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# TMA: Machine rush in Milan

Interview with Benjamin Mayer, CEO Mayer & Cie

Interview with David Pircher, Head of Business Development / Product Management OEKO-TEX

**Country Focus: Poland** 

Sustainability - the action phase has started

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#### From the editor

## Dear Reader,

2015 is now a few weeks behind us and was, in my view, a very special year for the textile and textile machinery industries. Admittedly with its two major highlights - Techtextil in the first half of the year and ITMA in the second - it was to be expected that it would be an exciting and doubtlessly successful year for both industries. However, it seemed even professional optimists underestimated what the year would bring. The two aforementioned trade fairs did not just break records in terms of numbers of both exhibitors and visitors, but also provided a certain enthusiasm and momentum to these sectors, which hopefully helped industry participants forget the crises and the more difficult years. And it has perhaps once again proven true that crises have a positive side: something that stood out in 2015 was that the exhibitors at both trade fairs spoke frequently and gladly of the quality of their visitors and professional discussions. Everything was very targetoriented and concrete, and a result of thorough analysis and strategic planning. CEOs only spend around 3% of their time on that, said Stephan Friedrich von den Eichen, Managing Partner of IMP Consulting, at the SWISSMEM pre-ITMA press conference, and added that he saw this percentage as far too low. This "business as usual" idea does not seem to apply to the textile industry though, nor does it seem possible, because competition and pressure for innovation also always require a clear view of changes that carry risks and opportunities.

What does this new year have in store for us? We have probably all begun it with a lot of work... Firstly, as it is a leap year we have an extra day for work or leisure. That is a start. And if we can then maintain that momentum, 2016 should also have the potential to be a truly great year.

The textile industries in Turkey, China and India are expecting ITM, ITMA Asia and India ITME to be major events, and in many other countries slightly smaller trade fairs will offer visitors the chance to experience the latest ITMA technologies.



The importance of grading leading technology is demonstrated by, amongst other things, China's newest five-year plan, which is set to be examined and approved by the National People's Congress on 5 March. According to initial statements, the plan's focal points include quality, innovation and sustainability. We wish to highlight the same ideas in our first issue. We look back at ITMA and give a brief overview of the latest technologies presented there. And we also bring you up to date on developments regarding sustainability from our perspective.

For this issue we were fortunate to have obtained interviews with Benjamin Mayer, the new CEO of the German circular knitting machine producer Mayer&Cie, and David Pircher, Head of Business Development / Product Management of the OEKO-TEX® Association. In addition you will find regulars like our Country Focus, which assesses Poland as a textile country, as well as various reviews on trade fairs and events.

What do you wish from us in 2016? As always, we look forward to your comments and suggestions at redaktion@texdata.com.

We wish you an extremely successful and healthy year!

Best regards, Oliver Schmidt





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# Machine mish in Milan

Ever since November 2015 a new old word has been the cause of beaming faces within the textile industry: ITMA. Once again, or perhaps more than ever, the largest and most important exhibition of the international machinery industry demonstrated its charisma and innovative strength. The invitation to "Master the art of Sustainability" was accepted by almost 123 000 visitors from 147 economies over the eight days of the exhibition. This tremendous crowd that had stands bursting at the seams, especially on the first few days, did not just mean record visitor numbers, but also full order books. Rarely have exhibitors praised their stand visitors with so much enthusiasm – they were almost gushing. "Very well prepared", "a clear concrete interest", "very precise explanations of needs" and even "they bought the machine" were qualitative statements that were heard again and again in short discussions with them.

CEMATEX, the European Committee of Textile Machinery Manufacturers, and owner of ITMA and ITMA ASIA, is pleased with the overwhelming response from the industry, both from exhibitors and visitors. Mr Charles Beauduin, President of CEMATEX enthused, "We registered a 20 per cent jump in visitor numbers compared with ITMA 2011. More importantly, from participants' feedback, we can confidently say that this is one of the best ITMA exhibitions! Our message on sustainability has resonated greatly with buyers."

He praised the industry's resilience and forward-looking agenda, adding that global industry players have understood the importance of investing in innovations that are planet-friendly and which can also help improve their business bottomline. "Our exhibitors have discovered that the visitors - whether they are seasoned ITMA visitors or attending the exhibition for the first time – are serious about checking out new innovative solutions to improve their competitive edge."

Ever since ITMA it has been becoming clear that the textile industry is renewing itself and investing. It is facing the major challenge of sustainable production. "Individual companies want to be equipped to make efficient contributions when faced with the competition of their textile value chains," was our prediction in our ITMA preliminary report, and that was the reality.

Ms Regina Brückner, CEO of Brückner Trockentechnik GmbH & Co KG, Germany, said:

"We felt for the first time there's a real understanding and interest in energy efficiency and green technology. There's a trend among our customers to want to upgrade their very old equipment because they understand the necessity of a highly productive and efficient production over the entire textile production process."

We obviously have to bear in mind here that the textile industry knows that the latest and most powerful innovations are always presented at ITMA. In addition, those who wish to invest in sustainability on a larger scale also wish to invest sustainably, and will thus postpone purchases up to a point that is still justifiable and that allows for maximum innovation. That point might even be ITMA.

#### **ITMA visitors**

Let us have a look at the distribution of the visitors and their countries of origin to get an overview of which countries and regions, at least quantitatively speaking, have the highest demand. The biggest contingent formed visitors from Italy. They accounted for 18 per cent of the visitors. It is hardly surprising, considering Italy is one of the world's major textile countries and ITMA practically takes place in its own living room. It would be great if the Italian textile industry, after some years of restraint, could begin investing again to further develop its extraordinary potential as Europe's number one textile country. This is in any case what we wish to see for the famous host of ITMA. Outside Italy, the top visiting countries were India (9 per cent), Turkey (8 per cent) and Germany (7 per cent). Other countries which made it to the top 10 list were France, United States, Iran, Brazil, Pakistan and Spain. The lifting of sanctions on Iran in the near future has buoyed the country's textile and garment sector, resulting in more visitors.

Visitors from Brazil and the US likely caused just as much delight, since numbers in the Top 10 were not necessarily expected. This is therefore perhaps a sign that the textile landscape in both countries could change. With its very low energy costs the US has a lot of potential, particularly in fully automated spinning. Brazil on the other hand is one of the world leaders in cotton production, and is trying to substitute its cotton exports with improved added value in its own country.

It is also interesting to look at who is not in the Top 10. China, Vietnam, Cambodia and Bangladesh are examples. There might be several reasons for this, but one is probably that the next major event is ITMA Asia 2016 in October, where organisers are promising to showcase the latest technologies directly in Asia. By then the 13<sup>th</sup> five-year plan will have been ratified (March 2016), which, according to Premier Li Keqiang, aims for sustainable, qualitatively better development and focuses on innovation. China is currently undergoing a structural transformation and surely does not wish to give up its prominent position in textile production and exports. But that is another issue. Let us stay with the ITMA visitors.

The 2015 fair also welcomed many groups from the Indian sub-continent. And there were also delegations from Central Asia - a region where the textile and clothing industry is slated for development as the sector has the potential to create jobs. A 140-strong Uzbekistan textile and garment industry delegation spent three days at the exhibition. It was coordinated by the Textile and Garment Ministry of Uzbekistan.

"ITMA 2015 is really the world's largest textile and garment manufacturing technologies platform which also introduces innovative and ecofriendly machinery. The Ministry aims to modernise the industry with innovative technologies which can create additional value and ecofriendly solutions which will help our manufacturers to compete in the textile world market. Our government programme for 2015-2019 is to renew and modernise the industry and we have set aside a budget of around US\$2 billion to implement it. We have signed contracts with a number of ITMA exhibitors in the weaving, printing, dyeing and finishing sectors and we will start installation from early 2016 up to 2019," said Mr Khaydarov Ilkhom Utkirovich, Minister of textile and garment industry "UZBEKYENGILSANOAT".

In addition, there was a delegation of 48 representatives from small and medium-sized enterprises (SMEs) from the textile and clothing sectors in Kyrgyzstan and Tajikistan. The group was coordinated by Geneva-based International Trade Centre (ITC), a joint agency of the World Trade Organisation and the United Nations.

A Russian delegation of 60 members was led by Mr Evgeny Ryzhov, Deputy Director of the Russian Ministry of Industry and Trade. "ITMA 2015 allowed our domestic companies to learn about the latest technologies for the light and textile industry, enabling them to consider implementing them in their own production, purchase production equipment and to exchange experience with foreign colleagues," he pointed out. In the last few weeks there have been an increasing number of media reports stating that because of the conflict with Turkey regarding the shooting down of a Russian warplane, Russia wants to stop textile imports from Turkey and instead begin vigorously expanding its domestic textile industry.

Enough on the visitors. Let us now turn to the exhibitors and their stands. As is to be expected at any ITMA event, all exhibitors showed themselves at their best. Large stands, high-quality layouts, creative decorations and original ideas turned the exhibition into a truly exciting experience. Here are few examples. Groz-Beckert shone once again with a lavish stand in a new design. Oerlikon's 3D cinema is always an experience and makes a giant machine viewable and conceivable, thus making the complex simple. You could not drag anyone away from Karl Mayer's full-screen wall-andceiling video presentations – with their pictures and videos the company managed to create an emotional atmosphere that all visitors were dying to immerse themselves in. Monforts surprised everyone with a new, never before seen presentation technology which brought machines to life with a type of augmented reality on iPads, and made a lot of other additional information about processes and application production easily accessible. Peter Dornier wore a suit made of glen check fabric that was produced by the air-jet weaving machine on display. And Dilo blew its own trumpet loudly with a very classical approach. The company displayed two complete assembly lines in operation. Greater effect is not possible at a machine trade fair. When questioned about it, Mr Dilo replied with a wink: "Don't expect me to show pieces of dead steel!"

And now for the machines – the actual stars of ITMA. Altogether the 1700 exhibitors from 45 countries very likely displayed around 5000 machines, and nearly all of the exhibitors, per old ITMA tradition, mainly displayed new machines. The immense demand for more energy efficiency, resource conservation and environmentally friendly processes was thus met with according supply.

Obviously we cannot discuss all of the new and interesting machines in this ITMA review. We will therefore limit ourselves to a few of the exhibits from the market-leading companies along the value chain, and will look at other machines in main discussion topics and in other thematic links in coming issues. Machinery for spinning preparation, manmade fibre production, spinning, winding, texturing, twisting, auxiliary machinery and accessories (Chapter 1 & 2)

Let us begin with spinning. Among the spinning machines and spinning preparation it was once again mainly the large, well-known companies that shone due to their innovative power. Here there were significant advancements of established machines for all spinning processes to be seen. The same applies to the winding machines. Above all as usual was the increase in productivity through improved efficiency, automation and compactness. The sustainability topic was mainly evident in the increase of energy efficiency. Furthermore there was improvement again in the use of raw materials and a reduction of waste. What also still had a great emphasis as ever was the increase in the yarn quality through monitoring, extraction of foreign particles and computerized optimization. Of equally increasing importance is flexibility in production and processes - specifically regarding reduced batch sizes and the constantly changing requirements of the market for yarn.

**Trützschler Spinning** has introduced their new card **TC 15** as we have guessed in our ITMA preview. Compared to the predecessor machine TC 11, it was possible to increase performance by approx. 15%. This has been achieved by a number of individual measures.

The new web doffer significantly reduces the tension drafts, which in turn improves quality and running behaviour. And the new web doffer together with the new sliver forming allows speeds up to 500 m/min for the TC 15.

According to Trützschler the TC 15 offers the smallest floor space in comparison to production and the lowest waste quantities.



Furthermore the TC 15 comes with two new developments which save space and increase productivity. The new **JUMBO CANS** with 1,200 mm diameter hold 43% more sliver than regular cans with 1,000 mm diameter. This means an improvement in economic efficiency due to less can transports. In addition, the efficiency of the downstream machine is considerably increased due to longer runtimes in the creel. The quality is improved by a reduction in sliver piecings. Depending on the size of the spinning mills, this equals several hundred thousand piecings per year.

The new can filling station **T-MOVE** bases on different thinking: the sliver feed moves – the can is stationary. The new moving head allows can change at high delivery speeds. This improves card efficiency and saves space. The service life of the cans increases because they do not have to be moved. Naturally, T-MOVE is designed for the new JUMBO CANS.

Because the trends towards technical textiles place higher requirements that can only be met by highly specialised cards, Trützschler offers the new card (TC 15S) also for man-made fiber processing.

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Trützschler JUMBO CANS

Another Trützschler development is the new modular tuft blending system **T-BLEND** which combines maximum precision and high production. It also relies on accurate weighing instead of volumetric measurement methods. Based on a series of measures it was possible to double the performance per weigh pan. Concerning foreign part separation, Trützschler has raised the bar once again. In the new Foreign Part Separator **T-SCAN TS-T5**, five detection technologies ensure an alltime high separation efficiency. T-Scan detects coloured parts, shiny parts, transparent and semi-transparent parts, fluorescent parts and smallest thread-shaped parts. Furthermore Trützschler improved the autoleveller Draw Frame **TD-8**. Now, for the first time, there is also an underfloor can changer for small cans. This simplifies the operation significantly. The "C" in the **TD 8C** stands for compact and this draw frame offers single head technology with the space advantages of a double head draw frame. The space-saving COMPACT installation of the leveller draw frames is achieved without the disadvantages of conventional double head draw frames.

From **Trützschler-Toyota** comes the **TCO 12**, a comber for automatic lap change and automatic piecing. This means that the Toyota-Trützschler combing mill now offers manual, semi-automatic or fully automatic flap transport. More flexibility is impossible.

**Oerlikon Manmade Fibers** presented an excerpt of some "must-have" products from their wide range of solutions. Both companies, **Oerlikon Barmag** and **Oerlikon Neumag** are the world market leaders in their segments. Oerlikon Barmag in development and production of spinning systems and equipment for manmade fibers such as polyester, nylon and polypropylene and for texturing machines. Oerlikon Neumag for complete plants for the production of BCF carpet yarns as well as synthetic staple fibers. Of course this kind of plants are too giant to show it on a fair. Oerlikon has started at ITMA Asia to present it in a phantastic virtual 3d-cinema. The 3d-technology provides the demonstration of a nearly photorealistic view on the plant in a production mode and offers the possibility to zoom in all areas of the process to watch the special advantages of the machines and components.

In this virtual 3d-cinema Oerlikon Neumag presented their extensive plant portfolio for the production of synthetic staple fibers. From 5 - 300 t per day; one-step or two-step technology; polypropylene, polyester, recycled polyester, polyamide and more; commodity or special applications. One example of a such a plant is the compact Staple FORCE **S 1000** which has been specifically designed for the economic production of staple fibers in small batch sizes of up to 15 tons per day. The plant not only impresses with its low initial investment and its compact construction. By replacing the conventional steam and water baths with a dry drawing process over godets, the energy costs are considerably reduced. The inline technology includes the spinning operation and the subsequent drawing in one process step. With this compact construction it is possible to produce staple fiber capacities of up to 80 tons per day. The applications are as diverse as they are specific: from fibers for geotextiles, filtration applications or hygiene applications to reinforcement fibers through to fibers for automotive applications. Because of the extruder spinning, the inline process is ideally suited to processing recycled polyester. Whether as regranulated chips or directly as rPET flakes (bottle flakes), even recycled polyester that does not 100% satisfy the qualities of virgin polyester can be processed.

A major competitive advantage of the 300 tons per day staple fiber plant for commodity fibers is the considerably higher profitability per ton compared to smaller plants, which relies heavily on the energy efficiency of the new large-scale plant. Furthermore there is the possibility of coloring fibers directly in the spinning process. Because the large plants are always connected to a polycondensation plant, fibers cannot be colored until processing. With side stream extrusion, however, the master batch can be mixed directly into the spinning process. This means, for example, that black fibers can be produced directly. Later coloring is no longer necessary. Yet it is not only commodity fibers that are produced in the two-step process but bicomponent fibers, too. Here, Oerlikon Neumag offers solutions for self-crimping fibers, binding fibers, super microfibers and hollow fibers, for example. Examples of bicomponent fibers are sheath/core, side-by-side, island in the sea or trilobal. The plant manufacturer from Neumünster has many years of experience in this area. The first staple fiber plant for bicomponent fibers was commissioned in 1995.

For the production of BCF carpet yarn Oerlikon Neumag, global market and technology leader for turnkey plants, presented the rotating tangle unit **RoTac3**. Energy saving and yarn quality are playing a growing role in the production of BCF carpet yarn and ToTac3 offers 50 per cent less compressed air consumption thanks to its innovative technology. In comparison to conventional tangle units, the RoTac3 technology forms the tangle knots with a pulsating instead of a continuous air current. The RoTac technology also eliminates tangle dropouts, which can occur repeatedly at a high process speed with conventional tangling. Last but not least, it ensures very gentle yarn guiding and reduced yarn tension as well as better process stability. This particularly supports future trends such as fine titer and sophisticated polymers. RoTac3 is available as a component with the three-end BCF plant S+ or can be retrofitted.

In the area of yarn drawing and take-up the WINGS concept has been state-of-the-art for years. Now it has also become available to operators of older POY systems with SW, CW and ACW winders. With a new series, market leader Oerlikon is now expanding into the market for upgrades and modernisations to answer the high demand for WINGS retrofit solutions. The new series of winders is called WINGS POY XS and Oerlikon showed the eightfold winder version from this new series with a stroke length of 170 mm in an etxra room. Due to its extremely compact design, it can be used for virtually any building concept. This stand-alone solution offers the usual benefits of a WINGS winder and is available for polyester as well as polyamide. The series currently includes five models with 8 to 12 thread and chuck lengths of 1,200 to 1,800 mm. Despite its compact design, WINGS XS produces packages with a volume of up to 23.2 dm<sup>3</sup>.



Oerlikon Barmag has expanded its family of winders and showed the new WinFors reversing winder. The specialist for especially delicate yarns reveals its potential in particular when winding materials such as microfilaments, mother yarn, airbag yarns and seatbelt yarns. Deployable in the POY, FDY, industrial yarn and BCF processes, WinFors can be used as standard for polyamide, polyester and polypropylene polymers, while other polymers – such as PVA, for example – are also not a problem. In concrete terms, the WinFors offers a considerably larger process window for seatbelt yarn applications than alternative winders. For manufacturers of airbag yarns, the longer chuck – measuring 1200 mm in length – is a more efficient solution for producing yarn. And the new development promises a more stable process for the manufacture of mother yarn. The winder is based on the WINGS and ACW platform, but relies on the reversing shaft in terms of its traverse system. With this, the yarn is laid in a particularly gentle manner, albeit not at the speeds common in birotor traverse systems. Nevertheless, speeds of between 2500 and 4000 m/min are possible depending on the process. A further benefit of the new WinFors winder is its flexibility: to this end, it can be converted from a 4-end to an 8-end winder without much effort by simply exchanging the traverse system. An important fact is that this all-rounder is also perfect as a retrofit solution. 4-, 6- and 8-end and equipped with a 1200-mm chuck, WinFors can be fitted under virtually every older spinning system.

Furthermore Oerlikon presented the next development stage of its modular Plant Operation Center (POC). The extended process and production control system can now capture and digitise all the steps of yarn production and processing including plant technology from third party suppliers. In addition, it can be linked to ERP systems such as SAP. The networking of several plants via cloud computing is likewise possible, opening the door for manufacturers to highest process efficiency and transparency at Industrie 4.0 level.

The Group Segment Customer Services presented innovative solutions, how manufacturers make better use of new markets, securing production over the long term and how to systematically optimise operating and manufacturing processes. Shortly after ITMA Oerlikon announced that Oerlikon's Manmade Fibers Segment had received a number of large orders totaling more than CHF 50 million for their Oerlikon Neumag staple fiber plant engineering technologies. The orders were placed by key customers in Europe and Asia, outside China, for the production of staple fibers.

The **Saurer Group** followed the ITMA tradition to present a lot of new developments and improved machines in nearly every business segment and it was the company's motto "to set new standards". All innovations have been part of the new E3-philosophy of triple added value (energy, economics, ergonomics), the Swiss company first introduced at ITMA Asia in 2014. a few days before ITMA Saurer announced a joint venture with Premier to take a step closer to completing the control of the data in the spinning process and optimize the yarn quality.

**Saurer Schlafhorst**, market leader in in staple yarn spinning (ring, rotor, winding) highlighted new versions of there leading machines Autocoro and Autoconer. Of course both have been in the focus of every spinner.

The E3-certified **Autocoro 9** demonstrates the technical superiority of its innovative drive technology with impressive new features. With even more intelligence in each individual spinning position, the Autocoro 9 sets new standards for energy-saving yarn manufacturing, productivity, economic efficiency, ease of operation and quality.

Autocoro 9 offers up to 25 % lower energy costs and cost transparency through energy monitoring. The rotor speed in practice is up to 180,000 rpm and take-off speeds are up to 300 m/min on all lengths of machine and also for very large packages up to 350 mm in diameter. Saurer announced that that spinning costs are reduced by up to 19 %.

The individual spinning position drive of the Autocoro is a sensational success story. Only four years after the market introduction of the innovative rotor spinning technology Saurer delivered the 1000th Autocoro with individual spinning position drive to the Turkish textile company Emateks. Another plus of the drive is that each spinning position can be cleaned and serviced individually while production continues as normal. This means that regular and lengthy production stoppages are a thing of the past. Lean maintenance during production reduces the servicing outlay on the Autocoro 9 by up to 60 %.

With innovative FX technologies that are already a byword in ring spinning and winding, Schlafhorst is now increasing value creation in the Autocoro spinning mill too. With DigiWinding FX, high-quality dye packages can be produced with round edge and flank transitions and process-optimised density. DigiPiecing FX is the new benchmark for piecing. Operators with general textile-technological knowhow can produce top-quality piecings thanks to the intelligence integrated into the Autocoro. Last but not least with the Autocoro 9 it is now possible to get into fancy yarn spinning on 24 spinning positions for a very favourable economic investment, because the Fancynation device can be restricted to individual sections.

Saurer Schlafhorst also showed a new version of the semi-automatic rotor spinning machine **BD6**. This new development combines proven BD technology with high-end components from the Autocoro world. It is equipped with the latest generation of energy-efficient motors and offers high-speed spinning at up to 230 m/min for all raw materials, even when processing waste and regenerated fibres. Saurer says that thanks to the patented DigiPiecing digital technology it achieves a piecing quality hitherto unachievable in the semi-automatic sector. The BD 6 produces packages in Autocoro format and has a new patented digital quality monitoring of the package.

Furthermore Schlafhorst unveilled an updated generation of the new **Autoconer 6** which is more energy efficient, economical and user-friendly. The highlight is a self-adjusting winding unit with the new Eco-Drum-Drive System and Smart Cycle which ensures top production speeds, reduced energy consumption and up to  $2 \times 6 \%$  more productivity. Schlafhorst has cut the energy consumption of the Autoconer 6 by up to 20 % compared with its predecessor model.



Saurer Schlafhorst Autoconer 6

The most important factors contributing to this perceptible reduction in resource consumption are the particularly energy-efficient Eco-Drum-Drive System, suction motor and frequency inverter with improved power efficiency, SmartCycle in combination with the new intelligent vacuum control system "Power on demand" and the flow-optimised suction tube. MultiJet also plays an additional part in reducing resource consumption costs by cutting the compressed air consumption. Also ring spinning machine manufacturer **Saurer Zinser** showcased outstanding products. The brand-new **ZinserSpeed 5A** roving frame reduces operating costs and raises productivity. Its energy-saving mode for suction and flyer table blowing reduces overall energy consumption by 20 %. The roving frame has the additional benefit of a smaller footprint. In 220 gauge the ZinserSpeed 5A is up to 17 % shorter than its predecessor, the Zinser 670. With a doffing time of less than two minutes, the ZinserSpeed 5A's new automatic doffer makes the roving frame the ideal partner for Zinser high-speed ring spinning machines. The new RoWeLift transfer station connects the ZinserSpeed 5A to a roving bobbin transport system with 1:1 transfer. Contact-free transport to the ring spinning machine ensures optimal quality. At the exhibition booth the ZinserSpeed 5A will be connected to the new ZinserImpact 72 by means of a Zinser Autoflow system.



Saurer ZinserSpeed 5A

With a length of 2,016 spindles, the presented E3 labeled **Zinser 72** has broken the 2,000 barrier and is setting new standards for economy in the commodity yarn sector. The machine is super-long, super-economical and extremely user-friendly. The new two-end TwinSuction system saves twothirds of the energy consumption in combination with the OptiSuction yarn break suction system. The new innovative energy monitoring system delivers information about energy consumption per shift or lot and enables specific energy optimisation in the production chain. Thanks to its reduced length, the Zinser 72 lowers production costs by up to 11 %. It also occupies up to 21 % less floor space. And it features the maintenance-free **Impact FX** unit, which increases annual production by up to 2,600 kg (Ne 30). The Impact FX is designed to clean itself, thus doing away with unproductive maintenance interruptions for cleaning as is the case with drum systems. An independent, controlled vacuum unit ensures constant compact power and ultimate process reliability with the Impact FX.

The third presented machine from Zinser was the **Zinser 451 Impact FX** compact spinning machine for woollen yarns. The self-cleaning compact technology is resistant to wool grease, textile lubricants and finishing agents.

In addition to all these new machines Saurer presented their new service concept SUN (Service UNlimeted) in short edutainment shows on a stage. We know this kind of presentation from other fairs, but it was new and a little bit risky for a machinery exhibition. However, roughly hundred people watched the single shows. What makes SUN attractive is an individual service agreement at a fixed price for a secured productivity.

Also Swiss **Rieter** presented a high number of innovations and new machines and announced 'many visitors and a high interest in the new machines' already on the second day of ITMA. This time Rieter's eye catcher in front of their booth was a "red sofa" which has replaced the "red chair" of the "Comfort-for-Competence" campaign. The new claim for comfort was "Comfort is when your company excels and grows – year in year out". Although Rieter's marketing focuses on productivity and efficience Rieter is very engaged in increasing the sustainability factor of their machines since many years, told us Mrs. Walraf, Head of Marketing at Rieter Spun Yarn Systems. The company has lowered the power consumption of some machines up to 50 percent within the last decade, she said.

New machines on display were the new E 36 / E 86 combing set, the new R 66 rotor spinning machine and the J 26 air-jet spinning machine with the Polyester option P 26. All this innovative solutions allow a high production performance and a consistent sliver and yarn quality, so that Rieter customers obtain as much good yarn as possible from the expensive raw material. With the value-enhancing innovations, the efficiency and low energy consumption took the centre stage.

Let's have a special look on the J26 Air Jet Spinning machine, because this spinning method has still a very high potential. (a comprehensive article about Air Jet Spinning is available in issue 9/10 2012).

The J 26 is a fully-automated, double-sided air-jet spinning machine with 200 spinning units, up to 6 robots and a delivery speed of 500 m/min ensures economical and flexible production. An attachment ensures 100 % polyester spinning with long running intervals without manual cleaning. High performance is supported by the piecing preparation system with reduced piecing time. The winding unit ensures optimal package build-up and therefore higher package weight. The well established Rieter yarn clearer Q 10A is now intergrated in the J 26. All standard clearer functions and special monitoring channels are available. The machine application range covers 100 % polyester, combed cotton, cellulosic fibres, microfibres and different blends including man-made fibres in the yarn count range from Ne 20 to 70.

A further highlight among the Rieter exhibits was the extended SPIDERweb Mill Control System - an important step for usage of the "Internet of Things". It provides the spinning mill owner with an important instrument for optimising the spinning mill.

The Business Group After Sales – a very important section in the Rieter strategy- presented innovative spare parts and conversions packages as well as after sales service offerings which maintain the competitivenes of Rieter systems, reaching from technology support over maintenance audits and repair services to customer training. In addition Rieter After Sales offered end-to-end mill solutions leveraging on Rieter's system supplier expertise.



**Savio** from Italy highlighted breakthrough innovations in the winding segment, which is today its core business. The company presented important novelties, all representing high-end and niche products with important technological content. The **Eco PulsarS** is a quantum leap forward in automatic winding and Savio names it the sustainable eco-green advantage. In fact the new machine offers energy savings up to 30% and enhances the productivity up to 10%. This makes the Eco PulsarS a reply

to the market demand of energy saving, including also room air conditioning, together with improved production performances. Furthermore it offers high quality packages and utmost flexibility. The combination of all new features and design has created an environment in which each part of the machine can operate at its optimum level and without limitations. Spindles and bobbins feeding systems set independently the level of suction required. Suction is generated as needed and used without losses. The new Controlled Cut System, Yarn Tension Control System, Waste Collection&Separation System and Upgraded Splicing Solutions, each contributing to the overall reduction of the process downtimes.



Savio Eco PulsarS winder

Another innovation is the availability of Savio's **Multicone** digital yarn layering technology (drumless) for the **Polar** range.

The Polar winder is extremely popular in all markets of the world, and it is absolutely the Savio bestseller. This state- of-the-art machine has been designed keeping in mind the demands of our customers in terms of increased productivity, reduced energy consumption, reduced waste

> and production of yarn package of top high quality. Further emphasis has been given to realize machines friendly use and almost maintenance free for any type of working environments. All POLAR models (manual feeding, automatic feeding free standing, automatic link) represent the utmost technology available: the previous success of the mechanical models has been followed by the last generation of the fully controlled electronic one, which is today the state-of-the-art.

