire and fibre forms. By combining materials and selecting the appropriate fabric structure, it produces unique products with highly functional properties such as resistance to abrasion, high electrical and thermal conductivities, high-temperature-resistance, flame-retardance, resistance to ultraviolet (UV) radiation and high tensile strength. At the same time, mechanical stability and drape can be tailored to the application's requirements.

During *Techtextil*, it will exhibit examples of the woven fabrics it can make, including products for:

- wound dressings;
- thermal and acoustic insulation;
- filtration and separation;
- upholstery.

Heathcoat Fabrics (Hall 12.1, C36)

For Heathcoat Fabrics, 2021 was a significant year. The Tiverton, UK-based manufacturer of knitted and woven fabrics won international recognition for its development of a high-performance parachute fabric (see also, page 31) that enabled the US National Aeronautics and Space Administration (NASA)'s Perseverance Rover to land safely on the surface of Mars⁽²⁾.

Perseverance started its 480-million-km journey to the red planet when it was launched on an Atlas V rocket

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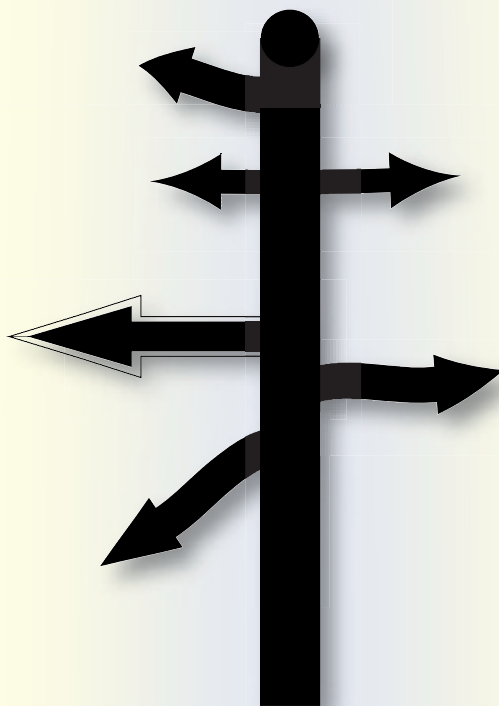
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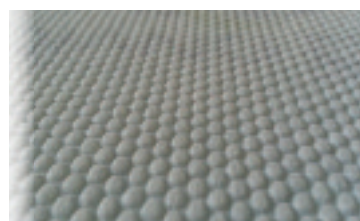
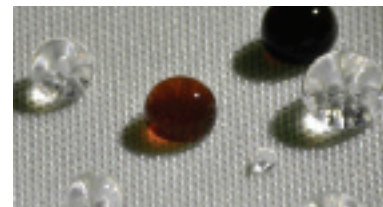
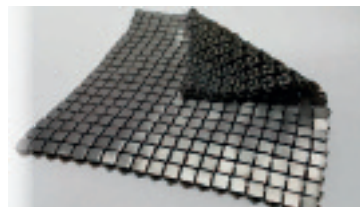
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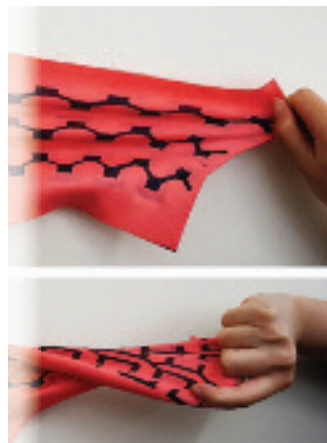
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ADVANCES IN *Textiles* technology

February 2022

An international newsletter on textiles technology edited by:
James Bakewell

Fibres, filaments and yarns

Artificial silk door-pulls feature on Mercedes-Benz concept car

Novel, sustainable door-pulls made from artificial silk fibre are being used by Mercedes-Benz of Stuttgart, Germany, in its latest concept car, the Vision EQXX.

The carmaker has designed Vision EQXX to highlight ways in which luxury vehicles can be produced using technologies that are more environmentally sustainable than conventional approaches.

The artificial silk fibre is called BioSteel and is produced by AMSilk of Planegg, Germany. The company says that the fibres are biodegradable and recyclable, and no waste is generated during their manufacture. It adds that BioSteel demonstrates mechanical properties

The door pulls for the Vision EQXX concept car from Mercedes-Benz are made from BioSteel artificial silk fibres.

