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## The new landscape of textiles: Industry 4.0

- Interview with Dirk Polchow, Managing Director INTERSPARE Textilmaschinen
- Country Focus: India
- ITMA ASIA + CITME 2016 on the trail of ITMA 2015
- INDIA ITME 2016: Everything is well prepared for India's boom in textile industry.

# Content

# Dear Reader,

the 2016 textile year is drawing to a close, and in my opinion it has once again left a striking impression of how much positive spirit and momentum there is in our industry, which perhaps is not given the importance that it merits by some people in western industrialised countries, conceivably because it is taken a little more for granted.

There are three things that we should always endeavour to bear in mind: the textile industry is the most international industry, since in almost all countries it forms an important, if not the most important, cornerstone for GNP, exports and growth. The textile industry is a very innovative industry, since year after year it produces new fibres, fabrics, areas of application for textiles, machines and production processes. The textile industry is also a trailblazer for sustainability, having actively undertaken to promote intergenerational and world justice by modifying processes.

The extent of the textile world's upward momentum is demonstrated by the huge quantities that it deals with. ITMA Asia 2016, held in October, was a resounding success, and throughout there were perceptible signs that the transformation of the Chinese textile industry towards improved quality has begun. Next, ITME India will show how and to what extent India and its neighbouring countries will shape their modernisation processes. We'll take a quick look back at ITMA Asia, and of course we very much look forward to India ITME.

Transformation and modernisation are also significant components of a vision for the future that aspires to be nothing short of the next step in the industrial revolution. This rhetoric is as might be expected of Industry 4.0. Alongside the megatrend of sustainability, in the coming years we will also likely see Industry 4.0 shaping and changing the nature of modern production.

This is of equal interest for both the textile industry and for manufacturers of textile machinery. We want to take a look at what is behind this watchword, as well as the ideas and projects that already exist with a view to turning it into a reality.

In the interview, for the first time in a long while we talk to Dirk Polchow, the CEO of Interspare. He tells us about how his company successfully completed the transition from a supplier of spare parts to a manufacturer of textile machinery. He moreover reveals to us the goals that motivate this very same entrepreneur, who uses his company to continue the tradition of the great Babcock textile machines.

Our Country Focus on India was certainly fitting for the occasion.

We wish you the greatest success for the remainder of 2016, a merry festive season, and an excellent start to 2017!

Best regards
Oliver Schmidt

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individual packages between 120kg and 2.8 tonnes keep on to be shipped from Reinbek to our customers all over the world. Each of these packages contains machine parts of the highest quality and durability manufactured in Germany. At the customer they are assembled together to form our Krantz K30 stenter frame. This single-layer stenter offers optimal solutions for many application purposes and achieves excellent treatment results at finishing especially knitted goods besides woven fabrics. The leading machine design makes the Krantz K30 a lot more than the extraordinary quality of the single parts.

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Please contact us.

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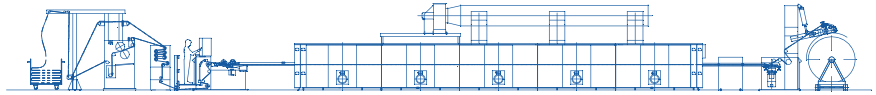


Still the peak in finishing machinery.

# The new landscape of textiles: Industry 4.0

## What will be different and how it works


Photo © zapp2photo

In Germany it's called "Industrie 4.0", the USA has the "Industrial Internet Consortium", and in Japan one reads about the "Industrial Value-Chain Initiative". In its Five-Year Plan beginning in 2015, even China embraced initiatives similar to those found in the German "Industrie 4.0". So is Industry 4.0 a German issue? The terminology and approaches may be different, but fundamentally these terms refer to the same idea: the active planning and implementation of a further stage of the industrial revolution, or in other words, a modification to current industrial manufacturing with the aid of present-day and future technology. Almost no other topic is as controversial and hotly debated as this vision of the future of industry. Naturally, this is also relevant to the textile industry.

A vital aspect of the envisaged changes is the enormous scale, which should be proportionate to the previous three stages of the industrial revolution, and thus merit equal consideration alongside them as the 4th stage of that very same revolution. To be precise, 4.0, which has a certain ring to it, and is reminiscent of Web 2.0.

The past three phases of industrialisation are generally accepted to refer to mechanisation with water and steam power in Phase 1, mass production with the aid of assembly lines and electricity in Phase 2, and then Phase 3, the on-going digital revolution with the use of electronic systems and IT (especially programmable logic control) as part of increasingly automated production. A quick glance at the impact of the changes brought about by these stages quickly makes clear the scope and significance attributed to the possible changes associated with the term "Industry 4.0". This is no longer about innovation, but about supersession. So what does Industry 4.0 actually look like?

In this article, we aim to take a closer look at what exactly this concept entails, and at the effects that this widely-acclaimed vision of the future may have on the textile industry, thereby also examining the impacts it may have on the construction of textile machinery. To begin with, it is worth pinning down a precise definition.

The German Wikipedia says of Industry 4.0: "Industrial production should go hand-in-hand with modern information and communications technology.

The technical basis for this are intelligent and digitally connected systems. With the support of these systems, it should be possible to make production self-organised to a very high degree: people, machines, systems, logistics and products will be able to communicate and cooperate with each other directly in Industry 4.0. This interconnectedness should open up a myriad of opportunities to improve not just one stage of production, but an entire value chain. The network should also include all the life cycle phases of a product - starting from the idea for a product, through its development, production, use and maintenance, right up to its recycling."

As a concept, this sounds quite reasonable, but at the same time complicated and rather vague. The scope of a simple definition alone quickly illustrates the real difficulty with Industry 4.0. The idea as a whole, or rather the vision, is enormous, and in one way or another affects every aspect of industrial production in equal measure. So as lucid as the concept may be, turning it into a reality will be no small undertaking.

## Origins as a research project

Let us begin by taking a quick look back, so as to understand better the ideas behind Industry 4.0. The concept was developed by Forschungsunion Wirtschaft - Wissenschaft (Science and Industry Research Union), which between 2006 and 2013 served as the principal advisory body for the implementation and further development of the German government's Hightech Strategy 2020.

The government's Hightech Strategy was launched in 2006. Initially, it transcended departmental divisions to provide comprehensive coordination of innovation policy in trade, and would go on to form the focus of research policy. In 2010 and 2014, the concept was refined further. On 25th January 2011, the communications promoter group of the federal government's Science and Industry Research Union proposed a future project in the form of Industry 4.0 as part of its recommended course of action. At its birth, therefore, Industry 4.0 stood for a future-orientated research project with a long-term outlook. It also makes clear why vision and reality are still so far apart.

At the Hannover Messe in 2011, the Industry 4.0 initiative was then presented to the public, followed just two years later at the same event by a closing report addressed to the Industry 4.0 Workgroup entitled "Recommendations for the Implementation of Industry 4.0". The Workgroup was formed of members of the Research Union and the German Academy of Science and Engineering (acatech).

The 102-page document containing the recommendations includes an explanation of the concept, provides two examples of application, sets out the research requirements and lists eight fields of action. Overall, the content of the recommendations is complex and requires extensive knowledge of, among other things, information technology, automation technology and economics.

At this stage, we will therefore switch to a different approach in order to make the issue easier to comprehend.

## The elements of Industry 4.0

In April 2013, a project consortium under the direction of the Saxony Textile Research Institute proposed a model for the future called "futureTex" for traditional industries in the fourth industrial revolution. It states that: "The coming fourth industrial revolution is characterised above all by two drivers of innovation: a rapid rise in productivity and the number of embedded software-intensive systems, and the emergence of the Internet of things and services as a new infrastructure for manufacturing the products of tomorrow. Both developments come together to form Cyber-Physical Systems (CPS). The application of CPS in the industry will eventually lead to the factories of the future, in other words Smart Factories or Cyber-Physical Production Systems (CPPS)."

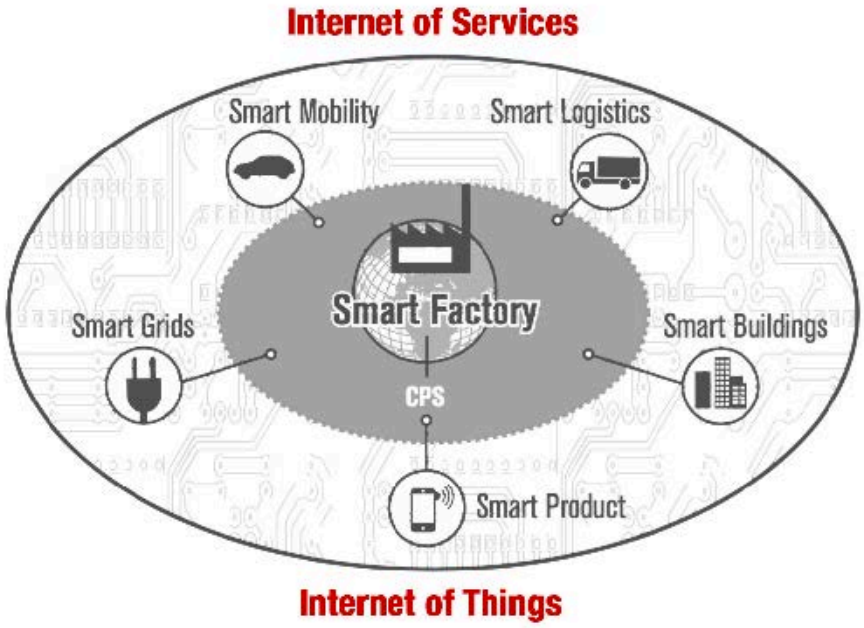
This description and focus on core technologies, which underlie the idea of a new industry, should help make this subject a little more tangible. Let's take a look at the drivers of innovation mentioned previously. One of the important core technologies is software-intensive systems, which means, for examples, machines that function to a large degree by means of embedded software.

The modelling of software-intensive systems often results in a mixture of models from software engineering, control and regulation technology, mechanical engineering, electrical engineering and business process management.

The Internet of things refers to the link between clearly identifiable physical objects (things) with a visual representation in an internet-like structure. It consists not just of human agents, but also of things. The term was coined by Kevin Ashton, who used the phrase “Internet of Things” for the first time in 1999.

The “Internet of services” is intended to grant access via the web infrastructure to programmes and applications that offer a service. An example of this would be a payment service. Another could be the provision of cutting patterns.

Put simply, we possess machines which, firstly, are controlled by software, and secondly, gather measurement data via a huge number of sensors, save it, and make it available for subsequent processing. Thanks to the internet, we also have a worldwide network through which data can be transferred to any place, person or machine in the world for the purposes of management or evaluation. The idea behind Industry 4.0 is to find the best possible use of these technologies in order to boost the production of goods or the provision of services, or even a mixture of the two.




Industry 4.0 and the Smart Factory as part of the Internet of things and services

## Cyber-Physical Systems (CPS)

Cyber-Physical Systems therefore form the basis of Industry 4.0, of which the research agenda CPS provides the following explanation: “Cyber-Physical Systems (CPS) are characterised by linking real (physical) objects and processes with information-processing (virtual) objects and processes via public, in some cases global, and constantly interconnected information networks.”

In a briefing paper entitled “What are Cyber-Physical Systems?”, the Association of German Engineers writes: The interconnection of information-processing components with physical objects and processes has been present in automated systems since the 1970s.

The constant connectedness of automation components is nowadays commonplace in automated systems. According to agenda CPS's definition, an important new aspect is that this interconnectivity takes place via public and global information networks (i.e. the internet).

This difference, which may appear minor at first glance, has considerable consequences in regard to conventional automation: Among other things, this approach would allow any number of systems to be linked together and their connections to be altered, terminated or established anew while in use, and would allow data, information and services to be made available and used at any given location in the CPS. Depending on the requirements, this would refer to public or confidential data, information and services. Overall, this would lead to a new communication paradigm in automation."

More information about CPS can be found in the acatech study "agendaCPS" of March 2012.

## Industry 4.0 in simple terms

Based on this description, we would like to develop the concept of Industry 4.0 a little in our own words, so as to make a very complicated subject that much easier to grasp. Ordinarily, a machine is operated by an operator, who adjusts the machine by means of a control panel depending on product which is being manufactured or treated. The operator controls the machine via a programme - the software.

He or she then gets data back from the machine, such as the machine speed, which is displayed in the program. Now the idea is to make far more of a machine's properties measurable, to evaluate these measurements more effectively and then use these evaluations for control purposes. This helps to optimise production, and to recognise and eliminate potential errors at an earlier stage.

Some modern machines can already be operated by means of a tablet PC. In such cases, data is exchanged in both directions between the machine and the tablet. The result is a data transfer, for which it does not matter whether the tablet is right next to the machine or on the other side of the globe. In the next stage, the machine will no longer be run by an operator, but controlled by software, in other words a programme or even a service will ensure the optimal configuration and control. The more control possibilities a machine can offer, the more flexibly it can be controlled.

This kind of programme can furthermore control multiple machines, and potentially even the entire production process.
In addition, it can optimise the production process, organise it into particular sequences and prepare all the required items, thereby also managing and supervising logistical processes. Systems of this sort are not new, but should be improved and elaborated. The internet plays a key role in this, since it allows for the coordination of various locations and stages of production.

The next step will see the end of materials being fed into a machine to be processed - instead the product, or each part of a product, will have its individual processing steps saved in the software, right up to the finished end product, and can tell the machine what it must do. It will even go as far as to seek out a suitable, free machine to do the work. Thinking even larger, the individual production system, i.e. the factory, sees itself as part of a total value chain, and so communicates with other production systems and logistical processes. It reacts to demand and programmes tasks.

Ultimately, even the production is only seen as one part of the life-cycle of a product. A product is also developed, consumed, and eventually recycled. These steps should be integrated too - in the best case scenario, digitally and traceably.

In theory, such a system would appear to be entirely conceivable, while here and there technologies are already in place with which self-contained applications of Industry 4.0 could be implemented. On a larger, more revolutionary scale, such an idea that would completely alter an industry still sounds a lot like science fiction, or at least just a research proposal. An unimaginable number of factors will have to fuse together for the idea to turn into a fully-fledged, comprehensive reality.