> Multicone represents the proper solution to achieve flexibility, for an easy and fast change in the winding process to prepare all formats. Packages for dyeing, warping, weft, knitting, double twisting, require a different and flexible package formation in terms of geometry, edges shape and density. Polar "Multicone" system represents today the proper solution to achieve this kind of flexibility in the package formation.

Furthermore Savio introduced a combination of Multicone and **Volufil**. The consolidated success of the "Volufil technology" and the new demand of different yarns for diversified fabric applications, has requested several new developments on the machine technology. The answer is Volufil Multicone which combines thermic treatment and winding process on a single machine. Savio has extended the technological process on acrylic heat set yarns, on special yarns (chenille) and on traditional HB Acrylic fibers, also blended with wool and elastomeric filaments. The new winding system "Multicone" allows the best solution for any yarn type and package format with different traverse take-up. The Multicone system allows the tailoring of package for different end use with simple settings on PC.

Of course also **Marzoli** came to ITMA with a lot of innovations and new machines. One of them was the new roving frame: the FT60 and FT70 series. They both rely on multi-motor drive systems and modular design, allowing to reach up to 224 spindles. The completely electronic drafting system ensures the highest degree of flexibility: the draft can be changed by simply inserting the new draft parameter on the touch screen interface, no mechanical modification is required.

Another novelty was the new **CM7 comber** with automatic Lap Piecing. This comber is the result of a thorough activity of research and development that has led to the achievement of the maximum results on quality, productivity and efficiency. Maximum quality means that the new technology stands for a substantial reduction of neps and short fibers.

The result is a perfect evenness of the sliver. Concerning productivity the CM7 offers mechanical speed up to 600 nips/min with production volumes up to 85 Kg/h. And in the field of efficiency CM7 stands for a reduction in energy consumption and also a reduction of noil percentage.

Moreover Marzoli launched its new compact device. Compact devices are increasingly used in spinning mills: the positive aspects stemming from their application (e.g. higher resistance, lower required twist, less hairiness, etc.) have fostered spinners to apply compact devices on an increasing variety of counts (coarse, medium, thin and extra-thin counts) and types of yarn (combed, carded and synthetic yarns).



Marzoli CM7 comber

The high significance Marzoli put on the topic of "Industry 4.0" was a surprise for us. Together with Microsoft Marzoli presented the first applications of the MRM-Marzoli Remote Maintenance solution, installed in pilot facilities in Italy and Turkey, in which "smart" components are integrated and transmit data and useful information online in order to increase the efficiency of the facilities and to perform predictive maintenance avoiding breakdowns and downtime. The partners want to promote Industry 4.0 in Italy.



During the press conference at ITMA, Andrea Cardillo, Manager of the Cloud & Enterprise Division of Microsoft for Italy, explained that "Cortana Analytics Suite is the platform designed to transform data into smart actions: telemetric data cleverly analysed by Camozzi Digital experts with Microsoft instruments to give the client all necessary indications to make their factory operate in the best possible way."



# **BREAK-THROUGH INNOVATION WITH AN ECO-GREEN LEVERAGE** A QUANTUM LEAP FORWARD IN AUTOMATIC INTRODUCING AN ENTIRELY NEW CONCEPT THE EXISTING STRUCTURAL LIMITATIONS OF MACHINES.



SAVIO MACCHINE TESSILI S.P.A 33170 PORDENONE (Italy



**USTER** introduced no less than five new and improved quality control systems to optimize profits for the entire spinning mill. `Managing a spinning mill with quality in mind' is the unique USTER concept behind the launches.

Our highlight was the launch of **USTER**® **TESTER 6** – the Total Testing Center. TESTER 6 represents an enormous leap forward in this renowned instrument series. Setting new standards in evenness testing, it works with greater accuracy and reliability than ever, at a test speed of 800 m/min.

Specially-developed sensor technology in USTER® TESTER 6 is futureproved for extended capabilities. The system allows spinners to prevent quality claims, flagging potential problems with its Product Consistency Alert, customized for the specific materials and conditions in each mill. The combination of accurate laboratory testing data with information from online monitoring of 100% of production is a huge breakthrough. USTER® TESTER 6 incorporates the USTER® QUALITY EXPERT management tool, creating the brand new Total Testing Center. Spinners can build their own tailored quality network, to analyze and optimize performance. Each new instrument extends the possibilities as it connects to the network, offering features such as predictions of fabric appearance, pilling resistance and weaving performance. The Total Testing Center comes with its own knowledgeable support at hand: **Assistant Q**. Reverting on 65 years' USTER know-how, Assistant Q provides clear answers to complex questions which guide mill managements in fast-response solutions towards the ultimate goal of 'managing a spinning mill with quality in mind'.

New sensors and sophisticated image analysis are at the heart of the **USTER® JOSSI VISION SHIELD 2**. Uster names it the ultimate defense against cotton contamination. The system can locate and remove the smallest particle of contaminant with class-leading detection of both colored and white polypropylene and other synthetics. The new Efficiency Booster with USTER® JOSSI VISION SHIELD 2 transforms fiber cleaning into complete waste management. It works by creating an accurate 'fingerprint' of a clean cotton tuft, and matching detections against this, to ensure that only contaminated cotton is actually ejected, even when dealing with the densest tufts.

Newfeatures now available with the USTER® **QUANTUM 3 anniversary** edition focus on enhanced spinning efficiency and fabric improvement. Smart Limits for clearing become even smarter, with automatic checks on the effect of splice distribution. These features include Core Yarn Clearing, in which unique USTER® sensors detect and cut whenever a core component is missing or misaligned. Further important extras are color and shade variation detection and online hairiness measurement. The new USTER® **SENTINEL**, the successor of USTER® RINGDATA, offers full-scale optimization of the entire ring spinning process. With intuitive reports on every parameter influencing end-breaks, the USTER® SENTINEL has the full story about ringframe performance. Clear visuals highlight exact reasons for breaks, prompting fast and easy problem-solving.

The Swiss based **SSM Schärer Schweiter Mettler**, the inventor of the electronic yarn traverse system, continued their tradition of trend-setting with the presentation of breakthrough technologies. SSM showed new solutions for cost effective winding and yarn processing. Thanks to the new introduced DIGICONE® 2 winding algorithm, an increase of up to 20% on dye package density with unchanged dye-recipes is possible. Six new product launches in the Winding & Doubling segments and two in False-Twist & Air-Texturing were showed for the first time.

Extremely strong interest was recorded for the new XENO-platform (XENO-YW, -BW & -FW for winding and XENO-YD, -BD & -FD for assembly winding) as well as for the SSM GIUDICI TG2-AT & -FT with individual automatic frontal doffer. The DURO-TW & -TD for technical yarns as well as the TK2-20 CT & KTE for sewing thread inspired the crowd as well. With the NOVA-CS, SSM GIUDICI took the advantage of the disappearance, respectively difficulties of European CCY machine producers to become niche leaders in the high-end segment.



SSM Schärer Schweiter Mettler XENO-platform

Besides of the presented applications, SSM introduced the new X-Series (PSX-W/D, PWX-W and TWX-W/D which will be shown at ITMA Asia 2016) for Dye Package Winding/Rewinding and Assembly Winding as well as the well-known machines for Air Covering, Draw Winding and Yarn Singeing.

SSM told us that they are overwhelmed by the number of high quality visitors and had many interesting discussions concerning open projects or about the latest SSM-equipment. In the end, several orders had been concluded during ITMA.

#### Components & parts for spinning preparation, spinning, winding, texturing & twisting

Besides sales of new machines greater significance has been acquired by after sales and service businesses and consequently the component and spare parts business. The consultancy McKinsey recommended in a study 'Zukunftsperspektive deutscher Maschinenbau' (future perspectives for the German machine construction industry) to focus more attention on this business area as this is where the potential lies. A recommendation stated that while the after sales service area already had more importance than other areas in the textile machine industry there was considerable scope for expansion. In our subjective opinion the business is driven by only a few machine producers in conjunction with an offensive marketing strategy even though it is very important for the profitability for the overall textile industry.

Equally important is that an army of third party providers in the production area in low-wage countries have been able to acquire considerable market share in the last twenty years.

The awareness though seems to be gaining ground in the textile industry that short-term price savings negatively affect performance and durability as well as the quality of goods, short maintenance intervals and more frequent stops does not add up in the long run. Should this change of attitude gain attraction then the textile machine industry will reinvent itself and its share of turnover significantly increase in this business. There are also benefits applicable for the textile industry. The original component provides not only a better product in almost every case but also the greater productivity delivers higher protection of the investment for the machine supplier. A healthy supplier is always the better partner. In addition a textile company profits again indirectly as the machine manufacturer invests part of the return from the parts and components business in research and development of new machines while third party providers remove innovation from the investment budget. This is also an important aspect of sustainability.





These are all good reasons to take a closer look at suppliers of parts and components. One of the companies in the spinning area that was strongly driving sales of parts and components under its own brand is the Swiss company Rieter as it wishes to expand the business. At 30th October 2014 Rieter announced that the priorities for the next three years will be the further reinforcement of its innovative capabilities and the expansion of its product and service offering, especially in parts and components. Rieter Components are the companies Bräcker, Graf, Novibra and Suessen, strong brands, which are forming a global provider of components for all spinning technologies.

**Bräcker**, the specialist of key components for ring spinning machines introduced several innovative solutions at ITMA. The STARLETplus traveller and the BERKOL® supergrinder, with integrated Berkolizing unit (UV-treatment), for automatic grinding of ring, roving and air spinning top rollers. As well the TITAN and ORBIT spinning rings, PYRIT and ZIRKON travellers, cost saving maintenance tools, and the well-known range of BERKOL® cots and aprons. At this occasion Bräcker celebrated its 180 years' Anniversary. The ceremony, which took place at the booth, was highlighted by a speech of Mr. Daniel Link, Managing Director of Bräcker, in which he underlined the success story of the products as well as the history of the company. **Graf**, a leading manufacturer of clothings for flat cards and roller cards, introduced HiTop flat, the new designed durelastic foundation, flat clothing systems with magnetic attachment, EasyTop and the X-Comb segments for circular combs.

**Novibra**, a leading company in spindle technology, introduced LENA (Low Energy consumption and Noise Absorption) high-speed spindles, the clamping and cutting crowns CROCOdoff and the CROCOdoff-Forte for coarse yarns. And **Spindelfabrik Suessen**, which was originally founded 1920, offers innovative spinning systems enabling the production of high quality yarn. Suessen introduced the EliTe®CompactSet Advanced – a compact spinning system with various new features and new Premium

Parts for rotor spinning machines such as the new TwistTrap-Navel and the PS7 TwinDisc.



Novibra LENA high-speed spindle

Another company with an excellent

positioning and portfolio in the parts and component business is the SaurerGroup. **Saurer Components** stands for the brands Daytex, Fibrevision, Heberlein and Temco in the man-made fibre segment as well as Accotex and Texparts in the staple fibre segment. All these companies presented latest developments.

**Saurer Components Accotex** launched its new **AccoSmart sandwich cots** that improve both yarn quality and service lifetime of the cots. The new sandwich cot is based upon a completely new revolutionary technology platform that combines a very soft, elastic layer and a harder elastomer layer, providing the optimum solution.

**Saurer Components Heberlein** introduced three new **air interlacing jets** that boast performance improvements whilst saving energy and ultimately costs. **PolyJet SP-2 HP** provides air interlacing for filament spinning and has an additional jet insert for producing finer denier (<50 den) with 0.9 air orifice for a high performance in terms of interlace numbers, less broken filaments and reduced air consumption. It's also been optimised for less than 2.5 dpf and microfilaments operating at lower pressures, and with a retrofit option, it's possible to replace the jet pack on the existing SP-2 housing. **WarpJet** provides time saving threading and energy efficient custom interlacing with performance improvements of between 10% and 50% thanks to higher operating speeds, lower air consumption, and higher nip numbers.

Its modular design allows a choice between cost optimisation or a highend performance solution. The full range of Heberlein jets will operate on the WarpJet in line with yarn size and performance requirements and the jet package insert of 32 ends is easy to mount and release for simple maintenance. **KF Jet Insert** provides knot free air interlacing for falsetwist texturing and guarantees there are no imperfections in the fabric such as pinholes, teardrops or stripes. It provides a 15% to 30% increased unwinding speed compared to non-interlaced yarn and boasts an air saving compared to a soft interlaced yarn. The **Saurer Components Temco VR50300-00-HS separator rollers** have the ability to completely replace air-bearing separators providing enormous savings in terms of compressed air, whilst the **Covering Spindle USU** provides a wide area of application enabling universal use with optimal yarn quality. The new USU spindle can be provided with spindle bores of 3 to 9 mm diameters and now allows installation in a spindle rail bore of 42 mm diameter. It can also be installed in a swing bracket with 50 mm diameter mounting bore.

**Saurer Texparts** exhibited the **PK 2600 series** which can be installed on almost all machine types so spinners can make use of all features of the well-proven weighting arm and consequently improve yarn quality considerably. The Compact systems of well-known suppliers found in the market can be retrofitted to the well-established weighting arms **PK 2630 SE** and **PK 2630 SEH**. Furthermore Texparts presented their spinning rings and travellers which coatings provide superior and unique ring and traveller systems for spinning. **Saurer Fibrevision** introduced the **Fraytec FV2** and **FV2 Plus** for broken filament monitoring and the Fraycam 2 for image captures of broken filaments. The Fraytec FV2 has a range of improvements over existing FV sensors and substantial improvements over earlier generation Fraytec systems.





Saurer Components Temco VR50300-00-HS separator rollers

Fraytec FV2 Plus provides further advanced features including characterisation of the size of brokenfilaments and slubs, in addition to both interlace and denier variation measurements.

One exception among the third party providers of components is the German **Reiners+Fürst**. This company has a very long tradition in producing parts for the spinning industry and stands for rings and travellers of excellent quality. Reiners+Fürst has strong emphasis on R&D and numerous international patents covering ring and traveller combinations prove the efficiency of their technique. R+F presented the next generation of TURBO chromium coated rings and a selection of enhanced ring travellers and reported that the exhibition was one of the most successful exhibitions ever in the 70 year history of R+F. Over 450 visitors at the prominent R+F booth mark a record.



Reiners+Fürst TURBO chromium coated ring

# Weaving preparatory & weaving machinery (Chapter 4)

Weaving machines are also concerned with the aspect of innovation in productivity, efficiency, flexibility and scope of use. Direct drives and their advantages continue to be a big subject. This encompasses monitoring, supervision and optimization through sensors and computerization. There is also the trend to automation, most particularly in weaving preparation. It is interesting to see that after more than 200 years there are still many improvements and innovations in the area of Jacquard woven fabrics. Equally of interest is that two market leaders have presented new machines for the production of Terry fabrics. Many innovations are based on the specific requirements and the expansion of applications provided by technical textiles.

The German **Lindauer DORNIER** once again presented the company's motto for sustainability "the green machine". This motto combines the green colour of the machines with their energy efficiency and the textile applications produced on DORNIER weaving machines. For DORNIER CEO and owner Peter D. Dornier the produced applications are the most important contribution of the textile industry and in particular DORNIER for a more sustainable future. For example applications like filters provide a better environment with clean air and water.

The absolute highlight of the exhibited DORNIER machines was the brandnew rapier weaving machine P2, which was placed at the center of the booth and attracted the attention of all people involved in weaving business.

The successor of the famous P1 produced a high density filter fabric in super heavy design with a nominal width of 320 cm and two warp beams. For this width, this kind of fabric could, up to now, only be produced by means of special machines. The extremely high density is achieved by a specially developed cloth take-up, an absolute uniformity of the filling density and a reed impact force of 5 tons. Such a high reed impact force requires to regulate the warp tensions with the warp let-off and cloth take-up at a constant value. In order to master this warp tension, the DORNIER SyncroDrive® with its stable speed is crucial for the shedding. The load peaks in the whole shedding motion are minimized. And the produced uniform fabric has always the same mesh number per cm2. In addition to density this is another requirement for a high quality filter fabric. This new rapier weaving machine P2 provides for weavers a multitude of new fields of application as well as the chance to open up new markets.



Furthermore DORNIER showed the air-jet weaving machine A1 of the latest version producing a suit fabric out of worsted yarn as fabricated by the leading textile factories worldwide. It is well known, that weaving a high-quality fabric out of finest wool yarns with high productivity poses a major challenge. The DORNIER air-jet weaving machine succeeds in this challenge with its gentle filling insertion ("senza pelosità", which means no hairiness of the fabrics) in combination with the automatic filling break repair. And DORNIER was able to push forward productivity and quality. Nowadays, the air-jet weaving machine A1 is used at more than 1,000 picks/minute in industrial applications. The newly developed nozzle concept accelerates the filling thread gently and inserts therefore sensitive yarns even more smoothly.

Another presentation was a P1 producing a very exceptional fabric for sophisticated ladies outerwear. The special feature of this fabric is that it is woven with 16 filling colours and different materials at up to 600 fillings/minute. The basis for weaving such a multifaceted blended fabric is the well-tried DORNIER filling insertion with positive controlled center transfer ensuring a precise and reliable insertion of different filling yarns and components such as, e.g. DORNIER MotoLeno® for the selvedge creation or DORNIER AirGuide® for a precise rapier guidance in the shed. And there was one more P1 of the latest version producing a sophisticated functional fabric out of different materials, e.g. upholstery fabrics for office chairs. Monofilaments and different flock yarns are used in the filling.

The colour of the fabric can be chosen individually according to customer wishes. This challenging elastic material of high quality can only be woven using a very precise warp regulation.

In addition DORNIER showed an air-jet weaving machine A1 in Jacquard version at the stand of Stäubli and at the stand of Bonas a rapier weaving machine P1 with a directly mounted Jacquard machine are displayed.

The large **Itema Group** trade fair stand threatened at times to burst its seams. While we were visiting business cards had filled two large glass containers to the brim and beaming sales staff were explaining to interested visitors the latest features and technology of all the machines. Itema Group CEO Mr. Carlo Rogora told us in an exclusive press conference that the success of the last two years was based on a changing company culture. All employees are challenged to find solutions that improve the company, the processes and the machines and to get involved. The Itema focus is entirely on R&D and there is a will to build top class machines that is being consequently implemented. Customers value this and have developed great confidence in Itema.

Itema introduced its best-in-class airjet machine, the A9500p, equipped with a new and innovative feature: the double tandem nozzles, which ensure enhanced machine efficiency and superior fabric quality.

In fact, the double tandem nozzles guarantee a perfect distribution of the pushing force on the weft using a lower air pressure, thus leading to a double benefit: reduced stress on the yarn allowing top fabric quality and, at the same time, the possibility to weave with a lower pressure ensuring energy saving.

From the rapier insertion technology side, ITMA Milan has been the proper stage to officially launch the new Itema R9500p. Born from the pedigree of the premier rapier R9500 loom and destined to run even better, smarter and faster, the new R9500p offers the perfect blend of ultimate versatility and productivity through an ensemble of exclusive technological features and brand-new innovations, which together meet and exceed even the most demanding requirements of Customers competing in rapidly changing markets. Furthermore Itema showed the new R9500terry to a large audience. The new racehorse when it comes to terry weaving was introduced for the first time in September 2015. Itema, the first and foremost rapier terry loom producer, carries on the excellence in this application of historic Sulzer and Vamatex brands. Besides this strong inheritance, what makes R9500terry an extraordinary weaving machine for terry weavers are the sturdy structure and reliable mechanical components coming from the Itema absolute best-seller, the rapier R9500, and the exceptional

textiles results obtained due to an extensive and thorough R&D work. Unparalleled textile quality is guaranteed by a winning trio of innovative devices: the new positive pile back-rest roller, the new pile formation unit and the new ground back-rest roller.

At the close of the exhibition on 19 November, Mr. Carlo Rogora, CEO of ITEMA Group, concluded: variety of new airjet and rapier weaving machines. In total they showed ten machines weaving a wide array of fabrics including shirting, denim, terry and automotive right through to technical fabrics. The center of the huge booth was occupied by an OMNIplus Summum airjet weaving machine with new features. The year 2015 saw Picanol celebrating 40 years of manufacturing rapier

Picanol presented a new booth concept on a wide area and also a wide



Itema rapier loom R9500p

"Considering the current situation in the textile industry in some markets, we are pleasantly surprised with these results. ITMA 2015 has been especially satisfactory, both in terms of the organisation and logistics of the show and the significant level of attendance of customers. The contacts and orders we established, above all from India and Turkey markets, largely exceeded our expectations."

weaving machines with the global launch of its new OptiMax-i and TerryMax-i machines. The new OptiMax-i comes with incredible industrial speeds of up to 750 rpm, an increased performance, rigid construction, new applications, intelligent energy efficiency, improved ergonomics and user-friendliness. The OptiMax-i is available in reed widths ranging from 190 to 540 centimeters. The Guided Positive Gripper (GPG) system has been developed for dedicated

technical fabrics. Thanks to the revolutionary Free Flight Positive Gripper system (FPG), weavers are now able to combine and freely mix the most challenging filling yarns. Other features developed to respond to an ever increasing demand for versatility include, among other things, the Electronic Filling Tensioner (EFT), the SmartEye filling detector and the SmartCut filling cutter. The new TerryMax-i (rapier) bases upon the same high-performance weaving technology as the OptiMax-i and offers all the possibilities for growing to the top in the terry market. Picanol says that it is guaranteeing optimum fabric quality and is best in class for minimum energy consumption. The fabric quality is guaranteed by the stability of the unique pile formation. The cloth movement is driven simultaneously with the backrest movement (patented) and is directly driven from both sides by a torsion-free shaft without mechanical settings or additional transmissions (patented). The ultra-light compensation rollers in combination with the

robust structure ensure that the pile is formed smoothly, with a completely even pile height (patented). The fabric quality is further ensured by the minimal distance between cloth formation and take-up and by the constant yarn tension. The pile height monitoring gives continuous feedback on the woven pile height. The tension is automatically released at stop, and automatically re-tensioned again to the required tension at start, ensuring correct pile height even after a stop.



Picanol TerryMax-i rapier weaving machine

The oil-cooled Sumo main motor drives the weaving machine directly, without belt or clutch and brake. The combination of the highly energyefficient Sumo motor with the direct drive (patented) for main shaft and shedding motion results in power savings of more than 10% in comparison with conventional clutch and brake configurations. The energy cost for air conditioning is also reduced as the Sumo motor generates less heat in the weaving mill. The new TerryMax-i (rapier) and the new TERRYplus Summum (airjet) weaving machines make Picanol the only provider on the market that offers both airjet and rapier terry machines.

In addition, a Picanol OptiMax-i with jacquard was on display at the Bonas booth and an OMNIplus Summum was demonstrated at the Stäubli booth.

> **Van de Wiele** is the only company that offers complete carpet and velvet solutions with machines for yarn producing, weaving, tufting and finishing. On display were latest developments for nearly every segment of the company's activities. In front of visitors interest were the four jacquards ranging from 5000 hooks for terry over 16.128 hooks

for high density and fashion articles until 18.500 hooks directly mounted on the loom woven light carpets and gobelin. Absolute highlights were the machines with the "smart drive" technology, without a cardan shaft. And the terry loom which run at a speed of 900 rpm. For the field of technical textile applications Van de Wiele presented a tailgate of the self driving electrical car produced with 3D technical fabric woven on the VANDEWIELE VSi42. For this type of VSi the 'V' stands for 'versatile' and not for 'velvet'. The already proven servomotor technology coming from carpet weaving is implemented in the VSi42. With servomotors for heddle movement, jacquard drive, cutting motion, pick regulation and main drive, a full electronic machine with flexible quality changes and high production output is Van de Wiele's solution for producing technical textiles.

Furthermore the carpet weaving market leader showed an impressive collection of new carpet design possivilities. Hundreds of carpets could be examined.

**Stäubli** presented a total of 13 novelties, all of which offer greater advantages and are aligned with the needs and expectations of the market. Several thousand visitors showed strong interest in the new high-performance products. The international Stäubli team gladly received the many customers and other interested persons, who confirmed that Stäubli's strategy is well aligned with market needs. A number of business agreements were made at the show and following this successful trade fair, Stäubli is looking forward to 2016 with strong optimism.

Stäubli has again expanded its range of weaving preparation solutions, because outstanding performance is always based on good preparation.

The SAFIR S60 automatic drawing-in machine, offering the highest levels of efficiency and productivity, has been successfully launched. Interested visitors watched it in operation and were amazed by the dependable automatic optical yarn & color detection functions. Especially interesting for denim weavers was the new SAFIR S40 automatic drawing-in system with mobile drawing-in trucks. It was creatively presented in an attractive holograph displaying the system details and showing the Matterhorn covered in denim.

From an elevated deck at the booth, visitors could perfectly observe the new SX, LX and LXL Jacquard machines operating in combination with Stäubli Jacquard harnesses and healds. The high-performance weaving machinery setups produced sophisticated applications like OPW (one piece woven) airbags and African damask, underlining the profound system understanding Stäubli provides to weavers by means of its Jacquard weaving machinery in combination with Stäubli Jacquard accessories. The African damask was produced at high speed on a type SX Jacquard machine equipped with a specific harness with 12,696 cords in conjunction with an air-jet weaving machine operating at a rate of approximately 950 weft insertions per minute. The weaving machine and the Jacquard machine are both operated by individual electronically synchronized drives, which is a special feature of this set-up.



Stäubli SX Jacquard machine

A large part of the booth was dedicated to the newly unveiled ALPHA 500 INNOVATION carpet weaving system with an accessible weavers stand. It generated great attention, especially as it was in operation weaving the most diverse and innovative carpets.

Another highlight and world premiere was demonstrated by the Stäubli product brand Schönherr carpet systems: Magic Shadow Effect (patent pending) for weaving single-colour carpets featuring astounding designs.

The Stäubli product area DEIMO knitting solutions presented a world novelty to the knitting industry, which responded with amazement: the D4S fully automatic toe-linking device. Installed directly on the knitting machine, it permits unloading socks on the fly and ensures very short downtimes. Other good news were announced by the weaving business during ITMA. Just three days before the start of the trade fair the Italian **SantexRimar Group**, globally known as a market leader for its finishing machines with brands like **Cavitec, Santex** and **Sperroto Rimar**, announced the start of its takeover of the Italian weaving machine company **Smit**. The company renowned for producing weaving machines since the 60s and the installation of several thousand machines worldwide had got into payment difficulties in 2015 and consequently faced an uncertain future. Smit wanted and could demonstrate with its ITMA participation that the company had a future.

Ferdinando Businaro, SANTEX RIMAR GROUP President said: "SMIT Textile has deep roots in our territory and a strong heritage. Such technological know-how and committed human capital struggled by the recent crisis deserves to keep growing. I firmly believe restarting companies is necessary to unlock new opportunities and to generate a condition of economic upturn in Italy, but not only".

Swiss **CREALET** presented a broad portfolio of innovative solutions such as warp thread feeding, narrow and wide weaving machines, and warp knitting machines. The booth was bustling throughout the show with guests gathering information on the latest products and services. Items of particular interest to both visitors and the media were the innovative CS2 Selvedge Thread Let-off and the conversions from mechanical to electronic let-off for narrow weaving machines. These new technologies replace conventional systems using a new independent control option. With these new innovations, users are given greaterflexibility and can optimize their weaving processes more efficiently.

#### Knitting, tufting & hosiery machinery (Chapter 5)

Lets take a look at knitting and its individual segments of warp knitting, raschel knitting, circular knitting and flat knitting machines. The subjects were similar in this area being greater productivity, improved energy efficiency of the machines as well as better use of materials and the consequent reduction of waste. Machine producers had also concentrated their attention a great deal at increasing flexibility and a broader spectrum of use, meaning new and improved processing, an increase in the range of textile applications as well as enabling new applications.

One of the highlights in the knitting segment was **KARL MAYER's** presentation. The machine manufacturer was showing nine groundbreaking machines and nine new developments for the textile and services sectors. In addition to the large number of visitors, KARL MAYER's representatives were impressed by the high quality of the discussions they had. During the conversations, the guests asked many specific questions on the technology and end-uses. A number of projects involving first-time or continuing cooperation were planned, and sales contracts were initiated. KARL MAYER introduced the new two-bar tricot machine **HKS 2-SE** machine which presents a multitude of innovations: a novel machine design, KAMCOS® 2 as a new automation platform, integrated monitoring functions with the new camera system and - with the Low Energy Option (LEO) which is of particular interest for more sustainability. LEO based on an improved interplay of drive technology, oil viscosity, heat-resistant machine components and operating temperature and reduces the energy consumption by up to 10% compared to similar, conventional models. This new machine design reduces costs and improves the sustainability of production by lowering the carbon footprint. The HKS 2-SE is a high-speed machine for producing stretch fabrics and was shown knitting an elastic sportswear fabric. Karl Mayer says that the HKS 2-SE is the best warp knitting machine for elastic fabrics they ever made. The machine is available in a width of 3302 mm and produces gauges of E 32, E 36 and E 40.



