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Bonas Textile Machinery (Hall 4, Booth A206)
Bonas Textile Machinery of Marke, Belgium, supplies shedding systems to the global flat weaving and carpet weaving industries, and a total of ten of its jacquards will be operating on looms located throughout the show. Six of them will be in operation on the stand of Bonas’ parent company, Vandewiele of Marke (see also, page 13).

For the production of high-quality flat-woven carpet, for instance, a Bonas Si21 will be mounted on top of a rapier (R9500-2) from Itema (see also, page 6) to demonstrate its ability to intertwine a multitude of colours in both the warp and weft directions. Another Si21 fitted on top of an Optimax rapier from Picanol (see also, page 5 and page 10) will demonstrate the low-vibration running of the 21 504-hook jacquard at high speeds, even when producing fabrics with 112 ends.cm⁻¹ and unbalanced designs. Both jacquards are driven by Bonas’ Smart Drive, which is mounted to the looms directly—eliminating the need for a gear box.

Bonas will also demonstrate jacquard terry weaving with a 7680-hook Si8 fitted to a 340-cm terry air-jet loom (LTNF) from Dornier of Lindau, Germany, and the weaving of terry fabrics on a 260-cm rapier loom (TerryMax) fitted with a 6144-hook Si6, which will be shown on Picanol’s stand.

Crealet AG (Hall 4, Booth A110)
Crealet AG of Eschenbach, Switzerland, manufactures electronically controlled warp-feed systems for weaving machines and will be exhibiting with its compatriot, weft insertion specialist Rüti Textil GmbH of Rüti.

Further to a new corporate identity, and some technologies for automating its machines and connecting them with one another across the Internet, Crealet will showcase a unit (LT) for measuring and controlling warp tensions. LT is suitable for the control of small warp beams in ribbon weaving or selvedge bobbins on wide looms. It can also be used for warp feeding via rollers when weaving from a creel. The LT control unit is designed for continuous operation and features a display that shows the measured warp tension and the unit’s active functions/settings.

Crealet engineers will also be available to discuss the company’s warp-feed system (Linked Motion Control), an example of which will be delivered to Inobelt of

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www.picanol.be
Ebhausen, Germany. Inobelt produces high-quality belts, tapes, cords and ropes for personal protective equipment (PPE), technical applications and roller shutter belts.

Linked Motion Control comprises several warp beams and a piece of control software. Using the system, Crealet says that the warp running time can be doubled; by using 14 warp beams, it reduces the frequency of changes required. Further, yarn tension is measured directly and the desired warp tension for each beam can be entered into the control system, rather than being adjusted using springs.

**Itema Group (Hall 4, Booth C101)**

Itema Group of Colzate, Italy, 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.

Indeed, Itema is to form a subsidiary dedicated to manufacturing looms for technical textiles. The official announcement was made at Techtextil (held in Frankfurt, Germany, on 14–17 May 2019), where Itema revealed that the new company is called Itematech and will be based around its acquisition of PTMT srl (formerly Panter) of Gandino, Italy, a family-run company already specializing in building weaving machinery for technical textiles. Itema says its goal is to create a company capable of offering the broadest range of machines for weaving specialized fabrics, including negative and positive rapier, airjet and projectile looms.

Itema’s 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 on 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.

At ITMA Asia + CITME 2018 (held in Shanghai, China, on 15–19 October), meanwhile, the company introduced two new rapier machines.

The second generation of Itema’s rapier loom dedicated to denim, the R95002 denim, was exhibited for the first time in China for the benefit of Asia-Pacific-based weavers. Launched in April 2018, the loom is said by the company to be efficient and to produce high-quality fabric. The main mechanical components of the machine have been designed to keep energy consumption low and it is equipped with a device that eliminates waste selvedge generated on the left side of the fabric.

Produced and assembled at Itema’s plant in Shanghai, the other new loom (R90002) is designed to be more energy-efficient and user-friendly than its predecessor (R9000). The machine displayed was equipped with Itema’s weft transfer mechanism, Free Positive Approach (FPA), which the company claims is highly versatile owing to a lack of guiding elements in the shed. Further, the machine was fitted with a 2678 dobby unit from Stäubli of Pfäffikon, Switzerland, which increases the speed.

**Jakob Müller (Hall 4, Booth A107)**

Jakob Müller will not reveal its plans for ITMA until the show itself, but the supplier of systems for the ribbon and narrow fabrics industries will be sure to place emphasis on the digital tools it is developing to work with its
machinery. These will include its service portal (mymuller) and production monitoring system (Münet Master).

It will also likely showcase two of its latest machines:

- the NG3S 28G 2/66 S5, a narrow fabric needleloom designed for making medium-weight belts;
- the Comez EL-32 for making multi-axial technical knits.

The company from Frick, Switzerland, will say its NG3 range of needlelooms is designed for high-speed operation. In part, this is the result of the design of the drives for the heald frames and their movements, as well as the shafts. The wear-resistance of the harness is another important factor. At the same time, the patented compound needle system inserts the threads under low tension, which increases efficiency and reduces the incidences of needle breaks, as well as contributing to the quiet running of the loom.

The EL32 is an electronically controlled, double-knit machine with an 81-cm (32-inch)-wide needlebed, which can be used to make carbon, glass and aramid fabrics as reinforcements for composites.

The electronic control of the thread guides and knit take-off allows operators to use different stitch densities and materials with different elasticities within a single article. Different weft and warp threads can also be introduced. Proprietary software for processing and control of the pattern is also supplied.

In addition, visitors can learn about the company’s specialist machines for making labels, polyester (PES) tapes coated for printing, coating and finishing tapes on one or both sides, winding tapes, slitting labels, taking off tapes and feeding weft threads, as well as its related software and accessories.

**Karl Mayer (Hall 8, Booth B107)**

Karl Mayer of Obertshausen, Germany, will present its technologies for warp knitting, warp preparation and technical textiles, as well as its KM.ON brand, a portfolio of software products developed by its subsidiary, Karl Mayer Digital FactoryGmbH of Frankfurt, Germany.

The company will unveil its RSJ 4/1 EL raschel machine, which offers 50% more working width while running at
Karl Mayer has developed a line that can manufacture high-quality unidirectional fibre-reinforced thermoplastic tapes.

The same speed as its predecessor. Further, it features technology that enables patterns to be changed rapidly and the production of patterns with long repeats.

Karl Mayer will also show its new RDPJ 6/2 EL double raschel machine, which can be used to produce warp-knits with pronounced, three-dimensional (3D) and manifold patterns on their outer sides, as well as those with open-work patterns.

Further, the company will reveal its first three-bar HKS tricot machine to feature electronic control of the guide bar. The HKS 3-M-ON is designed to offer the same performance in terms of speed and the flexibility in design as the previous version, but it is faster and simpler to operate during pattern changes. Instead of relying on pattern disks, the required information can be downloaded to the machine from the Internet.

For warp preparation, Karl Mayer will showcase its Multi-Matic 32 for producing sample and short-production warps.

Visitors to Karl Mayer’s stand will also be able to see the company’s latest generation of sectional warping machines via a live link from its site in Obertshausen. Called Prowarp, the machine will be demonstrating its new features and capabilities, including a module for the camera-assisted recording of production data, and a self-learning quality-control system, which uses sensors to record the quality-relevant beam parameters, comparing them with target values. If any deviations occur, the production data is changed accordingly when processing repeat orders.