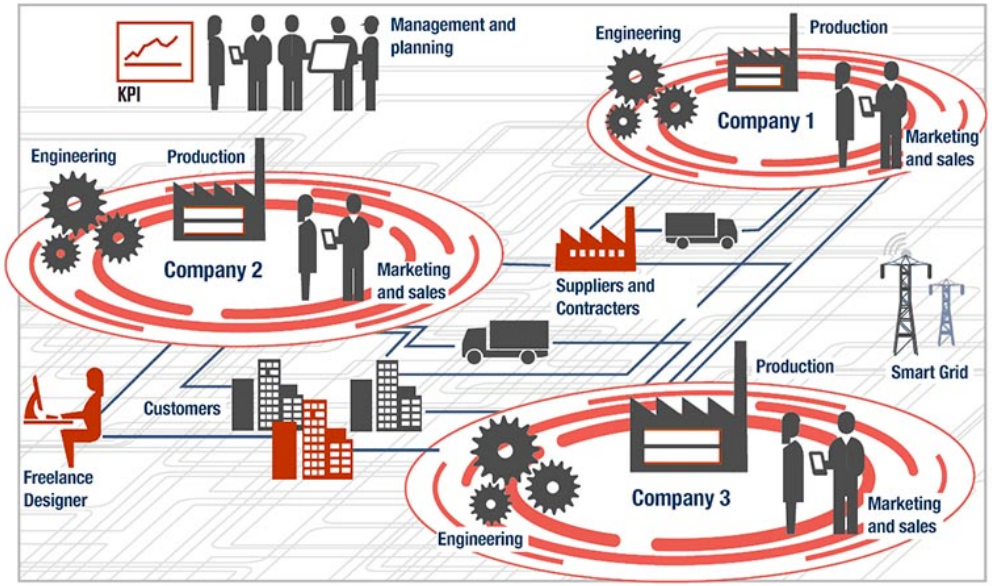
The Industry 4.0 Workgroup depicts things in a similar way in its implementation recommendations. On shaping the vision of Industry 4.0, the recommendations state:

"The necessary paradigm change towards Industry 4.0 is a long-term project, and can only be achieved through a step-by-step process. In doing so, preserving the stable value of pre-existing systems of production takes on crucial significance. At the same time migration strategies are required, which will have useful effects at an early stage. In some sections, though, progress will be made through leaps in innovation."

## Implementation of Industry 4.0

Let us take a further look at the implementation recommendations issued by the above-mentioned Workgroup. The Workgroup recommends focussing on three main attributes.

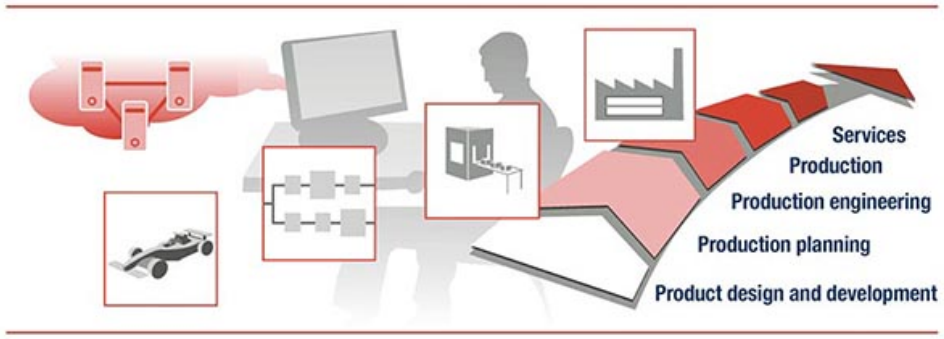
1. Horizontal integration via value networks
Horizontal integration refers to integrating the various IT systems for the different stages of the production and corporate planning process, between which materials, energy and information can flow, both within a company (e.g. inbound logistics, manufacturing, outgoing logistics, marketing) and between numerous enterprises (value networks) towards an integrated solution. Models, concepts and methods for realising horizontal integration via value networks are dedicated to answering the following key question: How can a company's business strategy, new value networks and new business models be supported sustainably and implemented based on CPS?




Horizontal value chain network / Source: Hewlett-Packard 2013

2. Digital consistency of engineering over the whole value network
The envisaged digital consistency of engineering and the resulting fusion of the digital and real world across company boundaries via a product's value chain, all while taking into account customer demands,
raises the following key question: How can business processes and engineering workflows be designed universally with the aid of CPS?
A key point in this regard is the use of modelling as a lever for gaining control over the increasing complexity of technical systems.

3. Vertical integration and interconnected production systems
What is meant by vertical integration is the integration of various IT systems on different levels of hierarchy (e.g. sensor, control, production, manufacturing and executive levels) towards an integrated solution.




Engineering consistency over the whole value network / Source: Siemens 2012

The question that must be answered in relation to vertical integration is: How can production systems using CPS be designed so as to be both flexible and reconfigurable?

More information concerning the realisation of Industry 4.0 can be found at the Industry 4.0 online platform (http://www.plattform-i40.de), which was created by the trade associations Bitkom, VDMA and ZVEI in conjunction with the promoter group of the Research Union, and which is now under the joint direction of the Federal Ministry for Economic Affairs and Energy (BMWi) and the Federal Ministry of Education and Research (BMBF).

Vertical integration and interconnected production systems / Source: Siemens 2012

There you can also find a map representing Industry 4.0. The map makes use of practical examples to show where Industry 4.0 is already in practice in Germany - each example is represented by a pin.

## Research projects in the textile industry

Three pins associated with the keyword “Textile” can also be found on the map. The first of these is the previously mentioned “Twenty20 - futureTex project. The following four complex textile value chains would be presented in the application centre: (1) Horizontal and vertical interconnecting of production along the length of the value chain, (2) self-organising logistics, self-optimising manufacturing and versatile assembly lines, (3) intelligent maintenance and (4) consideration of the role of people and interaction in an evolving manufacturing environment. The person orchestrates production, logistics and maintenance through the use of mobile terminals, and intervenes where it is necessary. The logistical and manufacturing systems work autonomously, in other words they organise and improve their own work. Versatile production modules can be used in demonstration lines in accordance with the order situation to manufacture diverse quantities of products with a wide range of characteristics. With regard to the solution approach of Industry 4.0, application centres should be used to demonstrate the production of customised products in small quantities. The latest communications protocols will be used to create the optimum vertical and horizontal interoperability between mobile and immobile objects from both the real and digital worlds.

This provides the basis for simulations, visualisations and animations, which are displayed on mobile terminals in the application centre. Tracking and identification systems are employed to follow and identify products.

The second project is likewise part of the futureTEX joint project, namely the SmartFactory project organised by the Institute of Textile Technology at RWTH Aachen University. The Smart Factory pursues the aim of working out the specific requirements of selected applications of Industry 4.0 in the textile industry. Networked production, resilient manufacturing and intelligent maintenance therefore form of the focus of the project. ITA Aachen analyses the uses in the fabric manufacturing sector. It then ascertains industry-specific requirements and existing problems in order to derive from the analysis precise courses of action. This allows processes and structures for smart textile production to be worked out, which then provide the basis for follow-up projects. In the Industry 4.0 solution approach, the current situation of the industrial sector of textile manufacturing is analysed with the aid of case studies. The potential and development opportunities of a manufacturing textile company are initially determined using SWOT analysis. The communication standards in the textile industry are examined in parallel with this, and measures are derived for general textile operations. Processes and structures for a smart, future-orientated textile factory are the result. Considerable emphasis is placed on automated monitoring of process and product quality.

The third project is called “Simulate, Print & Go!” and is run by the German Institute for Textile and Fibre Research Denkendorf, Centre for Management Research (DITF-MR). “Simulate, Print & Go!” directly combines virtual simulation with production in the clothing industry. The solution from Human Solutions, DITF-MR and ErgoSoft AG allows for a complete, digital process chain from the first virtual design right up to printing the textiles. Leading technologies for the simulation, textile design, pattern creation and printing are integrated as part of the chain. The solution approach of Industry 4.0 allows for the creation of a unique textile design using common design programmes found in the textile industry. 3D visualisations and animations are created using combinable information about measurements, cut, material qualities and fabric design. In the course of the printing process, a cutting layout is created for each pattern. Using RIP and colour management software, it is then possible to begin the colour printing process in pattern pieces on various fabrics.

These three pilot projects thus represent three large institutions of the German Textile Research Board on the Industry 4.0 map. Of course, the many other institutions on the map are also carrying out their own research relating to this subject. For example, the Institute of Materials Science (ifm) at the University of Applied Sciences Hof is developing ideas for the non-wovens industry.

Furthermore, the Manutex Programme that began in 2007 is undergoing an update.

The objectives of the ManuTex 4.0 initiative are “Update the ManuTex Activitites within the frame of Industrie 4.0”, “The Factories of the Future Research Roadmap” and „The Textile Flagships for Europe”.

## Further reflections on the textile industry

In comparison with other industries, the value chain in the textile industry is very long and complex. It comprises a large number of very different manufacturing processes, and therefore a range of vastly differing machines. For example, a ring spinning machine and a dryer could hardly be more different. The variety is even larger if one also takes into account the textile applications of clothing in all its particular characteristics, from household textiles right up to technical textiles.

This disparity inevitably leads to vastly differing approaches to the individual manufacturing stages and processes, requiring solutions to be developed that will complement Industry 4.0 One such criteria in these circumstances will be the flexibility of a particular step of the manufacturing process, or more importantly how flexibly it can be designed, and what degree of flexibility will be required in the overall context. If the machine is insufficiently flexible, such a machine will create a bottleneck.

How flexible is a sewing machine, for example, and how autonomously can such machines operate?

Assuming that a piece of fabric is able to tell a sewing machine where it must be sewn and with what kind of thread, the machine must then have at its disposal a corresponding range of threads, needles and needle changer, must be able to follow a seam precisely, and in general be able to carry out the process. This kind of machine would to all intents and purposes be a sewing robot. A vital prerequisite for Industry 4.0 in its finished form is therefore machinery with a high degree of flexibility, which in the best case scenario needs no setup time, and which can carry out tasks irrespective of the quantity of goods. For many manufacturing processes further along the assembly line, so nearer the end product, cannot simply rely on machines that operate using a software-intensive system. They must also have a large degree of freedom.

Examples of such machines include textile printing machines or laser plotters, which already operate with an almost unlimited degree of freedom. And what is the situation with present-day sewing machines? In fact, these too already work with almost all possible degrees of freedom. The company KSL Sondermaschinen offers a wide-ranging portfolio of automated sewing units, which are capable of replacing labour-intensive processes that would otherwise only be possible to complete manually. The KSL range includes CNC machines, multi-needle sewing machines and even robotic systems for a variety of applications in the technical textiles and composites sectors, right up to household textiles and clothing.

Even in the production of textile fabrics, there are machines with a large degree of freedom. One such example is the WHOLEGARMENT, which is the vision of the Japanese machine manufacturing company SHIMA SEIKI. Because of their capability to produce an entire garment without the need for sewing or linking, WHOLEGARMENT® knitting machines realize quick response production with on-demand capability thanks to reduced lead times, and offer reduced dependence on labor as well as associated cost reductions, not to mention sustainable production using the minimum amount of yarn required to knit a single garment. At ITMA Asia in October 2016 the flagship MACH2XS as well as the compact SWG061N2 demonstrated its flexibility for knitting a wide range of fashion items and accessories, as well as technical textile applications. Equally important in taking advantage of WHOLEGARMENT® knitting, the SDS-ONE APEX3 3D design system that proposes revolutionary changes to the knit supply chain. At the core of SHIMA SEIKI's "Total Fashion System" concept, APEX3 offers comprehensive support of the entire process of knitwear production from planning and design to production and sales promotion, as well as capability for Virtual Sampling. Ultra-realistic simulation capability allows Virtual Sampling to minimize the costly time- and resource-consuming sample-making process while enhancing presentation quality.

Ultimately, APEX3 functionality combines with on-demand production capability of WHOLEGARMENT® knitting to form a synergy that provides game-changing flexibility in knitting and distribution.

Shima Seiki Apex 3 © Shima Seiki

To further enhance the planning and design capability of APEX3, SHIMA SEIKI's recently launched fashion web service "staf®" (Shima Trend Archive and Forecast). In order to manage the knit supply chain even further, Shima KnitPLM® offers comprehensive management from material sourcing, production planning and monitoring, factory and machine allocation, inventory control, and shipping, customized especially for the knitting sector.

The machine's processes are digitalised throughout, right up to the designer and consumer, while it also features databases for both material and cutting patterns. Production on demand. Advanced management of the knit supply chain. All this sounds very much like a preliminary stage of Industry 4.0 in the knitting sector, even in terms of flexibility.

On the other hand, the questions arises as to whether, for example in spinning machines, such a degree of flexibility is really necessary.

Thread will always be required in ever larger quantities, and in this case a permanent change to production parameters seems somewhat irrelevant. This could all change decisively, however, if instead the idea of integrating the spinning process into the subsequent stages of manufacturing should prevail, in a similar way to how the circular machine manufacturer Mayer&Cie. successfully achieved this with their Spinit Machine. The Spinit 3.0 E is the first machine type to be equipped with Mayer & Cie.'s spinitsystems technology. It combines the three process steps spinning, cleaning and knitting, thereby making rewinding superfluous. This three-in-one concept, presented at the 2015 ITMA in Milan in the shape of the market-ready Spinit 3.0 E, is a completely new approach by Mayer & Cie. Using the so-called false twist spinning process, roving is converted directly into high-quality knitwear.

Mayer & Cie Spinit 3.0 © Mayer & Cie

These few examples highlight the relevance of Industry 4.0 in the textile industry. Individual processes will surely have to be judged based on their required flexibility, and solutions will then have to be found for them that offer the corresponding degree of flexibility, or which induce other appropriate developments. How little such new machines have to do with present-day textile manufacturing is demonstrated by the example provided above of the sewing machine. That same example also shows just how difficult it is to think in terms of Industry 4.0. If one were to raise a question about sewing factories and automation, almost all the well-known images that would come into one's head would be of hundreds of workstations filled with seamstresses. But where do theses images get this association with automation from?

Perhaps we must see Industry 4.0 as simply a building block and, rather than aim at resolving the grander overarching objectives of smart production, first of all focus on addressing the more feasible subgoals, so as to generate valuable data and keep pace with the progression of the concept. Evolution, rather than revolution.

For example, we might push the optimisation of production through the use of the most up-to-date machines and control systems in the direction of Cyber-Physical systems, or we could outline a strategic goal for implementing Industry 4.0, or even consider options for intelligent maintenance with the aid of such systems. Some interim targets that are well worth pursuing include modern, fully-automated "mill management" and "remote maintenance", which would set us on the path towards

Rieter SPIDERweb Network © Rieter

implementing the complete vision. Major manufacturers have already been creating production monitoring and optimisation systems for spinning, which will continue to be developed even further.