KARL MAYER two -bar tricot machine HKS 2-SE

Another highlight was the HKS 4-M EL with its high productivity and maximum flexibility - especially in combination with KARL MAYER's DS OPTO-EC intended for the efficient manufacture of patterned sectional beams. The HKS 4-M EL complements the four-bar high-speed tricot machine with N pattern drive which had already been presented to a wide audience at ShanghaiTex 2015. The speed of the EL version, same as that of the model with N drive, has been increased, so that it is up to 25% faster than its predecessor; at the same time it also offers the usual high level of flexibility. The EL configuration enables the patterns to be changed very quickly and easily by inputting data at the machine's display unit. In this way, the machine can process even small batches efficiently, and can reduce the amount of time needed to develop new and innovative fabrics. Moreover, the EL feature opens up completely new design possibilities due to shog paths of 2" and almost unlimited repeat lengths. But this new machine does not occupy any pile option, since it is one of the seldomselected types. The version with the pile mechanism, the HKS 4-M P, will continue to be included in the range.

At the machine show, the HKS 4-M EL produced a fabric for outerwear at a width of 180" and a gauge of E 28 and was running at a speed of 2,100 min-1 and, despite its high dynamics, was operating with a high degree of precision. At maximum speeds, the shog movement for the underlap is executed precisely in just 6.3 ms. What is more, the extensive patterning potential of this new machine, which is the result of the EL function, is extremely impressive. For the lace sector KARL MAYER presented the new **TL 79/1/36 FASHION**. It is designed to produce high-end lace articles featuring relief-like patterns, thus, being of special interest to lace manufacturers of the premium segment, the highly productive MLF 46/24 machine attracted the attention of the mass producers.

The extra-wide **MULTI-MATIC** was one of the exhibits of the KARL MAYER Business Unit Warp Preparation that attracted a great deal of attention. With a working width of 3,600 mm, the new MM 128/3.600 is 1,350 mm longer that its predecessor for the same number of yarns processed. Another highlight was the VSB Size Box, which is as goodlooking as it is functional. The key element of the PRO SIZE® sizing machine offers numerous advantages in terms of process efficiency and quality.

In the sectional warping machine sector, KARL MAYER was showing a study in concept and design in the shape of the **PRO WARP**(**R**), which is an extremely flexible machine. This new machine combines the "best of" technologies of the OPT-O-MATIC and the ERGOTEC. The standard machine is a good all-round machine, but it can be expanded to create a specialist machine to suit specific customer requirements. KARL MAYER was also showing an innovative system for the denim sector: a dyebath featuring the Double Vario technology as a key component of the PRODYE denim dyeing machine.
The Business Unit Technical Textiles showed a new machine featuring KARL MAYER's modern corporate design: the **WEFTTRONIC® HKS**. The next generation of the HKS MSUS was running at a speed of 1,500 min-1 during the fair and was equipped with a needle gauge of E 40, which is something new for the technical textiles sector. The machine was processing a yarn having a count of dtex 33 to produce an interlining that was lighter and more flexible than any interlining ever produced before. In addition to its product repertoire, the WEFTTRONIC® HKS was impressing people with its quiet, accurate running.

In addition to its new technical developments, KARL MAYER was also showing some pioneering online systems designed to make life easier for its customers. For example, the new KARL MAYER CONNECT app provides a quick link to the manufacturer for sending out service requests, and the customer benefits from faultless, efficient communication with the manufacturer. This app works with a QR code. This is scanned in via a mobile phone or tablet at the operator interface of the machine and displays important machine data.

KARL MAYER also provides more support with obtaining spare parts – in the shape of the SPARE PARTS WEBSHOP platform and the KARL MAYER CHECK PARTS app. About 1,500 wearing parts for all the current warp knitting machines can be ordered directly from the webshop, just by clicking on the mouse. For other spare parts, the webshop offers an easy-to-use request function via online access to the electronic spares catalogue for machines built from 2006 onwards.

The slogan of **Groz-Beckert** at the trade fair was "Living in a Textile World", and across a 1,400 square-meter area, the company showed visitors how it sees and designs the world of textiles. Over 10,000 visitors from around the world took the opportunity to gain an insight into the Groz-Beckert world. Of particular interest to the booth visitors was the new product sector Carding, with products and services for carding that complement Groz-Beckert's textile expertise.

Mrs. Birte Kleefisch, Head of Corporate Communications, told us that the company asked themselves before ITMA how the characteristics and advantages of Groz-Beckert products could be demonstrated at the booth in the most vivid manner possible? On the ITMA the impressing answer was given: by showing them in action – on transparent machines of almost the same size as the originals. For the first time, the company presented its acrylic-glass exhibits in their full diversity. In each product sector, the acrylic textile machines provided "live" demonstrations of the specific benefits and the interplay of Groz-Beckert products - and this sparked off numerous interesting conversations.

The knitting sector welcomed many guests from Asia. There was particular interest in the new litespeed® needle generation, the litespeed® plus. At the corresponding exhibit their benefits were impressively illustrated: the litespeed® plus delivers up to 20% energy savings.

Once again: 20% energy savings by just using a special needle in a machine! This is more than impressive, it is a sensation. And it is a clear demonstration of the know how and the technical lead of the world market leader.

In the weaving sector, in addition to the loom made from acrylic glass and the new Jacquard healds, the improved litespeed carbon shaft was in great demand – its exterior, made completely of carbon, gives it high flexural strength. The special heald TWINtec was presented at the ITMA 2015 for the first time with a low-wear ceramic thread eye that is especially gentle on thread. The Technical Weaving sector received a noticeably high proportion of visitors. Felting delighted the visitors with a "Needle Machine", presenting needling solutions for filter media and distributing samples to match. The majority of visitors came from Europe, but guests from the US were also surprisingly well represented.

The product range in the Tufting sector was vividly illustrated by means of animations, combined with the Tuft system made of acrylic glass. The main focus was on the advanced Gauge Part System consisting of tufting needles, loopers, reed fingers, and tufting knives.

Carding, the company's latest "growth sector", met with great interest at its first trade show appearance and presented its product range with two acrylic-glass exhibits. The functional and visually fascinating card and card clothing were a definite attraction at the booth – and not only for the numerous visitors from the spinning and nonwovens sectors.



Groz-Beckert litespeed® plus needle

In the Sewing sector, the focus was on the 5-star service concept "Sewing5" and on the Online Customer Portal. In addition, animations showed different stitch formation techniques and the respective needles.

In the circular knitting segment the highlight was a spinit system by **Mayer & Cie.** The company had introduced the prototype already at the ITMA 2011 in Barcelona and four years later the circular knitting market leader was able to presenting the market-ready machine with the name spinitsystems<sup>®</sup>. The technology is a 3-in-1 concept which offers a host of benefits and combines the three process stages spinning, cleaning and knitting. Rewinding – a step that was previously necessary – is no longer required.

The **Spinit 3.0 E** is the first machine to be fitted out with the new technology. On this machine single jersey knitwear is manufactured not from yarn but from roving straight from the spinning mill. This machine's technology thus kicks in at an entirely different point from conventional circular knitting technology. With spinitsystems® technology the so-called flyer roving is taken from conventional flyer bobbins and fed to an electronically controlled conventional 3-over-3 roller drafting system where it is drawn into a fine fibre bundle. The twin-jet false-twist spinning unit then takes over, feeding the fibre bundle to the knitting unit, where it is resolved on the yarn guide into a composite fibre without a twist. After cleaning the composite fibre is formed into loops by means of a conventional circular knitting process using the tried and trusted relative technology and a textile surface takes shape.

The combination of several processes of course provides the users with a whole array of advantages, obviously savings in capital investments and space, which leads to significantly lower production costs. And there is more. Mayer & Cie. says that Spinit 3.0 E fulfils today's sustainability requirements brilliantly, using a good third less energy to manufacture single jersey knitwear than the conventional manufacturing process would require. And they praise the high quality of the knitted goods with a voluminous feel and an especially striking lack of a skew. That is because spinitsystems® processes roving straight into knitwear, knitting the fibres into loops gently and without a twist.



Mayer & Cie Spinit 3.0 E spinning & knitting machine

Certainly the Spinit 3.0 E based on its technical capabilities and currently ready for market, was one of the absolute ITMA highlights as in this case it did not concern an improvement in an individual machine but a significant shortening of a multistage process. It will be seen whether the market is ready to accept this advance. All the advantages support a positive outcome. Mayer & Cie. booked three pilot series orders in Milan. Series production is scheduled to start in 2017.

In addition to the Spinit 3.0 E the family enterprise also presented 4 novelities in the field of classic circular knitting. The Relanit 3.2 HS, a single jersey machine for elastomer plating, uses the tried and trusted relative technology developed by Mayer & Cie. and demonstrates state-of-the-art, energy-efficient circular knitting. It uses up to 30 per cent less energy than a conventional circular knitting machine. At the same time, the Relanit 3.2 HS delivers peak productivity along with a significant improvement in process reliability. The latter likewise applies to the striper machine Relanit 3.2 R that was also on show. This machine is also a member of the Relanit family and has an improved yarn guide for a perfect yarn feed. A high performance interlock (HPI) machine has been exhibited too. The D4-2.2 II's forte is its peak productivity. With 4.4 systems per inch it produces up to 400 kg of fabric per day. And in keeping with the popularity of its machines for manufacturing mattress covers, they featured a further development in the double jersey double face department, the OVJA 1.6 EM HS. This model performs with maximum flexibility for all patterns and weights with 1.6 systems per inch.

"We are extremely satisfied with this year's ITMA," Benjamin Mayer summed up the fair. "Above all, our new spin and knit technology spinitsystems® and the first machine to use it, the Spinit 3.0 E, met with an overwhelming response. The other four machines we exhibited at ITMA evidently also caught the spirit of the age exactly."

With the newest technology and latest Capsule Collections Stoll presented the variable possibilities of the knitting technology. In addition to several exhibited machines of the current product range some totally new models were introduced including further models of the growing ultra flexible CMS ADF. ADF stands for the Autarkic Direct Feed technology which was introduced by Stoll on ITMA Asia 2012. Autarkic comes from the German word autark which means independent and symbolizes the individually controlled yarn feeders. These are independent of the carriage and can move into vertical or horizontal direction. Thanks to this innovative yarn carrier technology and a variety of knitting techniques, this machine creates almost endless possibilities for pattern and color combinations. At ITMA Stoll presented machines of the latest ADF generation which expands the pattern possibilities. The yarn carriers move independently of the carriage, and are set program-controlled in their horizontal and vertical position. This allows for the realization of even more knitting techniques like Inverse Plating, Intarsia Plating, Selective Plating, Stoll-ikat plating®, Stoll- weave-in® etc. Servo motors and servo amplifiers which are highly energy-efficient, are used for the yarn carriers. It has been recognized as trend setting by the sustainability initiative Blue Competence of VDMA.

Additionally to the CMS ADF 32 models with 32 yarn carriers and sixteen yarn carrier tracks with two yarn carriers each, Stoll introduced a light version: The CMS ADF 16 models with sixteen yarn carriers having exactly the same functionalities. Stoll presented their top models of the series, the CMS ADF 32 WB and the CMS ADF 16 WB. W stands for the Weave-in device and B for the Belt fabric take-down system.



Stoll Spinit CMS ADF 32 knitting machine

Other exhibited machines were CMS 202 HP B, CMS 530 HP and CMS 502 HP+ multi gauge, CMS 520 C+ multi gauge and the CMS 822 HP. With the CMS 822 HP knitters can simultaneously knit two Fully Fashion pieces in the tandem mode with up to  $2 \times 42^{2}/2 \times 107$  cm. Coupled carriages enable an enormous working width of up to  $84^{2}/213$  cm, and as a result extralarge sizes in XXL. If necessary, the machine can be converted to a CMS 822 HP multi gauge or CMS 822 HP knit and wear configuration.

Stoll flat knitting machines also offer a wide range of possibilities in the sector of technical textiles, told us Mr. Martin Legler, Sales Manager for Technical Textile Applications. Complex and difficult shapes, high or low lot sizes and even individual, custom designed products can be manufactured in series production. The unique and powerful flat knitting technology enables the perfect combination of different knitting techniques, materials and forms. A wide range of different applications can be developed and realized with great efficiency. Applications with 3d-structure, spacer textiles, knitted fabrics with a woven look or structure effects for use as a cover or suspension fabric are some examples.

Visitors to **SHIMA SEIKI's** stand could watch a compilation of two decades of ongoing research, development and refinement in WHOLEGARMENT knitting technology. At ITMA 1995 SHIMA SEIKI introduced the world's first WHOLEGARMENT knitting machine. Capable of producing a garment in its entirety with no seams, it was revolutionary technology. This ITMA SHIMA SEIKI returned to Milan to celebrate the 20th Anniversary of WHOLEGARMENT knitting technology under the slogan "Innovation Coming of Age." Dr. Shima believes that WHOLEGARMENT is ready to take on an instrumental role in mainstream production in the coming age. One good reason to follow his opinion is the increasing importance of sustainability. WHOLEGARMENT is considered one of the most sustainable forms of garment production with minimal dependence on labor, material and other resources. And there are economic and logistic advantages of WHOLEGARMENT knitting for local production in domestic markets, which further increases the sustainability factor by eliminating time, cost and energy otherwise spent in shipping from off-shore locations.

At the show SHIMA SEIKI presented its new flagship machine for WHOLEGARMENT knitting technology, the MACH2XS. It features 4 needlebeds and SHIMA SEIKI's original SlideNeedle, the combination of which is considered ideal for producing WHOLEGARMENT knitwear in all needles. MACH2XS furthermore features the world's first application of SHIMA SEIKI's patented spring-type sinkers on a 4-needlebed machine, permitting high quality knitting of complex fabrics and unprecedented capability in WHOLEGARMENT knitting. Flechage is especially easier to knit, allowing more control over neck drop amount. As the "MACH" name suggests, speed and productivity are dramatic. MACH2XS achieves a maximum knitting speed of 1.6 meters per second. The R2CARRIAGE system furthermore permits quick carriage returns for high efficiency per knitted course. Split Stitch technique also allows efficient WHOLEGARMENT production by eliminating empty courses. High quality is assured with i-DSCS+DTC Digital Stitch Control System with Intelligence and Dynamic Tension Control. An all-new full-color LCD touch-sensitive control panel with a larger screen greatly improves on the previous monochromatic display. Still at eye-level and not relying solely on touch-control, the new control panel maintains established ergonomic benefits by carrying over function buttons for simultaneous use of both hands.

The control unit is built-in to the machine for simplified shipping and installation, easier maintenance, and more efficient use of space. Quality, productivity and extended capability make the new MACH<sub>2</sub>XS the ideal machine for WHOLEGARMENT production.



SHIMA SEIKI WHOLEGARMENT knitting machine MACH2XS

Another first-time exhibit of new technology was a new version of the SRY-LP series with special loop presser beds that debuted at ITMA Barcelona 4 years ago and originated the recent popularity for hybrid knit-weave fabrics. Demonstrations were also be held on an updated version of SHIMA SEIKI's SDS-ONE APEX3 3D design system that provides comprehensive support for the entire knit supply chain from planning and design to production and sales promotion. With a new 3D graphics engine for producing simulations with even higher quality, ultra-realistic Virtual Sampling minimizes the costly time-, energy- and resource-consuming samplemaking process for quick and efficient evaluation and shortened leadtimes.

Furthermore SHIMA SEIKI showed a wide range of textile applications including non-knitting technology such as the SIP flatbed inkjet printing machine and the P-CAM NC cutting machine, to demonstrate its comprehensive strength and commitment to the textile industry as a whole. Especially noteworthy is a brand new design system called APEX-T, developed in collaboration with TOYOTA INDUSTRIES CORPORATION that offers design solutions for use with the leading weaving machine manufacturer's air jet looms.

## Washing, bleaching, dyeing, printing, drying & finishing machinery (Chapter 8)

The dying, drying and finishing areas have presented in the last few years many new machines and processes as a result of intensified requirements for sustainability. Improved energy efficiency, heat recovery, fewer and more environmentally friendly chemicals, less use of water are also objectives as much as improved productivity through shorter run times, better input and optimized utilization of the whole facility. Many improvements are based on the 'green chemicals' of the manufacturer and new systems working together with 'intelligent' control stations. Additionally solutions in the production of technical textiles are becoming ever more important as specific requirements need to be fulfilled. This includes machines in the growth market of textile coating. The technology of the machines exhibited at the ITMA is a start. Innovations have pushed ahead leading to the development of subsequent models of well-known machines or otherwise the latest, applied technology is incorporated in other machines in the portfolio.

Dyeing-, finishing- and compressive shrinking machine manufacturer **Monforts**, in line with its continuing theme to providing solutions for both economy and ecology, showed a wide range of advanced innovations including exhaust air cleaning and heat recovery with automatic cleaning for its thermo treatment machines. There were several highlights to watch on the Monforts booth. Monforts new stenter frame flagship, the **Montex 8500** was displayed along the walkway and was equipped with an **Eco Booster HRC.** This heat exchanger is designed to minimise energy costs during drying and heat setting processes on stenters.

By contrast with purely static heat exchanger modules, the new module actually cleans the stenter during operation, thus eliminating standstill times for maintenance. Only 100 litres of water are used forcleaning. The Eco Booster permits a computer-controlled adaptation of the heat exchanger performance to the prevailing waste air stream. This optimised efficiency further reduces the process costs. The Eco Booster runs fully automatically so that the operator has no additional duties to carry out. An Eco Booster HRC on an eight-field stenter, nominal width 200 cm and 150 g/m<sup>2</sup> woven fabric, fixing process and 6000 operating hours per year even enables 35 per cent of the energy costs to be saved. Since ITMA it is available, for the first time, for retrofitting to existing Montex installations.

An important feature of the new Montex 8500 is the complete new and further enhanced visualisation software with 'finger tip' control features offering smart phone-type techniques for Monforts machine operators and ensuring smarter operating procedures. The new model also features a redesigned operator's platform with ergonomic advantages during finishing and coating processes.

Of particular interest for producers of technical textiles and nonwovens was the new **Monforts XXL stenter** which offers a spectacular width of 7m. Monforts presented it virtual in a seperate showroom by using the new augumented reality technolgy.

It is especially designed for wider fabrics like geotextiles and fleeces and offers new possibilities for companies working in this segments. The challange to master was the heat distribution over the whole area of the fabric. By using computer simulation the Monforts engieneers optimized the proven Monforts CADstream nozzles to wide width working. The result is an even temperature and a homogeneous airflow over the full width and length of the chamber. Furthermore this solution provides energy savings of upto 35% depending on the production conditions. Because of the importance of the nozzle this part of the stenter also was displayed in the showroom in the full width.

Always of great importance for textile people working in the finishing sector is the quality and performance of the stentering chain. In this context is is good news that Monforts introduced a new Montex horizontal stentering chain being completely maintenance free. This new hybrid chain type complements the well proven Montex chain systems for horizontal and vertical chain return and it is also available for retrofit to existing Montex stenters.

Furthermore Monforts introduced a new version for knitted fabrics of the famous Eco-Applicator. The **Eco-Applicator** was nominated amongst the three finalists for ITMA Sustainable Innovation Award 2015 – Industry Excellence Award. Although finally another process by Levi Strauss & Co. and Tonello won, the Eco Applicator is a true champion in sustainability, too.

The liquor application process offers significant energy savings with reduced drying capacity required for a wide range of applications such as felt finishes, coated materials and medical textiles including Nano coating, water repellancy, softeners, flame retardency and insect repellancy. It has been designed to apply a liquor to one side of the fabric; to apply a liquor to both sides of the fabric; to apply different liquors to either side of the fabric; or to apply two different liquors consecutively to a single side of the fabric. The Eco-Applicator process is also available for denim fabric applications.

And last but not least Monforts expanded the company's new chapter in coating technology. In 2014 at ITMA Asia Monforts had launched a new patented modular interchangeable coating system.



The innovative "Monforts-Allround", developed according to the concept "One system, many options" is the first machine in the world to enable rapid changing between different applications. Its high degree of flexibility and process continuity are achieved with a large number of quickly replaceable special modules, such as for rotary screen printing or knife and slot die coating. Responding to the demand by the coating segment for textile finishing, Monforts announced at ITMA the takeover of ,knowhow' of coating specialist Timatec. This makes the company a single source for new and innovative one-stop solutions; particulary for technical textiles. Monforts offers, for the first time, a complete package of coating solutions for all types of coating applications – ensuring increased profitability, flexibility and functionality .

Vice President Mr. Klaus Heinrichs told us, that Monforts was delighted about the quantity and the quality of the visitors and the high interest in the new developments. Of course the new possibilities in coating and in finishing technical textiles and nonwovens on the new XXL stenter got particular interest, but also the core business was in high demand. He said that the presented Monforts machines are exactly fitting the ITMA motto 'Master the art of sustainability' and this is what customers want.

The German textile machinery producer **BRÜCKNER** celebrated 66 years of success and presented themselves in a new corporate design which has been adapted to a new philosophy and the motto "Fascinating textile machinery" with particular attention to the questions of resource efficiency.

Monforts Eco-Applicator

Thus it underlined in a nice manner the guiding idea of the exhibition to provide for more sustainability in the production processes of the textile value-added chain.

BRÜCKNER displayed for the first time the new and efficient stenter concept POWER-FRAME ECOLINE which in addition was equipped with a new padder. The new ECOLINE machine concept combines in a unique way features which had been separate up to now. The outstanding attributes of the new ECOLINE concept are the air-through zone in the first half-zone and an integrated heat-recovery unit. This allows the saving of thermal energy and production increases. The dryer is provided with the proven alternating and split-flow air circulating system ensuring an optimum temperature distribution. All established heating systems are available (gas direct, gas indirect, thermal oil, steam). Almost any kind of woven and knitted fabric can be treated. In the field of coating technology Brückner presented the new application unit ECO-COAT which has been developed particularly for minimum applications. . Functionalization chemicals are applied with a liquor reservoir of only approx. 2.5 l for each m of working width. The reservoir can be used almost completely and no chemicals are wasted or disposed of. This unit allows impregnations as well as applications on one and on both sides of the fabric. The minimum application quantities require in the following drying processes clearly less water evaporation which has a positive effect on the energy requirement at the respective dryer.



BRÜCKNER POWER-FRAME ECOLINE stenter frame

Also the new software tool ECO-MATIC has been excellently received by the customers. It supports the user and helps to question and check again and again the ongoing processes. The tool leads to a more efficient handling of the machine and the resources. The really used machine parameters can be compared with desired recipes in order to identify waste, energy saving potentials and dormant capacity reserves over freely selectable periods of time. At the same time, the system monitors the conditions reducing the output and increasing the energy consumption such as soiling and generates suggestions for maintenance. The focus of this new development is to increase the performance further and to minimize the wastage.

For BRÜCKNER the ITMA was in every respect a complete success, told us Mrs. Verena Ruckh, Head of Marketing. The great number of visitors and the quality of the discussions exceeded by far the expectations. Many projects have been discussed on the fair in detail and technological solutions have been prepared together with the customers. During the eight days in Milan, BRÜCKNER closed deals in the double-digit million range.



hours we had very intense conversations with our customers at our fair booth at ITMA 2015 in Milan. We talked about the technical lead of our modified Krantz Syncro shrink dryer, our portfolio of high-performance machines of the Artos and Krantz procuct lines, about availability and our outstanding service. We thank all our visitors and are pleased about the amazing feedback.

We would glady like to give you more details of our well-engineered machines. Please contact us.

Machine programme and contact information under:

www.interspare.com



ARTOS Knowh



Still the peak in finishing machinery.

The variety of the projects is very pleasing: Machines for finishing of woven and knitted fabrics, coating lines for technical textiles and lines for the carpet industry. BRÜCKNER could score in all fields due to new technologies and competent advisory service. And there was a great interest for spare parts and the modernization of existing lines.

The German **iNTERSPARE Textilmaschinen** has developed themselves to a well-reputed textile machinery manufacturer since the last ITMA and focused their presentation on the most recent developments and innovations in its Krantz and Artos product lines for the high-quality finishing of woven and knitted fabrics.

The company has got an overwhelming feedback by textile people from all over the world how happy they are about the fact that iNTERSPARE has made the next step to continue the tradition of Krantz and Artos. iNTERSPARE General Manager Dirk Polchow said during a press conference that there is a high demand for the leading technology of the Krantz and Artos brands in the market. Many decision-makers from companies which have used Krantz and Artos machines for many years visited the stand and expressed their pleased at being able to acquire new machines of proven quality.

The main exhibit on display was a new version of the legendary **Krantz Syncro** shrink dryer. The Syncro is – as further development of the Haas Aerovar shrink dryer – an excellent example for German engineering creations.

Its high performance can be admired especially during the drying of knitted fabrics in tubular or open width form up to all fabric weights. Also in drying of woven fabrics outstanding results will be achieved. Without problems it is possible to drive with one or more slim or wide fabric layers side by side. Additionally processes such as drying, shrinking, intermediate drying or drying for formation of fabric can be proceeded here on only one production line.

The shrink dryer allows long reaction times and high overfeeds up to 200 % on the screen belt. This causes a slowly and gentle drying with an optimal stress relieving in the fabric. The drying can be regulated exactly for each special requirement of the fabric because of different selection possibilities of many parameters. Highest fabric qualities will be achieved very economically by controlled shrinkage, development of volume and improvement of the grip.



iNTERSPARE Krantz Syncro shrink dryer

iNTERSPARE has again improved the Syncro adapting it to the latest market developments and customer requirements. An example is the newly developed lifting doors which again markedly simplifies the cleaning of the machine resulting in lower maintenance costs.iNTERSPARE has also upgraded the Syncro by using many latest generation components in response to the increased requirements of sustainability and demands for energy efficiency. Specifically in mind are the latest motors of the EU IE3 energy efficiency class (Premium) as well as the latest generation switch control boards not even yet available in the market.

And already in their basic construction all iNTERSPARE machines are designed to use energy in a very efficient way and therefore save a lot of energy. One example is the patented Econ-Air energy saving system which routes the used air target-oriented through the stenter frame and with only one central exhaust fan a lot of energy can be saved. Up to 15-20% of energy costs compared to conventional processes may be saved with this airflow.

Furthermore iNTERSPARE presented a new version of the exclusive smartphone app "Smart Order System". The iNTERSPARE app liberates customers from all research for the correct spare part allowing the customer to save time and money. The only thing the customer has to do is to install the app and to send a picture of the part which needs to be replaced. Shortly after the customer gets any Information and an offer by iNTERSPARE. The **Santex Rimar Group** presented latest developments from its brands Santex, Cavitec and Sperotto Rimar. Every year the company invests 4% of the annual global turnover in research and development to provide continuous technical innovation. **Santex** displayed the SANTASYNPACT which is the latest addition to the Santex family of knits finishing machines. It has been developed with the main goal to provide the highest performance and best fabric quality with minimum production costs. SANTASYNPACT is a combination of rubber belt shrinkage and felt belt compacting. With this new development compaction results are significantly improved. For example production speed is up to 60 m/min, which is 2 to 3 times higher than conventional felt compacting systems. The presented latest version comes with special designed felt belt features to ensure the sensitive treatment of cotton or cotton blended knits.



Santex Rimar SANTASYNPACT knits finishing machine

**Sperotto Rima**r showed the new DECOFAST 3.5, a high performing decatising machine with new features that further increase the performance of the world reknown Decofast. DECOFAST 3.5 redefines the decatising process, applying it to other fibers, with new controls and innovative solutions to get better results and increase hand and performance for wool, viscose and knitted fabrics. Another innovation was PLANA, a machine to treat fibres with cold atmospheric plasma and give them high performance characteristics with lower industrial costs. PLANA allows to process natural fibers and have long lasting anti-shrinkage and dyeing permeability without chemicals. It is the first industrial scale solution limiting the usage of natural resources to produce easy-care and eco-friendly natural fibers.

**Cavitec**, the premier supplier of machines and plants for coating, laminating, impregnating and nonwoven, exhibited the new CAVIMELT P+P. It is a streamlined machine developed with the goals of precision, production and cost effectiveness in Hotmelt Coating and Laminating using the rotogravure system. The compact design integrates the unwinder and rewinder in one machine frame. Operating speed is up to 40 m/min and allows coating weights from 3 – 80 gsm. The machine is delivered prewired, assembled and tested. The CAVIMELT P+P stands for Plug+Play and is built for companies who want short installation and commissioning time.

Swiss **Benninger** highlighted the topics of open width dyeing of knitwear on the original Küsters DyePad, the newly developed Technical Textiles Division as well as the topic of Resource Management, an area that becoming increasingly important. Benninger has consistently extended its product portfolio and developed new products in all of these fields.

In the center of the presentation was of course the newly-developed original Benninger-Küsters DyePad dyeing padder. Benninger placed great emphasis on optimum accessibility and short, guided fabric runs. The nip dyeing option helps minimise dye liquor consumption and enables economical dyeing of extremely short batches. Perfect, absolutely reproducible dyeing results are guaranteed by the use of the original Küsters S-roller technology. Special emphasis was given to the advantages of open width dyeing of knitwear on the padder.



In addition Benninger showed the TEMPACTA washing steamer which was especially developed for all low tension washing processes and is mainly used for diffusion washing (fastness washing) and for the relaxation of knitwear. As a washing drum can be integrated, an intermediate rinsing process or additional intensification of washing is possible.