For manufacturers of denim, the company will show an indigo dyeing process that takes place in a nitrogen atmosphere, which ensures that the dye sets, as well as reducing the amount of dyestuff, chemicals and water the process consumes.

Karl Mayer will also unveil a line for the production of unidirectional (UD) fibre-reinforced thermoplastic tapes. The company has used its experience of developing machinery for the production of multiaxial fabrics to realize a line that can manufacture high-quality UD tapes in, it will claim, an efficient and reproducible way at a reasonable cost. The company has also adapted its spreading technology to include suitable heating and impregnating modules that enable the continuous, high-speed production of such tapes in wide formats. The first UD line will be ready to be presented in late 2019 at Karl Mayer Technische Textilien in Chemnitz, Germany, and will be used to produce samples for customers. Examples of automotive components manufactured using UD tapes from the machines will be shown on the stand at ITMA.

The Future of Textiles area of Karl Mayer’s stand, meanwhile, will host a number of textile products produced using the company’s machinery, such as concrete components reinforced with carbon and glass fibre multiaxials, rather than steel, cost-effective and flexible roofing materials and bitumen roofing felts, grids that increase the crack-resistance of plaster, and self-adhesive tapes for repairing any cracks and holes that do occur. In addition, a bulletproof vest made from an aramid multiaxial, that is both effective and comfortable to wear, will be shown.

Exhibits on Karl Mayer’s stand will also focus on the environmental sustainability of textiles production. Almost all of the company’s warp-knitting machines, for instance, have a low-energy option that enables an average energy saving of 10% compared with conventional counterparts. Further, an HKS 3-M EN will be shown producing a textile from a filament yarn made by Trevira of Hattersheim, Germany, using recycled polyester (PES) bottle flakes.

Kern-Liebers Textile (Hall 8.1. Booth C207)
Kern-Liebers Textile group will be represented by its three German constituents—Kern-Liebers Knitting Parts of Schramberg, Göppingen-based Saxonia and Leistner of Schwabach.
Kern-Liebers Knitting Parts has been working with flatbed knitting machine manufacturer Stoll (see also, page 7 and page 12) of Reutlingen, Germany, for several decades, and sells the complete range of needles and parts for the latter’s CMS machines.

Saxonia, meanwhile, is a specialist in accessories for the warp-knitting industry, and sells needles, guide needles, sinkers and blocks for all warp-knitting applications. It notes that because the warp-knitting market is creating more complex products than previously, the technical requirements for these products, and in particular for blocks, are constantly increasing.

Finally, Leistner sells a comprehensive range of circular combs for cotton combing machines.

ETS Mallevin (Hall 4, Booth B213)
With its own foundry, ETS Mallevin of Corbelin, France, uses its expertise in aluminium alloys to produce beams for warping and weaving machinery. The company will exhibit aluminium cannisters that is says are stronger and more precise in terms of their geometry than previous versions. It will also show a new flange for the big barrels employed for dealing with difficult-to-process fibres such as carbon.

Optima 3D (Hall 5, Booth A141)
Optima 3D of Huddersfield, UK, will exhibit its Optima 500 series of three-dimensional (3D) weaving machines for the production of reinforcement fabrics for composites.

The Optima 500 series of machines are able to weave fabrics of 50–500 mm in width and up to 150 mm in depth, and can have:
- up to 4 shuttles;
- an electronic Jacquard with a 3000-hook capacity;
- linear fabric take-off.

The 500 Series machines are capable of producing high-quality woven reinforcements from carbon, glass, aramid, natural and ceramic fibres. They feature touchscreen controls, and can store and print pattern and machine data.

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The company was founded in 2018 and its Chairman Peter Bryant says: “Having an informed, fresh perspective, our vision for designing and creating the Optima 500 Series was to start from a blank page and to look with a fresh pair of eyes at 3D weaving machine technology. This has resulted in a 3D weaving machine that can deliver cost-effective high quality and consistency.”

Picanol NV (Hall 4, Booth B101)
Picanol NV of Ieper, Belgium (see also, page 5), says it will demonstrate several machines, including the new OmniPlus-I, for making “challenging” technical textiles.

The company is a specialist loom builder, and makes rapier and airjet models. Weaving machines available from Picanol include:

- OMNIplus Summum airjet;
- OptiMax-i rapier;
- TERRYplus Summum airjet;
- TerryMax-i rapier;
- OMNIplus 800 TC airjet for tyre cords;
- GT-Max rapier;
- OMNIplus-X airjet;
- GTMax-i rapier.

The company says its strategy is based on offering the best possible price-to-performance ratio, coupled with outstanding service.

Visitors to the stand can also learn about looms for making one-piece-woven (OPW) airbags, car interior fabrics, textiles for coating, agrotextiles, antiballistic materials and filter media.

At ITMA Asia + CITME 2018 in Shanghai, China, on 15–19 October, Picanol unveiled a rapier loom (GTMax-i 3.0). The company says that a combination of a redesigned gripper drive and extra reinforced sley drive, together with the integration of its BlueBox electronic platform, allow for higher production speeds. Further, the configuration of the machine has been reworked to make it easier to operate.

Shima Seiki Manufacturing Ltd (Hall 8, Booth B106)
Computerized knitting machine manufacturer Shima Seiki Manufacturing of Wakayama, Japan, will show a comprehensive range of knitting machines (Wholegarment), computerized flat-knitting machines, graphic design systems and digital technologies on its 566-m² stand.

The company will say that there is significant potential for knitting technical textiles because of the inherent characteristics imparted by the process—stretch and compression. Techniques such as inlay knitting are attracting attention owing to their abilities to produce hybrid knit-weave fabrics, which allow technical yarns previously considered incompatible with knitting to be used in existing knit fabrics. These include carbon fibres, monofilaments and even metallic yarns. Shima Seiki has also developed a device for unwinding...
spools of technical yarn to ease the feed of such materials to knitting machinery.

Wholegarment knitting, meanwhile, is capable of producing complete items and allows three dimensional (3D) shapes and tubes to be produced without the need for sewing, enabling faster production. The seam-free nature of garments produced using this process ensures the continuity of the fabric, allowing functional yarns such as those made from conductive fibres to be incorporated without interruption for applications in smart garments and wearable technology.

Further to this machine technology, the company will present the latest versions of its 3D design system (SDS-One Apex), which is capable of simulation and virtual sampling. Following selection from the array of virtual samples, the system’s data can be used to programme the knitting machines to make physical products.

Shima Seiki will also exhibit its Internet-based product-planning tool (staf), and its production management and monitoring system (Shima KnitPLM), together with several other digital technologies that will be on show for the first time.

Starlinger Group (Hall 7, Stand B212)
The Starlinger Group based in Vienna, Austria, will exhibit a circular loom (FX 6.1) weaving tapes made of recycled polyethylene terephthalate (rPET). The FX 6.1 is a six-shuttle loom that is primarily used for the production of high-performance fabrics and does not possess any sliding parts that require lubrication. This ensures that the fabric is completely oil-free and can be used for packaging food products.

The resulting rPET fabric is suitable for the manufacturing of flexible intermediate bulk containers (FIBCs) and container sacks, as a result of its stability, flexibility and high melting point.