Highlights this month:

Methods for determining the effects of strains and stresses on carbon nanotube fibres are being developed by researchers at Rice University	2
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A single vented tumble dryer can discharge up to 120 million microfibre into the air each year, according to a pilot study	5
A fibre-laying process that enables the efficient production of composite footplates and toe caps for use in footwear has been launched by Coats	7
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https://www.itmexhibition.com/itm2022

Heimtextil

21–24 June 2022
Frankfurt, Germany
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anil.oet@messefrankfurt.com;
https://www.heimtextil.messefrankfurt.com

Techtextil

21–24 June 2022
Frankfurt, Germany
Ivonne Seifert, Director Marketing Communications, Messe Frankfurt Exhibition GmbH;
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ivonne.seifert@messefrankfurt.com;
https://techtextil.messefrankfurt.com

Texprocess

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Frankfurt, Germany
Ivonne Seifert, Director Marketing Communications, Messe Frankfurt Exhibition GmbH;
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ivonne.seifert@messefrankfurt.com;
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World of Wipes

27–30 June 2022
Chicago, Illinois, USA
Misty Ayers, INDA (Association of the Nonwoven Fabrics Industry);
Tel: +1 (919) 459-3712;
mayers@inda.org;
https://www.worldofwipes.org

Future Fabrics Expo

28–29 June 2022
London, UK
The Sustainable Angle
info@thesustainableangle.org;
http://www.thesustainableangle.org

July 2022

Nanotextnology

2–9 July 2022
Thessaloniki, Greece
Sergios Logothetidis, Chair, Nanotextnology;
Tel: +30 (231) 099-8174
info@nanotextnology.com;
https://www.nanotextnology.com

Texworld NYC

19–21 July 2022
New York City, New York, USA
Jennifer Bacon, Messe Frankfurt North America;
Tel: +1 (678) 732-2425;
jennifer.bacon@usa.messefrankfurt.com;
https://texworld-usa.us.
messefrankfurt.com/new-york

Clean Show

30 July–2 August 2022
Atlanta, Georgia, USA
Ali Rosenberger, Messe Frankfurt Inc;
Tel: +1 (770) 984-8016, x 2428;
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ali.rosenberger@usa.messefrankfurt.com;
https://the-clean-show.us.
messefrankfurt.com/us/en.html

August 2022

Intertextile Shanghai Apparel Fabrics

29–31 August 2022
Shanghai, China
Rita Li, Messe Frankfurt (HK) Ltd;
Tel: +852 223-9966;
Fax: +852 2598-8771;
rita.li@hongkong.messefrankfurt.com;
https://intertextilehome.hk.messefrankfurt.com/china/en.html

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29–31 August 2022
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September 2022

European Geosynthetics

4–7 September 2022
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Mazurkas Congress & Conference Management;
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info@eurogeo7.org;
https://eurogeo7.org

CINTE Techtextil China

6–8 September 2022
Shanghai, China
Liam Rodden, Messe Frankfurt (HK) Ltd;
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liam.rodde@hongkong.messefrankfurt.com;
https://cinte-techtextil-china.hk.messefrankfurt.com/shanghai/en.html

Textile Rental Services Association (TRSA) 109th Annual Conference

13–15 September 2022
Nashville, Tennessee, USA
Susie Jackson, Textile Rental Services Association;
Tel: +1 (540) 632-1933
sjackson@trsa.org;
https://web.cvent.com/event/c071cff4-6692-45ed-ab36-198fe47e456a/summary

Dornbirn Global Fiber Congress

14–16 September 2022
Dornbirn, Austria
Dornbirn Global Fiber Congress Office;
Tel: +43 (1) 319-2909-41;
Fax: +43 (1) 319-2909-31;
office@dornbirn-gfc.com;
http://www.dornbirn-gfc.com

International Textile Manufacturers Federation (ITMF) Annual Conference

18–20 September 2022
Davos, Switzerland
Secretariat, International Textile Manufacturers Federation (ITMF);
Tel: +41 (44) 283-6380;
Fax: +41 (44) 283-6389;
Secretariat@itmf.org;
https://www.itmf.org/conferences/annual-conference-2022



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info@fpcc-conference.com;
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Circular Nonwovens Forum

22 September 2022
Brussels, Belgium and online
Delphine Rens, Marketing and Communications Coordinator, EDANA;
Tel: +32 (2) 740-1822;
Fax: +32 (2) 733-3518;
delphine.rens@edana.org;
<https://www.edana.org/events/circular-nonwovens-forum>