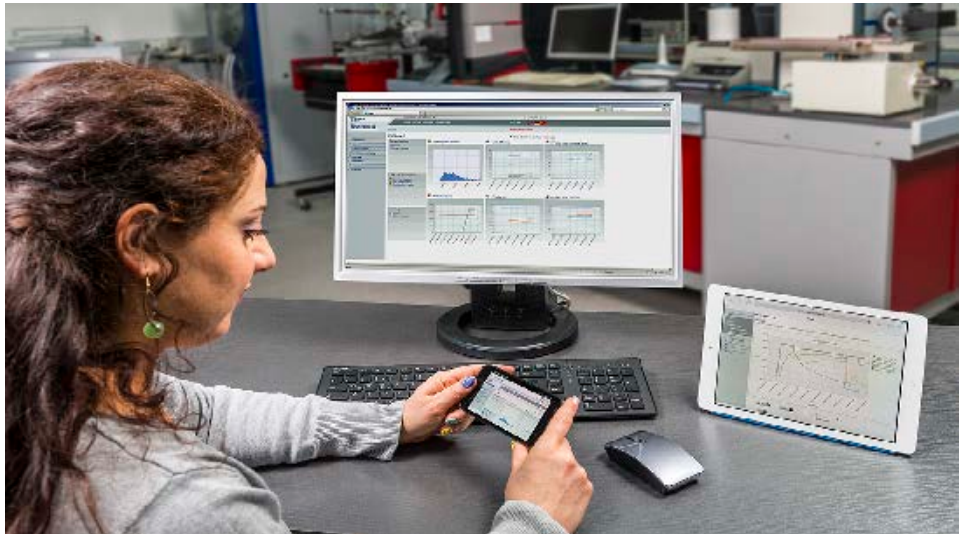
Rieter for example offers the mill management system SPIDERweb. SPIDERweb is a user-oriented data system based on Windows. Its modular design permits the interconnection of any number of machines, and can be extended to include additional machines at any time. It permits control and monitoring of the entire mill from bale lay-out to the winding machines. It enables production data, e.g. weight per time unit, efficiency, stop events, down-times, etc. and quality data, e.g. CV values, spectrograms, Classimat data, etc., from every machine to be logged and analyzed according to the requirements of the mill.

A very important feature of this system is the inclusion of an alarm system. The moment any controlled item at any point within the mill crosses a preset limit specified by the mill, this is indicated immediately, and the fault can be eliminated at once.

Rieter says that the latest version with six new modules is a groundbreaking step in the use of the „Internet of Things“ for optimising the spinning mill. With the mobile App, the Mill Manager has firm control of the data of his operating facility at all times.

Saurer’ s real time production monitoring system is namend POC which stands for Plant Operation Centre. Spinning mills using POC monitor their production and quality data to improve efficiency. Thanks to the real time data from all machines linked with POC, the customer receives an all-time information transparency to ensure perfectly timed interventions for an increased productivity and yarn quality. Customers can combine POC with SECOS 2.0, Saurer’ s next generation service portal and SUN - a bundle of differentiated services that add real value to Saurer machinery throughout its entire life cycle.

The Trützschler T-Data data monitoring system monitors the production, and at the same time allows an analysis of the production and quality data. It processes more than just the regular data. Trützschler sensors are used to determine neps in the card sliver, distances of carding elements or actual energy consumption of the machines. The data can be accessed even while on the go.



Trützschler T-Data © Trützschler

All it takes is an internet-enabled Smartphone, tablet, or notebook. All Trützschler TC cards, TD autoleveller draw frames, foreign part separators, and in the future combers TCO 12, Superlap TSL 12, as well as the installation control LINECOMMANDER, can be linked to T-Data. The connected machines send their information automatically to the monitoring system.

The production data of the machines are centralized via a communication gateway, and transmitted to a PC via a standard Ethernet connection. T-Records, a powerful recording tool, stores the information received in a readily accessible database. Access to the quality data, error statistics and their evaluation takes place via the web browser. The T-Data software is easily configured by means of the intuitive web interface and adapted to customer requirements. The user determines which data are of interest to him on an individual basis, and defines the way they are viewed.

Options range from basic settings all the way to highly sophisticated functions.

Uster also offers a program to manage the quality and productivity of a spinning mill. The specialist for yarn quality says that with the Total Testing Center, now available with the new USTER® TESTER 6, a single quality management and control system capable of guiding mills towards quality and productivity improvements begins to become a reality.

The keyword is 'Total' – with the integration of laboratory and in-production data across the entire mill. It is one solution, with the essential multi-process coverage that enables intelligent optimization of each department. From bale laydown to ring spinning and winding, information from each process stage is inter-linked to others, and to the whole. Uster terms the program a new virtual staff member with the name Assistant Q. With the data from the Total Testing Center Assistant Q has an overview of all the processes in the spinning mill. He examines test data from every production stage, alerting management to any potential issues. He directs alerts to the personnel responsible via their PCs (and in future to mobile devices) and also manages the process of solving the problem. He records when messages are acknowledged and tracks the history of the issue to its resolution. Assistant Q also handles the routine saving valuable time for quality managers. His systematic approach drives timely problem-solving and makes a vital contribution to avoiding quality complaints and claims from customers.

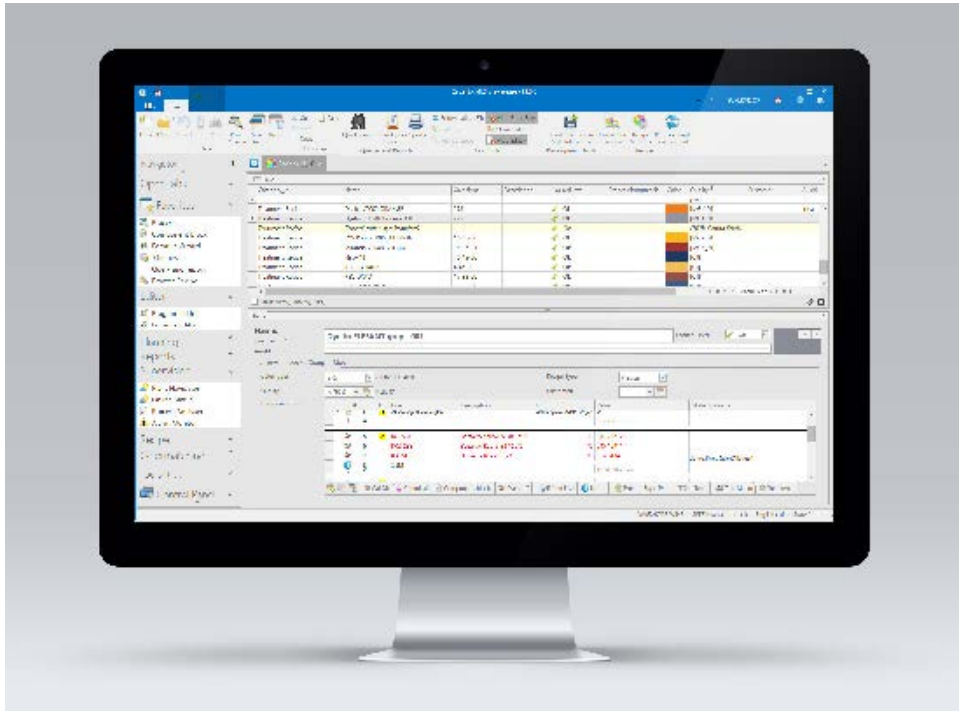

Quality management with Uster Tester 6 and Assistant Q © Uster

For KARL MAYER Industry 4.0 is a strategically important issue. The new automation platform KAMCOS® 2 offers a modern and well-designed man-machine interface with operating functions that are globally known from the use of smartphones or tablets – for ensuring an easy initial training and application. The operation of this new automation platform is based on a modern data bus, ensuring the full integration of functions of high-tech textile machines. The Operator Interface was adapted to the practical machine use. It provides the user with all the application parameters in accordance with the desired functions in a clear and compact manner. Maloperation is virtually impossible due to integrated monitoring functions and access control by data chip.


KARL MAYER KAMCOS 2 © KARL MAYER

KAMCOS® 2 also contains sophisticated solutions for system integration. The Laserstop for yarn inspection, for example, was completely integrated into the new platform. Yarn breaks are very quickly recognized by the sensor and evaluated by the machine control. A newly developed camera monitoring unit for the fabric line is also integrated into the new KAMCOS® 2 system, providing the user with all the relevant information. Moreover, KAMCOS® 2 also offers the basis for access to machine data via mobile devices by means of the KARL MAYER CONNECT smartphone app.

SETEX calls itself the automation company for textile dyeing and finishing mills and offers its customers a broad spectrum of products. With 20 years' experience in automation and system development, SETEX is proud to be the trusted service and technology provider of textile machine producers around the world. The name of the SETEX production and performance management software for textile finishing is OrgaTEX.



Setex OrgaTEX © Setex

OrgaTEX and SETEX controls allow advanced methods in planning, structuring, controlling, supervision, analysis and optimization of manufacturing processes.

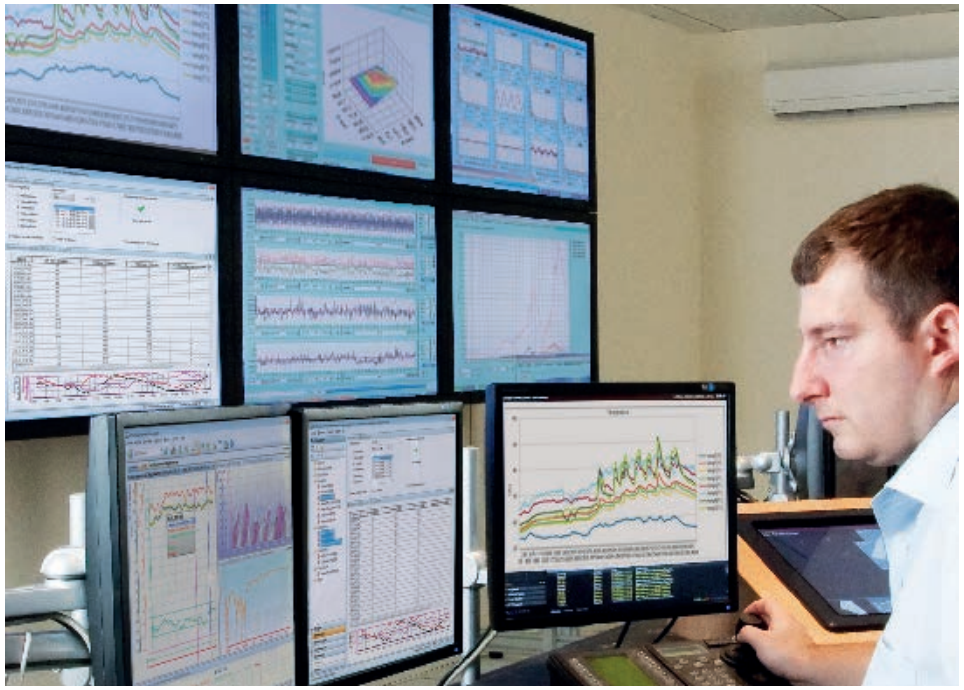
Setex says that OrgaTEX serves to arrive at Industry 4.0. When OrgaTEX is handling both - dyeing/finishing machines and automatic weighing, dispensing and supply systems - functions for an intelligent real-time communication between all systems are established. Key words are priority handling, mixing rules and made-to-measure energy flexible production.

Another company presenting smart factory solutions is Sedo Treepoint. Sedo says that the company has been on course for Industry 4.0 for a long time. Based in Mengerskirchen, Germany, Sedo Treepoint GmbH specialises in digitising and automating the manufacturing processes for textile finishing.

Sedo already in 2014 carried out a total digitisation project - the new textile finishing facility for the Shandong Ruyi Group, one of the largest textile manufacturers in China. In terms of data integration, the project involved networking all continuous machines, production data acquisition, an energy management system, the enterprise resource planning (ERP) system, and even printing management as well as other elements. The installed central system is self-explanatory and easy to operate. All information can be accessed at the workstation; machines can be operated and controlled from the work desk. Machine parameters are fine-tuned and production is planned by the system. Maintenance and diagnosis can also be carried out remotely. Consequently, human operators are more mobile and their role becomes one of supervision rather than hands-on intervention.

Many promising approaches with successful pilot projects can also be found in the fields of maintenance and wear monitoring.

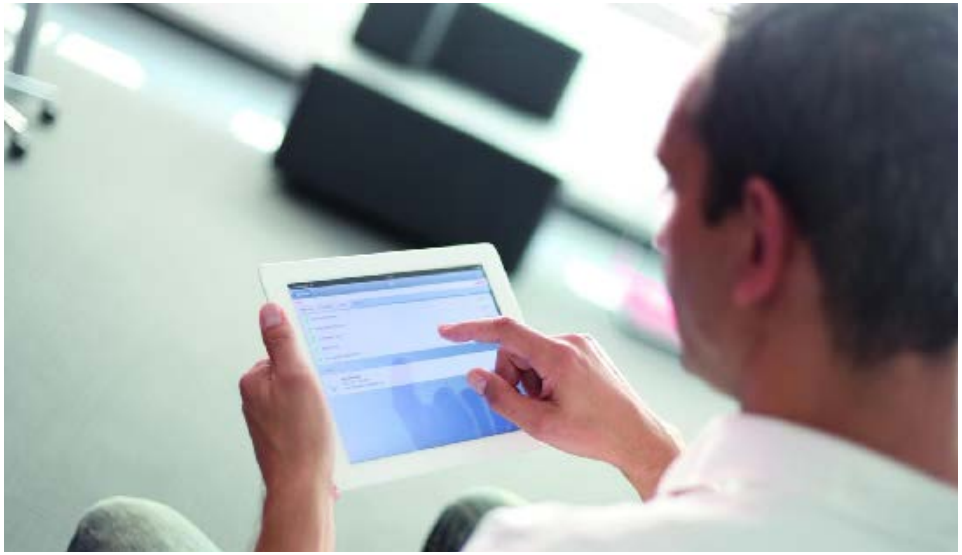
At ITMA 2015 in Milan Microsoft and Marzoli, a company of the Camozzi Group, presented the first innovative technologies, result of a new partnership with the aim to promote Industry 4.0 in Italy.