And the textile finisher displayed a newly redesigned TRIKOFLEX. With the front and back washing effect, based on the patented double drum technology, this drum washing compartment guarantees a high mechanical washing efficiency. It not only enables low, controlled fabric tension, but also crease-free fabric transport, even with sensitive fabrics. The machine also offers another advantage by controlled relaxation of synthetic and elastane fibres. All these advantages also predestine the TRIKOFLEX drum washing compartment for use with technical textiles. To meet all requirements in this field, the compartment is available with a working width of 5,400 mm. The range for technical textiles is supplemented by the HYDROVAC water removal system and the original Küsters finishing padder. This offers the customers new options in the technical textile field – not only with regard to the technological processes, but also with minimum use of resources.

The German **Thies Textilmaschinen** introduced the **iMaster mini** to the world for the first time. This is a fully-equipped variation of the iMaster H2O able to be used with a load capacity of 20-80 kg for small production runs and laboratory work. One aim is to operate the iMaster mini using the same (parameter) settings as the iMaster H2O production version.

# Dyeing can be as easy as efficient.

At least it can be with the help of our garment dyeing machine Aqua-Finish, which we successfully launched on the market at the ITMA 2015 in Milan, thereby continuing the Krantz tradition for market-leading dyeing machines.

Owing to the fact that the pre-treatment, dyeing and washing processes are all performed in a single operation, the raw textile product can be finished in less than 5 hours. It's straightforward, fast and efficient – thanks to state-of-the-art machine processes coupled with powerful, extremely energy-efficient pumps and motors. That means Aqua-Finish saves up to 10% in dyes and up to 50% in ancillary materials, water and energy. Moreover, it can be used for dyeing virtually all types of fabric, including cotton, polyester and nylon. Contact us for further details – you're sure to be impressed by our technical edge and superb Krantz quality!

Aqua-Finish - Highest fabric quality with lowest production costs.

Learn more about easy and efficient dyeing? www.krantz-synergy.com





Undertaking the testing and optimisation phase on the iMaster mini offers the possibility to incorporate new kinds of fabrics, recipes and processes in the production sequence more effectively and more cost-efficiently. The iMaster mini offers a broad range of most modern technical detail like frequency-controlled pump motor, smart dose system, reduced consumption of compressed air by intelligent kier-pressure management,

Vario-Plaiter for improved fabric plaiting, cooling and rinsing in one step (CCR), 100% stock tank for preparation of the complete process baths and Powerdrain. And it has additional features f.e. HT-Draining, EnergyControl to record the machine' s consumption data or DyeControl. A special emphasis has been given to the new DyeControl system which has been developed by the market leader in software and hardware solutions for textile finishing Setex. The presented



Thies iMaster mini small production and laboratory dyeing machine

controlling software has an amazing convenience and and offers the look-and-feel of a tablet app and also offers state-of-the-art funcionality. For example the rinse-, wash- and dye baths are measured on-line, are continously analyzed and are displayed graphically.

Furthermore Thies showed the new yarn dyeing machine, iCone, which was introduced in 2014 at ITMA Asia. iCone is ideal for bleaching and dyeing fibres in different forms such as packages, warp beams, combed tops or flock. The latest forms of flow analysis allow the piping system, the pump and the pump impellers to be optimised, reducing pressure losses and therefore lowering power consumption. iCone offers the ability to dye in a traditional manner using reciprocating liquor circulation or else to opt for ultra-short liquor circulation from one side only, and a liquor ratio of 1: 3.6. The machine is very practical as it can be matched to the requirements

> of each application. The delivery spectrum of the iCone is complemented by the very latest, userfriendly control systems. These integrate the inhouse developed "green functions" which provide users with standardised programs for exploiting the optimisation potential in different process steps. iCone can be integrated without problems into existing dyeing houses. Existing dryers and material carriers can be adapted after consultation.

> Mrs. Christiane Thies, Managing Shareholder, told us that there were always a lot of visitors on the booth and the interest in the exhibited machines

as well as in other machines like the flagship iMaster H2O was high. For particular the advantages of the presented iMaster mini addressed a lot of customers.

**Loris Bellini** presented the new yarn dyeing machine **Pulsar** which goes back on a consistent rethinking of the yarn dyeing process by the company' s R&D department.

The engineers asked themselves what can be done to improve dyeing quality and give a substantial cut on running costs in the meantime and why do yarn dyeing machines necessitate so much water and electric power to accomplish their tasks? Pulsar is the answer to these questions and a result of creative thinking and three year of laboratory and industrial-scale testing. From a distance Pulsar presented as the typical vertical kier system made up of that same upper quality 316L stainless steel that Loris Bellini always employed for their production range. It has the usual pneumatic

opening/closing lid on the top end and nothing else in particular could possibly draw attention to other "different" details. Things dramatically change if one looks closer on the many fundamental new components. The main circulation pump is much smaller than what the industry is used to consider for a particular installed capacity and the new hydraulic circuit is definitely out of the ordinary. This new machine design makes it possible to lower the



Loris Bellini yarn dyeing machine Pulsar

installed power. The electric load for the main circulation pump is 70% lower in comparison to ordinary machines. Furthermore the liquor ratio is now set to 1:3,8 and the average consumption of chemicals, steam and compressed air is directly proportional with a reduction from 20 to 30%.

In addition to this, the new PULSAR yarn dyeing system works combined with a revised and dedicated version of the Leonardo process controller that will automatically adjust all those critical parameters that a dyer normally needs to take care of. Moreover the new PULSAR yarn dyeing machine does not require any specific dyeing cycles, but the ones already used by ordinary yarn dyeing machines: the general approach will not change. Even the size of the packages for each different fiber remains unaltered and no particular configuration is required to achieve what this

> machine is promising: the combination of topquality dyeing, a dramatic cut in running costs and with the great savings of electric energy, water, chemicals, steam and compressed air a real milestone for a sustainable future.

> A new and old player in the dyeing sector is **Krantz Synergy**. The company was founded in 2015 with the idea to combine well-known technique and experiences with today's technologies under the name of Krantz Synergy. By using the experiences of many decades of Krantz Textiltechnik GmbH in discontinue dyeing it was possible to develop

an efficient and sustainable product. At ITMA many visitors were highly delighted that Krantz Synergy continues the tradition of the discontinue dyeing machines of the former Krantz Textiltechnik. At the show Krantz Synergy introduced the **Aqua Finish** machine. Aqua-Finish is a discontinue dyeing machine which operates pretreatment, dyeing and washing in one process. The fabrics will be finished in less than 5 hours. The tension-less

guiding of the fabric in combination with a liquor circulation – which treats the fabrics with permanently constant concentration – provide high quality production results. An automatically dosing unit regulates the necessary liquor ratio according to the recipe for each fabric. Powerful pumps and motors with lowest energy requirement are harmonized with each process in an optimal way. Managing Partner George Tse told us that considerable requests were the results of ITMA participation and the presented machine could have been sold directly at the fair.

Dosing and dyeing solutions provider **Tecnorama** presented two new machines

from the portfolio of automatic machinery for dissolving and dispensing of liquid/solid dyestuffs and chemicals for laboratory and bulk production. The first one, SHAKERAMA is a new system for dyeing laboratory samples, designed and produced by Tecnorama to complete its range of automatic dyeing machines forming part of the DOS&DYE COMPACT system. This machine is particularly suitable for dyeing knitwear and fabric made of all type fibres: natural, artificial and synthetic. SHAKERAMA is conceived to work with groups of more autoclaves carrying out simultaneously dyeing cycles with different recipes but using the same dyeing program. The cooling system guarantees perfect temperature uniformity and regularity for all dyeing units avoiding dyeing reproducibility problems. The second one, ECODYERAMA automatically analyses the quality of wastewater during the dyeing process. The water quality is analysed by means of a special optical instrument capable of checking the presence of minimum quantities of dyestuff remaining in the washing water (RGB technology). Tecnorama told us that they concluded with an extremely positive result and could sign many sales contracts.

**Erhardt+Leimer** presented a new metal detector for the detection of metal particles in textiles, non-woven fabrics and carpets. The metal

detector of the type ELMETA MD 1005 is offered for web widths of up to 6000 mm. A special feature of the device is the segmented detection and evaluation for sections with a width of 300 mm each, making it much easier for the machine operator to locate a metal particle, especially if the web is very wide.

Krantz Synergy dyeing machine Aqua Finish



LED lamps indicate in which segment the metal particle is located. The special scanning surface and the aluminum housing prevent damp webs from affecting the detection result. Furthermore, the MD 1005 features an automatic calibration function making sure that temperature changes, the wear and tear of the electronics or slow changes in the mechanical structure don't distort the detection result. Thanks to this function regular precision adjustment by the operator is not required to guarantee that the metal detector works in the best way possible at any time. It detects particles of steel, stainless steel, aluminum and copper, e.g. steel particles with a weight of at least 1 mg. The evaluation electronics and the power supply are already integrated into the housing of the device, ensuring commissioning is straightforward by connecting the operating voltage. As standard no other control or evaluation units are required. The device can be installed in any orientation in any production machine. Production speed can be up to 400 m/min.



To increae sustainability, productivity and efficiency in the dyeing houses the controlling and optimization of all processes has an outstanding importance. One of the leading technology provider in this area is the German SETEX Schermuly which showed several new developments. In the center of the exhibits was the world premiere of the new S380 and E380 generation of control systems. It comes with Multitouch, drag-ndrop program designer, web-userinterface and more interesting details to discover. Another highlight was the OrgaTEX X1 software, which offers a new recipe management and a new formula assistant to simplify complex production processes. The new version 3 of FabricINSPECTOR und CamCOUNT was also highly popular amongst trade visitors. Used with pre-shrinking finish machines, compactors and stenter frames, the system provides reliable data to target on thread and stitch count. Flexible mount and precise detection, even on small measurement areas, allowing for individual positioning. The system is composed of the latest CMOS camera technology, a camera server with knowledge database and intelligent evaluation software plus SECOM controller. And last but not least SETEX Schermuly exercised the new SECOMmobile App, the mobile solution to monitor all information about the system state of maschines and batches of current and upcoming SETEX controls. Setex Head of marketing Jürgen Jerzembeck explained all the innovations to us and was able to impress us with the convenience and usability of the software. He was very comfortable with the show, too and reported a continous rising demand for the quality of the SETEX solutions.

Another leader is **Sedo Treepoint**, who was also very pleased with the international audience of highly-qualified professionals and top-level decision makers. The booth was heavily crowed every day, confirming the worldwide prestige the company has collected in the last years. There was a big interest for the new Sedomat+ series controllers with a new modern user interface, offering an improved user experience. More flexibility offers the new SedoIO system, the new modular and compact remote IO-system which was excellent received especially by OEM customers. A large focus was Industry 4.0, were many questions were answered and the future concept toward a smart factory was explained. Visitors showed also a big interest in the energy management system EnergyMaster. The new expert production software SedoExpert enriches the integration into ERP/ PPS/MES functionalities and is designed to manage a complete textile factory. SedoExpert can be enhanced by the new PrintMaster software for printing operation of flat, rotation and digital printing. Another highlight was the integrated booth of the new company SedoEngineering, offering a revolutionary way in producing leuco-indigo (Smart Indigo).

## Machinery for web formation, bonding and finishing of nonwovens (Chapter 3)

There were also many ground-breaking developments in the nonwovens machines area, full stands and joyful looking faces. Nonwovens is a strong growth market and as a result there are also new applications here of great interest mainly in the usage of fibre. The focus of innovation is though still on productivity and the efficiency of the whole facility. The areas of focus set by the market leaders were however quite different.

**Autefa Solutions** managed a sensational unveiling of a new machine. The premier supplier for drylaid nonwovens process has redesigned and developed the most successful card of the F.O.R. technology to fulfill the requirements of the nonwoven industry and inaugurate a new generation of cards. The result is the new AUTEFA Solutions Web Master FUTURA Card.

The Web Master was the first nonwoven card with Double Intermediate Doffer. Since 1987 several hundred cards have been sold and are successfully running around world. The Web Master Card with Double Intermediate Doffer distinguishes itself through best quality of the web, high production, gentle fiber treatment as well as high carding and blending effect. The Web Master FUTURA Card combines the proven quality of the successful Web Master cards with developments focussing on economic aspects. All sections of the card are supported by high-precision linearguides in order to allow easy and smooth opening and closing, section by section. The Web Master FUTURA offers a lot of interesting features. The new side frame and the supporting system for workers/strippers ensure a uniform web quality over whole working width. It has a new reinforced overhead feeding plate for optimized fiber guiding. And it comes with ZEROFLEX© – a patented anti-deflection system for workers and strippers.

Furthermore the card offers improved accessibility for inspection and cleaning by easy opening of bottom covers. An advanced suction concept provides less dust and fiber accumulation and there are integrated fans for dust and edge trim suction. And last but not least the Web Master FUTURA has 5 worker/stripper pairs on a second main cylinder to improve the product quality and the carding effect.



Autefa Solutions Web Master FUTURA Card

All this new features ensure that the Web Master FUTURA stands for highest quality of carded webs, an increased production, easy cleaning of the machine, easy access to all the parts of the machine and a reduced time for maintenance and re-wiring.

In addition Autefa Solutions presented a new modular tearing machine UniRec which is based on a modular design with 1-5 available opening units. It is developed for recycling of nonwovens and waste with a high degree of special fibers. And the business branch Fiber Logistics Technology presented the transfer fork UNI-FORK. This is a machine to optimize the process of pressing a bale and it increases the efficiency of the process and improves the quality of the fiber packing.

Mrs Söll, Head of Marketing, told us that the new card is a main attraction within the whole nonwovens machinery industry. Even competitors visited the booth to have a look on it and customers are really excited about the cutting-edge technology.

One of the true highlights of ITMA was for sure the presentation of the **DiloGroup**. It is ITMA tradition showing the machines in a working mode and it is a Dilo tradition to exhibit a complete line producing a nonwoven from fiber. In Milan it have been even two complete lines which were both operated with fibre! As a manufacturer of complete lines including all the single machines Dilo gave us an impressive demonstration of the wide machine portfolio of the group.

Reading this you won' t be surprised that the Dilo booth was always crowded by visitors during the operation time. Let's have a look on the machines.

The high capacity production line with a needleloom working width of 7 m included highly productive machines for fibre opening and blending as well as a newly developed card feeder, a high-capacity card with variable intermediate section and a horizontal crosslapper which ran with a web infeed speed of more than 200 m/min.

We are not able to introduce all Dilo machine innovations in this article, but will give you more insights in the next issue with the focus on nonwovens (There will be an interview with Mr. Dilo, too). Of our particular interest was the new horizontal crosslapper, the heart of the displayed line. The new crosslapper type "Super-DLSC 200" allows electro-mechanical speeds of up to 200 m/min for web infeed speeds, depending on the fibre specification. It aims at reducing a possible bottleneck for the total throughput of the complete installation. At the crosslapper infeed Dilo has installed the proven "CV1A" web regulation system for an improved evenness of the needlefelt with a great potential for fibre savings. This very high web infeed speed has been made possible by a further increase of the drive power within the "3-apron-layering technology". All drives for the aprons and the layering carriages are direct water-cooled torque motors to improve the acceleration with reduced gear wear. In addition, Dilo has taken special measures to eliminate and reduce apron vibrations in order to achieve an exact web overlapping (lap joints).

Furthermore, they have installed a "web guiding system" (FLS) to avoid wrinkles for example at the speed change of the upper carriage. The web infeed width is 3.2 m, the layering width is 7.0 m.



In addition, DiloGroup showed a universal compact line which will be used for needling recycled carbon fibre in future. This compact line includes fibre opening and blending, card feeding, carding and crosslapping, needling and winding. The line which was first presented at this show is characterized by consistent focus on a compact line layout, a fast adaption to changing production conditions and an economic mode of operation. For this purpose numerous innovations were realized in each machine. These innovations also facilitate the modifications necessary for the needling of carbon fibre. During the ITMA show, Johann Philipp Dilo, CEO of DiloGroup, consigned this state-of-the-art DILO compact line to Institut für Textiltechnik Augsburg, Germany, represented by Prof. Dr. Stefan Schlichter (ITA Augsburg) and Prof. Dr. Thomas Gries (Institut für Textiltechnik, RWTH Aachen, Germany).

Numerous discussions with customers and new orders show that solid mechanical and electrical engineering at the production sites Eberbach, Bremen and Bergisch Gladbach in Germany will continue to have a bright future, Mr. Dilo said.

**Oerlikon Neumag** payed particular attention to the efficient production of spunbonds for technical applications presented new developments for this purpose. The new generation of spunbond systems is reducing energy consumption by 20 to 30 per cent. Oerlikon Neumag demonstrated their solutions in the virtual 3d-cinema.

Spunbond and meltblown are on the rise in technical applications and are more and more frequently replacing carded nonwovens thanks to their technical and economic advantages. Polyester is therefore becoming increasingly significant as a raw material for technical spunbond. One reason is that the price for polypropylene is now consistently higher than the price for PET. A second reason is that sustainability are playing an increasing role. Polyester nonwovens often satisfy the corresponding requirements with the lowest use of material and without additives. Furthermore benchmark comparisons showed that with the spunbond technology of Oerlikon Neumag, it was possible to achieve higher web strengths at a comparable web-weight. Conversely, required stabilities can also be achieved with reduced web-weights: the comparisons show a raw material saving of over five per cent.

Low operating costs play an important role in the decision to invest in a modern spunbond system. This is why Oerlikon Neumag has undertaken extensive optimizations, particularly to reduce energy consumption, the second-largest proportion of operating costs. In this way, the new generation of spunbond systems saves almost 20 per cent of the energy requirement in the spinning section compared to former versions. This optimization can make a difference of 30 per cent compared to classic PET spunbond processes.

The now considerably extended technical application center in Neumünster is available for demonstrations and customer trials as well as for further development of products and processes

**Trützschler NONWOVENS** focused on the variety of manufacturing processes, especially concerning web bonding, in addition to total system concepts. Individual components and models demonstrate innovation in spunlacing, needling as well as thermal and chemical bonding. The range of topics included the modular AquaJet, an efficient dryer, the new, patented structuring process for the thermo bonder, quality increase in needling, and the high-speed foulard for ADL systems.

One state-of-art exhibit was the new high-speed foulard for ADL systems. Applying binders to the web often is a limitating factor for a chemical bonding's line speed. The web has to be saturated homogeneously with the binding agent – which increases the risk that the web sticks to machine components. Trützschler Nonwovens' new liquid foulard improve this process step. Compared to conventional technologies, it increases the line speed during the production of light-weight webs by up to 50%. The significant speed advantages of the newly developed liquid foulard are based on special geometries and roll surfaces. Various optimizations on rolls (patent pending) and other sub-components make it possible: the liquid binder is absorbed by the roller and passed on to the web in a much more homogeneous way. The result is an increased economic efficiency in the production of light-weight, chemically bonded nonwovens.



Furthermore Trützschler Nonwovens introduced the modular AquaJet. Three compaction and four dewatering systems are available as standard modules for the AquaJet. If process requirements change, the systems can easily be exchanged.

Next exciting innovation on display were structured nonwovens from the thermobonder. A patent-pending, replaceable structuring shell allows the production of fluffy webs with permanent 3D structures during bonding in the thermobonder.

And the company showed new developments for needling machines which offer higher process quality in a lot of respects. A new patent-pending bearing concept for the crankshaft allows higher production speeds. The complete sealing of the bearing, which results in significantly longer maintenance intervals, is also new.

Last but not least Trützschler Nonwovens highlieghted the advantages of their new wet-in-wet process they have developed together with Voith Paper, the well-known paper machine manufacturer. Together they are offering complete production lines for the manufacturing of wet laid and hydroentangled nonwovens. Flushable wipes, standard cleaning cloths, coating substrata and technical webs are only a few examples of the end uses for these webs with special characteristics. In summer, the first Voith-Trützschler installation has been successfully commissioned.

Trützschler NONWOVENS high-speed foulard for ADL systems

## Digital printing machinery (Chapter 9)

Digital printing received its own designated chapter for the first time at the ITMA as the crowd of visitors and the machines exhibited in Hall 18 demonstrated why: Inkjet has finally arrived in industrial textile printing. The big story in digital printing was as a consequence the single pass machines. The MS Lario, KonicaMinolta Messenger SP1 and SPGPrint Pike machines shown captivated many visitors by their size and speed alone. Simply from the optical standpoint single pass is certainly the technology which comes very close to the vision of industrial digital printing. Single pass machines appear to have taken the lead in the future of digital printing first and foremost through speed. Competitors have pointed out a few disadvantages which cannot be denied. The machines are very expensive and take up a lot of space. The same amount of money and space accommodates several multi-pass machines. These offer greater flexibility especially in case of disruptions and partially better print quality. It is also possible to produce different patterns and orders in parallel on a variety of materials and different inks. These are justifiable arguments which demonstrate that single pass machines are neither going to replace other machines nor automatically always the best solution. Single pass machines plainly broaden the portfolio of digital inkjet printing machines and unite the benefits of flexibility, low set up times and costs and a higher environmental standard with the productivity of screen printing machines and compete with them on this basis.

The technology is outstanding for the market segment where big players digitally print large amounts of material.

Let's take a look at the individual single pass machines.

The **MS Lario** was introduced to the market in 2012. We were told by Andrea Barbiani, MS Marketing & Business Development Consultant that 14 machines were sold around the time of the ITMA, two of them directly at the ITMA. The MS Lario offers an amazing maximum speed of 75 linear meters a minute what means 4500 linear meters in one hour and a high resolution speed of 35 linear meters a minute. The resolution is 600 x 600 dpi and drop size varies from 4pl to 72pl. The MS Lario offers an open ink system and an open software system. Furthermore a remote diagnostic system and a web server for cost report are embedded. With a printing width of 320 cm with this digital inkjet printer an outstanding fabric quantity of 14400 sqm can be produced in only one hour.



MS Lario single pass digital printing machine

SPGPrints Pike celebrated its debut at the ITMA and then presented to the press with great fanfare by textile manager Jos Notermanns together with CEO Dick Joustra. The exhibited Pike® printer was a 6colour machine in which each colour is represented by an Archer® print bar containing 43 print heads, giving a printing width of 1850mm. The print bar has a native resolution of 1200 x 1200dpi, variable drop sizes from 2-10pl and a jetting frequency of 32 kHz, which together deliver typical productivity of 40 linear metres a minutes, with a maximum of around 75 m/min. The modular construction will allow models with up to 9 colours. Wider versions of the Pike, up to 3200mm, are also planned. It was clear that Mr Notermann was elated by the Pike. He confided that SPGPrints had worked on this machine for years and that the machine was the product of all the knowledge gained from decades of work and market leadership on screen printing machines. In addition SPGPrints or previously Storck was one of the pioneers in digital printing and the Pike was to impressively reinforce this pioneering role.

This aim was certainly achieved while SPGPrints was also able to report that the Pike had also been a commercial success. The Pike on exhibit had already been sold to the German company KBC Fashion , one of the most important material printing companies in Europe, with 450 employees it prints around 9.2 million meters of material per year in the ink-jet process. The Pike is theoretically able to add an unbelievable 21 million meters.

**KonicaMinolta** presented the **Messenger SP1** another single pass machine. KonicaMinolta manager for the inkjet business Akihisa Maruyama also expressed himself satisfied with the reaction of the visitors to the new technology. The Messenger 1 offers up to 8 colours and 216 printing modules based on drop on-demand piezo inkjet technology for a printing width of 1,830mm. In the high density mode the printer has a resolution of 720×900 dpi and a corresponding fabric output of 2,500m2/h. And the ultra high speed mode comes with a resolution of 720×360 dpi and a productivity of 6,400m2/h. The singla pass printer is equipped with functionality that compensates for errors detected by printhead nozzle sensors. And it is able to adjust density uniformly for each color on all of the printhead modules, thanks to density correction functions using image sensors. A newly developed mechanism for automatically cleaning the printhead module nozzle surface eliminates extra labor and skill previously required for nozzle cleaning, and also allows long-term, stable printing.

SPGPrints Pike single pass digital printing machine



KonicaMinolta Messenger SP1 single pass digital printing machine

Furthermore KonicaMinolta introduced the **Nassenger 10** high-speed printer and the **Nassenger 8** medium-speed printer in succession to extend its lineup. Both models ship with 8 colors (CMYK + 2 special colors + 2 light colors), with another color offered as an option, and use Konica Minolta's own colorful disperse dye ink and reactive ink. The reactive ink meets the criteria of the Global Organic Textile Standard (GOTS). Nassenger 10 stands for a high productivity with a print speed of 580 m2/hour as well as higher-quality reproduction of images. The Nassenger 8 is capable of meeting a variety of printing needs ranging from sample printing to low-volume printing. It has a print speed of 240 m2/hour. Despite the enormous productivity General Manager Marketing of **Mimaki** EMEA **Mike Horsten** sees the single pass machines neither as a threat nor as competition to 'his machine'. "Mimaki has the most digital printing machines in the market worldwide", he told us and he aims to extend this leading position. Mimaki stands for high quality and quick access to digital printing with comparatively low investment", he said. This way a customer is able to scale up the offer at any time parallel to growing demand and soundly grow step by step with the market without taking on much risk. "For example look at our new TX300P-1800 printer", he said. "It is designed to meet the market demand for smaller lot sizes, faster delivery times and the ability to quickly produce samples!"

The new Mimaki **TX300P-1800** is an innovative 1.8 meter roll-to-roll direct-to-textile inkjet printer. Its predecessor, the Tx2-1600, has been used for textile printing worldwide for the last 14 years.

The new 8-colour inkjet printer also features a new printhead that ejects ink droplets at high speed to ensure accurate ink droplet placement with a high head gap. This makes the printer ideal for printing high quality images on all types of fabrics, including thicker and textured materials. The TX300P-1800 comes with a print resolution of up to 1080 dpi with drop sizes ranging from 6 to 24 pl. Small droplets create beautiful highresolution printing, and large droplets are useful for high-speed printing. The print speeds is up to max 68 m2/hour. A choice of sublimation dye, disperse dye, pigment, reactive dye, and acid dye inks to meet a wide range of application needs. Sublimation dye inks are available at commercial launch with other inks following soon. 2-liter ink packs are available for uninterrupted printing on longer runs. And the TX300P-1800 printer stands for uninterrupted printing with automatic detection and cleaning of clogged nozzles. The Nozzle Recovery System ensures that good nozzles are used as substitutes when clogged nozzles are not recovered after cleaning.



Mimaki TX300P-1800 digital printing machine

The TS300P-1800 also brings a number of new capabilities to textile printing, including the ability to print on very lightweight transfer paper and the newly developed sublimation transfer ink Sb410 which is available in bulk ink packs. An external dryer provides up to 30% faster drying and the new Tx3Link RIP ensures exceptional colour management including colour replacement, accurate profile creation and fast file processing.

The combination with new inks opens up a new range of possibilities for textile printers, designers and garment manufacturers. With the new neon inks, designers and garment manufacturers are able to extend the utility of digital printing solutions to the production of high quality running clothes and other applications that are personalized or have unique designs and stand out for safety or fashion purposes.

Also **durst** Executive Sales Manager **Fabio Gromo** expressed himself more than satisfied with the ITMA and the visitors to his stand and reported on the great enthusiasm for the latest durst Alpha. It is not surprising as durst is considered by many experts to be the industry market leader for quality. Mr Gromo also does not consider the single pass machine as the high flyer among the competitors though durst also addresses customers in the industrial segment with its digital printing machine. He informed us that while single pass machines are able to score with their technology and speed, they are unable to deliver the same print quality, have less flexibility and very high acquisition costs. A single pass machine needs to run permanently to generate an acceptable ROI which may also mean production contrary to the trend is stocked instead of flexibly reacting to demand. While single pass then competes with screen printing durst's aim is to satisfy the particular requirements of the market for inkjet printing at the highest standard.

durst presented with **Alpha series** a new generation of super multi-pass inkjet printers for the digital production of home textiles and fashion. It offers print widths of 190-330 cm. The Durst Alpha Series Printhead-Technology is equipped with the new, durable Alpha Slots Piezo High Speed Printheads. The Alpha Series can be configured with up to 64 printheads and 8 colors (CMYK, Orange, Red, Blue, Lm, Lc, Dk, Acid Black, Fluo). Due to the symmetrical alignment of 8 colors, identical color sequences are printed in both print directions to eliminate banding and to increase the speed by 30% compared to an asymmetric printhead assembly. Each printhead has 1280 nozzles, prints with droplet sizes of 7-14-21 picoliters and achieves a native resolution of 600 dpi. The Durst Alpha Series Printhead Technology arranges the colors symmetrically (mirrored), thus ensuring precise color application for bi-directional printdirections, and eliminating banding. Furthermore, the continuous ink circulation guarantees a high reliability and constant operational readiness of the printheads. In case of a printhead defect, the automatic emergency mode will deactivate the affected printhead row and will continue printing with the maximum availablenumber of printhead rows.



A new intelligent feed system has been developed for the Alpha series that adapts automatically to different textiles and roll diameters. Furthermore the print carriage is equipped with an ink mist extraction device to guarantee a haze-free print image, a clean interior of the printer and therefore low maintenance costs. And the new Anti Crash System operates directly at the print cart and with laser sensor at the feed-in system to suspend the print cart for any potential textile irregularities, with the aim of preventing damage to the printheads.