11th International Textile Coating & Laminating Congress

22–23 September 2022
Ghent, Belgium
Unitex;
Tel: +32 (9) 355-2388
secretariat@unitex.be;
<https://www.unitex.be>

FESPA Mexico

22–24 September 2022
Mexico City, Mexico
Leighona Aris, FESPA;
Tel: +44 (1737) 228160
Leighona.Aris@Fespa.com;
<https://www.fespa.com>

Innovate: Textile Innovation

28–29 September 2022
Amsterdam, The Netherlands and online
World Textile Information Network;
Tel: +44 (113) 819-8155
info@wtin.com;
<https://innovate.wtin.com>

October 2022

Textile Discovery Summit

4–6 October 2022
Charlotte, North Carolina, USA
Kim Nicholson, AATCC;
Tel: +1 (919) 549-8141
education-dept@aatcc.org;
<https://aatcc.org/events>

The Global Digital Textile Conference

5–6 October 2022
Como, Italy and online
World Textile Information Network;
Tel: +44 (113) 819-8155
info@wtin.com;
<https://gdtc.wtin.com>

World Filtration Congress

5–9 October 2022
San Diego, California, USA
Lyn Sholl, Executive Director, American

Filtration and Separations Society (AFS);
Tel: +1 (615) 250-7792
lyn@afsociety.org;
<https://www.wfc13.com>

IFAI Expo

12 October 2022
Charlotte, North Carolina, USA
Jennifer Fisher, Registration, Industrial Fabrics Association International (IFAI);
Tel: +1 (651) 222-2508;
Fax: +1 (651) 631-9334;
jarfisher@ifai.com;
<http://ifaexpo.com>

Aachen Reinforced

17–19 October 2022
Aachen, Germany
Institut für Textiltechnik der RWTH Aachen University
info@aachen-fibres.com;
<https://www.aachen-fibers.com>

Outlook

19–21 October 2022
Saint Julian's, Malta
Delphine Rens, Marketing and Communications Coordinator, EDANA;
Tel: +32 (2) 740-1822;
Fax: +32 (2) 733-3518;
delphine.rens@edana.org;
<https://www.edana.org/events/outlook/outlook-2022>

November 2022

Performance Days

3–4 November 2022
Munich, Germany
Design and Development GmbH
Textile Consult;
Tel: 49 (89) 9394-6060
info@performancedays.com;
<https://www.performancedays.com>

Filtrex

8–9 November 2022
Berlin, Germany
Delphine Rens, Marketing and Communications Coordinator, EDANA;
Tel: +32 (2) 740-1822;
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delphine.rens@edana.org;
<https://www.edana.org/events/filtrex/filtrex-europe>

Hygienix

14–17 November 2022
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Tracie Leatham, INDA (Association of the Nonwoven Fabrics Industry);
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15–17 November 2022
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Gordon McHattie, Smarter Shows;
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gordon.mchattie@smartershows.com;
<http://www.spacetecheurope.eu>

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Shanghai, China
Delphine Rens, Marketing and Communications Coordinator, EDANA;
Tel: +32 (2) 740-1822;
Fax: +32 (2) 733-3518;
delphine.rens@edana.org;
<https://www.edana.org/events/filtrex/filtrex-asia>

ITMA Asia + CITME

20–24 November 2022
Shanghai, China
Daphne Poon, ITMA Services;
Tel: +65 9478-9543
daphnepoon@itma.com;
<https://www.itmaasia.com>

Cleanzone

23–24 November 2022
Frankfurt, Germany
Anja Diete, Show Director, Messe Frankfurt GmbH;
Tel: +49 (69) 7575-6290
anja.diete@messefrankfurt.com;
<https://www.cleanzone.messefrankfurt.com>

ISPO Munich

28–30 November 2022
Munich, Germany
Sabine Wagner, ISPO;
Tel: +49 (89) 949-20802
sabine.wagner@messe-muenchen.de;
<https://www.ispo.com/en/munich>

December 2022

Aachen-Dresden-Denkendorf International Textile Conference

1–2 December 2022
Aachen, Germany
Sabine Keller, Deutsche Institute für Textil- und Faserforschung Denkendorf (DITF);
Tel: +49 (711) 9340-505
add-itc-2020@ditf.de;
<https://www.aachen-dresden-denkendorf.de>

January 2023

Domotex

12–15 January 2023
Hannover, Germany
Sonia Wedell-Castellano, Deutsche Messe;
Tel: +49 (511) 893-32130
info@messe.de;
<https://www.domotex.de>



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