Starlinger claims to be the only supplier in the world to sell all of the equipment needed for the production of plastic fabrics, from tape extrusion lines and circular looms to machines for sack conversion, plant monitoring and the recycling of production scrap. With the acquisition of the company now operating
under the name STC Spinnzwirn (formerly known as Oerlikon Barmag Spinnzwirn), which it will be exhibiting with at ITMA for the first time, Starlinger claims to have expanded this broad range even further, particularly with respect to extrusion and winding technology.

Stäubli (Hall 4, Booth C201)
Stäubli will use its exhibit to explain the importance of its core competencies in weaving machinery – shedding (dobby and Jacquard) and preparation (drawing-in and warp-tying) – for the design and quality of a range of technical textiles, including equipment that is customized to an individual mill’s requirements. In particular, the company from Pfäffikon, Switzerland, will highlight its:

- drawing-in machine for the preparation of warps (Safir);
- range of cam motions and dobbies for efficient frame weaving;
- three complete Jacquard machines (LX/LXL/LXXL) for making such as complicated one-piece woven (OPW) airbags. These machines have lifting motions designed to keep the shedding geometry precise and to prevent vibration even when running at high speeds. They are also capable of weaving heavy fabrics;
- system (Alpha 500 Leantec) for weaving high-quality artificial turf and greige woven carpets.

On a separate stand (Hall 8.1, Booth B212), Stäubli will show two circular sock-knitting machines equipped with its D4S automatic toe-closing device.

H. Stoll AG & Co KG (Hall 8.0, Booth D201)
H. Stoll AG & Co KG of Reutlingen, Germany (see also, page 7), will use the exhibition to promote its software for flat-knitting (knitelligence).

At ITMA Asia + CITME 2018 in Shanghai, China, on 15–19 October, the company introduced a flat-knitting machine (ADF 830-24 W) with a working width of 2.13 m (84 inches) for the production of textiles that are large and/or unusually shaped. The ADF 830-24 W features Stoll’s technology (weave-in) that allows the knitting of textiles with woven-like aesthetics and properties. Compared with traditional knitwear, woven-like textiles can be more stretchable and more comfortable.

In addition, the machine is equipped with yarn carriers, which are independent of the carriage and allow for a particularly high degree of flexibility. Each pair is mounted on a total of 12 tracks on the ADF 830-24 W, can be moved both horizontally and vertically, can be programmed easily, and quickly equipped with yarn.

Texo AB (Hall 5, Booth A101)
Ahead of the show, Texo AB of Älmhult, Sweden, reported a surge in demand for its specialized weaving machines for the production of paper-machine clothing (PMC).

Company President Anders Svensson says: “Rather surprisingly, given that China is now by far our biggest single market and the paper manufacturing industry has been gradually consolidating in Asia, we currently have new orders from both long-established North American and European customers. The current global political tensions in combination with in-sourcing to Europe and North America have been important factors for these projects and I’m sure the environmental benefit of significantly reducing transportation played a part too.”

All paper-manufacturing machines require a regular supply of PMC, which, as large continuous engineered fabrics, carry the paper stock through each stage of the production process. With technologically sophisticated designs, they employ fibres and other polymer materials in complex structures, and each paper machine has an average of ten separate fabrics installed on it.

Although the PMC business represents just a small proportion of the total cost of manufacturing paper, it can have a significant impact on the quality of the paper, the efficiency of a machine and machine production rates, yet, owing to many years of contraction and consolidation, only a handful of companies are now manufacturing PMC globally – and there are even fewer suppliers of the advanced technology for making it.

Principal products in the PMC segment include forming, pressing and dryer fabrics, all of which carry the initially wet mass of fibres through the paper machine as water is progressively squeezed out of it, ensuring it is held in
place and air can be effectively blown through at the dryer stage to ensure a regular shape and extremely even surfaces. PMC products can be up to 140 m in length and in the past have been made in extremely wide widths – the largest weaving loom manufactured by Texo had a working width of 31 m.

Today, however, because of advanced seaming technology, such extreme widths are not necessary. Nevertheless, Texo’s PMC weaving machines are still generally supplied in working widths of between five and 20 m.

The company’s TCR loom has been specifically developed for the production of fine and tough forming fabrics where high quality is critical.

The FSX model is designed for the production of both forming fabrics based on medium-to-coarse yarns and press-felt base fabrics, while the TMR is an extra-heavy high-speed loom developed for forming and dryer fabrics, as well as industrial fabrics such as filter materials employed in applications such as dewatering in the mining industry.

All of these looms are characterized by advanced features, including the company’s Pozi Grip rapier insertion system, Disco dobby unit, LoCoMo control system and TDD direct drive.

At ITMA, however, Texo will be showcasing a section of one of its latest models with a more traditional cam drive. “We introduced the first weaving loom with an electronic drive for this industry over a decade ago and it’s been very successful, but there are still some companies who want to go the traditional way,” Svensson explains. “At ITMA we will be emphasizing the fact that we have all alternatives available.”

**Vandewiele (Hall 4, Booth A206)**

A wide range of new technologies will be demonstrated by Vandewiele of Marke, Belgium, including its latest digital loom for carpets (RCE2+). All of the company’s machines are now able to share data with one another, it will add.

Vandewiele’s sensors, software and servers have become increasingly sophisticated through its TEXconnect programme, and data from different machines – across connected manufacturing sites, even ones in different countries – can be collected and shared. Digital models of both machines and production processes can be created and analysed, improving scheduling and planning, and enabling considerable savings in raw materials and energy consumption to be made.

The digital technology in the RCE2+ Rug and Carpet Expert weaving machine enables all of the yarns to be controlled and measured continuously, and the need for difficult bobbin changes has been eliminated.

Using Vandewiele’s Fast Creel, the feed and tension of each pile yarn is controlled by individual servomotors. The pile yarns are now fed directly into the machine without having to pass pile-stop motions, to increase efficiency and eliminate any waste yarns, while operating at high speeds.
The filling enters the machine smoothly via the latest IRO X3 winders, heavy-duty filling brakes with multiple lamellas, an active yarn recuperater and a high-speed weft mixer, where again, all tensions are set electronically. Vandewiele says that its servo-driven heddle frames (Smart Frames), meanwhile, are already well proven in the industry.

TEXconnect further provides data on yarn consumption, tension and threading, and will then recommend a maintenance schedule that is paving the way to self-learning carpet looms.

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The conference will be held at the Jaguar Experience Centre in the heart of the UK motor manufacturing industry.

For further information and to register your interest, visit www.technical-textiles.online/TOAI
Sustainable solutions for finishing, and coating and laminating

At ITMA (to be held in Barcelona, Spain, on 20–26 June 2019), suppliers of chemicals and builders of machinery for the finishing, coating and laminating of technical textiles will present technologies designed to minimize the environmental impact of manufacturing processes. James Bakewell picks out some of the most important developments.

Alliance Machines Textiles (Hall 2, Booth B318)
A manufacturer of machinery for piece-dyeing, Alliance Machines Textiles of Les Echets-Miribel, France, is to display one of its machines, Rotora, which it says continuously turns the beam and has an integrated dryer. This combination allows the wet treatment of both standard and technical fabrics, and for drying to be carried out inside the machine prior to offloading.