An integrated spray system allows materials to be chemically pre-treated before printing. Durst provides its own OEKO-TEX Standard 100 certifiable ink systems and a GOTS-certified reactive ink system. In order to give users greater flexibility and efficiency in production, Durst has also developed a new pigmented ink (Alpha Ink P) which can be used on a wide variety of textiles and which, after printing, offers an impressive feel. In addition, no pre- or post-treatment is required for standard materials such as cotton or polyester. Besides excellent print quality, high flexibility, industrial productivity and scalability, the Alpha Series also offers process solutions. The newly developed Durst Textile Workflow System simplifies precise color reproduction on different fabrics and enables continuous quality control and one-step profiling for new materials and color matching.

Besides all this the latest durst Alpha series offers many more innovations and improvements.

durst Alpha series industrial digital printing machine

As a consequence the interest in the new machine was immense with many visitors more than pleased with the innovations introduced by durst.

A visit to **epson** determined that they are organized according to country within the textile industry which resulted in a change of contact person.

While the German team was present at the Heimtextil in Germany, the Italian team was at the ITMA. This is to say the least a rather unusual constellation. The latest developments were on show. The most interesting machine was the thermo sublimation printer Epson SureColor SC-F9200 which was unveiled in May 2015. This printer is suitable for all standard thermo sublimation papers and produces a wide range of garments, sportswear



Epson SureColor SC-F9200 digital printing machine

and home textiles. The Epson is fitted with PrecisionCore technology and two TFP printheads.

**Zimmer** from Austria launched two new Colaris family members for the digital textile printing industry as well as their newly developed rotary screen printing machine.

**Colaris Infiniti** is a "off-the-shelf" or "out-off-the-box" solution. The 1.8 m printer can hold up to 8 colors and 32 SPT 1024GS printheads in total with dropsizes from 7 to 21 picoliter. The speed ranges from 520 sqm/h at 360x360 dpi at 1 pass to 170 sqm at 360x1080 dpi at 3 pass using 4 heads per color. The Colaris Infiniti comes with a very attractive price.

**Colaris<sup>3</sup>** is the 3rd generation of the high performance digital textile printer using up to 64 FUJIFILM Dimatix Starfire heads with ink circulation system. Print heads are available in 3 different models with dropsizes from 10 to 250 picoliter and a native resolution of 400x400 dpi. The maximum speed of the Colaris3 is 1.670 sqm/h and covers resolutions up to 1600 dpi. For a couple of sub clusters like home textiles and carpets it might be particular interesting that the Colaris3 is available from 1.8 up to 5 m in width. Colaris3 in combination with ChromoJET digital in-line pre-treatment, drying or steaming fixation units - make the

printer a very versatile inkjet workhorse to print textiles, terry towels, polyester fleece and other pile products like carpets.

EFI CEO **Guy Gecht** und EFI Reggiani General Manager **Dr. Ambrogio Caccia Dominioni** explained to a large audience at a press conference how the takeover came about and the specific synergies offered to the new company EFI Reggiani after the takeover of **Reggiani Machine** in Italy by **EFI** in the USA. The aim is first and foremost to offer more performance to the customer and support this with better machines and services. "Visitors to ITMA will be able to generate a wealth of new ideas, whether they're first-time investors in digital textile solutions or established fabric specialists. With the key to true integration, our fabric printing and finishing solutions incorporate the highest levels of technological know-how with a solid legacy of chemical knowledge and inks," explained Dr. Ambrogio Caccia Dominioni, managing director, EFI Reggiani. The company showcased new sustainable technology solutions and processes for the new era of green textile factory production.

The new **ReNOIR NEXT** printer, a highly versatile product that prints onto fabrics and papers using the same ink set with a 1.8m beltless digital printing system. It joins the highly successful Reggiani line-up of textile printing solutions and offers simplified material handling, a compact footprint and a lower acquisition cost, making it an ideal entry-level production device. The ReNOIR NEXT offers a production speed of 350 sqm/h and up to 4 printing heads. For fabric it uses 8 colors and for papers up to 6. The resolution is up to 600x2400 dpi and the droplet size from 4 to 72 pl. The weight of the produced fabric can be varrying between 28 to 450gr/sqm (no stretchable and no through print) and of the paper between 40 and 100 gr/sqm. For entry and exit the printer uses standard roll winders up to a diameter of 450mm. Like other EFI Reggiani printers, its high quality sublimation inks are complemented by its ability for high-speed throughput with the lowest total running costs.



Next machine on display was the **ReNOIR TOP** direct-to-fabric printer, which features exceptional, industry leading quality with one of the most robust inkjet arrays in the market. The ReNOIR TOP equipped with 32 heads and available in 180-240-340 cm printing width is the perfect solution for large production needs. Its 32 heads are especially developed for increasing productivity and efficiency. The ReNOIR Top has a production speed up to 1600 sqm/h and a resolution up to 2400 dpi. This heavy-duty, flexible, fully integrated machine was demonstrated with reactive dyes printing direct to cottons, and is a fast throughput machine that can also be used with acid, disperse, sublimation and pigmented inks, giving it the ultimate combination of versatility and speed.

To offer printers greater speed and environmental benefits DuPont Digital Printing and EFI Reggiani introduced DuPont<sup>™</sup> Artistri® PK2600 digital textile pigment ink for EFI Reggiani ReNOIR digital textile printers. Artistri® PK2600 ink is designed primarily for cotton textile roll-to-roll printing that shows performance comparable to reactive ink results. Pigment inks offer a streamlined workflow, faster turnaround and greatly improved environmental attributes that mills and print specifiers are demanding. Artistri® PK2600 ink provides these benefits while still offering true color and the soft feel comparable to reactive printing, excellent fastness and bestin-class digital printing performance. Because Artistri® PK2600 ink requires no steaming or washing production steps, job turnaround is significantly faster while water and chemical usage and costs are minimized.

As a complete solutions company, EFI Reggiani also demonstrated the capabilities of **EFI Fiery**® production workflow and color management for the first time with EFI Reggiani products. These valuable components of the EFI Ecosystem are designed to enhance and increase customer productivity and efficiency.

That is then all concerning the machines. Before we draw our own summary let's take a short look at the association and their assessment of the ITMA.

#### Associations

The German **VDMA** presented a new edition of the VDMA energy efficiency guide on textile machinery at ITMA and announced shortly after the fair that VDMA member companies are extremely satisfied with ITMA 2015 in Milan. 96 percent stated that both the quantity and the quality of visitors to their booths were good to very good. 87 percent evaluate the prospects for post exhibition business to be good to very good. These are the main results of a VDMA survey to which 53 exhibiting member companies responded. The acquisition of new customers was the major target of the VDMA members in Milan. 89 percent reached this goal according to the VDMA survey. Three out of four German companies (74 percent) were able to close contracts and negotiations already during the show time in Milan. This also shows the high confidence of textile mills worldwide in German Technology, said the association.

In addition they stated ITMA proved that sustainable textile production continues to be a major issue for the industry. According to the VDMA survey, energy and material efficiency were the topics to which customers showed the highest interest. Asked about energy efficiency 72 percent of the responding VDMA members said that it was a topic of high to very high interest for the customers. Material efficiency ranked number two in the list: 63 percent of the member companies evaluate it to be of high to very high interest for customers. The overall conclusion of the German association is that VDMA and Blue Competence members fulfilled ITMA's performance promise "Master the Art of Sustainable Innovation".

Also **UCMTF**, the French association, announced that ITMA 2015 has been outstanding despite the global uncertainties. Bruno AMELINE, the President of the French machinery manufacturers association confirms that the French exhibitors met many more customers than they expected; many historic, long time, new and future customers who came with real projects.

For Evelyne CHOLET, the association's Secretary General, the success bases on the fact that peer to peer relationships have been established between the French machinery manufacturers and their customers worldwide. Furthermore the latest French technology seminars organized before ITMA in Iran (in 4 textile centers) and Uzbekistan (in 2 textile centers) as well as the cooperation agreement signed with the Russian textile industry have also been very instrumental to confirm the ties with the customers from these countries and attract them to the French booths at ITMA".

The members of the group of textile machine manufacturers of the Swiss association Swissmem were also more completely satisfied with the trade fair which coincidentally celebrated their 75th anniversary in the ITMA year. Errnesto Maurer, President of the group and CEO of SSM Schärer Schweiter Mettler AG, provided us with a very positive summary for the association with many visitors with a large amount of transacted, even though there were definite disparities at a high standard between the Swiss exhibitors. Christian Schindler, Director of the ITMF also reported in the Swiss newspaper Neue Züricher Zeitung (NZZ), that the great majority of companies were satisfied especially due to the large number of visitors and spontaneous orders.

And of course the Italien association and host of the fair, ACIMIT, was very proud on the record numbers for Italy's ITMA and called it a great success for Italian textile machinery manufacturers. ACIMIT President Raffaella Carabelli stated that visitor attendance recorded was the highest ever, and exhibitors are broadly satisfied. Regarding the trade fair grounds, Ms. Carabelli observed that exhibitors and visitors alike appreciated the rationality, functionality and beauty of the exhibition centre, which suitably combined the organizational knowhow of Fiera Milano with the design and artistic capacities of the international trade fair architect M. Fuksas. And in conclusion, the President of ACIMIT stated: "This edition will be remembered not just for its record numbers, but also for the message it has transmitted, concerning sustainable innovation. The trade fair pavilions in Rho exhibited a great many technological innovations that focused on a quest for greater sustainability in textile production processes. Sustainability and innovation: a combination that will represent the key to a successful future for many manufacturers."

### Conclusion

Our own summary ties in with the many statements pertaining to the special character and quality of the ITMA 2015 in Milan and goes a step further. In our judgment the ITMA was a watershed in progress to a more sustainable future.

It turns out that the motto 'master the art of sustainability' was not just an advertising slogan. It was actually experienced. Sustainable solutions were offered by nearly all exhibitors while especially the impressive innovations showed how much seriousness and commitment has been invested in this development. Sustainable solutions are followed by enquiries with real buying interest. The ITMA did not consciously or unconsciously sit shoulder to shoulder between the textile industry and the textile machine industry to create a sustainable setup of a sustainable textile industry. It was demonstrated both large and small ways that environmental protection, responsible handling of resources and economic success are mutually achievable. An investment in sustainability is after all an investment in using fewer resources and consequently lowering production costs. An investment in the latest technology is at the same time an investment in higher productivity and flexibility and subsequently in current market requirements as well as the markets of tomorrow. Textile companies taking this route are able to position themselves decisively better towards their buyers.

They are equipped for the growing demand for textiles produced in a sustainable manner and moreover are also prepared for stricter legal requirements which are sure to come sooner or later as a consequence of the Paris resolutions.

Therefore a very big step has been taken and time will tell to what extent these innovations and investments lead to changes in an industry and its companies. The sustainability of the supply chain is determined by its weakest link which additionally adds the pressure to be sustainable to the familiar pressure on pricing.

This should be continually increased by more clarification by opinionleaders from politics, society and show business and the resulting rising consumer awareness. A change in the textile landscape is therefore foreseeable.

It will be especially interesting to see what effect the ITMA will exercise on the ITMA Asia. Is the biggest producer and exporter of textiles, China, able and willing to respond? We will learn this at the earliest at the ITMA Asia in October and latest at the next ITMA where we will see how far changes pertaining to sustainability have actually progressed. ITMA 2019 will be held from 20 to 26 June at Fira de Barcelona Gran Via fairground.

## **ITMA Impressions**



The way to the halls was always full of visitors at ITMA 2015! However, organisation was perfect.



We were right in our ITMA 2015 preview! There was a new Trützschler TC15 card.



CEMATEX press conference for ITMA 2015. Biggest ITMA ever! Well done and congratulations!



High interest for the new E3 certified machines from Saurer.

## **ITMA Impressions**



Saurer introduced a wide range of machines with focus on automation, energy efficiency and profit.



Oerlikon MMF Head of Service Sales Mr. Herrmann explained why Rotac3 saves up to 50% energy.



Marketing Vice President Mr. Wissenberg presented new Oerlikon MMF machines at a press conference.



Savio Group presented the new automatic winder Eco PulsarS and Multicone for tailoring of packages.


The new modular winding machine platform XENO by SSM got a lot of interest. SSM is very comfortable!



Rieter showed several innovations including the new airjet spinning machine J26.



Uster presented new Tester 6, VisionShield2 and Mr Q, an intelligent assistance system!



Bräcker, Graf, Novibra & Suessen presented their outstanding components like gems.



Head of Customer Support Schlafhorst Thomas Arter in front of some best-in-class components.



Reiners + Fürst showing their components for ring spinning.



Dornier presented several new machines. Highlight was the new P2 weaving a filter fabric.



Mr. Dornier wore a suit made from the fabric the exhibited A 1 air machine weaves.



The large ITEMA booth was always crowded.



Picanol presented a wide range of new machines.



Van de Wiele presented carpet and Jacquard weaving systems.



Groz-Beckert presented an amazing booth concept and gave advice how to be sustainable and make profit!



SHIMASEIKI Wholegarment: advantages in sustainability, fast fashion, simplicity & start knitting business.



Stoll showed an amazing range of new knitting machines for special applications like 3d structure.



Stäubli with new drawing-in machine SAFIRS60 with optical sensors for active warp control.



Impressive booth of KARL MAYER! Many new machines and many visitors.



Mayer & Cie. CEO Benjamin Mayer at ITMA 2015 press conference.



Monforts presented Montex 8500 with ecobooster.



iNTERSPARE showed Krantz Syncro shrink dryer with a lot of innovative modifications.



iNTERSPARE CEO Dirk Polchow at a press conference.



Brückner showed latest Power-Frame Eco with new padder.



Benninger presented a new version of the legendary Benninger-Küsters DyePad.



Cavimelt P+P for hotmelt coating and lamination: compact and high productivity!



The team of Krantz Synergy in front of the new Aqua Finish machine.



Loris Bellini booth with the amazing new yarn dyeing machine Pulsar.



Setex Head of Marketing Mr. Jerzembeck explained to us the drag-n-drop program designer, web-userinterface and Multitouch.



Thies presented iMaster Mini at ITMA 2015. Ideal new dyeing machine up to 80 Kg to change from sampling. Saves energy!



Trützschler Nonwovens presented a new liquid foulard with 50% speed advantage done by special surface of the rolls.



Mr. Dilo explained the funcionality of the complete needle line to the audience.



The new Web Master FUTURA Card by Autefa Solutions.



Durst: quality in stead of mass market. Excellent print results and high speed with the new Alpha series.



SPGPrints introduced single pass PIKE. Exhibited one has been sold to KBC at ITMA 2015



Mimaki is very strong in sublimation sector and presented new TX300P-1800 d-t-t inkjet.



MS Lario has got remarkable attention. 14 printers are sold, 2 on ITMA 2015. Single pass printers are like rotary, but more sustainable.



Mr. Gecht and Dr. Caccia introduced EFI Reggiani to the press at ITMA 2015.



ACIMIT President Mrs. Carabelli said at ITMA 2015 press conference: more visitors than same time in Barcelona.



Blue Competence at VDMA press conference: Mr. Waldmann, Mrs. Brückner and Mrs. Schmidt



India ITME event at ITMA 2015 had much interest. Welcome from H.E. Mr. Basant K. Gupta, Ambassador of India.



Jay Vincent Jordan from RWTH Aachen won ITMA Sustainable Innovation Award. Congratulations!



Gemma Cranston & Dr. Helen Crowley gave advice how to analyze impacts along supply chain at WTS2015

# Sustainability – the action phase has started

V iewed in the context of our previous reports on sustainability over the past four years, 2015 has undoubtedly been a very special year. In a few years' time, it may even be considered the year in which sustainability made its general breakthrough by leaving the discussion phase and entering the phase of concerted action. To underpin this theory, we would like to take a closer look at two major events: firstly the ITMA 2015 in Milan and secondly the World Climate Summit in Paris. The resolutions agreed in Paris demonstrate the strategic trend, while the feedback from Milan provides an insight into the operative fields of action in the textile industry.

In the interests of consistent terminology, we wish to start, however, by reiterating our definition of the word "sustainability", as it is often used in a vague sense. Our definition conforms with the one formulated by the Brundtland Commission of the United Nations on 20 March 1987: "sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs."

In previous issues, we have already reported in detail about the importance and urgency of sustainability for the economy, the planet and mankind. The keywords can be recapitulated as follows: population growth, world hunger, growing demand for raw materials, shortage of resources and above all climate change with all its unpredictable consequences.

Sustainability along the textile value-added chain therefore means the sustainable production of fibres, starting with the extraction of raw materials using a minimum of resources, the energy-saving, resource-efficient and eco-friendly production of yarns, and the manufacture of textiles, such as home textiles, clothing and technical textiles, based on moderate working conditions, decent wages and eco-friendly processes.

#### Fibers

Let us begin as usual with the fibres, and more precisely with a natural fibre; cotton. The idea of sustainability here means cotton cultivation without appreciable burdens on land and excessive water use and irrigation methods. In addition, organic cotton may not be genetically modified. According to the Organic Cotton Market Report 2014 published by Textile Exchange in June 2015, the production of organic cotton increased again in 2014 following years of decline, despite the war in Syria. The situation is described as follows: : "2014 signifies the beginning of a turnaround for the organic cotton market. After three years of steady decline, 2014 brings 10% growth in overall organic cotton production. This news is energizing and a sign that the textile industry is moving together toward finding solutions. Across the industry, we are seeing some noticeable improvement in business practices, stronger communication between supply chain tiers, an increase in certifications, and evidence of longer-term planning to increase sustainability efforts." La Rhea Pepper, Managing Director, Textile Exchange, commented the result as follows: "10% growth is significant, and it couldn't be possible without the significant industry efforts to create meaningful change. Across the board, the textile industry has increasingly responded to the growing demand for organic cotton as well as the need for focused innovations."

The top five countries are India, China, Turkey, Tanzania and the USA which have produced 96.68% of total global organic cotton fiber. India continues to be the biggest producer growing approximately 74% of the world's organic cotton. Peru grows 56% in response to market demand. 32,000 ha of land is under conversion to organic over the next three years and the global growth is forecasted to continue – for 2014/15 it is estimated at 15 to 25%.

In Turkey the production is foreasted to reach 20,000 mt over next 3 years and in Tanzania CmiA-organic harvests its first crop. There are also interesting changes at the supply chain. For example there was a 22% growth in certified facilities worldwide. The number of GOTS certified facilities grew by 18% and OCS facilities grew by 26% over last year. India, Bangladesh and China all saw more than 100% increase in their certified facilities and 73% of companies use voluntary standards to verify their organic cotton.

In the top 10 of companies using organic cotton there were some changes too. H&M (2) and C&A changed places and C&A was the number one as in 2012 and 2009. A newcomer is Lindex (8) and Carrefour(6) is a returnee. Other brands are Tchibo (3), Declathon (4), Nike (5), Target (7), Inditex (9) and Puma(10). A big change was that brands are making their strategy public, including in many cases their targets for organic cotton – a shift in thinking!

The percentage of organic cotton consumed by top 10 (by volume) grew 25% and the top 10 companies (by growth) had an average increase of 156%. 56% of these companies have set specific targets for sourcing organic cotton and 35% publicly report on their progress against Key Performance Indicators. Furthermore 42% use voluntary standard labels on their final products and 81% promote the sustainability attributes of their products.

The biggest challenge is the shortage of non-GMO seed. Textile Exchange named it a majorbarrier to growth particularly in India, China, and Burkina Faso.

The 2015 Textile Sustainability Conference and the Organic Cotton Roundtable took place in Mumbai on October 5-8. ? Almost 200 producers, manufacturers, brands, retailers, and support organizations from 32 different countries came together in Mumbai to share news and views on organic cotton. The sheer size of the gathering and the energy on the day left no doubt in minds that the desire to grow a robust and resilient organic cotton market is greater than ever. It was pleasing to see the value the OCRT provides the community.

The panelists top recommendations are to provide enablers such as farmer field schools, demonstration plots, input access and certification, and women's open schools, to strengthen whole communities to facilitate access to extension services, technology, farming inputs and markets, to incude the intransition years in investment programs to support farmers during the transition to organic. In addition to go beyond the commodity and approach the farm as an agro-ecological system producing food and fiber, conserving natural resources, biodiversity and ecosystem services and to build partnerships to include government incentives and market mechanisms to achieve product delivery. Farmer first models rooted in transparency, trust, and commitment. An OCRT summary report is available at the TE website. Liesl Truscott, European Director and coordinator of the OCRT, said: "Having so many stakeholders from across the supply chain together in one place is what makes the OCRT so unique, and the perfect opportunity for inspiring change and collective action".

This is good news for the organic cotton industry. It is nevertheless important to remember that organic cotton continues to account for only a very small proportion of total cotton production. In order to achieve any significant volume, the growth of organic cotton production would have to keep increasing. However, owing to low yields, total cotton production would then fall or the cultivation acreage would have to be increased, possibly at the expense of foodstuffs such as maize or wheat – a complex undertaking. On the other hand, the demand for organic cotton could potentially explode given the rising purchasing power in many emerging countries coupled with high population growth and consumer preference for organic textiles, particularly in the baby clothing market.

Theoretically, genetically modified cotton could offer a solution, as it has numerous advantages in terms of reducing the use of pesticides and water while promising high yields. However, given its largely unpredictable long-term consequences, it is viewed in a very negative light, particularly in Europe. This topic, with all the major opportunities and risks it involves, is to be addressed by the Bremen Cotton Exchange at its 33<sup>rd</sup> International Cotton Conference scheduled to take place in Bremen from 16 to 18 March 2016. Under the motto "New Directions in Cotton Breeding and Consumer Reception", defenders as well as opponents of green genetic engineering will be discussing. Considering the results of traditionally applied genetic engineering, it should become clear which opportunities and chances new breeding practices like "smart breeding" offer and which benefits for mankind and environment result thereof.

Above all, it should become clear which reasons there are for the consumers' lack of trust in genetically engineered products and whether their reservations are justified. At this, animated, but also controversial discussions can be expected, also with the guests of the Conference.

So much to cotton. Another natural fiber is wool. In February 2016 Textile Exchange publicly released the first draft of the Responsible Wool Standard (RWS) for Public Stakeholder Review by interested parties. TE wrote: 'This is an important opportunity for the public to give input into the standard, and ensure that it meets its goals and delivers value to the wool industry.' And also in February 2016 Textile Exchange announced the release of the second set of 13 new documents within the full suite of Material Snapshots, produced in 2015 with financial support from VF Corporation and in collaboration with Brown and Wilmanns Environmental, LLC. The new Material Snapshots offer a deeper dive into the life cycle issues of 27 fibers and materials, covering both "preferred" and "conventional" options (full list available here). Each snapshot combines available LCA data and information with detailed literature reviews to provide a reliable and comprehensive, yet succinct, analysis. Included in each snapshot is an overview of: unit process descriptions, process inputs and outputs, performance and processing attributes, potential social and ethical concerns, availability, certification and pricing details, suggested questions to ask when sourcing the material, and system diagrams.

The new snapshots are designed for more technical users such as materials, sourcing, and sustainability professionals. They are not aimed at users looking for a more summary view of a fiber or material; for that, Textile Exchange offers a set of 33 Material Summaries, produced in 2013/14 with support from VF Corporation (previously also referred to as "Material Snapshots"). The two sets of resources – the existing Material Summaries and the new Material Snapshots - are designed to be used alongside each other within an organization to help educate and enable informed, intelligent fiber and material choices.

Let's take a brief look now at another fibre made from renewable raw materials: Lyocell.

In November 2015, the Austrian company Lenzing presented its new group strategy, "sCore TEN". The central idea behind it is to generate profitable growth with eco-friendly speciality fibres. Lenzing writes: "In the light of the increasing demand for textile fibers one of the major future challenges for the fiber industry is sustainability. Lenzing boasts a major competitive advantage in this respect. Its cellulose fibers originate in sustainably managed forests, are produced in an environmentally-friendly manner and are biodegradable. In particular, TENCEL® fibers are unrivalled on the marketplace when it comes to sustainability. Taking all parameters into account, TENCEL® is up to 17 times more environmentally compatible than other fibers. Lenzing fibers are outstanding as blending partners for cotton and polyester, and improve their sustainability."

All these changes show that in the field of sustainable fibre production there is still considerable movement in the market. Brands and retailers are increasingly realising that the product benefits are not only highly marketable, but also generate good revenue and growth prospects. For the consumer, this opens up new scope for decision-making, which from a purely statistical perspective is likely to generate further growth. This will no doubt lead to the emergence of entirely new strategies or the readoption of existing ones. One such strategy centres around Germany's smart fibre. The company describes their fiber SeaCell as follows: "smartfiber has succeeded with SeaCell<sup>™</sup> after years of intensive research to develop a fiber made from renewable resources. This cellulose fiber serves as a host for the seaweed, and therefore also contains the seaweed's revitalizing properties for the skin. It is produced through the natural lyocell process, which is an environmentally friendly production method. The lyocell process is virtually closed and integrated into the nature cycle process, and meets the expectations of an industry of the future. This is also why the European Union awarded the procedure the European Environmental Award 2000 in the category "technology for sustainable developments".

In this connection, it will be interesting to see how the algae-based approach progresses and whether it is possible to extract cellulose from algae on an increasingly large-scale basis.

#### Machines

This brings us to the production of yarns and textiles and hence to machines. On 19 November, one of the most successful ITMAs ever threw open its doors. The central theme of the textile machinery industry's largest and most important trade fair was "Master the art of sustainability". Almost 125,000 visitors responded to the invitation and attended the event with the aim of bringing themselves up to date with the latest developments in the field of sustainable production and investing in the corresponding technology. 1700 exhibitors from 45 countries very likely displayed around 5000 machines, and nearly all of them, per old ITMA tradition, mainly displayed new machines supplying the immense demand for more energy efficiency, resource conservation and environmentally friendly processes. Many of the machines exhibited make a significant contribution to improving sustainability. This applies to all processes along the textile value-added chain. By way of example, Saurer Schlafhorst has demonstrated that energy savings are still possible even at a high performance level. The new **Autocoro 9**  $\Box$  the successor model to the Autocoro 8 first presented at the ITMA 2011 in Barcelona and described as revolutionary in terms of its energy-saving potential  $\Box$  offers a further 25% energy saving as well as featuring an energy management system. For the production of BCF carpet yarn Oerlikon Neumag, global market and technology leader for turnkey plants, presented the rotating tangle unit **RoTac3** which offers 50 per cent less compressed air consumption thanks to its innovative technology.

In the knitting sector market leader Groz-Beckert demonstarted that energy savings up to 20 percent are possible simply by using their new **litespeed plus** needle. In the finishing sector market leaders showed many ideas in many different processes to save energy. For example the German Brückner introduced their new stenter frame POWER-FRAME ECOLINE with an integrated heat-recovery unit. Monforts from Germany presented a wide range of machines with special emphasis to sustainability and energy efficiency: a new version for knitted fabrics of the famous Eco-Applicator, a new **Monforts XXL stenter** which offers a spectacular width of 7m is equipped with optimized Monforts CADstream nozzles and therefore provides energy savings of upto 35% depending on the production conditions. Furthermore the new **Montex 8500** equipped with an **Eco Booster HRC**, **a** heat exchanger which is designed to minimise energy costs during drying and heat setting processes on stenters.

These examples taken from the various different processing stages along the textile value-added chain illustrate the enormous diversity of the various solutions for enhancing sustainability and the huge energy and water-saving potential that has been exploited in recent years by focusing attention on this particular area. The availability of innovative solutions and above all the exhibitors' unison in stressing their commitment to the cause, coupled with high demand on the part of visitors, demonstrates that a comprehensive modernisation of technology in the interests of enhancing sustainability in the textile industry is already underway.

Sustainable production means fulfilling the highest possible demands with respect to all processes and hence requires every single supplier in the supply chain to utilise the most advanced production processes. This is resulting in high investment pressure. Brands and retailers want to manufacture in accordance with sustainability criteria, with the result that their suppliers are having to toe the line. As strikingly underlined at the ITMA 2015, this is the approach currently being adopted and firstmover status has been and gone. The theme is already being addressed by the vast majority of market players forming the global backbone of the textile industry, and will have permeated the entire industry in a few years' time, especially in the light of further developments which are likely to accelerate the trend.

#### Partnership for Sustainable Textiles (Textilbündnis)

One such accelerating factor is emanating from Germany as a result of the Partnership for Sustainable Textiles (*Textilbündnis*), which was called into being by Federal Minister Müller and has made great strides since experiencing initial difficulties in getting off the ground.

In April the German Development Ministry announced: "The steering committee of the Partnership for Sustainable Textiles, the German Development Ministry and the textile industry have put in place the prerequisites for companies and business federations to join the Partnership on a broad basis now. The foundation for broad-based support for the Textiles Partnership is an agreed joint action plan. The partners now have made the action plan more specific and precise on a number of important points, particularly with regard to the way in which Partnership members have to pursue and achieve binding objectives and how progress can be monitored in a transparent manner."

Minister Müller said, "Today, the Textiles Partnership has made decisive headway. Two years after the collapse of the Rana Plaza textile factory in Bangladesh, we are sending an important signal in Germany for fair textile production. We all have a responsibility for this – and we need to live up to it together! Many of our partners in Europe and internationally have already voiced interest in our Textiles Partnership, which may become a real hallmark of our effort to achieve social and environmental standards for the textile industry."