MRM-Marzoli Remote Maintenance solution © MRM-Marzoli

At the exhibition, the first applications of the MRM-Marzoli Remote Maintenance solution were presented, 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 new solution developed by the Camozzi Digital division represents an important step towards a wide digitalization process that puts the company at the forefront to seize all the opportunities of the new Microsoft technologies”, Marzoli announced in a press release.

And of course, the company that emerged into the textile machinery sector with the claim “Innovation has a name” likewise produces some of the most modern solutions for “intelligent maintenance” and consistently sets ever higher standards where innovation is concerned.



Oerlikon POC © Oerlikon

With the motto „The Future is Now!“ the company presented the innovative Oerlikon Manmade Fibers Industrie 4.0 system control and customer services solutions at ITMA Asia 2016. With new features and offerings for the intelligent ‘POC – Plant Operation Center 4.0’ system control software, producers can now maintain a constant overview of all processes – from the polycondensation, spinning and texturing all the way through to downstream further processing procedures. This helps Oerlikon clients increase the productivity of their systems, save energy and deploy resources efficiently.

Using virtual reality presentation, augmented reality solutions with the recently-launched Microsoft HoloLens IT development for ‘predictive maintenance’ concepts and virtual 360-degree tours through spinning plants, Oerlikon has integrated everything that state-of-the-art technology makes possible today.

The company says that linked to future-oriented service and automation solutions, they want to prepare its customers for the future of manmade fiber production.

A considerable amount of guidance in the “digital jungle” of Industry 4.0 is also given by the textile machinery department of the German Engineering Association (VDMA). For example, the opportunities and challenges for the textile and fashion industries were debated in detail in April 2016 at an even hosted by the VDMA in Frankfurt. More than 100 policy-makers took up the invitation to the joint event held by the German Textile and Fashion Confederation, the Textile Research Council as well as the specialist Textile Machinery and Clothing and Leather Technology departments at VDMA. In a series of presentations calling on practical business examples, various subjects in relation to Industry 4.0 were examined both from the perspective of the textile and fashion industry and from that of machinery construction. VDMA affiliate companies Brückner, Dürrkop Adler, Heusch, Stoll and Veit presented their approaches with regard to machinery construction. Presenting companies from the textile and clothing industry included Adidas, Bivolini, Cotesa, Gemini Business Solutions and SGL Kümpers.

According to a survey of the attending textile and fashion companies, these companies consider the next stages to be the digitalisation of the production process, the procurement and purchasing process and distribution/marketing, and smart products.

A large amount of information for getting to grip with the concept can be found in the VDMA's publications "Advances in Productivity through Industry 4.0" and "Guideline Industry 4.0 - Guiding principles for the implementation of Industrie 4.0 in small and medium sized businesses".

The proportional importance of evolutionary strategies is demonstrated by an example that can also be found in the first steps of a revolutionary approach. We must not forget that, for the most part, the textile industry is formed of small and medium-sized companies, but also contains brands and retailers that are counted among the world's global players. It is these companies that have already embarked upon similar kinds of projects.

## Industry 4.0 today

To take one such example, one of the leading manufacturers of sports equipment - adidas - presented its pilot project called "Speedfactory" as the future of its product manufacturing as far back as December 2015. The Speedfactory allows sports products to be turned out more quickly than ever before in batch size 1.

Speedfactory is a research and development project under the patronage of the German federal government, which aims to co-design the "future of manufacturing" and to develop innovative products as well as new production technologies. The project also gives consideration to consumer requirements, speed, flexibility, efficiency and sustainability.

Leadership of this research and development project falls to the adidas group. Johnson Controls (automotive supplier), KSL Keilmann Sondermaschinen (specialist in 3D robotic sewing units), fortiss - Technical University of Munich TUM (Robotic and Embedded Systems) and the Institute of Textile Technology at RWTH Aachen University (ITA) are all part of the consortium. After the successful completion of the pilot, the project has already embarked on the batch production phase. The first SPEEDFACTORY will be constructed on an area of around 4,600m2 in Ansbach-Brodswinden, which is located roughly 50 km from the adidas head office in Herzogenaurach, Bavaria.

Speedfactory © adidas AG

The project will be run by OECHSLER Motion, a company of the OECHSLER group, which since December 2015 has specialised in the development, manufacturing and distribution of sports products and equipment. OECHSLER is in fact a plastics processing company and an automotive supplier. Batch production is due to commence in the near future, which should see around half a million shoes produced in a year. Adidas's aim is to produce highly functional sports products (principally running shoes) more quickly, with increased customisation and in a more eco-friendly manner than ever before. As far as is possible, the process will be fully automated. This aim seems not yet to have come to fruition however, since Oechsler Motion released job advertisements for, among other posts, an industrial sewer, a fashion sewer and a shoemaker, whose task it would be to: "Manually create high-quality products using production equipment and systems...". Nevertheless, the implications of the project getting underway are impressive, and the choice of partner also sends a signal to established suppliers in the textile industry. For adidas, though, the project is merely the beginning. The next step will be to establish a Speedfactory in the USA, allowing the company to manufacture textiles "at speed" there too. All this may only be a small proportion of the overall production of shoes and textiles, but it clearly shows the direction in which Industry 4.0 is heading.

Thomas Waldmann, Managing Director, VDMA Textile Machinery, sees the future of the textile industry is more and more determined by Industrie 4.0. At ITMA Asia in Shanghai he said:

"Leading customers are increasingly interested in condition monitoring and predictive maintenance, including remote services. Other hot topics are virtual machines, traceability, remote control data exchange, self-optimising, intelligent user interfaces or individualisation. Generally speaking, smart machine controllers will correct process parameters automatically according to the sensors report. Or, if delivery deadlines are not met, downstream production processes will be adjusted immediately. Without discussing the potential of new business models, immediate advantages of Industrie 4.0 are improved plant efficiency, more economical production processes, energy savings, more flexible production, just to name a few. "

## Conclusion

In this article, we have attempted to narrow down the complex subject that is Industry 4.0, and to make it a little easier to understand. When initially researching the topic, we endeavoured to approach it in a critical manner. We had the daring idea of presenting it not as a phase in the historical succession of the industrial revolution, but to portray it as a project for the future. It was nonetheless difficult to maintain certain doubtful positions, as there were always many promising approaches. The adidas Speedfactory shows just how disruptive these changes to the process can be, and also just how near this research topic has already progressed in the industry.

This is backed up by the global survey “Industry 4.0: Building the digital enterprise”, compiled by the consulting firm PwC, for which more than 2,000 companies from nine industry sectors in 26 countries were polled, of which more than 500 are based in Germany.

The results of the survey show that 80% of these companies aspire to having digitalised their value chains within five years, and that the combined German companies alone hope to be investing 40 billion euros each year in Industry 4.0 applications by 2020.

All that remains is the question of how important bespoke textiles in batch size 1 will be for consumers. If upon entering the market they become a necessary condition for consumption, then a process of evolution could very quickly become a revolution.

Of course, textile products are already manufactured in batch size 1 today. For example, one can order a bespoke printed T-shirt from any number of suppliers on the internet. For providers, this represents a lucrative trade, and is also a service sought after by huge numbers of consumers. Nevertheless, the answer to whether the global market for the production of T-shirts has undergone a disruptive change, is surely no. There is, moreover, a whole host of textile products for which batch size 1 or even small batch sizes have absolutely no relevance. Many manufacturing processes have already been producing precisely pinpointed basic textiles for many years. Ultimately, the argument would appear to come down not on the side of revolution, but evolution.

# *Everything is well prepared for India's boom in textile industry.*

## *India ITME will show latest machines for modernization and expansion.*


In December, all eyes in the world of textiles will once more be on India, as from 3rd to 8th December India will be hosting one of the principal trade fairs in Southeast Asia - India ITME. Every four years - as per the ITMA cycle - textile machinery manufacturers from all over the world present their machines in the country that will sooner or later displace China as the world's leading producer of textiles. That is, provided that the prognoses for the future of textiles given by economic scientist Professor Barry Eichengreen at the World Textile Summit 2011 are correct. These prognoses are, however, also dependant on sufficient investment in the most up-to-date technology.

The 10th edition of India International Textile Machinery Exhibition 2016, the largest textile machinery and accessory exhibition in India is to be held at Bombay Exhibition Centre, Mumbai, India. The exhibition will be spread over 150,000 sq. mtrs, with participation from 93 countries and strength of 1000 exhibitors from across the globe. The exhibits will have 17 chapters spanning the textile segment from raw material to finished products, India ITME 2016 is the focal event for the textile and textile engineering industry in India and in the neighboring region.

Furthermore India ITME will serve as an ideal convergence point for all exhibitors, buyers, agents and dealers from Asian, Middle East and European countries. The exhibition is supported by Heavy Industries Department, Textile Ministry, NSIC and many other domestic and international organizers, making it one of the most anticipated exhibitions in the year of 2016. It is one of the premium events globally with 93 countries ensuring their presence as exhibitor and visitor.

Since the first fair in 1980, India ITME has systematically evolved, and the numbers of exhibitors and visitors has grown with every new event. From 124 exhibitors and 25,000 visitors originally, in 2012 the fair featured 848 exhibitors and 147,000 visitors. This would suggest that the organisers plan on breaking records once more at the upcoming trade fair. At both ITMA 2015 and ITMA Asia, the number of visitors from India was second only to the number visitors from the host country. There were around 9,000 visitors from India in Milan, and in Shanghai that figure was roughly 3,000. Such figures demonstrate the high level of interest on the part of

Indian textile companies in modernising and expanding their production, and promises exhibitors the perfect opportunity to show off their wares, as well as to do some good business.

The reason for the high demand is both easy to grasp and relatively obvious. India is enjoying a boom. India's textile and apparel industry (domestic + exports) is expected to grow from the current US $ 107 Bn. to US $ 223 Bn. by 2021. The increase is more than double, and shows an average annual growth of roughly 13% over a period of six years.

It is also interesting to note that growth is predicted for exports as well as for production for the domestic market, which would indicate a large range of visitors with varying kinds of businesses, interests and, in all likelihood, demands for new machines.

The India ITME website contains an interesting presentation by Durai Palanisamy, Executive Director of the Pallavaa Group, who tackles the question of why and where India's textile industry should be modernised, also making comparisons between ageing and up-to-date machinery. The focus was mainly on spinning, but many of the reasons could also certainly be applied to the following stages of production all along the value chain. Where investment in textile machinery in India is concerned, the principle emphasis is placed on lowering the costs of labour and energy, as well as improving both quality and productivity. The differences with regard to ring spinning are explained in more detail in the presentation.

For example using newest machinery the GPS is improved from 180 to 240 (33%) and the utilization from 95 to 98%. The doffing time is reduced from 5 minutes and more to 3 minutes. The breaks/100 spindles maintained at the same level, but with increased speed. The clearer cuts and classimat faults are reduced by around 50% and the start up breakage is maintained below 1% where as in old machines, it is maintained around 3-4%. Furthermore the floor space per spindle is reduced which means that around 13% more spindle installation in the same space is possible. The paper analyzes that the cost reduction in ring spinning is 1.02 Rs/Kg by comparing the production costs of using old machines (11.32) with newest machines (10.30). And the conclusion is that the Indian spinning mills with less labour, better utilization and efficiency as well as better quality can achieve the lowest manufacturing cost by modernization which will help them to realise better profits. Similar results will also be calculated for blowroom, carding and winding.

Textile producers who wish to reduce their costs through modernisation, increase their output but retain high levels of quality in their products, and who are able to invest a little more, will likely lean towards market-leading machines built by textile machinery manufacturers from Germany, Italy, Switzerland and France. The combination of high quality and good productivity is particularly important for export goods, as exports are subject to strong competition between textile companies, and likewise between countries that produce textiles.

China' s new focus on the domestic market naturally offers India opportunities, but new and fast-growing competition from countries such as Vietnam must also be reckoned with. It must also be remembered that sustainability too will play an ever increasing role in exports. Brands and retailers want to engage with suppliers that use modern production systems which save on water, energy and CO2, and are as clean as possible. Putting a large strain on the environment is no longer considered acceptable.

Alongside those previously mentioned exhibitors from western Europe, exhibitors from China, Turkey and of course India itself also hope to make the most of the opportunities provided by growth in India. In India, industry witnessed a growth of 8-10 per cent to Rs.22,000 crore in 2014 from Rs 20,000 crore in 2013. The size of India's textile machinery industry is poised to double to Rs 45,000 crore in the next 7 years from the present Rs.22,000 crore in light of new projects and emphasis on setting up textile parks. The textile machinery manufacturing section is one of the important segments of the machinery manufacturing industry in India. This industry is nearly sixty years old and has more than 1000 machinery and component manufacturing units. Nearly 300 units produce complete machinery and the remaining produces various textile machinery components.

The exhibitors are thus all well equipped, so next we will take a look at the exhibition programme, since that will form the basis of the entire trade fair.

**Rieter** shows the K 42 compact spinning machine and the G 32 ring spinning machine with EliTe®. The learning system Rieter "UPtime" Solutions, which supports the preventive maintenance of plants, represents a further step towards the digitization of spinning mills. In addition, Rieter is exhibiting the new single head draw frames generation RSB-D 50 and the R 36 semi-automatic rotor spinning machine.


Rieter G32 Spinning Machine

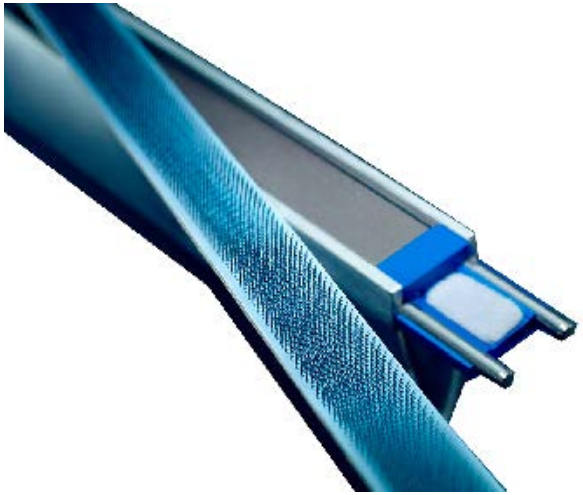
An unprecedented level of productivity with the highest quality standards is what is offered by the new RSB-D 50 single-head draw frame generation. With the patented ECOrized drive technology along with an innovative autoleveller and fiber guiding system, an increase in delivery speed of up to 33 % can be realized. The new coiler CLEANcoil-PES extends the cleaning cycle on critical polyester fibres by at least 100 %. In addition, the machine is characterized by significantly lower energy consumption.