A round-type dyeing machine (Riviera Eco Green) will also be highlighted that is able to operate with low liquor ratios (in the range 1:2–1:3). Owing to its air-blowing system, tubular or open knitted and woven fabrics can be dyed without generating crease marks. Machines of 10–1000 kg in capacity, with storage baskets of various widths, can be supplied, allowing the dyeing of light and heavy fabrics.

Further, long-type dyeing machines (Futura), finishing machines for fabrics in rope form (Zephyra) and machines with large capacities will be presented using augmented reality (AR) technology.

Archroma (Hall 3, Booth C153)
Archroma recently inaugurated its Global Competence Center for Automotive & Synthetic Dyeing in Korschenbroich, Germany[1].

At ITMA, the company (see also, page 1), of Reinach, Switzerland, will present a broad portfolio of dyes and

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Chemical finishes, which it says are all developed with three key objectives in mind: to maximize the productivity of its customers; to add value to products; to contribute to protecting the environment and human health.

Specifically targeting the automotive industry, the company has recently developed two systems:

- **Light Fast Car dyes** are designed to produce reproducibly deep, vibrant colours;
- **Safe Seats**, a halogen-free flame-retardant (FR) coating for synthetic leather upholstery.

During the exhibition, Archroma will also present a new finish (Fadex AS New) to protect automotive textiles from the effects of ultraviolet (UV) radiation.

In addition, company representatives will be able to discuss a number of systems for outdoor and activewear manufacturers:

- **Color Vibe** is a treatment to maintain the colour vibrancy of polyamide (PA) garments over time and exposure to many wash cycles;
- **Fast Sport** for providing colourfastness in polyester (PES) knitted sportswear;
- **Odor Control** to keep sportswear fresh and odour-free.

The company will also introduce its new Foron SP-WF, a range of disperse dyes for PES sportswear.

Odor Control is intended for workwear and uniforms too, and will be displayed alongside several other systems aimed at this sector:

- **Bright Dream**, a formaldehyde-free system for producing white fabrics that do not require ironing. This system is based on a newly developed formaldehyde-free resin (Arkofix NZW);
- **Power Cotton**, which renders cotton fabrics comfortable and highly abrasion-resistant;
- **Tough Camo**, a pigment that prevents military garments reflecting infra-red (IR) radiation. The company will say the treatment is durable and can be applied with only a little water.

For nonwoven manufacturers, Archroma has developed a binder that contains no formaldehyde or alklyphenol ethoxylates (APEOs). Filter It Clean makes nonwovens that are strong, even when wet, visitors will be told.

Finally, the company will present another binder, which was exhibited for the first time at Techtextil in Frankfurt, Germany, on 14–17 May 2019. Appretan NTR (see also, High-performance binder based on natural raw materials for coatings, page 50) is a water-based coating for fabrics used as tea bags, and coffee filters and capsules. The binder is made using renewable natural raw materials.

**Baldwin Technology (Hall H2, Booth A204)**

Baldwin Technology of St Louis, Missouri, USA, will unveil the latest generation of its spray applicator (TexCoat G4) for fabric finishing.

The company says that the non-contact spray technology has numerous advantages over conventional methods for applying finishes to textiles. The finish is distributed uniformly across the textile surface and is applied only where it is required—on one or both sides of the fabric. This is highly beneficial...
when, for example, applying water-repellents to laminated fabrics, as it eliminates the problem of the finish affecting the quality of the adhesion layer. Further, the non-contact technology prevents the dilution of the finish in wet-on-wet processes, allowing full control of coverage rates. In addition, with no bath contamination during the finishing process, there is zero downtime during colour or fabric changeovers.

Baldwin claims that when using TexCoat G4, all of the oversprayed finish is recycled and none is wasted during changeovers of chemicals, colour or fabric. As only the necessary amount of finish is applied to the fabric, a reduced wet pick-up level of 50% can be achieved, leading to a 50% reduction in water and energy consumption. The low wet pick-up levels together with a single-side spray application enable combined processes and can completely eliminate drying steps, such as for laminated fabrics and in the finishing of upholstery textiles.

The Vice President of the Precision Application Segment at Baldwin Technology, Eric Norling, says: “One of the biggest challenges facing the textile finishing industry is the environmental impact in terms of energy, chemical and water consumption, with continuously increasing environmental legislations and consumer demands to meet. Since the TexCoat G4 reduces both water and energy consumption and has zero chemistry waste in changeovers, a significantly more sustainable finishing process is achieved.”

Benninger AG (Hall 2, Booth B205)
Uzwil, Switzerland-based Benninger AG will celebrate its 160th anniversary at the show, and will showcase four of its latest developments.
It points out that the cold pad batch (CPB) dyeing process, which consumes little salt and is less energy-intensive than other processes, is becoming increasingly popular in tropical and subtropical regions, which has led it to adapt its CPB systems for these climates. Central to the systems is the Benninger Küsters Dyepad, which the company will be presenting at the show.

The company’s washing steamer (Tempacta), has been developed for low-tension washing processes and is mainly used for diffusion washing (fastness washing). The unit has a consistent counterflow water supply and can measure contamination in order to regulate the amount of fresh water needed for washing.

Also on show will be a drum-washing compartment (Trimkoflex), which Benninger claims is highly efficient and guarantees the crease-free transport of even sensitive fabrics. Benninger has developed a cylindrical expanding roller for particularly sensitive textiles for wet and steam applications. The washing compartment is completed with a vacuum-water extraction system (Hydrovac) and is thermally insulated to help save energy.

The final piece of machinery on show will be the newly developed Benninger Küsters Multipad, which is equipped with an optional double impregnation system, and is suitable for both heavy denim articles and for light knitwear. It is particularly suitable for the over-dyeing and mercerizing of denim and can be used for the cold bleaching and pre-treatment of knitwear.

Benninger says that the operating parameters of all of its systems are monitored continuously using software so that problems can be quickly identified and, where possible, rectified automatically. For instance, the critical lever bearings of the Benninger Küsters Dyepad are permanently lubricated, malfunctions are reported and the lubricant is automatically replenished.

The company has also updated its management information system (Bed-iData), which provides its customers with an overview of their production facility, and an electronic ticket system that transmits diagnostic data to its main facility at the customer’s request.

Brückner Textile Technologies (Hall 1, Booth A203)
Manufacturer of finishing machinery Brückner Textile Technologies (see also, page 15) will tell visitors to its stand that it has increased its efforts in developing automation and control systems for its equipment. These technologies can increase the productivity of its customers, reduce their use of resources and improve the quality of their products. Further, the increasing shortage of skilled workers can be mitigated using intelligent software.

In recent years, the company has invested in: systems that monitor settings and provide the operator with information that can be used to run the machine more efficiently; a simulation tool that can be used to optimize formulas for finishes; a maintenance tool that can provide service instructions; systems that enable machines to exchange data with such as enterprise resource planning (ERP) systems.