And in October 2015, the Ministry was able to deliver a positive report about the partnership on its first anniversary: "One year on from its inception, the Partnership for Sustainable Textiles has some 160 members, which based on revenue account for almost 50 per cent of the German textile market.

The Partnership is leading the way as the first forum in which a significant number of enterprises from the textile industry are working together on sustainability issues with non-governmental organisations, trade unions, standards bodies and governmental actors. Their shared objective is to improve the social, ecological and economic conditions of production along textile value chains. Membership growth was made possible through the adoption of the second Plan of Action in May. 'It contains ambitious social, ecological and economic goals, which all members of the Textile Partnership commit to achieving. We must now implement these goals using specific measures to enable the partnership to grow in impact,' says Gisela Burckhardt with reference to the Clean Clothes Campaign."

#### Brands and retailers

The brands and retailers are showing no let-up, but instead accelerating their efforts in the hope of positioning themselves early on as particularly sustainable enterprises with a claim to leadership status. The aim is to manufacture in accordance with sustainability criteria and to make it absolutely clear to the consumer that sustainability is a special product benefit. In this area, the Swedish clothing company H&M is always among the frontrunners. In March 2015 Greenpeace names H&M as a Detox Leader when releasing its Detox Catwalk, showing how effectively major fashion brands are removing toxic chemicals from their supply chain and tackling water pollution.

Greenpeace states that "H&M's action on toxic-free fashion puts it firmly at the head of the pack" and places H&M in the "Leaders Group". Greenpeace also mentions that H&M is the first company to eliminate the hazardous chemicals PFCs from its products. The Detox Leaders are defined as "detox committed companies leading the industry towards a toxic-free future with credible timelines, concrete actions and on-the-ground implementation". And in September H&M introduced 16 new denim styles made using recycled cotton from textiles collected in the Garment Collecting initiative in H&M stores. The pieces for men, women and kids, are the latest steps toward H&M's goal towards creating a closed loop for fashion, and will be available in all stores worldwide, as well as online. "Creating a closed loop for textiles, in which unwanted clothes can be recycled into new ones, will not only minimize textile waste, but also significantly reduce the need for virgin resources as well as other impacts fashion has on our planet," says Karl-Johan Persson, CEO of H&M. H&M wants to create a closed loop for its textiles, in which the fabrics from unwanted clothes can be recycled into new ones. The aim is to reduce the environmental impact of the fashion industry, by limiting waste that goes to landfill and saving on natural resources used in the production of fabric.

In February 2016 H&M made another step forward in recycling. HRH Crown Princess Victoria of Sweden awarded the winners of the first Global Change Award, an annual innovation challenge for circular fashion initiated by the non-profit H&M Conscious Foundation. Most votes, and a grant of €300,000, were awarded to the Finnish team behind Making waste-cotton new; conversion of waste-cotton into new textile.

To further accelerate the transformation towards a circular fashion industry, the Foundation launched the Global Change Award Network, an open-source database for innovations.

For many years now, Patagonia has been a pioneer in all things relating to unconditional sustainability. Moreover, the company takes an aggressive approach to raising consumer awareness. In August 2015, for example, the New York Daily News reported the following: "Patagonia declares war on the dirty denim business and John Varvatos is in the line of fire". Im Artikel heisst es: "The new Patagonia ad campaign promotes its line of organic, Fair Trade jeans. It's also a direct criticism of the way most other denim is made." And furthermore: "Patagonia claims its new line of jeans uses 84% less water and 30% less energy in the manufacturing process compared to regular jeans."

Campaigns of this kind encourage consumers to form an opinion on the subject and take a stance. We will be taking a closer look at this trend in the coming year and expect to see a further surge in efforts to educate consumers and raise awareness of how textiles are manufactured.

#### United Nations Framework Convention on Climate Change

In addition to the pull factor for greater sustainability, the push factor resulting from the Paris resolutions is likely to gain new momentum. Between 30 November and 12 December, Paris hosted the United Nations Framework Convention on Climate Change, the 21<sup>st</sup> Conference of the Parties (COP 21) and the 11<sup>th</sup> Meeting of the Parties to the 1997 Kyoto Protocol (CMP 11). The event was chaired by the French Foreign Minister Laurent Fabius. On the evening of 12 December, the conference adopted a climate agreement referred to as the Paris Protocol, which aims to reduce global warming to well under 2°C, ideally 1.5°C.

Most politicians and environmental organisations have rated the outcome of the summit as a breakthrough in climate policy. The French President François Hollande, for example, spoke of the most wonderful and peaceful revolution that has ever emanated from Paris, and the German Environment Minister Barbara Hendricks declared that Paris marked "not the end, but just the beginning of a long journey". Martin Kaiser, the Greenpeace climate protection expert, commented on the agreement with the words "Paris gives the world hope", and the German Association for Renewable Energy (*Bundesverband Erneuerbare Energie*) welcomed it as a "powerful signal" and demanded that the targets be followed by concrete implementation measures.

The next step involves ratification of the agreement by the 195 participating countries. According to UN statements, the Paris Protocol will not come into effect until it has been ratified by 55 per cent of these countries which are responsible for a total 55 per cent of all global emissions. The world's first elected assembly to ratify the Paris Protocol was the parliament of the island state of Fiji in the South Pacific in mid-February.

Despite all the jubilation, the agreement has also been criticised for failing to impose any penalties for non-observance of contractual points even though it is legally binding. A further major problem is the fact that China and the USA together account for around 45% of all global greenhouse gas emissions. Should either of these countries fail to ratify and the other follow suit, the agreement would be doomed to failure.

Prompt action is however imperative and a climate protection policy needs to be put in place immediately, as we are rapidly running out of time to reach the 1.5° target.

Organisations and companies which back the agreement can pledge their support on the website http://parispledgeforaction.org, which states: "Minister Fabius, the COP21 President, is calling for non-Party stakeholders to show their support for climate action by joining the Paris Pledge for Action. Participation sends a signal that all actors – Party and non-Party – are moving in the right direction in 2015 and beyond. The Paris Pledge for Action is not meant to replicate the good work already underway by the business, investment and local government communities to address climate change. Rather, it is intended to provide a political signal that demonstrates the breadth of support and scale of momentum for a transition to a low-emission and climate resilient economy."

So far, this document has been signed by around 1,300 companies, organisations and city councils from all over the world, such as AT&T, AXA Group, BASF, BNP PARIBAS, Cisco, Deutsche Bank, Deutsche Telekom, Fujitsu, Henkel, Microsoft, Nestlé, Novartis, Novozymes A/S, Procter & Gamble, SWISSCOM, Unilever and Vodafone. Signatories from the textile industry are few and far between to date. The only well-known brand to be found is the adidas group.

#### Conclusion

On being presented with the 2016 Zayed Future Energy Prize Lifetime Achievement Award, the pioneer of sustainability, Gro Brundtland, made the following statement: "It is quite interesting to realize that the analysis and the recommendations of 'Our common future' (*Name of the report, also known as the Brundtland Report*) back in 1987 and of course the tradition of the concept itself, but generally the call for radical change in the future world economy, has been accepted.

It's a fascinating story that the concept has been agreed and knowing that this is absolutely necessary. The important thing is, the main message of the report, that we have an inter-generation of responsability on the destiny of people and the destiny of our planet. This is why we need sustainable development."

It will soon become apparent whether the Paris Protocol is destined to come into effect, thus providing clear orientation in the drive towards greater sustainability, particularly with respect to intergenerational fairness, and paving the way for countless small-scale measures. Should this happen, 2015 could go down in history as a year of decisive importance for mankind. The budding field of sustainability would then have ample incentive to blossom. In the textile industry, at any rate, there is already an obvious desire for rapid growth all along the textile supply chain. This was underlined in no uncertain terms by the ITMA 2015.



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# Interview with: Mr. Benjamin Mayer

**GEO** Mayer & Cie-

"An investment in more economic sustainability also results in increased overall sustainability!" Last November, you experienced and shaped your very first and very successful ITMA as the CEO of Mayer group. How would you describe the outcome?

**Mr. Mayer:** My answer will be two-fold. On the one hand, I will discuss our economic success, and on the other hand, my personal experiences. If you attended ITMA, you were able to witness the overwhelming number of visitors. Attendees hailed from all over the world, except China, since the Chinese are probably focusing on ITMA Asia. Other than that, there were representatives from across the world, amongst them decision makers, such as business owners, CEOs, and directors of sales, with whom we were able to engage in rich discussions.

We definitely met our goal, which, for a trade fair is not necessarily to sell a particular number of machines, but rather, to represent the company and the machines successfully. As a result, sales talks and order submissions typically happen in the months after the fair, which has also been going really well. This was my very first trade fair as the CEO of Mayor & Cie. I have always been a visitor, now I was one of the people in charge. I thoroughly enjoyed it and had a wonderful overall experience, although it was a strenuous 10 days, including preparation time and follow-up. I do look forward to the next trade fair!

Overall, 2015 was a very successful year for Mayer & Cie., who was able to record a sales increase of roughly 15%, or over 100 million Euros for Mayer group overall. For 2016, you are targeting further sales increases and additional growth. Is this target based only on market demand or are you actively pursuing it in any other way?

**Mr. Mayer:** In 2014 and 2015, the demand on the market was already higher than our production capacity. Therefore, we do not base our sales increase projection on more orders, but rather, on our increased capacity. In both years, we experienced peak delivery times of up to six months, which made us lose out to competitors. For the current year we are expecting orders to remain at the same level as in 2015, which means that we do not anticipate rapid growth, but slight growth instead. For us, one priority is adjusting our production capacity, which will lead to sales increases. Due to these conditions, we can make specific plans, even if there are minor shifts or changes. We have set our goal to a sales increase of approximately 5 percent and expect that we will be able to reach it.

China is currently undergoing structural shifts and more and more voices predict that selling new machinery will become increasingly difficult. Mayer & Cie. has been distributing the single jersey machine MSC 3.2 II, which was especially developed for the Chinese market and has become very popular there. In 2015, you planned on increasing this model's sales by 30% to roughly 260 machines. Were you able to reach this goal and what are your plans for 2016 with respect to China? **Mr. Mayer:** We reached our goals for 2015 more or less precisely. We sold 250 machines last year. In addition, my answer is similar to the last one, since capacity is also an important factor with respect to the Chinese market. Before we are even able to think about higher sales quantities on the Chinese market, we first have to lay the groundwork in Germany and Czech Republic by increasing our production capacity. Therefore, it is our goal to sell 250 machines again, which means that we will purposely stagnate our sales on the Chinese market in 2016. With respect to the demand for this machine, I can add that it was very strong in 2015 and we anticipate a similar interest for the current year.

To us, the situation in China seems ambivalent when it comes to the market demand for new machinery. On the one hand, economic growth and exports have decreased, while wages have increased. On the other hand, the country's latest five-year-plan stipulates the pursuit of hightech and sustainability. Given these circumstances and goals, shouldn't China invest in the best technology, or why do special machine designs remain legitimate for the Chinese market? This may also be a question that brings ITMA Asia to mind.

**Mr. Mayer:** In this context, I would like to name a figure that stems from the 2013 ITMF. Based on this, roughly 75-80% of all new circular knitting machines are installed in China. Thus, China is by far the largest market for circular knitting machines.

As long as this figure remains as high, there will also be machines that are especially designed for the Chinese market. Of course you are right and our MSC machine is one example of this. Although it was developed for the Chinese market, it by far supersedes the Chinese standards of technology. It is specifically designed for those companies that seek to invest in better technology and have a desire to change. This is where our relatively costefficient Mayer solutions come in. We imagine that experiencing them eventually facilitates the investment in the best available technology, meaning our premium machines. However, our customer pool in China is heterogeneous. A number of customers want to specialize and are looking for new segments or niches. They want to expand their machinery to achieve these goals. Others continue to fight on the price front. Whether or not this is the right path remains to be seen. I personally expect that in the next few years, there will be a selection on the market, from which larger corporations that are diversifying and adjusting their strategies will emerge.

Are you under the impression that your Chinese customers feel the competition with other countries more strongly and are you able to detect a change in demand through conversations or orders?

**Mr. Mayer:** Competition with other countries has yet to become an issue. This may, of course, vary for individual cases, particularly with respect to premium machines. However, it is overall negligible. Rather, Chinese customers are increasingly worried about where they will be able to implement costefficient production in the future. The increase in wages is a topic that may not currently be of consequence, but will have an impact in 3 to 4 years. In this context, Vietnam is currently a hot topic, since many Chinese businesses are planning to move or duplicate their production there, or are at least thinking about it. This year, we will also once again sell more than 100 machines to Vietnam, not to Vietnamese customers, but to Chinese businesses that are making investments there. It is noticeable that Chinese companies are trying to figure out how to maintain their competitive edge in the future.

Sustainability, namely the achievement of economic goals under consideration of global and generational justice, is becoming more and more important for the textile industry and is also a focal point of this edition. Mayer & Cie. Is a member of VDMA's "Blue Competence" initiative. What kinds of sustainability requirements do your customers have and how do you meet them?

**Mr. Mayer:** I will start my response by discussing what it is that customers want. Customers want production processes that save resources. This is why they invest in technology that allows for the preservation of water and electricity, for example. Our job as mechanical engineers is to meet these requirements. This results in two positive outcomes: On the one hand, we protect the environment, and on the other hand we achieve economic efficiency.

If a customer is seeking to achieve more efficient production processes, and we are able to supply a machine that meets these criteria, our machine is made sustainable as a result. To me, improved sustainability always goes hand in hand with innovation. Innovation is a deciding factor, because an investment in more economic sustainability also results in increased overall sustainability.

## What makes your company sustainable and how important is sustainability to you personally?

**Mr. Mayer:** Our sustainability is reflected in the fact that we are a familyowned business that has been in existence for four generations. We believe that being owner-led is sustainable and creates continuity. Without a doubt, we are also dedicated to the question of using resources efficiently, as well as minimizing the use of resources. One particular example of this are the energy-saving measures we have taken to upgrade our corporate buildings, such as new heating and A/C systems, and heat insulation. In addition, we are thinking about the construction of a cogeneration plant for 2018. This is a sustainable method of producing energy and we also anticipate economic advantages. Thus, increasing efficiency is also important to us. Let's take a look at your machines. At ITMA, you showcased your marketready spinitsystems solution, which facilitates spin and knit processes. Yarn manufacturer Gebr. Otto nominated you for the ITMA Industry Excellence Award, after the prototype of this fascinating solution was already introduced in Barcelona in 2011. You concluded that the feedback was positive. Are orders coming in and does spinit have potential for a higher sales volume? Or is it a niche solution?

**Mr. Mayer:** We are truly happy with the progress of the past years. The development of this machine started as early as 2003, roughly 12 years ago. Now, we were able to present it in its market-ready state at ITMA and have already made initial sales. However, we are unable to sell the machine immediately in high quantities. There are a few more obstacles in our way. For example, its construction differs drastically from that of a traditional circular knitting machine. The result is that we have to train more staff capable of mounting the machine. We also need highly trained service technicians who can conduct maintenance on the machine on site. For these reasons, we have been reserved when it comes to projecting sales numbers. For this year, our plan is to sell 10 machines, which we would like to increase on a year-to-year basis, leading up to 50 machines annually starting in 2020. Of course, it is difficult to predict exact numbers with respect to the market demand for this machine. It certainly has a huge potential, if the textile industry decides to invest in this technology. On the other hand, it could become a niche product. Only time will tell, which direction the industry will take.

We will be able to have a more concrete idea about the machine's performance in comparison to the circular knitting machine in the next 2 years, since we will have sold approximately 5 machines this year. We are convinced of the spinit machine's potential and expect a higher sales volume for the long term. This is also reflected in the long time period we took to develop the machine.

You also introduced the latest machines for interlock, striper, single jersey, double jersey, double face and mattress materials at ITMA. Every machine boasts increased productivity, improved energy efficiency, and more flexibility. How quickly and expansively does it change the market and knitwear prices, if a large number of your customers invest in these new machines? Did the customers invest?

**Mr. Mayer:** This question is difficult to answer. I will respond from a different vantage point. Since many of our customers experience severe pricing pressures, especially those who do not differentiate themselves significantly in knitwear, or the final product, they require increased productivity to achieve cheaper production. This way, the increasingly efficient machines also help achieve lower prices for standard products. This is not the case, however, for products that have a unique selling point. I talk to many different customers, and what matters in the end is the semi-finished or final product, as well as the business strategy. If the business strategy includes being the most cost-efficient supplier for standard products, competition becomes more severe as a result.

Ultimately, it will be about gaining significant growth and to take over competitors, or to diversify. It is likely that there will be a concentration on the market that mirrors the previous one in the Western industrial nations.

Your technologically advanced machines are protected by patents, such as relative movement technology. This makes it seemingly impossible to compete with your position as global market leader. Why do you still have to pursue innovation?

**Mr. Mayer:** I have a slight correction to make. Relative movement technology is patented, but its protection ran out in 2003. Nonetheless, none of our competitors were able to copy the technology, which is why we have remained the only supplier. However, I do not believe that our competitive edge is that strong. Our advantage is without a doubt our wide product range. Based on our product range, we are certainly ahead of our competitors. This, however, is not always the case for individual machine types. There are individual machine types, which some of our competitor models were able to match, or even supersede. We can't be the best at everything. Since we are one of the market leaders for most machine types, we are able respond to market requirements with great flexibility, which means that we are able to supply machines that the market demands. This is a problem for many of our more specialized competitors.

We have to be innovative, if only to maintain our position, since the competition doesn't sleep and also has new ideas. For example, we were able to see developments at ITMA that are almost up to par with our quality, or in some cases just as qualitatively sound as ours. Of course, it has to be our charge to adjust our product range to future market demands through innovation and to regain our competitive edge. Innovation is also a driving force for all employees of the company. Development, marketing, sales: everyone is happy when we have developed a new machine, which makes tasks interesting and fun.

In the field of technical textiles, knitting machines, particularly circular knitting machines seem to be slightly behind the times. You are a player on this market. You are an exhibitor at Techtextil and distribute Relanit 0.8, a machine that is even capable of knitting steel fibers. What has to happen in the field of circular knitting to increase participation in this growth segment?

**Mr. Mayer:** This is a difficult question, considering that there is no clear definition of what counts as a technical textile. Apart from that, knitting solutions have a more difficult time in this segment than weaving, for obvious reasons. If fibers are arranged in parallel to each other, certain forces, such as tensile force can be calculated exactly. This is much more problematic for our machines and makes us less interesting for this particular demand. We respond when requests are brought to us, which is typically for niche cases.

For this reason, the development of special machines is not yet profitable for us. In spite of this, we are watching the market and its developments. Depending on the definition, we have also been supplying machines for spacer knit fabrics for various fields, which we may count as technical textiles. However, we are missing the applications that make textiles definitively technical to me, such as production for the construction industry, as well as truly entering mass markets.

In December 2015, you took the first step toward expanding your site in the Czech Republic. Particularly S4 and D4 machines will be manufactured on roughly 5000 sq. in Czech Republic. How will you continue to manufacture high performing, high precision, high quality products, even though they will no longer be made in Germany?

**Mr. Mayer:** This is a question that we hear from our customers every now and then, as they assume a qualitative difference between German and Czech products. Of course, we will not allow our quality to decrease in our Czech production. On the one hand, we will continue to manufacture all metal parts in Germany. We will continue with our strategy and leave "No metal dust on foreign soil"! Our work in the Czech Republic is exclusively focused on assemblage. There, we are able to assemble cost-efficient machines, such as S4 and D4, as well as components for other machine types. On the other hand, it is very important to us that our Czech staff is trained just as well as our German staff. To ensure this, we have been emphasizing mutual exchange. Many Czech workers come to our German site for training purposes, while our German experts go to Czech Republic to train staff on site. This has been a frequent occurrence, which allows us to guarantee that our production processes are at the same level. Ultimately, our customers will be convinced when we supply machines that work equally well, no matter where they were assembled. With this, the question of ensuring quality in Germany or Czech Republic will no longer be raised in 5 years, at the latest.

We will ask a few personal questions to conclude. You are the head of a 111-year-old traditional company in its fourth generation. You are relatively young and belong to generation Y, who is rumored to approach values and traditions differently. Could you speak to this, for example by talking about what you are doing differently and how your environment, including customers, suppliers, and staff responds to it?

**Mr. Mayer:** In the beginning, I did wonder what it must be like for our customers. For example, when a company owner with plenty of life experience, who is 20 or 30 years my senior, is now expected to work with me, someone in their early 30s. However, I can happily announce that this was no problem at all. Ours is a very open-minded industry that welcomed me with open arms.

Our leadership, which also includes my brother and my cousin, is quite young overall, and has brought a breath of fresh air into our company. For example, we have increased our use of modern computer technology. We now use video conferencing software to facilitate the communication between Czech Republic, China, and Germany. We also know what kinds of expectations members of generation Y have when it comes to employment and we are actively seeking to meet these expectations. We certainly have an advantage when it comes to implementing these changes in the company, because we know what it takes. In Germany, there has been a persistent discussion about a lack of specialized workers, which is looming ahead or may already be at our door. We compete with other companies in the region for junior staff, which is why we want to offer incentives beyond pay to ensure that our employees are happy. These incentives include health management, subsidized meals, fresh fruit, flexible hours, and others. I am also able to draw on my personal experiences from my time at BMW. Changes of this kind are very popular in companies.

#### What do you see as the fun part of the textile and textile machine industry and what fascinates you about the industry?

**Mr. Mayer:** I will start with what bothers me. I am bothered by the bad image of the industry, particularly here in Germany and in Central Europe. The textile industry is an industry with which everyone has to engage on a daily basis and whose products we enjoy to use. As a contrast, the industry itself is painted as dead or uninteresting, and barely anyone understands the manufacturing processes or the technologies involved.

I am trying to change the perspectives of people both in my private and professional spheres. Of course, I am unable to change the bigger picture on my own, but I can contribute to change by taking advantage of teachable moments with people in my environment. Oftentimes, I can witness an "aha moment", which I enjoy and which makes me return to your question.

What I like the most about the textile industry is its international nature. I thoroughly enjoy being in contact with people from across the world, people from diverse backgrounds, cultures, and religions. It greatly broadens my own horizon and is by far the greatest advantages of the industry.

## Interview with: David Pircher

Head of Business Development / Product Management OEKO-TEX



"There will always be something to improve and especially new technologies will always result in new goals to reach." The confidence in textiles label OEKO-TEX 100 has been around for over 20 years now. It is the best known label in the world of textiles, with over 125,000 certifications and labels millions of products. What is your plan for the future of OEKO-TEX 100?

**Mr. Pircher:** The OEKO-TEX 100 label has established itself well in over two decades, so there will be no major changes to the philosophy. A key component of the label is to adapt the contents, i.e. defining limits and test criteria, which occurs 1-2 times a year. There have been deliberations to adapt the Corporate Identity, but that's a very delicate area, since the label is highly recognised and is perceived as a strong brand. Furthermore, just as in any progressive company, we too are constantly optimising processes and adapting to market conditions.

## *How sustainable would the world of textiles be if an OEKO-TEX 100 certification were a minimum standard for all textiles?*

**Mr. Pircher:** That's a rather difficult question, since sustainability has become a big trend in recent years and there is no specific concept or idea to attain it. It's more a philosophy of product safety, environmental protection, social responsibility and many other aspects. The OEKO-TEX 100 label can certainly be a contributing factor, but will not be able to ensure global sustainability by itself. Companies have individual strategies and implement sustainability differently, since there is no standard complete solutioon.

External influences such as the Greenpeace Detox campaign and recommendations for action of the Sustainable Associations which brands and retailers follow are also noteworthy. This all makes sustainability a very complex system in which the OEKO-TEX Standard 100 can primarily be a critical contributor in its field. That is to ensure products are harmless in the human ecological area and to provide the consumer with key guidance for making their decision.

The OEKO-TEX Standard 100 certification certainly also indirectly improves sustainability through company audits and the follow-up tests performed on random textile samples obtained from the retailer. If it does not meet the criteria and the textile is not immediately improved, the certificate is revoked. Every step in the direction of market-wide certification would therefore be a step toward improving sustainability. It's not absolutely clear, since the issue is never actually finished. There will always be something to improve and especially new technologies will always result in new goals to reach.

Are there exact analyses how the OEKO-TEX 100 label affects the buying behaviour in certain segments, or how do you convince a textile producer to have his clothes or home textiles certified?

**Mr. Pircher:** The OEKO-TEX 100 label will generally always have a positive affect on buying behaviours.

The number of certifications, so the overall use of the label, however, certainly varies in the individual segments. Baby clothes and undergarments for adults, for example, are traditionally very strong segments. And the segments always have changes and trends with respect to demand. In recent years, for example, there has been an increase in certifying technical textiles for very specific uses. We as a company are not well-heeled enough to be able to order global market analyses. But we have done a few studies and also receive a lot of information from our customers, brands and retailers how important the certification in the various fields is to them. After all they conduct extensive market research and analyse sales number and typically approach us. Often, customers are already certified for product areas and wish to extend these to other areas, which may then also entail certifying other companies. Companies who have no experience with OEKO-TEX certification receive full guidance from our member institutes.

Sustainability is also a large growing market drawing many new players. So more and more labels are appearing and all over the world groups are forming in the textile industry defining criteria for more sustainable production and who strive to document compliance through labels or care marks. Have you developed scenarios for potential competitors with strong sales using aggressive marketing to penetrate your core competencies, so why will OEKO-TEX certification win? **Mr. Pircher:** It's a very interesting subject in business development. For the past several years we have in fact been seeing that not only traditional competitors, to certifiers committed to sustainability, but the role of consumers, politicians and the media has been growing, which splits the topic into several areas we need to keep an eye on.

So of course this makes it all the more important for OEKO-TEX to monitor the market development among traditional certifiers, not only with terms of the competition, but for example also based on changes in legislature which may make a voluntary process mandatory. We're partly also working with competitors if we believe this will benefit customers and we can better assist them. On the other hand, our customers are reporting they see being contacted regarding new solutions and products as a problem. This is a difficult subject, since every vendor of course also tries to sell his solution, which sometimes does make it a bit difficult to remain objective.

Your products changed a lot in the past two years. Instead of OEKO-TEX 100+ and OEKO-TEX 1000 there now is OEKO-TEX "Made in Green" and OEKO-TEX STeP. Why this change and what do these new products have to offer.

**Mr. Pircher:** You're asking the right person, since the products changed when I had just started with OEKO-TEX.

This was prompted by the strategic authority to adapt the products to the current market needs, since these changes mentioned did exist. The OEKO-TEX 1000 standard you mentioned has been around since 1995 and simply a bit ahead of its time. And yet the thought was considering the change in the market we needed to apply our expertise, which we have had for over 20 years now, to products better even better, and also improve our products accordingly. That's exactly what we implemented with our stakeholders and created an international standard, STeP, precisely adapted to the current markets needs and which incorporates the regulations and potentials of the individual countries and companies. OEKO-TEX STeP has been on the market for almost two years now, and we're seeing we hit the mark.

Sustainability is also important for textile machinery, especially but not only the equipment. How important was demonstrated by the demand for "green machinery" at the ITMA in Milan. To what extent does STeP consider how up to date and efficient machine production is in the score?

**Mr. Pircher:** I was surprised how important this topic was at ITMA and of course we greatly welcome this development. This greatly supports the philosophy of more sustainable production. Of course our SteP system also considers these trends, since the machines always have and always will evolve, so we certainly included this topic and the state of technology does affect the assessment. STeP addresses this topic under environmental performance.

Here a company with an excellent assessment will of course receive a better overall score. Emission values, usage of the various resources and energy efficiency impact the Key Performance Indicator. In addition, our institutes also provide the companies with feedback on potential improvements. Using intermediate-term investment calculations we show customers how quickly investments in sustainability, so e.g. energy efficiency and lower water consumption will pay off. The individual OEKO-TEX member institutes are all in the textile industry and in addition to chemistry our expertise also extends to textile engineering, and we have employees with the respective training who also visit customers.

It's generally known one third of textiles comes from China. OEKO-TEX lists over 3000 companies in China who have their products OEKO-TEX 100 certified. For the new OEKO-TEX STeP standard, however, it's a mere 8 companies, so not even one percent. Do Chinese companies not feel the need for this certification, is it related to costs, or is there too much transparency? Aren't the normally smart Chinese companies missing the opportunity to re-establish and better position themselves as a "first mover"?

**Mr. Pircher:** As STeP gains prominence this will certainly change. And we do feel there are two motivating factors for becoming certified. On one hand it's something customers require of the textile companies and on the other hand the company decides to improve its market position.

In China we're seeing an overall positive development since the companies, which are now 10 certified companies, decided to become STeP certified. And the new products simply need time to become established and also for the benefit to register. However, we are seeing many Chinese companies whose production we consider sustainable are showing more interest in the certification to be more appealing to Western buyers. On the other hand of course there are also those companies in China whose production is very much based on cost, and those who shy away from the high transparency for whatever reason. Perhaps they're trying to hide something, or perhaps they're simply trying to guard their know-how.