**Novibra** will intrduce the new LENA (Low Energy consumption and Noise Absorption) high-speed spindles. LENA design has been developed from well-proven Noise Absorbing System Assembly (NASA), which ensures minimum neck bearing load, vibration and noise level at high speed. LENA is designed for tube lengths up to 200-210 mm. Another new product is the clamping and cutting crown CROCOdoff, which is also available as the version CROCOdoff Forte for coarse yarns. The crown is operated by the spindle speed and has been designed for machines with autodoffer. The improved design of the “teeth” guarantees a reliable clamping and cutting of the yarn.

NOVIBRA LENA high-speed spindle

Flexible clothings are one of the key components in a carding machine and **Graf** now offers a new flat system, which can reduce the stoppage time by 70%. The so-called EasyTop is used for flat clothings with magnetic adhesion technology.

The flat tops are currently available for working widths of 40“and 51” (60” in progress) and in the well-known setting patterns for all major applications. Furthermore Graf presents its new product for the combing process. The exchangeable combing segments are suitable for all combs requiring this technology.



GRAF EasyTop

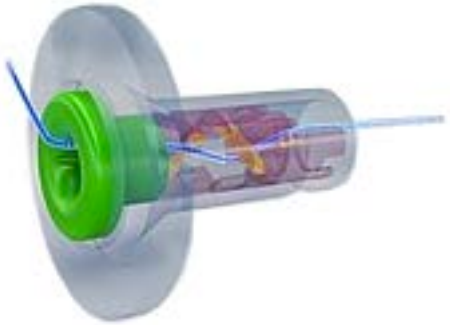
**Bräcker’ s** highlight will be the BERKOL® multigrinder. The entire range of top rollers and long cots used in a spinning mill can be processed on only ONE single machine. Any execution of center guided top roller is ground fully automatically on the BERKOL® multigrinder.

Furthermore Bräcker launches with BERKOL 63 a new cot dedicated to spinning compact yarns. It enables constantly outstanding yarn values throughout entire lifetime. And the new STARLETplus traveller with its improved coating shows a better resistance against corrosion . As a result, the service life can be extended by up to 50%.


BRÄCKER Multigrinder

**Suessen' s** highlight in ring spinning will be the EliTe®CompactSet, a compact spinning system, which can be installed on nearly all types of ring spinning machines. The system includes various innovations resulting in better yarn quality and increased productivity. An example is the EliTube Concept: as the fibre path within the drafting system is off-centred and the slot inclination is varied from left to right depending on the machine side, the use of top roller cots and aprons can be doubled.

For rotor spinning machines Suessen will show the new TwistTrap Navel with a patented twist-retaining element. The navel, which is applicable to all types of SpinBoxes, provides an additional false twist, which results in better spinning stability. The production increases by 10 % to 15 % due to the possible twist reduction. Another new Premium Part is the PS7 TwinDisc. There is substantially less flexing work between rotor shaft and disc which results in lower energy consumption – up to 11 W per spinning unit.



SUESSEN TwistTrap Navel

India is ranked in the top five export markets of **Savio** and they will exhibit breakthrough innovations both in winding and twisting segment.

The latest innovation, Eco PulsarS winding machine, will be displayed for the first time to the Indian market, after the launch in Milan last year. Eco PulsarS, with its sustainable eco-green advantage, replies to the market demand of energy saving, including also room air conditioning, together with improved production performances, 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. EcoPulsarS with its innovative platform can save up to 30% power bill thanks to "Suction on Demand" system.


SAVIO Eco Pulsar S

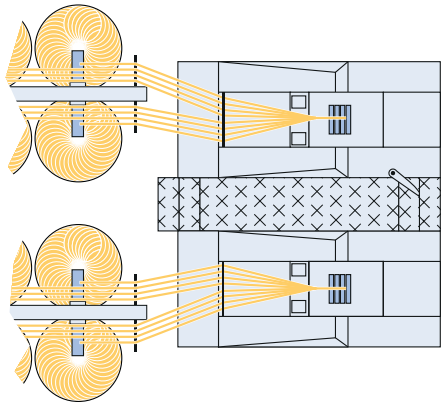
SIRIUS TFO twisting machine responds to the demands of customers looking for a significant reduction in labor and energy. Besides the demand to sustain low investment costs and lower energy consumption, the customers also take on great importance time and cost of maintenance. This new model foresees a high structural standardization, a wide range both for feeding and spindle dimensions for every yarn type and count, electronic solutions to simplify the operator intervention and reduce the maintenance workforce. The Electronic Drive System (EDS) version differs from the mechanical version for the full flexibility of setting adjustments. The Sirius EDS model is equipped with independent inverters and motors, which allow setting all processing parameters by the machine PC.

**The Saurer Group** (Hall 1, booth H1B12C11) which is the only full range supplier in the world offering complete automation from roving with an interspersed transport system to ring spinning and up to linked winding, presents a full range of innovations with a focus on make in India. The newly inaugurated Saurer manufacturing facility in Karjan, is producing highest quality ring spinning machinery and components. The ZinserImpact 72 made in India will be shown for the first time at ITME along with Saurer's full range of innovative products.

Furthermore Zinser will present the ZinserImpact 72 compact spinning machine in combination with the Autoconer 6. The ZinserImpact 72 compact spinning machine is equipped with the self-cleaning Impact FX unit and guarantees top productivity, maximum process reliability and optimal raw material utilisation.The new ZinserSpeed 5A roving frame consumes 20 % less energy. With a 220mm gauge the roving frame is also up to 17 % shorter than its legendary predecessor. The new automatic doffer features a doffing time of less than two minutes, guaranteeing maximum efficiency in terms of productivity. The RoWeLift bobbin transfer station uses a 1:1 transfer to deploy the roving bobbins in roving bobbin transport systems featuring flexible configuration for targeted and non-contact feed to the ring spinning machines.

The Autoconer 6, now with E3 label, sets new benchmarks regarding energy, economics and ergonomics, due to intelligent sensor technology and smart process control. This has been proven since his market launch in numerous installations. Innovations such as LaunchControl, SmartCycle and SmartJet boost productivity by up to 6 % compared with the previous model. The new Eco-Drum-Drive system, SmartCycle and the intelligent vacuum control system "Power on demand" reduce the energy consumption on the Autoconer 6 by up to 20 %. Unique in the winding machinery market are its features, such as auto calibration of the splicer feeder arm, Energy Monitoring and intelligent doffer func- tions like SmartJet and TubeCheck.

Schlafhorst presents the production platforms of the future in the field of rotor spinning. The new Autocoro 9 with its individual spinning position technology sets new records for energy consumption, productivity, economic efficiency, ease of operation and quality in the fully automated machine segment.

Due to its intelligent concept, the TWIN version is compact and requires little space.

# Is it possible to achieve maximum economic efficiency and reliability in the smallest spaces?

The answer is a definite Yes when it comes to our new TWIN breaker Draw Frame TD 9T. It is a twin draw frame, but also available as single TD 9 version. Thus it is possible to implement each even and uneven number of drawing heads.

For the first time in short staple spinning, it also features a new can format: JUMBO CANS with 1,200 mm diameter reduce the number of can transports and significantly improve the efficiency of the downstream machines.

**Getting fibers into shape – since 1888.**

TRÜTZSCHLER SPINNING

SAURER SCHLAFHORST Autocoro 9

It is a strong driver of optimised textile value creation in the textile process chain: 25 % lower energy consumption, 19 % reduction in spinning costs, proven rotor speeds of 180,000 rpm, take-up speeds of 300 m/min and a 60 % lower servicing outlay are just some of its outstanding performance features. The new semi-automatic BD 7 is also in a league of its own, It produces extremely economical packages in Autocoro quality up to 320 mm in diameter. Up to 10 % less energy consump- tion, extremely fast take-up speeds of 230 m/min on all lengths of machine and improved use of available space reduce spinning costs and increase the profitability of spinning mills in the semiautomatic segment.

Furthermore Schlafhorst and Zinser will inform about their Plant Operation Centres (POC) and range of services. With POC spinning mills monitor their production and quality data to improve efficiency. And with the innovative SUN - SERVICE UNLIMITED service concept, they offer their customers support in their day-to-day operations that is unmatched by any other manufacturer. Over 500 service staff in 20 service stations and 3 technology centres advise customers all over the world with regard to productivity and quality increases as well as energy conservation. The e-commerce platform SECOS 2.0 guarantees minimum response times in the delivery of original spare parts. And in SUN-PLAN Schlafhorst has developed a new service concept that is unique within the industry: Individual service at a fixed price.

With the FusionTwister, **Volkmann** is presenting its two-for-one twisting machine for staple fibre yarns. The FusionTwister is worldwide known for its high reliability as well as best twist quality and productivity due to spindle geometry for special applications, increased spindle synchronization, optimum package build-up und high-class yarn guiding elements. Reduction in energy consumption of up to 40 % is ensured by the energy-optimized spindle and yarn balloon geometry. Further customer benefits include high flexibility, low space requirement, low set-up times, less noise emission and reduced maintenance and erection time.

The CableCorder CC4 cabling machine, which has been awarded the Saurer E3 label, offers energy savings of up to 50 % in the tire cord cabling process.

The higher economic efficiency is also increased by up to 50 % fewer yarn breaks, improved quality and high machine efficiency.

Saurer Embroidery will show the latest innovations for a flexible and efficient embroidery production. In addition to energy savings of up to 5 %, customers can benefit from a 20 % increase in productivity. The Epoca 7 achieves an embroidery speed of up to 700 rpm, and is therefore up to 18 % faster than the previous generation. Apart from an increase in production speed, additional functions have been optimised and improved to achieve an overall performance increase of up to 20 %. The EmStudio CAD/CAM system integrates all the work steps on a single platform.

And last but not least Saurer Components, Accotex, Daytex, Fibrevision, Temco and Texparts, will present its excellence in filament as well as staple fibre processing.

**SSM Schärer** Schweiter Mettler will present breakthrough technologies. Special focus lies on the SSM X-Series: the machines (TWX-W/D, PWX-W and PSX-W/D) are the most economized winding solution, reduced to the max yet maintaining highest flexibility for any cost efficient winding application. Another eye catcher will be the SSM XENO – a modular platform covering all dye package winding, rewinding and doubling applications with three leading SSM winding technologies – as well as the well-known Sewing Thread Finish Winding machine TK2-20 CT for Cones. Machines for dye Package Winding/Rewinding, Assembly Winding (Doubling), Air Texturing and Sewing Thread Finish Winding will be presented.

Besides the displayed applications, SSM offers renowned machines for False Twist Texturing, Air Covering, Draw Winding, Yarn Singeing and Conventional Covering. Together with the introduction of the XENO-platform and the X-Series, SSM is demonstrating their market leadership.


SSM XENO-YW

Under **DORNIER's** sustainability motto "The Green Machine", the family company, which manufactures the machines exclusively in Germany, will present the latest technical solutions which allow producing the most modern technical textiles, sophisticated decorative fabrics and clothing with refined quality for the premium segment with very high economic efficiency.

The presentation of technical textiles focuses mainly on fabrics that cannot be produced on weaving machines of other manufacturers with regard to quality and economic efficiency providing thus a unique selling point for the weavers. Examples can be found in all application areas of technical textiles from environment and geotextiles to construction textiles, industrial and 3D textiles up to the automobile and aircraft industries as well as aerospace.

For sophisticated decorative fabrics, DORNIER will be pleased to demonstrate to the Indian weavers, in the premium segment, how to implement DORNIER's technical advantage in weaving machines to also meet the latest and fancy demands. The decorative textile sector continues to be adventurous and develops more and more new patterns and material combinations. These fabrics produced on DORNIER weaving machines attain excellent quality combined with very high productivity.

DORNIER air-jet A1 with DORNIER SyncroDrive®

And also in the rapidly growing market of especially high value and sophisticated clothing fabrics DORNIER will be pleased to demonstrate to Indian weavers how they can produce premium quality with high productivity.

Newest DORNIER machines are the rapier weaving machine P2 (introduced on ITMA), the rapier weaving machine P1 in a latest version and the air-jet weaving machine A1.

The rapier weaving machine P2 is a further development of the DORNIER rapier weaving machine P1 with positive central transfer. With this machine a high density filter fabric with a width of 320 cm can be woven, for example, which was only possible with custommade machines up until now. 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 50 kN.

On the latest version of DORNIER's rapier weaving machine P1, complex functional fabrics can be produced from different materials. The wide application spectrum of the P1 ranges from high value silk fabrics with 16 filling colors for example for imaginative ladies outerwear fabrics up to carbon, glass or coated lattices with coarsest yarn counts in warp and filling, and densities of 0.5 threads/cm or even lower.

The style spectrum of the versatile A1 for technical textiles ranges from spinnaker silk to airbag and conveyor fabrics up to Jacquard car upholstery. In clothing fabrics, from wool to Africa damask up to functional textiles and, for decorative fabrics, from multiwidth Jacquard table linen to finest curtains.

**Itema** will exhibit five weaving machines in its booth and one rapier machine with Jacquard application in Stäubli booth. Moreover, the company will highlight the strong advantages of its original spare parts, which will be of great interest for many weavers who have installed both the latest Itema machines and the previous Sulzer, Somet and Vamatex models

Visitors will have the chance to see live the most successful rapier machine in Itema' s recent history, the Itema R9500. With a solid installed base in more than 50 countries and the widest range of fabrics produced, the Itema rapier R9500 is nowadays an industry benchmark for versatility and superior textile performances.

The R9500 on show will display a high-end shirting fabric, featuring the latest technological advancements dedicated specifically to shirting applications, such as the brand-new Itema Pneumatic Tuckers, the most appreciated in this specific market segment allowing reduced maintenance costs and no speed limitations. Moreover, the Itema pneumatic tuckers provide utmost fabric quality and the possibility to have very narrow tucked-in selvedges leading to a significant fabric waste reduction. Officially presented for the first time in India, the Itema R9500terry, which is already a big favourite of sophisticated premium terry weavers worldwide after its debut in Milan in 2015, will demonstrate its strong leading position in weaving the most refined and soft terry fabrics.