At ITMA, Brückner will present its pre-dryer (Power-Infratherm IR), which can heat-up and cool-down in less than five seconds, for continuous dyeing processes. Its hot flue (Power-Colortherm), meanwhile, ensures uniform drying of the fabric over the entire width of the chambers. Even with narrow fabric webs on a wider machine, the dyeing results are good. Owing to the symmetrical design of this machine and its inverter-controlled fans, uniform air distribution through the upper and lower nozzles makes a volume

At ITMA, Brückner will show a multi-layer stenter (Brückner Power-Frame VNE), which, as its entrance and exit are on the same side, requires only one person to operate it.
ITMA preview: Finishing technology

adjustment via mechanical flaps superfluous. Options on the machine include spreading rollers for its crease-free operation with sensitive fabrics (such as striped satin, percale and weft-elastic fabrics) and a fully automatic roller-cleaner.

The company will also reveal a multi-layer stenter (Brückner Power-Frame VNE), which, as its entrance and exit are on the same side, requires only one person to operate it. Brückner says that the VNE offers particularly high power for the floor space it takes-up, and its split-flow system and the alternating arrangement in each half compartment ensure high and uniform air circulation.

Dollfus & Muller (Hall 2, Booth C202)
Endless felts and dryer belts for textile finishing and nonwovens production are the specialisms of Dollfus & Muller. In Barcelona the company from Mulhouse, France, will exhibit:

- compacting felts for finishing knitted fabrics;
- sanforizing felts for finishing denim and woven fabrics;
- dryer belts for textile printers;
- sublimation blankets for transfer printing;
- decatizing felts for finishing woollen fabrics;
- dryer belts for thermobonding ovens;
- tensionless dryer belts for finishing knitted fabrics.

The company will highlight its compacting felt for woollen fabrics, which it will say has a smooth surface, offers good guiding and a high rate of compaction. Dollfus & Muller will also be able to talk about:

- a durable dryer belt, which it has designed for the pigment printing of bed sheets;
- an open-mesh belt with a non-marking surface for the printing of fine fabrics, scarves and flags;
- its dryer belts for digital printers.

DyStar (Hall 3, Booth D134)
DyStar Singapore will present dyeing technology that it claims will help its customers save on water, energy, waste, greenhouse gas emissions and process time. The company will showcase a number of its dyeing processes (Cadira), including:

- Cadira Polyester, a technology that enables environmentally friendly exhaust processing of polyester (PES) fibres with its Dianix dyes and Sera auxiliaries;
- Cadira Reactive, a dyeing technology for cellulosic fibres;
- Cadira Vat, a new technology for vat exhaust dyeing, which the company claims significantly reduces dyeing time, and energy and water consumption, and with a new reduction agent, reduces sulfur load in the resulting wastewater by up to 85%;
- Cadira Wool;
- Cadira Denim, a dyeing technique for indigo that reduces or eliminates salt freight in wastewater streams;
- Cadira Laundry, through which a variety of effects on denim can be achieved.

DyStar will also highlight a dye designed to meet the high wet-fastness requirements for sportswear, apparel and workwear (Dianix XF/XF2/SF), and dyes made to meet the high light-fastness requirements of automotive textiles, home furnishings and outdoor textiles (Dianix AM/HLA).

In addition, the company will present updates to its range of inks for digital printing (Jettex).

Finally, the company will discuss its work with RotaSpray of Öhringen, Germany, to develop a continuous dyeing process (Pad-Spray Steam) for woven cellulosic fabrics that eliminates the need for intermediate drying.

Fong’s Europe (Hall 2, Stand D101)
Schwäbisch Hall, Germany-based Fong’s Europe will reveal details of its hydraulic long-tube dyeing machine (Then Supratec LTM). This machine is distinguished by the ability to vary the angle of the kier for either dry
Fong’s says that its hydraulic long-tube dyeing machine (Then Supratec LTM) is distinguished by the ability to vary the angle of the kier for either dry (jet) or wet (overflow) dyeing, in order to optimize the liquor ratio for the materials being dyed (see also, page 19).

The Supratec LTM is suitable for the treatment of both woven and knitted fabrics ranging from sensitive articles to heavyweight materials, and operates at low tension owing to the low lifting height between the variable nozzle and the plaited fabric.

Fong’s Europe Director of Sales and Marketing Richard Fander says: “Existing Supratec machines on the market are providing excellent performance for a wide range of delicate synthetic fabrics, from polyester (PES) to polyamide (PA), with high content of elastane. Heat-setting can often be avoided, which improves the handle of the material and saves costs, and the lengthwise elongation of the fabric being treated is lower than on winch-driven machines.”

The machine’s automatic plaiting system for one and two transport tubes is equipped with a frequency-controlled drive motor for speed adjustment and eliminates the danger of any fabric entanglements, he adds.

Each kier has a capacity of up to 230 kg, again depending on the fabric being treated, and operating speeds are 80–600 m.min⁻¹.

Fong’s Europe will also introduce its new high-temperature jet-dyer (Then Smartflow TSF). Engineers at Fong’s have designed the machine to be particularly water- and energy-efficient. Working with a full load of 300 kg, the company will say that the liquor ratios for cotton are as low as 1:3.5 and for synthetics 1:2.5.

Several patents are pending on innovative features of the machine, including its hydraulic, winch-less transport mechanism, which eliminates the need for a loading rope. In addition, hydraulically driving the fabric through the dyer offers the potential to reduce the tension on the textile, which could be particularly good for stretchable, elastane materials.

The TSF is supplied with up to eight chambers each able to handle a load as light as 40 kg, which provides users with the ability to dye several small lots of different materials at once. A further innovation is the dyer’s bath preparation unit (BPU) and its patented satellite tank.

Finally, Fong’s will tell visitors that the dyer takes up 40% less floor space compared with rival systems.

imogo (Hall 3, Booth D239)
imogo of Limhamn, Sweden, is a new company and will use ITMA to introduce its spray dyeing technology (Dye-Max). The Dye-Max has been designed to slash the use of fresh water, energy and chemicals, and the production of wastewater, by as much as 90% compared with conventional jet dyeing systems.

The application unit consists of a closed chamber containing a series of spray cassettes fitted with nozzles and a patented valve (imogo pro speed) that controls the volume of dye to be applied. The chamber is equipped with an exhaust system and droplet separator to ensure that the environment around the unit is free from particles.

“The spray cassettes are a key part in the Dye-Max line,” explains imogo’s Founding Partner Per Stenflo. “There is one set of spray cassettes for each of the three
separate dye dispersion feed lines and they can be easily exchanged without the need for tools in less than one minute. This allows for extremely fast changeovers between different colours without the need for cleaning.”

Further, because the spray cassettes are removable, all maintenance can be performed offline.

After applying the dye dispersion, the fabric is rolled onto a shaft and moved to an autoclave where the dye is fixed using heat and pressure.

The savings in treatment water that the Dye-Max achieves are the result of an extremely low liquor ratio of 0.5 l.kg⁻¹ of fabric. Stenflo adds: “At the same time, the low liquor ratio and the spray process require considerably less auxiliary chemistry to start with and all of it is used in the process, which also greatly reduces the production of wastewater, with only 20 l being required for wash at changeovers. The low liquid content in the fabric meanwhile minimizes the energy needed for fixation.”

The Dye-Max has a working speed of up to 50 m.min⁻¹ depending on the fabric weight and volume of dye to be applied.

The technology is still in the prototype stage, but imogo is partnering with fellow Swedish company ACG Kinna Automatic of Skene, to build the first Dye-Max line. Representatives from the partner will be present on the stand from 23 June onwards.