The reasons speaking for and against certification are often quite individual and have a multitude of aspects. And we also need to stand up to the our competition. But I do see the overall trend here as very positive, since within the company we're seeing an increased demand for STeP and in addition to the 65 companies who already are certified and still have many pending, especially in Asia. The companies which have been certified after all are those "first mover" we were speaking of who want to show how good they are, benefit from their improved position and want to set an example for others.

Even retailers such as H&M have announced they will be drastically increasing the number of supplier audits. Isn't STeP certifying the textile company also an alternative to auditing the retailers? **Mr. Pircher:** We're also seeing brands and retailers are becoming more and more committed to "sustainable production" and pushing monitoring and their own audits. However, it's difficult to monitor yourself, since critics can always say little to nothing is done and can even allege "green washing". Many brands and retailers are aware of this and are also seeing the benefits of audits conducted by independent third parties. Some already prefer this monitoring as a good and credible alternative. They've approached us about using STeP certification in place of their own audits and to even have us monitor possibly critical companies. With some it's already moved beyond talking and we're already working on implementation solutions.

The "Made in Green" label is aimed at consumers who really want to know. They can use the product ID online to see all stages of how a product is made. This seems to be a very long term product aimed at raising the consumer's awareness with respect to sustainability and big brands and retailers hoping to offer more of this added value. How is this currently being accepted and what are the strategic objectives and plans in this respect?

**Mr. Pircher:** There generally is pressure from the consumer to buy textiles "in good conscience". This is where the "Made Green label" comes into play and you're absolutely correct, it's not a short-term solution but based on a long-term philosophy which also considers the complexity of the textile industry. The label demands transparency which the companies then also have to successively implement along the entire supply chain.

The label is aimed at companies which are particularly committed to sustainability and then also start with a product line or collection to see how well it is able to establish itself and gain their own experience. It was important to us to have a credible product which persists on the market and which also evaluates at a valid level which cannot be achieved by just any company. Another, particularly interesting, aspect of the "Made Green label" is that the depth of information can be adapted to consumer requests, since theoretically – to exaggerate - an endless amount of information can be supplied. Our market research shows the consumer currently doesn't have the abilities or the knowledge yet to delve into the material. Here the challenge is to supply key information as a quick overview and also provide the ability to delve into the subject. And labels are also faced with this problems with respect to which information to reasonably provide and to which extent. We offer brand manufacturers and retailers precise analyses which level of information is suitable for which consumer target group.

In June 2015 the OEKO-TEX foundation joined the Germany's "Partnership for Sustainable Textiles" after modifying the plan of campaign. Will this be an opportunity to gain more knowledge or were you asked to contribute your expertise?

**Mr. Pircher:** We'll answer that with "both", which is exactly what makes the partnership what it is. After all the partnership is a platform for the various protagonists to jointly examine its objectives, share experiences, discuss best practices, and to learn from each other.

Of course we share the partnership's objective and support the members with respect to continued improvement and contribute our expertise to the task groups to help reach the overall goal of our colleague Mr. Müller.

On principle the specific focus of OEKO-TEX certification and our range of services is also a possible solution to address the entire topic. Our products accordingly also offer the industry implementation solutions for specific requirements. Based on our years of experience we continue to also be a middle-man between the industry, trade, NGOs and politicians. But that's technically always been the case based on our core competence in this in field, or developed into this in recent years.

The EU has numerous laws for manufacturing companies, along with special provisions such as REACH. So why are textiles made in the EU not automatically non-toxic and produced sustainable?

**Mr. Pircher:** From a merely practical or textile application technology perspective there is a good answer of course: many European companies use semi-finished products which do not originate from the EU. These intermediate routes or even e.g. relabelling will probably always exist, so in my opinion the idea that textiles which according to the label were made in the EU are automatically non-toxic is just an illusion. On the other hand, pressing or implementing Reach accordingly also requires the appropriate tools and controls, and this is where OEKO-TEX is establishing itself with the respective tools and actions to help the companies ensure Reach compliance.

MySTeP is your database for brands and retailers to optimise and reorganise their supply chains. This makes a lot of sense, since products from sustainable manufacture require a completely sustainable supply chain. You're aware of the portal's traffic. What is the situation? Is there constant or even exponential pressure on textile companies not to negatively impact the supply chain score, thus invest in sustainability?

**Mr. Pircher:** It's clear and also known a textile garment can only be produced as sustainably as the weakest link in the supply chain permits. In order to identify this link, a company must know his supply chain very well and that's the first challenge retailers are often faced with. They often don't know what their supply chain looks like. And that makes it the biggest problem. Here one may question whether they don't want to know it, if they don't try hard enough or if they can't know. MySTeP is an opportunity for companies which really do want to improve to gain this knowledge with the respective expertise. With MySTeP they can find out exactly what this supply chain looks like and what the weakest links are.

With MySTeP we can see companies have started to examine their supply chain. It often begins with little things, with companies looking at a product, so at step 1. This is the ready-to-wear clothiers or the distributor supplying their goods. And there are companies willing to go further, who really want to know. They're looking for the weakest link and then also take consistent measures to make a change. They have the company which was identified make improvements, optimise production and perhaps also be certified. Or worst case scenario they switch if he's not willing or able to meet the requirements. That's a development we're clearly seeing. Perhaps not on a grand scale, but slowly and steadily, and perhaps even disproportionately. This applies to producing the Standard 100 as well as higher level goals, so fully sustainable production along the entire line. We can actually trace this development in our first good customer examples. Of course it's a development process which as a whole requires time and for the individual companies also dedication since it's not easily done with just a few clicks. You need to actually concentrate on it and work hard to attain the goal of a completely sustainable supply chain.

#### How important is sustainability to you personally and why do you enjoy working in this field?

**Mr. Pircher:** That's an easy question. There are two aspects and both are under the umbrella of needing a certain amount of passion. I've been working in the textile industry for 17 years now, so I'm virtually married to it, so to speak. I've been dealing with sustainability for several years and to me there's the personal philosophy to contribute to improvement. This applies overall, as a global principle, not only the textile industry. And on the other hand there's the professional aspect, to offer solutions and help in my vested industry, the textile industry, even if it's not always an easy task. If you can combine personal passion with your job, even better. Even if you're sometimes only moving very slowly, eventually you will see the results and your contributions, and that's greatly satisfying.


In this edition of our series 'country focus', we are taking a closer look at a European country which is interesting due to its textile industry: Poland. The textile and garment industry, which was once of great importance in this country, did not have it easy after the restructuring of Eastern Europe and suffered a sharp decline in the years thereafter. Over the last few years, however, the news is much more positive and Poland most definitely has the potential to play a significant role as a textile producer within Europe. Reason enough to take a closer look at the development with a focus on textiles and clothing.

Poland, officially the Republic of Poland, is a country in Central Europe, bordered by Ukraine and Belarus to the east; Germany to the west; the Czech Republic and Slovakia to the south; and the Baltic Sea, Kaliningrad Oblast (a Russian exclave) and Lithuania to the north. The total area of Poland is 312,679 square kilometres (120,726 sq mi), making it the 69th largest country in the world and the 9th largest in Europe. With a population of over 38.5 million people, Poland is the 34th most populous country in the world, the 8th most populous country in Europe and the sixth most populous member of the European Union, as well as the most populous post-communist member of the European Union. he capital and largest city of Poland is Warsaw with a population of around 1,7 million people. It stands on the Vistula River in east-central Poland, roughly 260 kilometres from the Baltic Sea and 300 kilometres from the Carpathian Mountains.Other big cities are Kraków (762,508) and Lódz (706,004). Poland is a unitary state divided into 16 administrative subdivisions..

Poland's territory extends across several geographical regions. In the north-west is the Baltic seacoast, which extends from the Bay of Pomerania to the Gulf of Gdansk. This coast is marked by several spits, coastal lakes, and dunes. The largely straight coastline is indented by the Szczecin Lagoon, the Bay of Puck, and the Vistula Lagoon. The centre and parts of the north lie within the North European Plain. The hilly landscape, which is characterized by the formation of terminal and ground moraines, was created during the Ice Age. The outwash plains in the south-east of the country are distinctly different to this. The Masovian Plain and the Podlaskie voivodship are the largest contiguous lowland areas in Poland. The Polish highlands may be divided into two main parts, Lesser Poland (Wyzyna Malopolska) and the Lublin Upland (Wyzyna Lubelska). The Silesian lowlands and the basin landscape of the Podkarpacie are the foothills to the mountainous regions of the country. Several mountain ranges are found in the south of Poland, including the Polish Jurassic Highland, the Holy Cross Mountains, the Beskids, the Ukrainian Carpathians and the Sudeten. The highest mountain range, the High Tatras, is multifaceted from a geological point of view.

The climate is mostly temperate throughout the country. In the north and west it is oceanic and towards the south and east it becomes gradually warmer and continental. Summers are generally warm, with average temperatures between 18 and 30 °C depending on a region. Winters are rather cold, with average temperatures around 3 °C in the northwest and -6 °C in the northeast. Rainfall is throughout the year, although, especially in the east. The winter is drier than summer.

Poland is a representative democracy, with a president as a head of state, whose current constitution dates from 1997. The government structure centers on the Council of Ministers, led by a prime minister. The president appoints the cabinet according to the proposals of the prime minister, typically from the majority coalition in the Sejm. Polish voters elect a bicameral parliament consisting of a 460-member lower house (Sejm) and a 100-member Senate (Senat). The president is elected by popular vote every five years. Since 2015 Andrzej Duda is the President of the country and also since 2015 Beata Szydlo is the Prime Minister.

Poland is a member of the European Union, NATO, the UN, the World Trade Organization and the Organisation for Economic Co-operation and Development (OECD).

Now let's take a look at the economy. In the 2014 GDP rankings for all member states of the World Bank, Ethiopia is in 27th place with 548,003 million USD and contributing 0.7 percent of global economic output, just ahead of Argentina and just behind Nigeria.

The country's per capita GDP in 2014 was 25,247 USD according to IMF figures. Here, Poland lies in 46th place of 187 countries in IMF statistics, behind Seychelles and ahead of Malaysia.

Annual GDP growth was 4.6 percent between 1991 and 2008. Furthermore Poland was the only EU country to avoid recession as a result of the global financial crisis (+ 2.6%). Its impressive history of growth for more than two decades has left the country, long a marginal European economy, poised to become a regional growth engine. Today Poand is the eighth-largest EU economy. After several years of strong growth, figures have dropped substantially. According to information from the World Bank, Poland had growth rates of 5% in 2011, but only 1.6% in 2012 and 1.3% in 2013. In 2014 this rose to 3% again, and about 3.5% is expected for 2015.

The OECD forecast from November 2015 sees real GDP will continue to grow around 3<sup>1/2</sup> per cent annually, supported by solid investment and consumption growth. Considerable infrastructure investment supported by EU funds will continue to underpin productivity and GDP growth, despite a temporary slowdown in 2016 at the switchover of budget periods for EU funds. Consumer price inflation is expected to gradually recover as the effect of sharp falls in energy and food prices fades. The Word Bank forecasts 3.7% for 2016 and 3.9% for the years 2017 and 2018. A EUROPEAN COMMISSION Country Report Poland 2016, published in February 2016writes:

" The overall economic outlook remains positive, while domestic risks are emerging. Private consumption is set to remain the dominant growth driver, given rising wages, employment and fiscal transfers. Private investment is expected to grow strongly as a result of an already high degree of capacity utilisation. Profit margins are set toremain strong but certain policy decisions taken or announced after the last general election may affect business confidence and investment. A new tax on the assets of financial institutions is likely to weigh on investment if banks respond by adjusting their lending rates to compensate for the impact on their profitability. Public investment is expected to remain strong, partly due to the government's objective to increase the investment rate. How thisobjective will be reconciled with higher current expenditure and domestic and EU fiscal rules still needs to be detailed. Deflation is forecast to end in2016 but price pressures are expected to remain limited until 2017. After several years of adjustment, the current account deficit is expected to have almost closed in 2015, thanks to the strong performance of merchandise exports driven by the country's cost-competitiveness, in spite of negative developments in neighbouring markets."

According to World Trade Organization data, Poland was on the 26th place on the list of exporting countries for merchandise in the world in 2014 with a share in world total exports of 1.14 percent. The WTO reports that in 2014 Poland exported goods worth a total of 216 636 million USD (+6%), compared with imports worth 219 877 million USD (+6%), thus generating a trade deficit of 3,421 million USD.

Poland's most important trading partner is the EU(28) which accounts for 76.8% of exports and 57.7% of imports, followed by Russian Federationwith 4.4% and 10.8% respectively. Other important export markets for Polish products are the United States (2.3%), Ukraine (2.0%) and Norway (1.8%). Other major suppliers of imports to Poland are China (10.6%), the United States (2.5%) and the Republic of Korea (2.0%). By far the biggest importer of Poland's exports as of 2013 is Germany.

Foreign direct investment (inflows) in Poland in 2014 was almost 9 billion Euros. The biggest investors were Luxembourg (3.8 billion EUR), the Netherlands (3.5 billion EUR ) and France 1.2 billion EUR).

The country's industrial base combines coal, textile, chemical, machinery, iron, and steel sectors and has expanded more recently to include fertilizers, petrochemicals, machine tools, electrical machinery, electronics, cars and shipbuilding. The country's exports include machinery, but are highly diversified. The most successful exports are furniture, foods, motor boats, light planes, hardwood products, casual clothing, shoes and cosmetics.

And this brings us to the textile industry. According to the WTO statistics textile exports of Poland were valued at 2083 million US\$ in 2012, 2275 million US\$ in 2013 (+9.2%) and 2512 million US\$ in 2014 (+10.4 %). Clothing exports were worth 3602 million US\$ in 2012, 4032 million US\$ (+11.9 %) in 2013 and 4659 million US\$ (+15.6 %) in 2014.

These are very interesting figures in terms of growth, as they clearly demonstrate that the textile and garment industry in Poland has developed disproportionally well over the last few years. These figures also make it absolutely clear that these industries are also significant from a European perspective. For example, they are higher than the export figures for Portugal, which achieved a value of 2293 million US\$ for textiles and 3775 million US\$ for garments in 2014.

At this point, we will take a closer look at the textile industry here, which can look back on a long tradition like many other European countries. Textiles and clothing has traditionally been produced in Lódz region and shoes in Jura region. Many parallels are to be found with other textile regions such as Manchester, which is often compared with Lódz. In 1807, Lódz became part of the Duchy of Warsaw after the Treaties of Tilsit and was integrated into Congress Poland in 1815, so that the city was ruled by the Russian Tsar who decided to establish a textile industry here. The first textile factory was built by Christian Friedrich Wendisch in 1826, and the first guild in the city was a cloth-making guild founded in 1825. As a result, the foundation was laid for an economic boom in Lódz, and over the course of its industrialization, Lódz became the most important location for the textile industry in Congress Poland. The population grew from just under 1000 to a few hundred thousand. It continued to gain in significance, and the textile industry became ever more important as a production branch, even in socialist Poland. This all changed with the restructuring of postcommunist Eastern Europe and the democratic transition of the country.

The textile industry fell into crisis, companies shut down and the number of textile workers decreased sharply.

ver the last few years however, the textile and garment industry in Poland has picked up speed once more. It has a strong position in the EU, ranking 8th in terms of sales volume, 3rd in employment and 2nd in the number of companies. Even the textile center of Lódz is on the road to regaining its previous importance, and is becoming a hotspot for innovation and design through numerous initiatives. The most important fashion fair in the country, FashionPhilosophy, takes place here twice a year, for example. This describes itself as follows: "We create Poland's largest fashion event, FashionPhilosophy Fashion Week Poland, which is held regularly, twice a year in Lódz, and presents the trends for the next half-year's season. We have set ourselves the aim of forming a platform where, alongside the highest level of aesthetic feelings, there will be room for an exchange of experience and knowledge concerning the mechanisms of the fashion industry. We are creating the idea of a gathering of the fashion milieu where art meets business." In 2010, the Fashion Promotion Center (Centrum promocji mody) was established as an axis for the textile and garment sector, and affiliated itself with the Academy of Fine Arts. Here, new materials are being developed, and art, unique designs and the business world are brought together. The website polska.pl writes: "The city of Lodz has been cultivating its best textile industry traditions since the 19th century. Now it produces textiles for the 21st century.

Ultra-modern materials that protect their users from ultraviolet and other electromagnetic radiation, non-flammable fabrics, and textiles that are impervious to nanoparticles are produced in Lodz, the cradle of Poland's textile industry and one of the biggest centres of this industry in the world."

The result is that the city's textile industry again employs over 31,000 people, and its research centres keep coming up with modern textile design solutions. And it's not just \_ód\_. Eastern Poland is also setting out to establish and promote its own productive textile industry. The website whyeasternpoland.eu writes:" Clothing sector is one of the most promising when it comes to the economy of Eastern Poland. It consists of two subdivisions: the production of textiles and clothing & fur production. The largest concentration of garment industry is in Lubelskie, Warmi sko-Mazurskie and Podlaskie voivodships. The development of this sector of economy in the Macroregion of Eastern Poland stems from historical factors and geographical location. The location between Western and Eastern Europe facilitated the export of textile products. Until recently, the region relied mainly on trade with its neighbors from the east, but western markets became more accessible after Poland joined the European Union. It also resulted in the improved quality of products and modernization of facilities in order to keep pace with the competition. Even now, clothes manufactured in Eastern Poland are primarily an export commodity, and only a small part of the production output enters Polish stores."

The Polish textile industry is also experiencing further growth in the tri-border region with Germany and the Czech Republic." The textilland-oberlausitz.de website says: "Companies in the textile region of Lusatia are being profiled. Many fabrics reach our Silesian neighbors in Poland and our Bohemian neighbors in the Czech Republic. This contiguous economic area has a locational advantage, which has been utilized to the maximum. With the expansion of the European Union to include Poland and the Czech Republic, the largest textile region in Europe was developed in the tri-border region, and Upper Lusatia is right in the middle of this. Roughly 100 textile companies with thousands of workers collaborate in "Textiles Lusatia", an innovation network, and underscore this region's expertise in the textile sector."

Cleanclothes.org in their special issue on Poland quoted a figure of 2283 companies and 97,200 workers in total engaged in the Polish garment industry. The website whyeasternpoland.eu publishes similar figures: "In June 2011 the employment of clothing industry was 153,000 individuals, most of which were employed in clothing branch (89,000). In textile branch 42,000 people were employed and 22,000 in the leather one. About 86% of garment manufacturers are referred to as small enterprises, employing less than 50 workers." Above all, however, Cleanclothes.org criticizes the low wages in Poland, especially those in the textile and garment industry, and compares this to cheap labor in Asia. The minimum wage in Poland as of 01.01.2015 was 1,286.16 PLN (312 EUR) per month, and Cleanclothes.org states the wages of the average textile worker as being 1546.52 PLN (374 EUR) per month.

Alongside the industry itself, the market in Poland is also developing in an interesting manner as the demand for clothing, shoes and accessories has experienced an upward trend over the last few years, whereby the needs of consumers have increased. Germany Trade & Invest (GTAI) wrote about this in August 2015: "Adults in Poland spent about 318 Euro per capita on clothing and shoes in 2015 according to Euromonitor International. This corresponds to only a third of the expenditure in Germany (947 Euro), but surpasses that of their neighbors in the Czech Republic (199 Euro). Consumers have access to a wide range of products on the market, which offers both foreign as well as domestic brands." Furthermore, this means that: "The sales revenues of companies with at least ten employees in textiles, clothing and shoes are growing dynamically. After the Central Statistical Office of Poland reported an increase of 17.2% in fixed prices for 2013 in 2014, an increase of 12.9% ensued in the first half of 2015."

Ever more foreign brands are establishing themselves in Poland. GTAI writes that both cheap mass-produced goods and unique designs are growing on the Polish clothing market. It is large companies above all that are increasing their sales revenues. While KiK, Pepco and TXM are opening further branches, the chain LK Designer Shops is also opening new retail stores. According to KPMG, about a third of internationally renowned clothing brands are available in Poland - and many more are to come.

A leading distributor of products in the clothing & footwear is Empik Media & Fashion Group. Companies from the Fashion segment of the EM&F Group manage popular fashion brands in a franchise model and as joint ventures. In Poland, the sales network is managed by Ultimate Fashion Sp. z o.o. This company has the exclusive right to operate Esprit, Aldo, River Island, and GAP brand stores. Maratex Ltd operates a network of stores in Ukraine and in Russia of the following fashion brands: Esprit, Aldo, River Island, OVS, and Bodique. The store network in the Fashion segment totalled 130 locations in three countries as at the end of April 2014 and currently includes seven fashion brands.

Thousands of small companies are active on the Polish clothing market; the largest of these have a share of less than 10%. The leading supplier is the company LPP, which distributes clothing under six different brand names: Reserved, Tallinder, Mohito, House, Cropp and Sinsay. Each of them is addressed to a different group of customers who lead a different lifestyle and have different ways of expressing themselves and their needs.

LPP manufacturers many of its products in the Far East, and generated a turnover of over 2 billion Zl with a net profit of over 100 million Zl in 2009. In 2014 they sold goods for more than 4.7 billion PLN and developed 482 million PLN in net profit - by 11% more than in the previous year. And they have increased the number of stores by 196 units up to 1,516 units, while the retail space has been increased by 134 thousand sq.m. up to 723 thousand sq.m, ie. by 23%.

The biggest supplier of shoes in Poland is CCC, which was NG2 until 2013, and distributes the brands CCC, Boti and Quazi. CCC generated a turnover of 1.20 billion Zl (+20%) from January to July of 2015. Retail spaces have increased even more since the beginning of the year by around 23%. The management of CCC expects an increase in their gross profit by 33% to 300 million Zl for 2015. This shoe chain has also opened branches in German-speaking regions. As of mid 2015, they had 35 stores in Germany and 24 in Austria.

The selection of products on the market has been significantly enriched by domestic design, which is also growing strongly. Rafal Bauer and Rafal Czapula's first business, Rage Age, which sells exclusive designer fashion for men, opened in September 2009 in the prestigious Warsaw shopping and recreation center Zlote Tarasy (Golden Terraces). In the meantime, Rage Age has opened stores in nine further shopping centers in Warsaw, Gdansk, Katowice and Poznan.

Simple Creative Products is an exclusive fashion label that has been on the market since 1993. It is part of the GINO ROSSI capital group. The SIMPLE CP network currently numbers more than a dozen stores throughout Poland. Another important manufacturer is the company Redan, with its trademarks Top Secret, Drywash and Troll for young people.

As well as this, domestic fashion designers strive for international recognition. Public funding as well as increasing online trade helps them in doing so.

GTAI writes: "In Poland, there are many talented fashion designers whose path to international success should be made as smooth as possible. After fashion shows in Berlin, for example, the début presentation of young Polish designers followed at the international fashion fair The Gallery and the GDS fair (Global Destination for Shoes & Accessories) in July 2015. This took place in Düsseldorf with the motto "Ready to Wear Polish Brands, Hush Warsaw at The Gallery & at GDS". Hush Warsaw is a fashion fair in Warsaw (http://www.hushwarsaw.com). The designer Lidia Kalita, who previously founded the brand Simple Creative Products for women's clothing, is investing in unique fashion. At the beginning of 2014, she created the brand name LK Designer Shops together with her husband. This fashion chain, which offers garments from the premium segment in small collections, will have opened as many as 24 outlets by the end of 2016."

An important organisation representing the interests of the textile and garment industry of Poland is PIOT – Federation of Apparel & Textiles Industry Employers which associates a number of textile and clothing employers/companies. Statutory aim of PIOT is to represent its members before governmental and legislative organizations. The main purpose of our activity is to express to the state authorities and parliamentary commissions problems reported by industry as well as opinions on the draft acts. From January 2012 PIOT has led the project Clothing,

Accessories and Leather Goods Trade Promotion Program submitted under Sub-measure 6.5.2 Operational Programme Innovative Economy which is carried out in order to strengthen the competitiveness of the economy by improving the image of the Polish economy among international partners, to establish the business contacts of entrepreneurs and promotion of Polish export specialties.

Under the auspices of PIOT, over the course of the last few years some rather important funding programs have been adopted. From January 2012 PIOT has led the project Clothing, Accessories and Leather Goods Trade Promotion Program submitted under Sub-measure 6.5.2 Operational Programme Innovative Economy which is carried out in order to strengthen the competitiveness of the economy by improving the image of the Polish economy among international partners, to establish the business contacts of entrepreneurs and promotion of Polish export specialties.

So much for the status quo! Now we will have a look at further development. In June 2015 PIOT announced that they received the message that their INNOTEXTILE program has been approved for implementation by the National Centre for Research and Development. PIOT wrote: "We hope raised by the program INNOTEXTILE funds will substantially contribute to improving the competitiveness of the sector and will enable the creation of new technologies and products by the clothing and textile industries." The management consultancy McKinsey sees significant potential in Poland, as well in the textile industry overall. They have published report about Polen in January 2015 with the name 'Poland 2025: Europe's new growth engine'.

The report says:" The greatest opportunities to close the productivity gap with EU-15 are in automotive, furniture manufacturing, and textiles and apparel. It is second only to the service industries in advancing Poland's competitive position, and as such is poised for competitive expansion on the international market.

[...] Those subsectors best positioned to grow, given their large size and the value they add, are automotive (EUR 8 billion), furniture (EUR 6.8 billion), and textiles and apparel (EUR 5.7 billion). The companies in these subsectors mainly belong to larger groups, and growth has come mainly through technology transfer, design, and brand development.

Textiles and apparel, furniture, and fabricated metal products are among Poland's most fragmented industries. Skilled labor and supplier networks are concentrated in traditional regions, dating back to the 19th century. As textiles and apparel have low capital requirements, small and very small companies crowd the field as subcontractors to larger Polish and international producers. In textiles, 63 percent of revenue is generated by companies with revenues below EUR 40 million. In the longer view, the number of small companies has been declining slowly and steadily. To accelerate bottom-up consolidation, additional financing is required; alternatively, top-down consolidation motivated by the big OEMs would be expected eventually. Consolidation will help the sector achieve economies of scale, and consequently the R&D and efficient modern production lines needed for further advancement, which only larger companies can afford.

The other half of process-manufacturing improvement will be achieved through the development of Polish exports. Exports growth can be a matter of survival for manufacturing companies, as the size of the domestic market is often insufficient for a company to achieve profitable scale. The key to further growth is in finding the best international opportunities for Polish products.

To compete internationally, Poland needs strong brands. Polish manufacturers can build strong brands in two ways: either they can develop their own brands in selected markets or segments, as Cersanit and Amica have been doing, or they can acquire an international brand, as Rovese did with Meissen Keramik, a former German producer of high-end ceramic tiles."

## Conclusion

Our brief analysis has shown that Poland within Europe and the EU has very good opportunities to occupy the role of a leading textile country. This country has good indicators overall, with a more than moderate rate of economic growth. The former textile centers, \_ód\_ in particular, were able to once more be developed into internationally competitive locations over the course of the last few years, and in addition, have set the course for the future in research and innovation. The Polish population, in particular the growing middle classes, have indicated that they are open to the consumption of textiles and garments, and due to comparatively low wages, Polish products are also competitive as exports. These are promising outlooks, as McKinsey have also outlined. It shall be essential to further modernize the industry in order to provide efficient machines with high productivity and flexibility levels. As well as this, by producing sustainably as a geographically proximate location and meeting the intensifying demands of fast fashion, Poland can become a powerhouse in Europe.

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# Record-breaking Heimtextil supports positive industry outlook for 2016

Like every year in January, Heimtextil in Frankfurt (Germany) heralded the start of the 2016 textile trade fair year. This leading international trade fair for home and contract textiles once again succeeded in attracting even higher numbers of exhibitors and visitors. This can, on the one hand, be attributed to the outstanding organisation and planning

on the part of the event organiser Messe Frankfurt, which always manages to find new ideas and themes, as well as expand the exhibition space. But it also indicates a good business climate within the industry. Large numbers of exhibitors reported a good to high demand, and that they had excellent discussions with visitors and closed countless deals. If Heimtextil is considered an industry indicator and an initial field test of a positive outlook, then the 2016 business year looks very promising.

Over 69,000 trade visitors (2015: 67,861) and 2,866 exhibitors (2015: 2,723) from across the world travelled to Frankfurt from 12-15 January to start the 2016 business and trade fair year together.

For example Annicq Boghaert, Sales Manager Germany + NL, Belgium Arte N.V. stated: 'On Wednesday, we sold as much as we did last year throughout the entire trade fair. There was a good atmosphere amongst the German customers. They were focused on the products and business. We presented six new collections at Heimtextil. They were all well received by customers. Overall, it was a good way to start the season!' And Andreas Zimmermann, Member of Executive Management / Global Sales, Zimmer + Rohde GmbH said: 'For us, the trade fair was very positive. We acquired lots of new international customers and we also got good results insofar as the acquisition of new customers was concerned. Our existing customers were also of course there. We're very happy with both the amount and quality of visitors. This year, we welcomed considerably more visitors from the Middle East to our stand. The focus of our presentation was our new wallpaper collection'.

Detlef Braun, CEO of Messe Frankfurt, was visibly satisfied with the outcome: 'The world of textile interior design came to Frankfurt and the increase in exhibitors and visitors alike speaks for itself.

The positive economic indicators also boosted discussions between suppliers and purchasers. Heimtextil has thus impressively consolidated its position as the top global meeting place for the industry'.