ITEMA R9500

On the airjet technology side, three machines will be on display, covering all the main airjet technology application fields growing continuously in the Indian and surroundings markets. The A9500 featuring a bed sheeting style, will run with the latest improvements designed to excel in this market, meeting weavers' requirements of widest versatility and substantial cost savings. The brand-new Full Width Reed Tuckers guarantee weavers the possibility to reduce reed stock and increase the flexibility of the machine. Morever, the brand-new Double Tandem Nozzles ensure superior fabric quality and significant cost savings. A stretch denim fabric will be woven on the A9500p, the racehorse model in the Itema airjet portfolio.

The popular recent trend to weave stretch and super stretch fabrics with dedicated weft yarns, inspired Itema to create and patent the innovative BLC – Brush Lycra Clamp – nozzle to weave elastic weft yarns. Thanks to the BLC nozzle, the weft is held without movable parts to ensure superior fabric quality and reliability. The Itema iREED® - already a benchmark for the industry - significantly reduces the air consumption and guarantees a higher efficient weft insertion.

The third airjet machine is an A9500p weaving a top quality yarn-dyed shirting and featuring another Itema patented feature – the ELD Electronic Leno Device – which, with its innovative design, self-cleaning and no need to wind the leno spools, provides a perfect leno binding even at highest speeds, whilst significantly reducing operational costs.

Itema is present in India since 2002, counting more than 50 employees, with sales and after-sales teams, technical support and advanced repair centers in Mumbai, Coimbatore, New Dehli and Ichalkaranji to ensure the highest possible standard of weaving solutions, with a complete offering and service to its valuable customers in the Indian market. Itema is so confident in the machines' reliability and performances that they offer a two years extended warranty.

**KARL MAYER** (Hall 6 / Stand B 3) will be showing innovations from warp knitting, warp preparation and technical textiles. For the Warp Knitting Business Unit KARL MAYER will be showing its successful duo belonging to the tricot segment: the HKS 3-M as another representative of the fourth generation of high-performance tricot machines, and the HKS 4-M EL, the high-speed allrounder that sets new standards in terms of patterning possibilities and productivity. Both models will be shown in a working width of 218" and a gauge of E 28. Besides, LEO® – a clever technology for energy saving and, thus, for cost saving – is supplied as standard feature on all these machine types. The HKS 4-M EL will be producing a lightweight, very delicate fabric in lace look for the clothing sector. The semi-transparent article has only a weight of 31 g/m². And the HKS 3-M machine will be producing a rigid sportswear textile with a filigree, grainy surface in woven look.

Furthermore the new lace machine concept LACE.EXPRESS will be presented for the first time in India. LACE.EXPRESS sets new standards in terms of price-performance ratio when manufacturing garment lace.

itema

## Itema: 3 Technologies, 1 Brand

Itema is the only weaving machine manufacturer to provide the market with the top three weft insertion technologies: rapier, airjet and projectile.

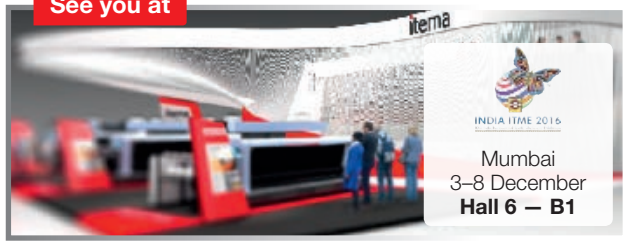
Choosing Itema is the first right decision that leads you to success.

Itema weaving machines set a new technological benchmark with high speed and precision, exceptional fabric quality and ultimate versatility.

At Itema, we inject innovation in every step when creating our looms to unleash your creativity.

Our mission is accomplished only when exceeding your expectations.

**See you at**




Rapier

Airjet

Projectile

3 technologies, 1 brand

itema *because we believe*

Italy · Switzerland · China · Hong Kong · India · Japan · USA · Dubai

**www.itemagroup.com**
contact@itemagroup.com

The highlights of KARL MAYER's Warp Preparation Business Unit are innovative solutions for sizing, sectional warping and for the denim business. The exhibits include a smart Size Box which operates on the basis of the spray technology, thus, minimizing the process costs, and the new ISOMATIC – a short warp sampling machine for standard applications that convinces by its excellent price-performance ratio. For the denim sector KARL MAYER will be showing the model of the complete indigo dyeing unit PRODYE.

For those interested in innovations in the field of Technical Textiles, KARL MAYER will be offering a Meeting Point with valuable information for the manufacture of reinforcement layer fabrics for composites. The fiber-reinforced composite materials are used for wide-ranging applications – from sports equipment to aircraft – as will be seen on KARL MAYER's stand.

The 360° service mainly integrates mobile devices, by means of the new KARL MAYER CONNECT app for a highly efficient communication between machine operator and service specialist in case of need, and by the KARL MAYER CHECK PARTS app for an uncomplicated check of the spare parts in terms of their originality.

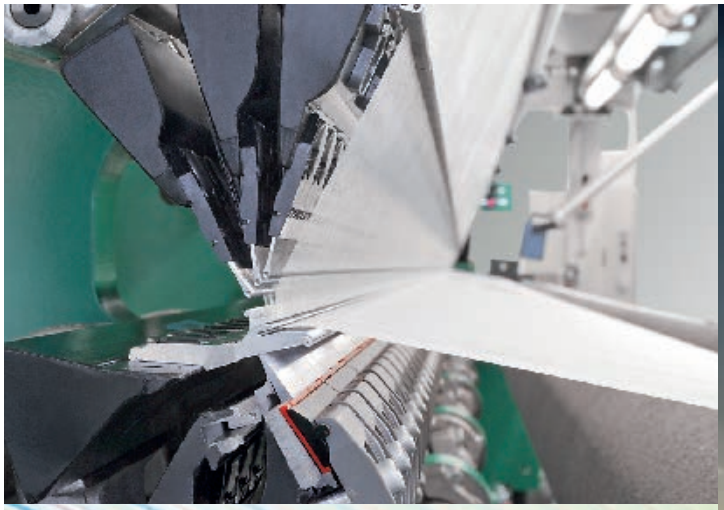
KARL MAYER HKS 3 M

**Picanol** (Hall 6, booth A19) will present all of its latest high-tech weaving machines and underline its prominent position in the Indian market by displaying four high-tech weaving machines at its booth. In addition to two recently introduced OptiMax-i rapier machine s two state-of-the-art OMNIplus Summum airjet machines will also be on display.

The OMNIplus Summum-4-P 340 will be shown weaving a sheeting fabric and the second airjet is an OMNIplus Summum-4-P 190 weaving a bottom weight fabric. The OMNIplus Summum is Picanol's latest generation in airjet weaving machines. Built on the new BlueBox platform, the OMNIplus Summum is packed with new features that enhance weaving performance and enable Picanol to continue to add further improvements in the future. The OMNIplus Summum is equipped with fully electronic pressure regulators, a separate built-in air tank for each weaving channel and a unique triple air tank configuration for the relay nozzles.

KARL MAYER

WE CARE ABOUT YOUR FUTURE



KARL MAYER

THE INNOVATIVE

MARKET LEADER

VISIT US

INDIA ITME, MUMBAI

HALL 6/BOOTH B3

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This improves the user-friendliness and flexibility of the machine and significantly reduces energy consumption.

In the rapier technology Picanol will present an OptiMax-i-8-R 190 weaving a shirting fabric and an OptiMax-i-6-R 190 weaving PV-suiting. The OptiMax-i is available in reed widths ranging from 190 to 540 centimeters. Thanks to its optimized rapier drives and industrial speeds of up to 750 rp it remains the fastest rapier machine with the Guided Gripper system (GC) and the most versatile one with the Free Flight system (FF).” 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.

Furthermore, one Picanol Jacquard OMNIplus Summum weaving machine will be on display at the Bonas/Van de Wiele booth.

Picanol has been successfully serving the Indian market since 1956. In light of the potential and expected growth of the Indian market, Picanol decided to set up its own organization in India in early 2008. The aim behind this move was to ensure it could more actively support its local activities. Since this local presence was established, Picanol has been strongly focusing on local sales and service activities.

With the broadest product range on the market, improved local services and considerable presence, Picanol remains highly committed to India. In addition to the main office in Delhi (with electronic print repair shop), the regional offices in Mumbai and Coimbatore are proof of Picanol’s strong presence in the Indian market. In total, a team of 35 Picanol professionals in India are committed to serving its customers. In recent years, Picanol India has seen a steady growth in its market share and this has led to it becoming the leading provider of weaving machines on the local market today. India is a market that is of crucial importance for Picanol as it is one of the world’s key textile markets. Indeed, Picanol’ s ambition is to become the leading provider of weaving systems for the entire Indian weaving sector.

PICANOL OptiMax-i 8-R 190

**Stäubli** (Hall 6 / Booth D1 ) is presenting numerous highlights from its extensive range of products for the weaving industry.

A complete Jacquard installation featuring the SX electronic Jacquard machine and a perfectly fitted Stäubli harness demonstrate astounding weaving capabilities for producing fine upholstery fabrics. The SX Jacquard machine on exhibit is available in two formats: 1,408 and 2,688 hooks. The larger format will be demonstrated at the booth weaving with 16,176 harness cords over a reed width of 190 cm.

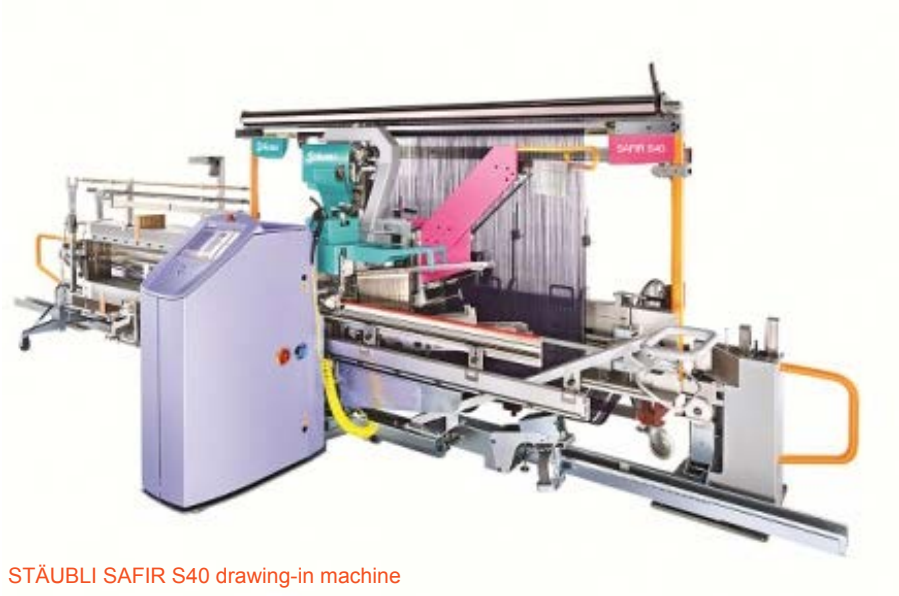
Another highlight is the specially adapted CX 172 Jacquard machine with computerized control for patterning name selvedges. This machine features an independent servo-drive transmission for easy installation and allows easy adjustment of the heads to match the exact weaving width. It can be seen at the Stäubli booth on a demonstration stand and at a partner's booth in operation on a weaving machine.

In the fireld of shedding solutions for frame weaving Stäubli will show the S3260 electronic rotary dobby - a third-generation Stäubli machine. It features a unique locking system for selection of the movement of the heald frames. The rotary dobby is a Stäubli invention, and this state-of-the-art model reaches new heights of performance and reliability. To round out the overview of Stäubli's shedding systems, a refined positive cam motion from the 1600 series is also being demonstrated.

Visitors to the booth are invited to an interactive automatic warp-tying experience. Together with Stäubli staff, they can "try out" the warp-tying installations and see how quickly and easily reliable knots can be automatically tied with different yarn types. The SAFIR S40 mobile automatic drawing-in machine is being shown in a different kind of presentation. Weavers can see why this machine is the perfect solution for enhanced quality of cotton weaves and learn how it can prolong the service life of any weaving machine.

With its DEIMO brand, Stäubli is showing the 2900SL controller for circular knitting machines, ideally suited for sock and seamless hosiery machines. And last but not least many exclusive carpet samples can be seen at the booth, including those displaying the recently developed "Magic Shadow Effect" and the "Traditional carpet Effect". The proven Schönherr ALPHA 400 and 500 series carpet weaving machines feature cutting-edge technologies and enable mills to weave an extremely broad range of carpets up to 5.3 metres wide..

Represented in the Indian textile market since 1947 and established with a company-owned liaison office in India since 1996, Stäubli has been an important supplier to numerous local weaving mills for decades.



STÄUBLI SAFIR S40 drawing-in machine

**Groz-Beckert** (Hall 6 / Booth A23) will show products and solutions in the areas of Knitting, Weaving, Felting, Carding and Sewing.

In the Knitting sector Groz-Beckert will highlight the areas of round and flat knitting, as well as warp and sock fabrics. The transparent exhibits - detailed replicas of real knitting machines - provide visitors with insights into the interplay of knitting machine needles and system parts. Another highlight will be the presentation of the litespeed® plus needle. Its optimized geometry lowers machine temperature and increases service life, while reducing oil consumption and enabling energy savings in the knitting process of up to 20 percent. In the area of warp knitting, the transparent exhibits also give interested parties a look at compound needles and warp modules from Groz-Beckert.

Groz-Beckert is a full-service operator in the area of weaving and will present, among others, the KnotMaster warp-tying machine, whose modular system sets standards in service and ease of maintenance.

Despite a multitude of functions – four knot types, simple and double knots, short knot ends and yarn-break detector – the modern touch-screen control is especially easy to operate.

In the product area of felting Groz-Beckert provides the ideal needle solution for every application. This product area focuses on felting and structuring needles for flat-needled and structured nonwovens.

The comprehensive range of products in carding encompasses the industry branches short staple and long staple spinning, as well as the nonwovens industry. It furnishes, with scores of specifications and high-grade steel, card clothing suited to all carding models and applications. Moreover, customers in nonwovens benefit from a large number of specific card wires, such as SiroLock® and EvoStep®, whose unique properties contribute to more uniform quality and increased productivity.

In the product area of Sewing, Groz-Beckert will highlight its special application needle SAN® 5, a proven performer for working with technical textiles. The improved SAN® 5.2, which meets the more demanding requirements in the area of technical textiles, boasts a unique geometry. The thread guide, for instance, has been improved for both linear as well as multi-directional sewing processes by the double groove in the point. Moreover the SAN® 5.2 has an additional scarf chamfer on the left side, which ensures more secure loop formation. Another Sewing highlight of the fair will be the Groz-Beckert Customer Portal.