Klieverik Heli BV (Hall 3, B127)
From Oldenzaal, The Netherlands, Klieverik Heli will aim to educate visitors about the opportunities made possible by high-speed coating, laminating and thermobonding. At Techtextil, it did this with working demonstrations of two of its machines—the powder scattering device (PSD) and the laminating calendar (LFC1010-1850).

While thermoplastic adhesive webs and films are clean and easy to use, they require users to maintain more stock than is the case with powders. In order to allow customers to take full advantage of this reduced requirement for stock, Klieverik has developed its PSD for use with all types of commercially available thermoplastic powders measuring 80–500 µm.

The machine is supplied with roll widths of 2–6 m, scatters the powders accurately and reproducibly, the company will say, and is easy to maintain. The scattering width can be adjusted smoothly to any value up to the full breadth of the roller, and the amount of powder to be applied is controlled from a panel that can operate from stored recipes.

Laminating demonstrations on the LFC1010-1850 will involve many kinds of materials, including fabrics, nonwovens and other substrates, together with a variety of thermoplastic adhesives.

A. Monforts Textilmaschinen (Hall 2, Booth D101)
Monforts from Mönchengladbach, Germany, will introduce its digital twin technology – which is being made available for all of its machine systems – and will demonstrate that by exploiting advanced sensors, comprehensive machine data can be gathered in real time.

The data can be accessed using Monforts’ Smart Support and Smart Check applications, and its analysis can be used to optimize production processes. Further, the digital twin technology provides information on the wear of individual parts of a system, such as, for instance, converters or gears.

Monforts Vice President Klaus A. Heinrichs says: “Operators and mill managers are informed by Smart Check sensors when maintenance or the replacement of key components will be required, well ahead of time. Direct access to the integrated

The latest Montex stenter (see also, page 22).
Monforts [online] webshop allows users to instantly order such parts when they are needed, virtually preventing machine downtime.”

On request, Monforts can also monitor the performance of its customers’ machines and proactively alert them to the need for preventative action. With Smart Support, customers can also contact Monforts service using mobile devices to access support onsite via a remote link.

Further, the company will explain how its stenters (see also, page 21) and coaters can be used to finish technical textiles for a number of products, including substrates for digital printing, components for cars and filter media.

Three Montex stenters have recently been installed at a German finishing plant for digital printing substrates, two of them in extra-wide widths of 5.4 m – where they are needed for drying after both washing and coating processes. Substrates for digital printing need to be clean, fault-free and smooth, and since the industry has been driven away from using polyvinyl chloride (PVC) coatings owing to concerns for health and the environment, this has put additional demands on the textile producers, coaters and finishers making such products.

Meanwhile, leading Tier-1 suppliers of seating materials to the automotive industry are using Montex stenters to pre-treat and finish polyester (PES) warp-knits and woven fabrics. Such customers make stringent demands on quality, control and reproducibility, according to Monforts. In addition, to support the industry’s desire for just-in-time manufacturing, the machine builder has developed its Qualitex 800 system to monitor operations and provide instant information for production teams and managers.

Monforts also supplies stenters for finishing advanced filter media, including customized machines for specialist woven and nonwoven fabrics.

Superba (Hall 6, D206)
Superba of Mulhouse, France, will introduce the latest version of its space dyeing machine (MCD/3) for carpets, together with further developments in heat-setting, texturizing and winding technologies.

Owned by Vandewiele of Marke, Belgium (see also, page 13), Superba has installed more than 350 of its heat-setting lines (TVP3) for all types of carpet yarns, including polyester (PES), polypropylene (PP), polyamide (PA), wool and blends. A further 80 models for polyacrylonitrile (PAN) yarns are also running at carpet plants around the world.

The latest MCD/3 space dyeing machine is meanwhile capable of handling a layer of 72 ends with a wide range of spot lengths—including ultra-short spots of below 25 mm. In combination with a TVP3 heat-setting line, it can space dye PES or PA yarns with up to six colours and enable special dyeing effects such as bi-colour to be achieved. For acrylic yarns, the MCD/3 can similarly be combined with Superba’s high-capacity DL/5 setting line.

Further benefits are possible when these systems are used with Vandwiele weaving or tufting machines, as they are all now able to connect to one another across the Internet as part of the parent company’s TEXconnect programme.

Tanatex Chemicals BV (Hall 3, Booth E112)
Tanatex Chemicals (see also, page 17) of Ede, The Netherlands, will present its antimony- and halogen-free flame-retardant (FR) agents, and its formaldehyde-free finishes, binders and antimicrobial chemicals for technical textile manufacturers.

The company will also show a range of functionalized urea-free inks in development for valve-jet printers. It will say its aim is to supply inks that can be used to apply functional finishes to selected parts of a fabric or garment by the printer. Anti-odour finishes, for instance, can be selectively applied to the armpits of shirts and insect repellents can be printed near regions where the wearer’s skin will be exposed.

Tanatex already supplies a conventional insect-repellent finish (Insect Proof) for apparel and woollen carpets to protect them from moth damage. In addition, it produces a finish that is designed to reflect heat from the wearer back to their body as infra-red (IR) radiation (Qi-tex).
Finally, the company will present a dyeing concept for polyester (PES) that it says can reduce dyeing time by up to 25%—saving time, energy and resources.

**Twine Solutions (Hall 3, Booth C105)**
Twine Solutions of Petah Tikva, Israel, is unveiling what it claims to be the world’s first digital thread dyeing system (TS-1800). The system can be used to dye raw white thread (from different manufacturers) for the sewing, knitting and embroidery of a wide range of products.

Visitors to the company’s stand will be able to see the system digitally dyeing various thread types, including thread from Coats of Uxbridge, UK, a company with which it established a partnership in November 2018.

Twine will also showcase its digital colour-matching application for mobile electronic devices. The SnapMatch application can be used to capture an image of a sample for Twine’s proprietary algorithms to analyse quickly and accurately. The user then sends the captured colour to the TS-1800 system for thread dyeing.

Twine says that its products create a virtual inventory, reducing stock management, inventory and deadstock costs. Further, it says that the waterless thread dyeing process saves 70 l of clean water per 1 kg of dyed thread in comparison with other processes.

In many industry sectors, up to 50% of dyed thread is disposed of before use. Twine points out that its system dyes exactly the amount of thread needed, when it is required.

The company’s Chief Executive Officer (CEO) and Co-Founder, Alon Moshe, says: “The fast-paced digital transformation of the textile industry is challenging both for production and its environmental impact. We are excited to bring solutions that will have much-needed and crucial economic, social and sustainability benefits.”

**Weitmann & Konrad (Hall 2, Booth D218)**
Weitmann & Konrad GmbH & Co KG (WEKO) of Leinfelden-Echterdingen, Germany, develops non-contact application systems for auxiliaries. Originally developed for the printing industry, its processes are now used to apply such as hydrophilic/hydrophobic or oleophilic/oleophobic finishes, softeners, flame-retardants and antibacterial agents to fabrics.