Martin Auerbach, Managing Director of the German Association of Home Textiles Manufacturers, confirms that 'Heimtextil 2016 has left a lasting impression on us. The confident presence of our members is a positive indicator for the 2016 financial year. In numerous discussions, both exhibitors and visitors declared themselves very satisfied'.

Cristobal Montero Álvarez, purchaser at Europe's biggest department store chain El Corte Inglés, emphasised the importance of Heimtextil for international traders: For us, Heimtextil has been the most important trade fair when it comes to the purchase of home and house textiles for a number of years. No other trade fair offers such an international range of exhibitors. The quality and price of suppliers at Heimtextil appeals to us. This year, we were particularly impressed by the new technical solutions being offered in the sun protection segment'.

### Global outlook of Heimtextil

Heimtextil in Frankfurt is by far the most international event of its kind. 'From northern Europe to South Africa, from America to Asia: visitors to Heimtextil come from across the world and all of them want to see what the latest trends in the textile market are', summarises Paola Ribera of the décor and furniture supplier Texathenea from Spain. As was the case last year, 68 per cent of trade visitors came from abroad. There was an increased number of visitors from Italy, Spain, Sweden, Russia, Japan and South Korea in particular at Heimtextil 2016. 'There is no other comparable trade fair that is so international in nature. After all, the majority of our turnover is achieved abroad', explains Erich Hansmann-Lewis from the design studio Desmond Lewis, which has exhibited at Heimtextil for the past 30 years.

For Arte, a supplier of wall coverings and home textiles, Heimtextil is essential for international business: "We enjoyed four strong days at the trade fair! We use Heimtextil to meet with our international customers and offer them a platform at the trade fair. Heimtextil is very international: the whole world is here, from the Middle East and the USA to China and Russia. It is the most important trade fair for the wallpaper industry. We will definitely be here again next year', states Stiijn Vergaelen, Sales Manager International at Arte.

However, it is not just the visitors, but also the exhibitors that form a microcosm of a global industry. 89 per cent of exhibitors (2015: 88 per cent) come from abroad. This year's Heimtextil saw a growth in exhibitors from Europe, in particular Belgium, Italy, the Netherlands and Turkey, as well as international exhibitors from many other countries, including Brazil and the USA.

### Décor and upholstery materials – a convincing concept

In terms of products, Heimtextil was able to considerably expand its portfolio in various segments. For the fast-growing segment of décor and upholstery materials, hall 4.0 was even equipped with a new, additional hall level, where primarily high-quality exhibitors from Italy showcased their wares. Enzo Degli Anguioni is one of the companies that took advantage of the extended exhibition space to return to Heimtextil. 'We have been exhibiting at Heimtextil for almost 30 years', says owner Enzo Anguioni. 'Following a break in the middle, we have come back for the first time this year because the concept won us over. From textile printing to the finished product for home, every industry is represented at Heimtextil. For us, Heimtextil 2016 was worth our while. We met many regular and new customers'.

'We have returned to Heimtextil after several years' break because it is the optimal platform in Europe to showcase the latest trends in the market', says Thomas Luys, Sales Manager at the Belgian company Libeco. And Turkish returnee Penelope Dokuma is similarly happy. 'We were able to intensify contacts with existing customers and expect 2016 to see a stabilisation in the market for home textiles', predicts Gözde Yildiz from Penelope Dokuma.

# Fibers – superior functionality raised creativity in fabrics

The Austrian company Lenzing presented its new marketing approach for its specialty fibers, TENCEL® and Lenzing Modal®. Lenzing is stepping up market activities to further expand the hotel segment for their fibers. Europe, especially Scandinavia, is one of the target regions for the planned market activities since sustainability and the wellness trend are particularly pronounced in the hotel industry there. TENCEL® has successfully won over reputed hotel chains in the USA and the prospects are extremely promising thanks to the search for alternative, natural and bio-degradable materials for Lenzing fibers. The very first developments have already been carried out for the Asian market and these are currently in the test phase. "In numerous home applications, TENCEL® has demonstrated its new and improved properties and it also has a positive impact on the individual living area. Nature and health do not only constitute a trend in private life. The hotel industry has fully embraced the trend and an increasing number of boutique hotels are already using products of TENCEL® to make their guest rooms more natural, sustainable and healthy," Susanne Jary, Home & Interiors Director at Lenzing, remarks.

The Italian **RadiciGroup** showcased the Radyarn® and Starlight® yarn ranges developed by companies Noyfil SpA and Noyfil SA.

RadiciGroup focused on its lines of flame retardant and bacteriostatic yarns, solution-dyed yarns – both conventional and made of recycled materials –, and ANTIMONY FREE polyester yarn, available in raw and solution-dyed versions. Featuring embedded flame-retardant properties, these RadiciGroup continuous polyester yarns are ideal for the indoor and outdoor textile furnishings and contract sectors. Radyarn® and Starlight® FR are available in solution-dyed, bacteriostatic and/or UV-stabilized versions.

German Polyester manufacturer **Trevira** looks back on a good year in 2015. At some 250 million euros turnover is similar to that of the previous year. Sales volumes were by and large as forecast. Pleasing progress was recorded especially with business in specialties such as low-pill apparel fibres, PLA fibre types for technical applications, and flame retardant fibres and yarns (Trevira CS). At Heimtextil Trevira presented a new stand concept.

The framework of this involves seven so-called "Labs", which stand for product innovation and development. Five Labs were based on the entries for the 2016 Trevira CS fabric competition and further submissions of customer fabrics, reflecting current market trends (see the separate report below). Lab No. 6 was devoted to fabrics in Trevira hybrid yarns with low-melt components and in Lab No. 7 visitors could learn something about the services on offer from Trevira laboratory services.

# Sustainability – growing importance in the home textile sector

The subject of sustainability in furnishings is becoming more and more important worldwide. A goodd reason for the experts from several **OEKO-TEX**® organizations to be at the fair to provide expert consulting regarding the certification options to the visitors and exhibitors. In addition OEKO-TEX organized a couple of lectures to inform what the successful implementation of sustainability might look like by top-class representatives from the North American, Asian and European furnishings sector. Warren Shoulberg, Editorial Director, Home & Textiles Today, spoke about "Sustainability is Not the Wave of the Future: It's Here.", Xiangzhong Li, Marketing Manager, Loftex China, told the audience how to "Build Green Textiles. Promote Sustainable Development." and Artur Soutinho, President of the Board, More Textile Group gave a lecture with the topic: "Sustainability as a Competitive Global Value in Today's Market." Furthermore Jörg Diekmann from the Hohenstein Textile Testing Institute talked on the subject "MySTeP by OEKO-TEX® - Transparency in the Supply Chain Labelled with Made in Green".

### Digital printing – innovation and trend

Textile digital printing with all the market leaders such as durst, EFI Reggiani, Epson, Kornit, Mimaki and Zimmer was also considerably expanded in comparison to last year.

**Durst**, specialist in industrial inkjet applications, presented the company's comprehensive textile portfolio and provided information about the new Alpha series. The latest generation of super-multi-pass inkjet printer systems for the digital production of household textiles and fashions features printing widths of 190 to 330 cm and can be configured with up to eight colors and 64 Alpha-S print heads. With a native resolution of 600 dpi and print speeds of 460 to 610 running meters per hour, Durst is positioning the Alpha series as direct competition to traditional silkscreen printing, naturally including all the advantages of digital printing. The Durst Alpha series features continuous ink circulation in all ink circuits to ensure consistent ink quality and reliable readiness for use of the print heads. If necessary, the Alpha-S print heads can be replaced by the customer in a short amount of time. A new, intelligent feed system which adapts itself to different textile materials and roll circumferences was developed for the Alpha series. A patented inline spray system enables the material to be pretreated chemically before printing. Durst is offering its own OEKO-TEK Standard 100-certifiable ink systems and a GOTScertified reactive ink system for the Alpha series. To provide users with greater flexibility and economy in production, Durst also developed a new pigment ink (Alpha Ink P), which can be used on a host of different textiles and which impresses with its soft feel after printing. Also, no pretreatment or post-treatment is necessary with standard materials such as cotton and polyester. In addition to excellent print quality, high flexibility, industrial productivity and scalability, the Alpha series is able to provide process solutions.

The newly developed Durst Textile Workflow System simplifies precise color reproduction on different textile materials and enables continuous quality control and one-step profiling for new materials and color adaptations.



**DURST Alpha Series** 

**EFI Reggiani** highlighted the many different décor applications possible with its versatile, leading print technology. The company's exhibit reproduced a home environment with numerous direct and transferprinted applications that exhibit EFI Reggiani technology's high quality and sustainable print processes. "Businesses in the home textile space have more choice than ever before in offering, custom and smaller-quantity designs using our inkjet printers," said Dr. Ambrogio Caccia Dominioni, managing director, EFI Reggiani. "At Heimtextil, customers saw the benefits for themselves with the breadth and depth of EFI Reggiani capabilities for printing different home textile applications using a wide range of ink types." Printed items on display showed how advanced printing technologies successfully address broad section of the consumer home textile market. Visitors saw everything from pillows digitally printed using a transfer process, to sofas with directprinted upholstery, to direct-printed curtains produced using pigment inks and many more.



**Mimaki** had a full product line-up on display, with solutions that made it easy for visitors to expand their digital textile printing capabilities or implement new ones, printing vibrant, durable colours on a broad range of materials. Visitors have been able to experience for the TS500P-3200, a 3.2 meter concept printer that prints on transfer paper with sublimation ink and the TS300P-1800, a 1.8 meter printer that also prints on transfer paper and will be shown using brilliant pink and yellow fluorescent inks, much in demand especially in the sports garment industry. Furthermore the TX300P-1800, a 1.8 meter printer that prints directly on textiles with disperse dye ink, enabling printing directly on polyester, as well as with textile pigment inks for printing on cotton. A smash hit at the recent ITMA 2015 show.



And last but not least the JV400LX, using CMYK, Orange and Green Latex inks for printing wall coverings with a stunning colour gamut. "Digital textile printing has evolved past simply printing samples or one-offs," said Mike Horsten, General Manager Marketing EMEA at Mimaki Europe. "Designers and manufacturers can take advantage of the Mimaki textile printing family for short to medium production runs of unique fabrics for a variety of uses, from home decoration to fashion to industrial. Visitors to our stand are sure to be impressed by the opportunities these printers generate." Mike Horsten also presented at the European Digital Textile conference on January 12th on "The new supply chain for super-fast home textiles".

**SPGPrints** introduced digital inkjet printing solutions that offer interior décor printers high productivity, greater design flexibility and a wider colour gamut to meet customised corporate requirements. SPGPrints' new inkjet solutions are based on the successful Archer® Technology of its recently-launched PIKE digital textile printer.

Archer Technology uses an array of Fuji Samba print heads to deliver fine detail at a resolution of 1200 x 1200dpi. One of the key characteristics of the technology is the gap of up to 4mm between the print heads and the substrate. This that enables a wide range textured substrates to be printed within tight register tolerances, and at high speed. "We have been developing three new printers based on Archer Technology," said Rieks Reyers, Commercial Manager Industrial Applications at SPGPrints. "Two UV-curable systems have been developed for décor applications. One is a 700mm-wide central impression system for applying coatings, textures or graphic images on to laminates. These laminates can be used for creating wood or stone effects on furniture, but without the heavy cost or large carbon footprint of those materials. Custom designs or branding can also be printed to create a distinctive image. The first of these machines has already been delivered to a German SPGPrints customer. The second décor application is a flat-bed printer that applies ink to rigid substrates like ceiling tiles, and heavy products such as panels and doors. And the third solution will be a central impression printer, which is wider than 2000mm and uses water-based inks for printing decor," he said.

'We're happy that Messe Frankfurt has recognised digital printing as a trend and made it a fixed component of its textile trade fairs', praises Oliver Lüdtke, Director, Marketing EMEA at **Kornit Digital Europe**. 'Heimtextil has been a fixed date in our trade fair calendar for three years now. This is where we tap into new markets, meet important decisionmakers and consolidate our long-standing customer relationships'. Stuart Kugler, Director of Marketing at **Zimmer Maschinenbau**, sings the praises of the trade fair: 'Heimtextil is, as ever, very well organised. The concept is right and contacts are of high quality. As a supplier of digital printing solutions for the textile market, we complement the range of industries at Heimtextil by offering a technical perspective. Lots of new ideas arise from our discussions with other exhibitors, many of whom are our customers'.



### Mattresses: target group reached

The product group "bed" with bed linen, bedding, covers, decorative pillows and mattresses was also expanded. The increase in mattress manufacturers in particular, such as Rössle & Wanner and f.a.n. Frankenstolz, who were both exhibiting at Heimtextil again after several years' absence, was warmly received by trade visitors. Manfred Greiner, Managing Partner at Rössle & Wanner confirms: 'We had a good trade fair and are happy with the feedback from our visitors at Heimtextil.

We welcomed numerous visitors to our display, in particular from the bed industry, which means that we managed to meet the target group we wanted to reach'. Eberhard Künstler, Managing Director of f.a.n. Frankenstolz, was also very happy and praised many things, including the new schedule: 'It was a good trade fair for us. So much happened on Wednesday and Thursday that at times that we didn't have enough tables at our stand. Top purchasers from major companies were among the visitors to our stand'.

### Premium suppliers appeal with highquality concepts

Many exhibitors in the premium sector for bed, bath and table in hall 11 were also positive about the new schedule and cited the increasing quality of this segment's offer.

'We welcome the new schedule', says Cornelia Loos, CCO at Ezzenza, emphasising that 'the environment in all the halls is of particularly high quality in comparison to last year. Everyone has made considerably more effort, which means hall 11.0 no longer has any run-of-the-mill stand concepts anymore. We want to inspire our customers with overall concepts and this is something that is perceived and valued by our customers. All in all, we are satisfied and the ambience was excellent'. Thomas Overesch, Managing Director and Designer at Thomas Overesch Berlin, has been an exhibitor in the luxury segment at Heimtextil since 2015. 'We presented our new linen Alpaca collection and a new cushion line. We're happy with the business generated so far. We generally target a very specific audience in the luxury segment and we get to meet them in hall 11.0. Around 70 per cent of our enquiries and orders come from international clients. China is also becoming increasingly interesting'.

### Jessica Schwarz, Nena, Guido Maria Kretschmer, Barbara Becker

The glamour factor was once again a major element in 2016. Actress and hotel owner Jessica Schwarz was an honorary guest at the opening press conference on Tuesday, informing the public that she intends to expand her hotel in the Odenwald town of Michelstadt.

On Thursday she took the opportunity to go on a purchasing tour through the halls for this very purpose. 'At Heimtextil, you can find materials and designs from various countries, see them right away, touch them and be inspired by them. Coming here is an absolute must for fans of interior design and interior designers', states Jessica Schwarz.

Also present on Tuesday was musician and artist Nena, who presented her new wallpaper collection at the Marburger Tapetenfabrik stand and rocked the house in the evening in front of an audience of invited guests. Ullrich Eitel, CEO of Marburger Tapetenfabrik, was inspired: 'The collection by Nena was the main focus of our trade fair presence. And Nena herself was of course the absolute highlight. Heimtextil offered the perfect platform for this'.

On Wednesday, it was star designer Guido Maria Kretschmer's turn to be honoured in the Frankfurt trade fair halls. At the P+S International stand, he presented his wallpaper collection "Fashion for Walls" and was pleased about being there: 'For me, Heimtextil is an excellent trade fair because it's all about interiors and materials'. The celebrity guests' visits were completed on Thursday by regular trade fair visitor Barbara Becker at Kleine Wolke.

Celebrity guests were without doubt one draw of the trade fair.

Another highlight was once again the "Theme Park" where trade visitors could see bold designs and hot trends.

This spectacular trend area at Heimtextil, which was given its own hall for the first time this year, proved to be a magnet for all those seeking inspiration and an overview of global trends.

The Theme Park explored and depicted these trends in a vivid way in the form of a Trendtable created by six internationally renowned design studios. The theme of the 2016 Theme Park was "Well-Being 4.0". The American agency WGSN was responsible for implementing the trends at the trade fair and creating the Trendbook.

The next Heimtextil, international trade fair for home and contract textiles, will take place from 10-13 January 2017 in Frankfurt am Main.

## Heimtextil Impressions



Jessica Schwartz, German Actress and Hotel Owner and Detlef Braun, CEO of Messe Frankfurt



Nena, German Singer



Guido Maria Kretschmer, German fashion designer and Olaf Schmidt, Vice President Textiles and Textile Technologies Messe Frankfurt



Barbara Becker, Designer





Lecture area: Conference Space



Sander presentation



EFI Reggiani digital printed home

# National Trade Symposium of Aachen-Dresden-Denkendorf compliments ITC

The event organizer of the Aachen-Dresden-Denkendorf International Textile Conference is to hold a national trade fair event in May 2016 for the first time: the German Trade Symposium Textil 2016.

The conference compliments the renowned international Aachen-Dresden-Denkendorf International Textile Conference (ITC) and is held every spring with varying special subjects. This years subject is: 'Raw materials in the textile industry: modern processing, versatile application'.

The availability of fibrous materials and the development of new fibres present both the yarn manufacturers as well as the weaving and stitching sectors with challenges. The trend to high performance fibres introduces changes in the production chain. In the trade symposium on yarn and flax production respected experts from industry and research report on product and process innovations and present a variety of procedures and products as well as new areas of application. This event on yarn and flax production in Denkendorf starts off 2016 - followed by Aachen (2017) and Dresden (2018). The event addresses experts from the textile machinery sector, the textile industry and scientists.

# German Textile Research attendance at 'WOCHE DER UMWELT' in Berlin

The German President Joachim Gauck together with the German Environmental Foundation (DBU) are to be the hosts on 7th and 8th July 2016 at the fifth 'Environment Week' in the park at Schloss Bellevue. The event consists of a trade exhibition of around 170 stands parallel to a range of lectures and discussions.

The trade exhibition is to provide the invited trade professionals with an insight into the variety of new environmentally friendly technologies, products, services and concepts available for use in forming our future in a responsible manner. Around invited 12,000 guests are expected from politics, industry, science, society and media.

The general association textil+mode was selected from 600 applicants to present this innovative industry in cooperation with the Textil Research Board of Trustees and some of their members with a communal stand entitled 'The Future is Textiles'. The versatile possibilities of textiles for the protection of the environment and solutions for urgent environmental problems are shown.

The exhibiting institutes are the Institut für Textilmaschinen und Textile Hochleistungswerkstofftechnik (ITM) at the TU Dresden, the Institut für Textiltechnik (ITA) at the RWTH Aachen, the Deutsche Textilforschungszentrum Nord-West (DTNW), the Sächsische Textilforschungsinstitut (STFI) as well as Forschungsinstitut für Textil und Bekleidung (FTB) of the Hochschule Niederrhein.

Researchers of the ITM present the public integrated textile-based sensors for continuous long-term monitoring in facility operations using a rotor blade of a small wind turbine to simulate real operating conditions. ITM was awarded the Otto von Guericke-Preis 2015 for this development by AiF (the cooperative of industrial research associations) during the 'FORSCHER Mittelstand' AiF conference in Berlin. ITA presented the subject of 'New types of thermal insulation systems made of three dimensional expanded polystyrene foams' together with Teubert GmbH (Blumberg) at the cooperative association stand and the subject of 'Economic, robust data connections via optical polymer fibres' at their own stand in conjunction with the technical college of the Deutschen Telekom AG (Leipzig) and Perlon-Monofil GmbH (Dormagen).

# ITV develops with Textechno a new measurement method for the length of fibre using image processing

Anyone who knows fibre lengths and the length distribution in raw material well is able to generate substantial savings in spinning preparation and production. The maximum and medium fibre lengths are specifically interesting in this respect as they are crucial for the strength of the yarn and the textile surface.

Almost equal in importance is the ability to determine the short fibre content as these control the extent the fibre can be processed and the quality of the finished garment. These are for example a loss of substance and pill formation. As a result fibre samples need to be exactly measured for their fibre content and presented visually in a frequency distribution. Short fibres are those of less than 12.5mm in length. They are lost mainly during the spinning process or combed out during the production of especially high quality yarn. A comb spinner would as a result need to purchase 125% of fibrous material in order to produce 100% spun yarn. As the material content forms 50% of the yarn producer's costs then the short fibre portion is a significant cost factor.

The measurement of the fibre length is classified based on two principles. There is the individual measurement of the fibre and measurement based on fibre bundles. The second has the advantage of a great many fibres being recorded in a single measurement procedure. The disadvantage is that the result arises not from the actual fibre length but the derived length and this first presented at the ITMA 2015 in Milan. It is more oriented towards the fibre mass in selected length categories. Within the parameters of these procedures there is also the measuring of the sorted ends of the fibre piles on the one side (ALMETER principle) and the unsorted fibre bundles held by a clamp on the other (Fibrograph principle; for example Uster-HVI, Textechno-CCS). The Almeter results are clearly closer to the 'true' fibre length which is why this measurement is preferably used as a reference.

The length of the fibre is established by measuring the individual fibre length. A conversion to a frequency distribution method accentuating the weighting is possible. This principle is possible as a manual measurement in accordance with DIN 53808-1 (2 pincette process with a random sample of 3000 individual fibres where only every tenth fibre is measures) and as a machine generated measurement, which involves fibres flock or strips are individually opened by rollers and then fed into a sensor system. Between 5,000 and 15,000 individual fibres are recorded per measurement run in this procedure (USTER AFIS).

Manual determination is very time consuming and cost intensive which is why it is rarely applied and is not suitable for grading fibre material. Over the last few decades the standardized and economical HVI measurement system has established itself and has displaced the actually much more precise ALMETER system from the market. The individual fibre length measurement has only become of interest again economically after the development of AFIS by the company USTER.

This method also though has disadvantages. AFIS measures the length of the fibre by determining the beginning and end of a fibre in a stream of air. Fibre twisting and looping are not taken into account in this procedure. Moreover the fibres are shortened by the opening roller mechanically meaning that it is not possible to exactly establish the original fibre.

This is where the MDTA 4 comes in, a device for measuring individual fibre length, developed by Textechno Herbert Stein GmbH & Co. KG in cooperation with ITV, consisting of the MDTA 3, a measurement system for determining the content of micro dust and trash in raw cotton which has been available for some time in the market and an additional module for measuring the individual fibre length. The MDTA 4 (photo) measures the actual length of the individual fibres using a image processing algorithm. This has become economically possible as the imaging and camera technology required at extremely high frequency sequences has become more affordable. It has also become possible to open the fibre flock in a more gentle process therefore reducing the shortening effect. The MDTA 4 from the company Textechno with fibre length measuring module (photo: Textechno)

A comprehensive series of tests at ITV compared the measuring methods available in the market including the Almeter and the manual individual fibre analysis. Fibre samples from bales, from combing compresses as well as samples of four different combing grades were taken and measured. The comparison shows that the AFIS system illustrates very well the increase of the medium fibre length and the associated reduction of the proportion of short fibre in the combing tests, however the MDTA 4 actual fibre lengths and their frequency distribution were significantly closer to the 'true value' given by the ALMETER reference. The result of this new development is easy to reproduce. The tests confirm therefore that image processing is very well suited for the measurement of fibre length. Textechno is to apply for a 'recognition' for the MDTA 4 system at the ICCTM (International Committee on Cotton Testing Methods) as has already been successfully done for the ICC-FIBROTEST system.

# Innovative multi-axial woven fabric for light textile design

ITV Denkendorf has developed with Open Reed Weave Technology (ORW) a reinforcing fabric, strain consistent with up to four thread axes.

Energetic raw materials are scarce and the environmental impact is rising. Therefore the need for user-friendly light constructional components made from optimized fibre composites is currently growing. An important requirement is the strain consistent withering rack for fibre roving. It has only been possible to achieve bi-directional fabric strengthening in 0/90° so far. ITV Denkendorf has managed to produce a reinforcing fabrics with up to four thread axes only with the use of ORW weave technology. Fabrics were developed with flat and locally confined multi-axial strengthening.

An additional project created multi-axial fabric structures with light controlling properties.

Suitable textile strengthening structures are wovens, webs, knits, weaves, embroidery and fleece mats. The maximum strengthening effect is achieved by the fibres in the structure being free of undulation and lying consistent with the direction of strain. Web structures were therefore preferable for the development and use in the manufacture of composites. The disadvantage of these structures is that an exact fibre orientation in the direction of strain is not always possible due to the relatively loose connection of the fibre layers. The ORW weaving machine installed at ITV Denkendorf since October 2013 allowed unidirectional, orthogonal and multi-axial strengthening layers to be attached to each other in a stable manner for the first time. This not only reduced the number of fabric layers in a consolidated structure but also improved its break, bend, torsion and shear characteristics.

The tests started initially with web-type, unidirectional gauze with strengthening in 90°. The focus was on an extremely high mechanical load bearing capacity, good draping properties or shape retention depending on the requirements. This was achieved by using various selvedge connections as well as combinations of leno weaves with various lengths of floating dobby weaves instead of the conventional half leno weaves (1). Building on this knowledge strengthening fabrics were manufactured with flatly aligned multi-axial weave structures.



Pic: (1) Web-type fabric structures of a UD glass fabric with leno weaves

In order to maintain a dense, bidirectional base of glass fibre weave with additional strengthening in  $\pm 45^{\circ}$  (2), it was not sufficient to exchange the fine PES yarns in the base chain and in the multi-axial area for glass rovings. In order to ensure a smooth running of the weaving machine it was necessary to redesign the feed of the multi-axial threads. These tests were able to shows that the fabric characteristics may be selectively adjusted by varying the type of layout, the angle and the height of the glass rovings in the multi-axial area as well as the type of base weave depending on the respective application desired.



Pic: (2) 0/90° glass fabric with diagonal glass strengthening, layout angle of 45°

A consistent strain increase in strength of the consolidated structure is achieved by replacing glass rovings in the fabric for example partially by carbon rovings. The local strengthening is not integrated only in the chain and / or weft direction but also in the multi-axial area of the fabric (3). Especially interesting is the ORW weave technology for structures that are only strengthened in a local area.



Pic: (3) Multi-axial fabric with local carbon strengthening in the base chain, the weft and the multi-axial area

With the assistance of the freely programmable layout of the multiaxial threads, the strengthening of the contours of the structure are correspondingly laid in the bidirectional basic fabric. This was impressively demonstrated by means of a 'light pod' integrated in the rear lid in the AiF project 'Multiaxiale Hochleistungs Gewebekonstruktionen' conducted together with the Fraunhofer ICT (4).



Pic: (4) Three dimensional preform of a lamp head, finished using a 12K carbon fabric

It is no longer necessary - as illustrated in picture 4 of the previous version - to manufacture the whole part out of carbon as it is sufficient for only the critical strain bearing areas to be strengthened locally with carbon in order to achieve the required structure characteristics in the more strained areas (5).



Pic: (5) Multi-axial fabric for the lamp head with local carbon strengthening in the weft and the multi-axial area



Another AiF project showed that the ORW weave technology is not only suitable for the manufacture of strengthened weaves for fibre composites, but for example also for produciton of light controlling textiles.

The selection of the yarn and the parameterization of the four weave axes enabled the weave structure to be designed in such a way that the available daylight and bright artificial light to be defined and energy efficiently directed across the textile (picture 6). This method produces completely new approaches for innovative lighting management and interior illumination.

The concluding report is available from April 2016 from the Institut für Textil- und Verfahrenstechnik (Denkendorf).

Pic: (6) Light controlling multi-axial fabric

# Project C3 - Carbon Concrete Composite awarded with the German Sustainability Prize for Research and Prize for Efficient Use of Raw Materials

Project C<sup>3</sup>- Carbon Concrete Composite won the German sustainability prize for research at the end of November 2015. In so doing Germany's largest building research project was the winner from among 87 applicants and three finalists in the opinion of the jury and in an online vote. The research prize was entitled 'Wissenschaftsjahr 2015 – Zukunftsstadt' (Science Year 2015 - City of the Future) this year and focused research on sustainable urban development.

Furthermore the project C<sup>3</sup>- Carbon Concrete Composite was awarded the German prize for the efficient use of raw materials on 4 December 2015. The Federal ministry for economy and industry together with the German raw material agency (DERA) awarded four companies and a research facility as excellent examples of intelligent applications of materials with the German prize for efficient use of raw materials.

C<sup>3</sup>- Carbon Concrete Composite is one of 10 projects promoted in the program 'Companies of the Region' in the program 'Twenty20 - Partnership for Innovation' of the Federal ministry for education and research. The development program coordinates the collected, outstanding, scientific , technological and entrepreneurial competence in the new Federal states.

The basic ideas for  $C^3$  originated in Dresden and was based on the research of textile concrete. Project  $C^3$  continues with the successful research and breaks through to new dimensions.

# Topics of the next issue 2 /2016

#### TOP STORY:

#### **Technical Textiles & Nonwovens**

Nonwovens: Introduction of new machines Technical Textiles: Introduction of new machines Technical Textiles: The Top 10 Producer Special Digital Printing Machines

#### Interview

**Country Focus: Spain** 

ITM 2016 & Hightex 2016 Preview

Textile Machinery: "Weaving & knitting technical textiles"

Coating-Special News from Textile Research Centers Retail news summery Fashion news summery

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