Groz-Beckert will also be presenting its new quality management Ideal Needle Handling (INH), for the sewing industry. It involves a patented process that allows trouble-free and time-saving handling of broken and damaged sewing machine needles in running operation.

GROZ-BECKERT KnotMaster AS/3

**TEXTECHNO** Herbert Stein will introduce latest testing instruments for filament yarns, spun yarns and fibres. The new capacitive evenness tester for filament yarn COVAFIL+ with its new capacitive sensor design and a high-speed yarn twister achieves all requirements on an effective and reliable quality control system. For determining the number of interlaces Textechno has developed the Interlace and Interlace Stability Tester ITEMAT+ TSI as the successor of the well-known ITEMAT by Enka tecnica.

STATIMAT ME+ represents the new generation of the Textechno automatic tensile testers for yarns. For cotton the focus will be on the enhanced fibre bundle length and strength tester FIBROTEST, the Micronair Station FMT, as well as the automatic fibre-length-, impurity- and spinnability tester MDTA 4, now available. The FAVIMAT+ is the first and only tester to combine six single-fibre test methods in one instrument.

**Reiners + Fürst** (Hall H1 / Booth M1) will present newest TURBO Rings and optimized travellers for compact and siro-compact yarns. Since its introduction at ITMA more than 2.5 Mio units are running successfully in the markets. The enhanced surface allows increasing machine efficiencies by up to 10% – especially when producing yarns of sensitive fibres or with highest spindle speeds. R+F will also present new travellers for Siro-Compact and Viscose-Compact with optimized geometry and new surface characteristics. The end-users benefit from low yarn hairiness and longer traveller service life. And for worsted spinning R+F introduces J-travellers for ring heights of 9.1 and 11.1 mm with enhanced surface for better performance of the spinning process. Different shapes are available for top results in the whole range.

**Mayer & Cie.** will present a highly productive interlock machine, a mattress cover specialist and a spinning and knitting machine that can produce patterns. At the Indian Mayer representative Batliboi (Hall 5 / Booth B19) visitors will find a D4 2.2 II HPI, an OVJA 1.6 EM HS and a Spinit 3.0 E equipped with the new Fancy module.

With the Fancy module the machine, which combines three previously separate operations, can produce patterns. Via the electronically controlled drafting systems, different yarn counts can be generated in the ongoing process. Unique patterns, characterised by a free alternation of transparent and opaque areas, are created.

The key strength of the D4 2.2 II HPI is its productivity, which is twice to three times that of a conventional interlock machine. With the D4 2.2 II a knitter can produce up to 400 kg of fabric per day. It knits with 4.4 systems per inch with an overall diameter of 30 inches. With 132 systems in all, the machine runs at 34 rpm – a speed and a number of systems at which it is way ahead of the field.

MAYER & CIE. D4-2.2 II HPI Version

**Sedo Treepoint** (Hall 5 / Booth A11) will show its latest smart solutions to start integrated manufacturing already today. The new Sedomat+ line comes with a lot new features. Additionally the new modular SedoIO remote input series makes machine automation more flexible and economical. The new production planning simulation tools SedoExpert will optimize production output and takes company organization to a new level. The integration of continuous and discontinuous machines as well as printing gives unexpected benefits. And Sedo Engineering will present their revolutionary way to produce “Leuco” indigo on demand.


SEDO Sedomat 2800+

**iNTERSPARE** Managing Director Carsten Kalek and Product Manager Manfred Zeuge will be attending ITME 2016 in Mumbai, and will be available to answer any questions about the technical advances of the machinery in the Artos, Babcock Textilmaschinen and Krantz product lines. Both will illustrate how iNTERSPARE can support the Indian textile industry in its growth and modernization objectives with their machines, which are so highly valued in the market. This especially applies to the highest quality demanded in the premium segment for fabrics and knitted products.

## Conclusion

This concludes our look at India ITME 2016 in Mumbai, as well as the exhibitors and the machines on show. If the fair reflects the engagement of the organisers at least to some degree, it will undoubtedly be a very special event for visitors and exhibitors alike. In any case, it will certainly be of paramount importance to the Indian textile industry.

# ITMA ASIA + CITME 2016 on the trail of ITMA 2015

Since its first appearance in 2008, ITMA Asia + CITME has been not only the largest textile machine trade fair in Asia, but also an indicator for the short and medium-term development of not simply the Asian textile industry, but the industry throughout the world.

The signs for growth and modernisation at least in the textile industry in Asia would seem to indicate that this correlation still holds good, for the most recent event, which was held from 21st to 25th October on the new NECC trade fair grounds, was estimated on visitor numbers as the largest event yet. Mind you, the new exhibition grounds showed both light and shadows. From the outside it does look almost futuristic and gives the impression of size and modernity, but once inside the atmosphere on the lower level starts to disappoint, since, for instance, almost no daylight penetrates between the individual halls and you had the feeling of somehow having strayed into a multi-storey car park. Conversely, the halls themselves turned out to be spacious and as everything was arranged around a central space, the walkways were really short.

A large number of exhibitors reported that the organisation on the new trade fair grounds left a lot to be desired. The biggest problem was the provision of a supply of electricity and compressed air to the stands. And the lack of air conditioning on the first day of the trade fair was not exactly welcomed. However, help was at hand and for the visitors everything seemed to run on oiled wheels as usual.

So, to stroll round the stands. By the end of the five-day show, the fifth combined showcase registered a visitorship of over 100,000 from 102 countries and regions. 20% of the visitors came from outside China. In terms of visitor numbers, Chinese mainland visitors ranked first, followed by India, Japan, Korea, Taiwan China, Indonesia and Bangladesh, and exhibitors have commented very favourably on the high quality of professional and trade visitors attending the show.

A total of 1,673 exhibitors from 28 countries and regions participated in the exhibition, which covered over 170,000 square metres of gross exhibition space.

The high visitor figures recalled the rush of visitors in the first two days of the ITMA trade fair in Milan and can definitely be taken as an indicator that the Chinese textile manufacturers in particular are very keen to modernise their factories and as a consequence transform the concept of the Chinese industry from quantity to quality.

The exhibitors, who, in contrast to previous years, nearly all presented their best machines at the trade fair, confirmed this impression. The time of the slimmed-down versions of the machines, at lucrative prices especially for the Chinese market seems thus gradually to be coming to an end or at least is becoming merely an alternative.

In the spinning sector the exhibitors seemed very satisfied with ITMA Asia. Right at the start of the trade fair, Saurer was awarded a major contract from China and we were told by Pia Terasa, the Head of Corporate Marketing that the visitors were really interested in buying. Most visitor interest was attracted by machines and solutions for automation and the well-known star products from Schlafhorst, the Autoconer and Autocoro.

Trützschler seemed just as satisfied; they presented their whole innovations portfolio, including the new TC 15 card, the TD 9T - TWIN breaker draw frame, the Integrated Draw Frame IDF 2 and the new JUMBO CANS. The Head of Marketing, Hermann Selker spoke of the large number of often very specific enquiries and the keen interest in the Trützschler machines over the whole range. In addition, Trützschler Nonwovens concluded a supply contract on the spot at the trade fair.

Rieter shone the spotlight on relevant offerings for spinning synthetic fibres and blends. The solutions presented made a big impact on trade fair visitors. In particular, the new single-head RSB-D 50 draw frame generation struck a chord.

The J 26 air-jet spinning machine, which is a much-improved version of the previous model and debuted for the first time in China, also enjoyed greater attention. This machine is offered as a solution for processing viscose, combed cotton and blends. The new Head of Marketing, Joachim Maier, presented the machine to the press. Airjet is a technology with a great deal of promise. Its very high productivity and yarn qualities, which come up to those of compact yarn, should make Airjet an alternative worth trying for many spinning mills because of its good margins.

The Rieter Components, Bräcker, Novibra, Graf and Süssen stand was well visited throughout the trade fair, even given the fact that there was no machine demonstration to stimulate the impulsion to purchase. The textile firms are increasingly realising that the use of high-quality components and original spare parts is quite decisive for their productivity.

As usual Oerlikon had come up with something special for the trade fair and presented their concept, ‘The future is now!’ With new features and offerings for the intelligent ‘POC – Plant Operation Center 4.0’ system control software, producers can now maintain a constant overview of all processes. Using virtual reality presentation, augmented reality solutions with the recently-launched Microsoft HoloLens IT development for ‘predictive maintenance’ concepts and virtual 360-degree tours through spinning plants, visitors to the trade fair were offered everything that state-of-the-art technology makes possible today. André Wissenberg, the Vice President Marketing seemed inspired by the possibilities of providing even better customer service with the aid of the new technologies.

The customers also seem very open to the possibilities, he said. Many visitors could not resist the chance to try out the new HoloLens. And there was more good news. Georg Stausberg, the CEO of Oerlikon Manmade Fibers explained that it had become clear that the bad patch of poor demand for installations caused by the surplus of polyester on the market was now behind them.

Uster also was very satisfied with the trade fair said Senior Manager Marketing & Communication Edith Aepli. Right from the first two days there had been a high number of visitors and already, during the trade fair, Uster had received a large order. The visitors to this stand came from 20 countries: about half from China, followed by Vietnam, Bangladesh and Indonesia. The Total Testing Centre and Assistant Q were very well received by visitors. The new Tester 6 and the VisionShield attracted great interest.

SSM exhibited six machines and showed nine new product launches for Dye Package / Rewinding, Assembly Winding, Air Texturing and Sewing Thread Finish Winding. For the first time ever, SSM presented their X-Series. The machines are the most economized winding solution, reduced to the max yet maintaining highest flexibility for any cost efficient winding application. SSM was very comfortable with the show. Indeed, the onslaught of visitors experienced by SSM at the ITMA could not be surpassed, declared the Marketing Manager, Thomas Elsener with a wink. The demand for the most recent machines, such as Xeno-Plattform, X-Series and DURO-TD, was very high.

Mrs. Babbo told us, that Savio got a lot of visitors and all the presented innovations, for example the new Multicone technology, have got a high interest. For particular the Eco PulsarS, with its sustainable eco-green advantage, together with improved production performances, high quality packages and utmost flexibility exactly matches the needs of Chinese spinning mills. And the Polar winder is always a bestseller in the traditional standard winding platform in many markets.

Itema Group CEO Carlo Rogora said to the press, that the Italian-headquartered company closed the first quarter 2016 with increased revenues and well-filled order book, consolidating a four-year growth trend since the change in the company management in 2012. All new looms are in high demand. And he said that Itema will assemble the latest generation machinery in the world-class manufacturing sites both in Europe, as well as in China, with the same attention to detail and quality, reliability and performance. Itema ‘s new Group Sales & Marketing Director Christian Straubhaar introduced the R9500denim rapier weaving machine. This is the brand-new product concept dedicated exclusively and especially to denim mills in search of customized solutions to enable them to respond faster, more effectively and efficiently to changing denim trends with versatile, high-performance, ad-hoc machinery.

Lindauer DORNIER presented the P2 type TGS, a new machine designed specifically for the requirements of the Chinese market. The rapier weaving machine makes it possible to produce high-density filter fabric, which is badly needed in China for environmental protection.

Because of this, as Florian Boch, the Marketing Manager explained to us, interest in this “green solution” was high. The A1 air-jet weaving machine, designed for the demanding clothing market, also attracted a great deal of interest from Chinese weavers.

Stäubli presented an extensive range of textile machinery from their portfolio. Latest innovations in shedding solutions for frame weaving (cam motions, dobbies), electronic Jacquard machines with harnesses and weaving preparation systems including automatic warp drawing-in and warp-tying machines have been shown. On a press conference Marketing-Chief Fritz Legler told the press, that Stäubli is very comfortable with the fair. For particular the new mobile automatic drawing-in machine SAFIR S40, dedicated particularly to cotton weaves like denim and other standard fabrics, has got a lot of attention. Customers highly estimate Stäubli’ s passion for quality.

The Picanol stand was as usual full of visitors, who wanted to have a close look at the six weaving machines on display. Picanol has been active for more the 60 years in China and for the last 22 years has had its own production plant there. However, Erwin Devloo, the Marketing Communications Manager told us that the machines produced in Belgium also attracted much attention and demand. The highlight was the OptiMax-i, for the first time on display in the Asian continent. An OptiMax-i 4-R 190 was shown weaving a fancy denim with Polyamide/Elastane in the weft and demonstrated the top performance achievable with this new weaving machine.

The Groz-Beckert stand was just as imposing as at the ITMA and was also just as well visited. On the evening of the first day, Birte Kleefisch, the Head of Press Communications told us that it had been a very good day for Groz-Beckert. This is no surprise, because when you are looking for quality in knitting, sewing, weaving, tufting, felting and latterly, also in non-wovens, there is no alternative for the needles. Groz-Beckert also demonstrated very vividly that needles can also help to save energy. Three models operating with different needle placements and a stop watch were used to give visitors a live and very convincing demonstration of the 20% saving in electricity offered by the litespeed® plus needle.

Christine Wolters, Head of Corporate Communications at Karl Mayer informed us that their two core themes for the next years are “Industry 4.0” and sustainability. The world market leader presented themselves on an impressive stand and in addition at an in-house show held at KARL MAYER (China) in Wujin, Changzhou. Both of these presentations were extremely successful. In Wujin Managing Director Arno Gärtner welcomend roughly 340 visitors – a record number for one of the company’s own in-house events. At NECC KARL MAYER was presenting two HKS models of the next generation. The visitors were full of enthusiasm for the new design which clearly sets them apart from other machines on the market. Also the LEO® Low Energy Option for warp knitting machines and the materials-conserving HSB-PW Size Box for warp preparation, as well as textile applications having ecological implications in the field of multiaxial technology attracted a great deal of attention at the show. A big topic also has been the new KAMCOS® 2 automation platform.

And last but not least many visitors were enthusiastic about trying out the new digital communication systems.

Flat knitting innovator SHIMA SEIKI of Japan feels the time is right for Chinese knitting industry to undergo its own WHOLEGARMENT® revolution, because they must now cater to a domestic market with increasing demand for more fashionable items, while dealing with high wages and a diminished workforce. Media Relations Manager Masaki Karasuno presented to us this impressive solution. The concept considers all processes along the knitting value chain. Main parts are the WHOLEGARMENT® knitting flagship MACH2XS, the SDS-ONE APEX3 3D design system and the Shima KnitPLM®. To round it up SHIMASEIKI has launched a website with a huge database of shapes and patterns for Chineses designers to get inspiration.