The company will reveal WEKO-Neo, technology for sustainable, cost-efficient dyeing and finishing of textiles it has developed with Lilienweiss Textile Services of Remshalden, Textilchemie Dr Petry of Reutlingen (both in Germany) and Archroma of Reinach, Switzerland (see also, page 1, page 15 and page 50). WEKO says when compared with conventional technologies, the system, which can be installed on the stenter frame entrance or exit:

**References**

1. *Centre for the development of dyes and auxiliaries is opened in Germany.*
   https://www.technical-textiles.net/node/74869

   https://www.technical-textiles.net/node/73963

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The MCD/3 space dyeing machine from Superba is capable of handling a layer of 72 ends with a wide range of spot lengths—including ultra-short spots of below 25 mm (see also, page 24).
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A coloured carpet, which has been space-dyed using Superba’s MCD/3 machine (see also, page 23).

- reduces pick-up by up to 80%;
- requires up to 50% less drying energy;
- can enable increased line speeds of up to 270% for heavy textiles;
- reduces water use and waste by 70%.

Further, the company claims that the system creates a safe working environment, as no harmful aerosols escape from it.
Automated, sustainable and cost-effective solutions for spinners

Producers of fibres, filaments and yarns are increasingly having to cope with price pressures, skill shortages, and stringent environmental regulations and legislation. At ITMA (20–26 June 2019 in Barcelona, Spain), manufacturers of machinery for this sector will present innovative solutions to these problems. James Bakewell selects some of the most interesting developments.

Amsler Tex AG (Hall 6, Booth A210)
Specialist manufacturer of yarn systems for spinning frames, Amsler Tex of Zurich, Switzerland, will present a number of its latest innovations.

These will include a wrapper yarn (see also, page 26), which comprises a yarn or filament wrapped around a central yarn, and is manufactured in one step on a spinning frame. Knitwear made with wrapper yarns is soft, exhibits low spirality and pilling, and has good dimensional stability.

The company will also show updates to its core yarn manufacturing device (Core V) and control units for the manufacture of slub yarns (STG 5000).

Fibre Extrusion Technology Ltd (Hall 7, Booth C112)
Based in Leeds, UK, Fibre Extrusion Technology (FET) Ltd designs, develops and manufactures bespoke extrusion equipment for man-made fibres at production-, pilot- and laboratory-scale. The company has recently invested £1 million in a process development laboratory and its equipment, including a complete range of pilot-scale extrusion lines. FET will tell visitors that it has installations in 35 countries and is used to working within a globally diverse marketplace.

The company’s Research and Development Manager Mark Smith recently spoke on the topic of meltspun nonwovens made from engineering resins at the Nonwovens for High-performance Applications conference held in Cannes, France, on 10–11 October 2018.

Kelheim Fibres (Hall 3 Booth D213)
After a large fire at its plant in Kelheim, Germany, in October 2018(1), Kelheim Fibres is currently rebuilding its viscose fibre production lines. In the process, the company is focusing on the installation of state-of-the-art equipment and particularly on resource-saving and environmentally friendly production technology.

On show at its booth, Kelheim’s viscose speciality fibres consist of 100% cellulose, a renewable raw material, and are therefore completely biodegradable. These fibres are an alternative to mineral-oil-based fibres, in particular for products – such as many nonwovens – intended for one-time use. The company produces viscose fibre (Galaxy) for the production of tampons and short-cut fibres that have been specifically designed for processing in modern wetlaid plants and enable the manufacture of plastic-free, and even flushable, wipes from 100% cellulose.

Kelheim’s range of speciality fibres for textile applications, meanwhile, comprises spun-dyed fibres, a
flat fibre (Viloft) that creates small air pockets in a textile, rendering it highly breathable and comfortable, and a fibre (Viseta) that is 50% finer than silk and imparts a flowing drape and a soft touch to fabrics made from it.

Lenzing (Hall 3, Booth C132)
During the recent IDEA (held in Miami, Florida, USA, on 25–28 March 2019), Lenzing (see also, Outside back cover) exhibited a technology that allows the Austrian company to make lyocell fibres using wood pulp and cotton scraps from garment manufacturing as raw materials. In addition, Lenzing says that the wood pulp is derived from sustainably managed forests.

Lenzing’s Eco Cycle technology is used to make fibres for use in nonwovens and as much as 33% of the raw material can be from cotton scraps. The fibres will be sold under Lenzing’s Veocel brand, which it introduced for environmentally friendly technologies and applications in the nonwovens sector.

The company also recently revealed that it is to use the cryptography system blockchain to ensure that the origins of, and processes carried out upon, its lyocell fibres can be determined easily by its customers and consumers. After evaluating various initiatives, the company will be using technology developed by TextileGenesis of Hong Kong, China, to achieve this aim.

Consumers increasingly want to know what their textile products are made from and how they are made. Using the TextileGenesis system, they can scan a quick response (QR) code attached to a product with a mobile device and view data on its supply chain.

Lenzing will test the technology with several customers over the next few months, and expects the platform to be fully operational in 2020.

Meera Industries Ltd (Hall 6, Booth C204)
Yarn twisting specialist Meera Industries Ltd of Surat, India, will exhibit its range of twisting machines for carpet yarns, ropes, twines and thread.

It will show a heavy-duty direct cabling/twisting machine (CK-260) designed for the production of high-quality carpet yarns. With a denier range of 1200–12 000, the machine is suitable for all types of bulk continuous filament (BCF) and textured yarns.

Further, Meera will exhibit a one-step ply and cable twisting machine (TPRS), and a ring twister for making technical yarns. The ring twister features precise ring rail control, pneumatic pressurized yarn feeding and an individual spindle drive motor, and is available in sizes of 140–300 mm.

NSC Schlumberger (Hall 6, Booth A107)
NSC Schlumberger, a specialist in machines for processing long wool and wool-like staple fibres based in Guebwiller, France, will show visitors to its stand updated versions of its core machines.

Its combing machine (ERA) now features a multi-servomotor drive design that enables its settings to be adjusted from the main control screen. The company says that the machine is particularly suitable for processing delicate materials and that, despite its additional motors, its power consumption remains low.

NSC’s chain gill (GC) features additional axes also driven by servomotors, which allows for more settings on the main control screen.

For its vertical rubbing frame (FMV), NSC has developed a multi-servomotor drive for the axes, and the bobbin build-up benefits from a servomotor-controlled drive.
All these servomotor drives will allow the settings of these machines to be more precise than would be the case using standard gearboxes, and they allow settings to be saved on each machine. Data exchange between machines is possible through a manufacturing execution system (MES), as is remote access to the machines through an Internet connection.

Oerlikon Manmade Fibers (Hall 7, Booth A101)
Oerlikon Manmade Fibres of Neumünster, Germany, will use a virtual showroom to show its guests its vision for sustainable and automated manmade fibre production at its 1000-m² stand. The company will present technologies that it says will help solve the four key issues affecting fibre producers globally.

First, it says that price pressure on fibre and yarn manufacturers is increasing owing to global market consolidation. It says that companies must position themselves correctly, whether they are producing polyester (PES), polyamide (PA) or polypropylene (PP) for niche markets and generating good margins, or exploiting economies of scale for a volume market such as the apparel sector. Oerlikon says it will unveil machine and system concepts (WINGS FDY PA6, BCF S8 Tricolor and the eAFK Evo texturing machine) that will satisfy demands from both sectors.

Second, Oerlikon points out that finding good operators in the manmade fibre industry is becoming increasingly difficult, even in emerging industrial nations such as China, India and Turkey. It says that the automation of, and increasing data exchange between, machines will help solve this problem, and will be showing a variety of such technologies on its stand. Indeed, representatives will discuss Oerlikon’s membership of Adaptive Manufacturing Open Solutions (ADAMOS), an alliance of machine construction, production and information technology (IT) companies established to address the issues associated with implementing these technologies.3

Third, Oerlikon says that fibres and yarns must meet high demands in terms of their quality, and they must be identifiable and traceable as they move through the textile value chain. Industries that use fibres, yarns and nonwovens want to know where the raw materials they use for consumer articles come from, and regulation and legislation are increasingly mandating high levels of traceability. The company will show its technologies for achieving these goals.

Finally, Oerlikon says that manmade fibres must be recyclable, and it will show technologies that enable waste from the production of PES fibres to be fed back into their manufacture (VacuFil).

The company will also be able to talk about its latest development for manufacturers of bulked continuous filament (BCF) carpet yarns (the BCF S8), which it unveiled during the Domotex exhibition held in Hanover, Germany, on 11–14 January 2019.3

The Rieter Group (see also, page 28) will be represented by a number of its subsidiaries, which will present their technologies. Novibra’s latest clamping crowns (CROCOdoff, left, and CROCOdoff Forte) can carry out doffing without underwinding. Suessen, meanwhile, will discuss its compact spinning system (EliTe, right), which can be installed on almost any ring-spinning machine to improve yarn quality and productivity.
The machine builder says the new system is designed to address the key demands of its customers, who operate in fiercely competitive markets, for increased efficiency and better product quality. The BCF S8 can spin more filaments at higher speeds than has been previously possible, but still produces yarns with fine titres. It is also the first to be equipped with the company’s latest control system.

Based on the results of several months of trials at its own technology centre and at two pilot units, the company says the machine can:

- spin up to 700 filaments per yarn end, compared with 400 for its previous model (S+ BCF);
- process yarns at up to 3700 m.min⁻¹ (winder speed), which is equivalent to a 15% higher throughput compared with earlier technologies;
- produce yarns with a guaranteed titre of 2.8 dtex per filament (2.5 denier per filament);
- reduce the manufacturer’s consumption of energy by up to 5% per kilogramme of yarn.

Reiners + Fürst (Hall 7, Booth A206)
Reiners + Fürst of Mönchengladbach, Germany, will show a new spinning ring (Turbo-S) equipped with a specially designed surface structure that enhances the formation of a lubricating film in the traveller contact area.

According to the company’s Managing Director, Benjamin Reiners, the benefits of the spinning ring include stable running behaviour, even at high speeds, low yarn hairiness and quick changeovers, even for synthetic fibres.

Reiners + Fürst will also present new ring travellers for high-speed ring spinning, which have short running-in periods.

Rieter Group (Hall 6, Booth C201)
The Rieter Group (see also, page 27) of Winterthur, Switzerland, will be represented by five of its members:

- Novibra Boskovice sro of Boskovice, Czechia, which specializes in high-speed spindles;
- Bräcker of Pfäffikon, Switzerland, which makes components for ring-spinning machines;
- Graf + Cie of Rapperswil, Switzerland, a supplier of clothing and combs for carding, combing and nonwoven processes;
- SSM Schärer Schweiter Mettler AG of Horgen, Switzerland, a supplier of precision winding machines in the fields of dyeing, weaving and sewing thread preparation.
Spindelfabrik Suessen GmbH of Suessen, Germany, which makes spinning systems and components for spinning machines.

Novibra claims to be the largest spindle producer worldwide. It says that the biggest issues facing the textile industry is the demand for energy savings and the need to reduce maintenance costs in the mill, and its latest products reflect these issues.

For instance, its energy-saving spindle (Lena) has been designed for high speeds, and features a double-damping system for reducing neck-bearing load and spindle bearings with diameters of 5.8 and 3 mm. As a result, the lower friction of the bearings and reduced spindle wharve diameter bring average energy savings of 4–6%.

Amongst other technologies, Bräcker will talk about the surface treatment of its ONYX travellers, the improved gliding characteristics of which allow for an increase in the spindle speed by up to 1000 rpm and prolong the life of the traveller by up to 50%. The running-in period is also considerably reduced.

After the introduction of the XENO-platform in 2016 and the X-Series in 2017, SSM has extended the range of applications on these platforms. It says that with a new drum winder, power consumption per spindle is lower than ever and owing to a newly developed and single controlled motor, the platforms are suitable for the efficient rewinding of cones used in the weaving, warp-knitting and circular-knitting processes.

Suessen will discuss its compact spinning system (EliTe), which can be installed on almost any ring-spinning machine to improve yarn quality and productivity. Its EliTwist spinning system can carry-out the spinning and twisting of a plied yarn in one production step, representing an economical way to produce two-ply yarns.

Saurer Group (Hall 6, Stand B201)
Saurer of Wattwil, Switzerland, says that it looks to satisfy three needs with its machinery: the need to use less energy and resources to produce a given product; the need for increasingly user-friendly systems; the need for automation.

The company’s Spinning Solutions Business will show its technologies for ring spinning (Zinser System) and open-end spinning (Schlafhorst System). Zinser has been designed for high speed, while Schlafhorst is able to process a variety of different yarns.

Saurer Technologies will present the fifth generation of its direct cabling machine (CableCorder CCS), which features a number of technologies for automation, the latest version of its CarpetCabler/CarpetTwister, and an updated version of its CompactTwister.

Saurer will also show a system for embroidery that encompasses the entire process chain, from the drawing of the design to stitching on its Epoca 7 machine.

Further, the company will highlight a system that monitors the condition of every ball bearing within a plant, enabling maintenance to be carried out before they fail.

Finally, the company will show a ring-spinning cot (Accotex J-series) with a Shore A hardness of 68.

SML Maschinengesellschaft mbH (Hall 7, Booth C122)
Formerly a business unit of Lenzing, SML Maschinengesellschaft mbH of Redlham, Austria, became privately owned in 1995.

For the production of bulk continuous filament (BCF) yarns for carpets, the company has developed a spinning line (BCF Tricolor) with an output of 11.5 t.d⁻¹—50% higher than its existing Tricolor model. The new line can operate either as a single large tricolour system or as three independent monocolour lines for smaller batches of yarns. Further, the use of a new spinpack reduces set-up time by more than 60% in comparison with previous models, while allowing higher filament counts.

SML says that a key advantage of its BCF lines is their horizontal design, which enables direct access to all of their parts, making their operation and maintenance easy, while allowing them to be fitted in spaces with low ceiling heights.

SML is also launching a moncolour BCF line with a production capacity of 5 t.d⁻¹. The Monocolor BCF line is designed for first-time investors in the carpet industry and established manufacturers working with small production batches.
All the new BCF spinning lines are equipped with SML’s patented texturing system that helps generate useful levels of yarn crimp, which substantially reduces raw material costs in carpet fabrication.

For continuous filaments, SML has refined its spinning lines so that they can process different types of raw materials. Based on the popular standard MT/HT4x2 lines for polypropylene (PP) yarn production, the modified lines can manufacture polyamide (PA) 6 medium drawn (MDY) and fully drawn yarns (FDY). Further, it is now possible to produce high-density polyethylene (HDPE) multifilament yarn on certain SML lines.
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