Monforts also seemed satisfied with the trade fair. The Managing Director, Roland Hampel reported a high demand and a great many valuable technical discussions. Many of the visitors were interested in the new 'Eco Denim' range and the High Speed Denim Finishing version. There were even trade visitors from Mexico, who had made the journey to Shanghai expressly because of their specific interest. Also the latest Monforts machines and solutions for energy savings and improving sustainability found high interest.

Unfortunately we were not able to talk to the Brückner people because the booth was always crowded by visitors and the stuff was involved in customer discussions. Brückner presented a small model of a double-belt oven for nonwovens. This is a very interesting machine which we will introduce in an article in the next issue.

Benninger told us that they are very comfortable with the fair. This was no surprise because the booth was full of people and CEO Beat Meienberger and his team were all in customer presentations. Benninger presented the famous Benninger Küsters Dyepad and showed the manifold possibilities of washing based on a TRIKOFLEX washing compartment.

The SANTEX RIMAR Group presented the CAVITEC Cavimelt P+P machine for textile finishing and the Sperotto Rimar Decofast machine for technical textiles. Moreover the SMIT division showed the terry jaquard loom GS940 F. Group CEO Stefano Gallucci told us that a strong, long lasting and mutually beneficial relationship with customers is the most important thing for them. Visitors were very interested in all the presented machines. SMIT CEO Simone Rancan added that for particular the demands for SMIT looms are rising. Customers are very happy that SMIT is part of the SANTEX RIMAR Group and busines is going on.

Erhardt&Leimer Sales Director Textile Klaus Baumann told us that E+L is very comfortable with the number and quality of the visitors and expect good business.

E+L featured their market leading products ELMAT, ELFEED and ELCOUNT. In the center of the booth they placed ELSTRAIGHT – the fabric weft straightener system.

The Thies booth was always crowded by visitors although they didn' t present a machine cause to an accident. Of course Thies doesn' t need an exhibit for discussions with customers. The machines are very well-reputed in Asia and customers know the many advantages exactly. Mr. Danny Nicholson, Thies Plant Manager in China, told us that business is very good in Asia and also in Europe.

Setex presented a range of displays to demonstrate all the advantages of their SECOM controllers. More than 950 Setex customers are using the OrgaTEX Manufacturing Operation Software. Setex had good discussions with customers told us Sales Director Stefan Saam.

AUTEFA Solutions presented themselves as a full line supplier for needlepunch nonwoven lines on the CHTC booth. A lot of customers are very interested in the the latest innovations of Autefa, told us Head of Marketing Jutta Söll. For particular the Automatic Needle Exchanger got a lot of interest, because the advantages are so evident. And also the price-performance ratio of the Needle Loom STYLUS is very interesting for nonwoven producers in Asia.

As usual on major exhibtions the associations held press conferences and gave press and other interested people an overview about latest figueres of the countries and the main topics they are working on.

On the ACIMIT press conference President Raffaela Carabelli made the report that about 130 Italian exhibitors are on hand at the fair. 60 Italian companies are presenting their products as part of the National Sector Group, organized by ACIMIT and ITA-Italian Trade Agency. The high number of Italian exhibitors testifies a positive outlook on the future of Asian markets, and Chinese one in particular. Asia, on the whole, is a constant benchmark for Italian textile machinery manufacturers, absorbing 45% of their sales abroad.

Furthermore she stated that visitors will once again be able to ascertain in person the extremely high quality and uniquely innovative character of Italian technology on display. Around 40 Italian machinery manufacturers have signed up to ACIMIT's "Sustainable technologies" project, committing themselves to supplying increasingly sustainable machinery, both from an economic and environmental standpoint. And Claudio Pasqualucci, Italian Trade Commissioner in Shanghai explained that China is implementing policies for the reduction of carbon emissions and thinks, for that reason, that Italian textile machines eco-friendly technology, should be appropriate with Chinese policies.

On the occasion of the VDMA press conference on the opening day of ITMA ASIA, Fritz P. Mayer, chairman of VDMA Textile Machinery and Associate of Karl Mayer Textilmaschinenfabrik (and also the new Cematex President) emphasised that German technology can play a major role in efforts to make the environment cleaner, to increase the energy efficiency and so the competitiveness of textile producers. VDMA started its sustainability initiative Blue Competence, to which over 40 textile machinery companies have adhered, already back in 2011. Instead of scientific certification experiments and theoretical approaches, VDMA always focused on best practice examples.

The next topic was that the future of the textile industry is more and more determined by Industrie 4.0. The VDMA reported that this interconnection of information technology and manufacturing processes is on track. Thomas Waldmann, Managing Director, VDMA Textile Machinery said that leading customers are increasingly interested in condition monitoring and predictive maintenance, including remote services.

And on the Swissmem press conference the member companies gave small presentations to the press about innovations and how business is going. Of course Swiss technology is outstanding and many of the single companies are world market leaders in their segments. The FACTOR+ initiative of SWISSMEM describes the added value provided by the Swiss textile machinery industry. It stands for their shared commitment to this Plus.

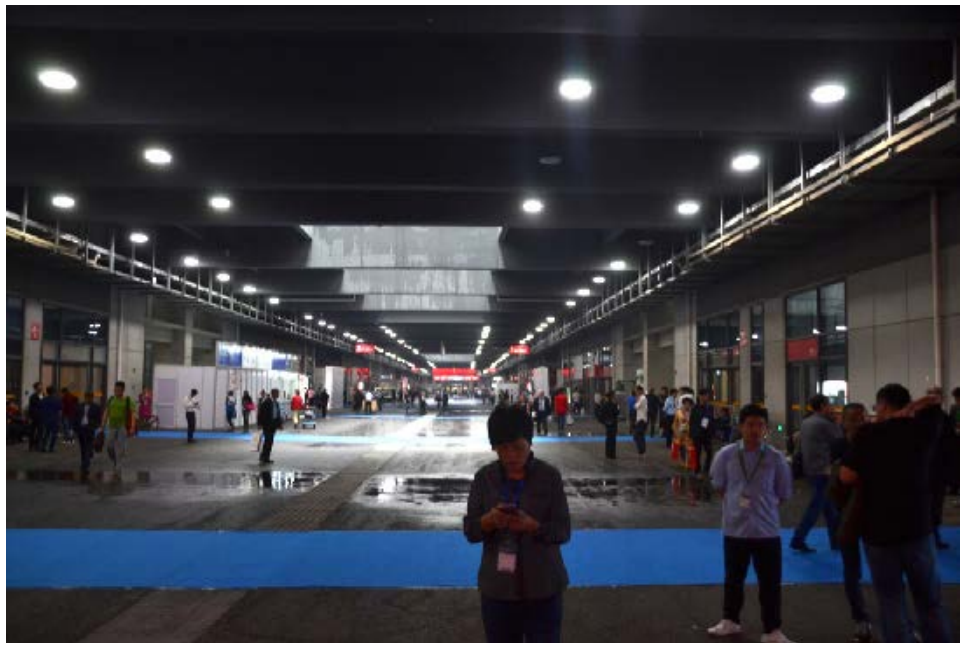
Mr Fritz Mayer, President of CEMATEX, said: “We are delighted that this was our largest show since its launch back in 2008. The majority of our visitors were serious buyers, and as a result our exhibitors are very happy with the overall quality. We are looking forward to another successful presentation of the next combined show in 2018.”

Mr Wang Shutian, President of China Textile Machinery Association (CTMA), agreed: “The combined show continues to be a ‘must’ for textile machinery manufacturers and their customers, and we are delighted to present the very best technologies from both east and west to Chinese and other Asian buyers.”

The next combined show will be held at the National Exhibition and Convention Centre (Shanghai) from 26 to 30 October 2018 and will be organised by BJITME, and co-organised by ITMA Services.


ITMA Asia + CITME 2016 took place from at the new fairground NECC.

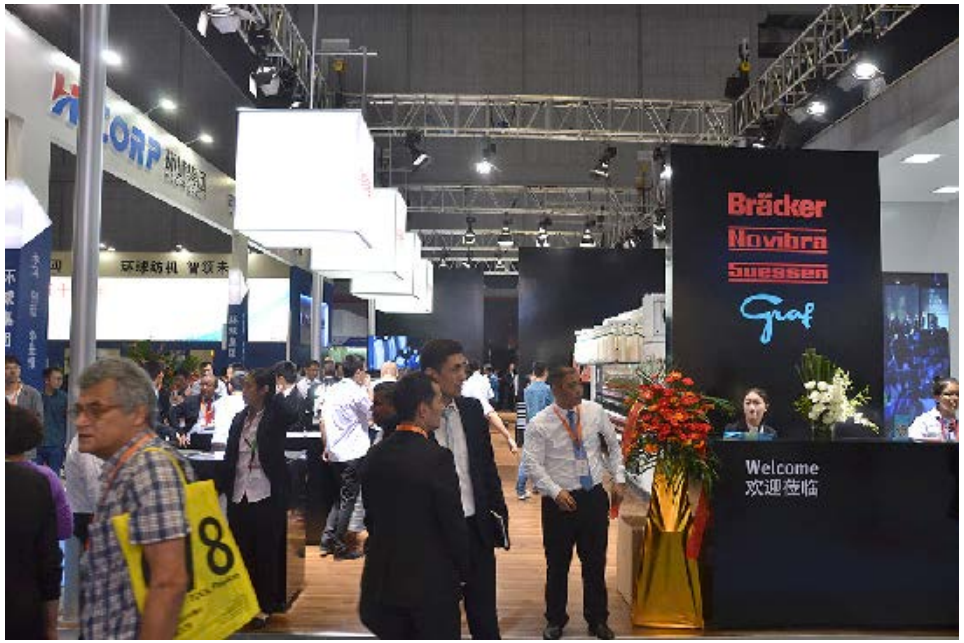

There was a very high number of visitors - especially on the first two days.



Form outside the new NECC presents extremly futuristic, but inside it looks a little bit different. For particular the area between the halls seems dark, cold and sterile.

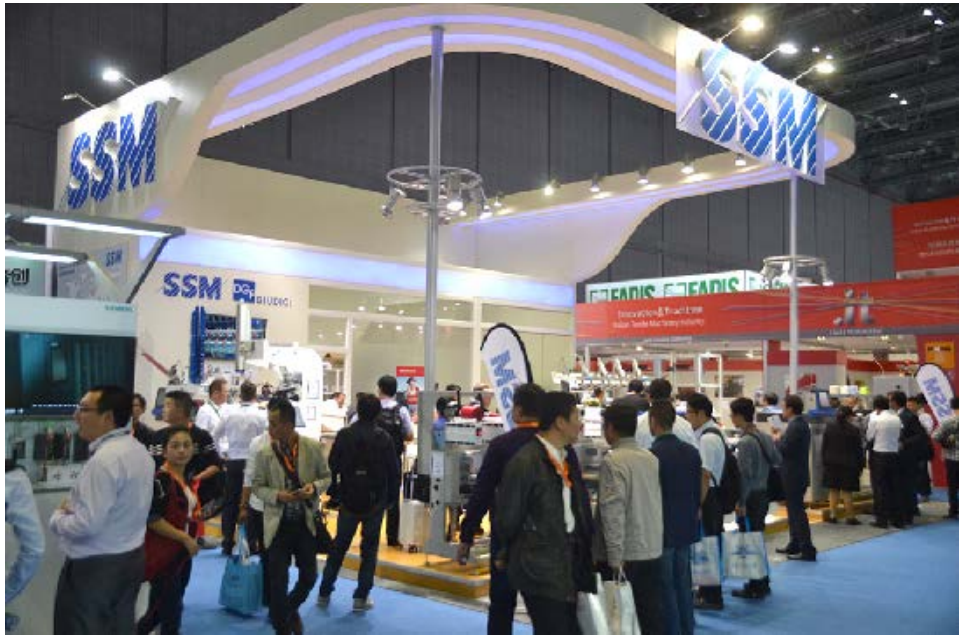

However, the halls are bright and spacious. And what is the most important thing for doing good business: they were crowded right from the beginning of the fair.


The Rieter booth with the air jet spinning machine J26 in the center of presentation.

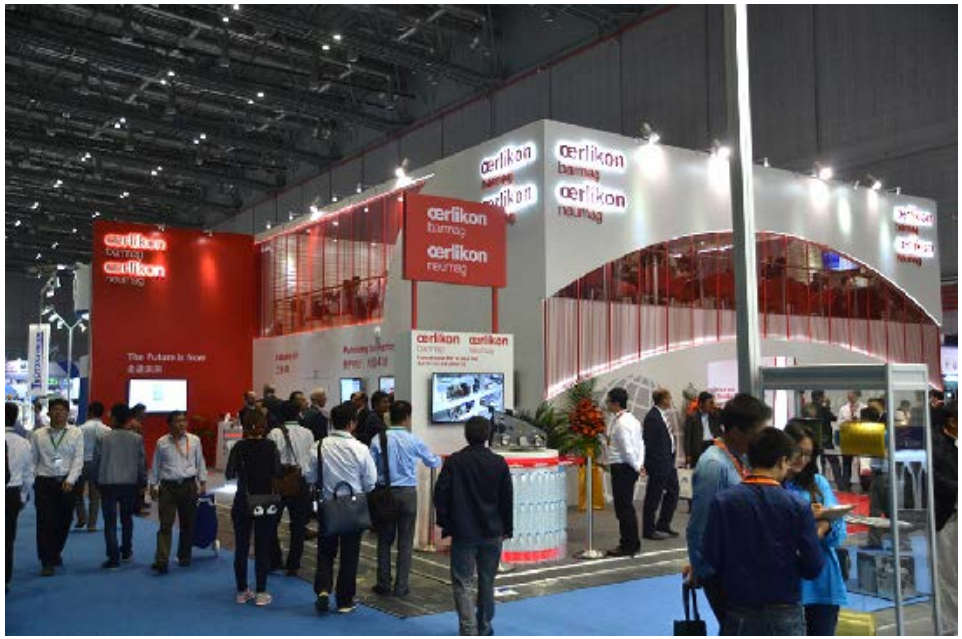



High visitor interest has also been given to Rieter ‘s spare parts and components business which is represented by the companies Bräcker, Novibra, Süssen and Graf.

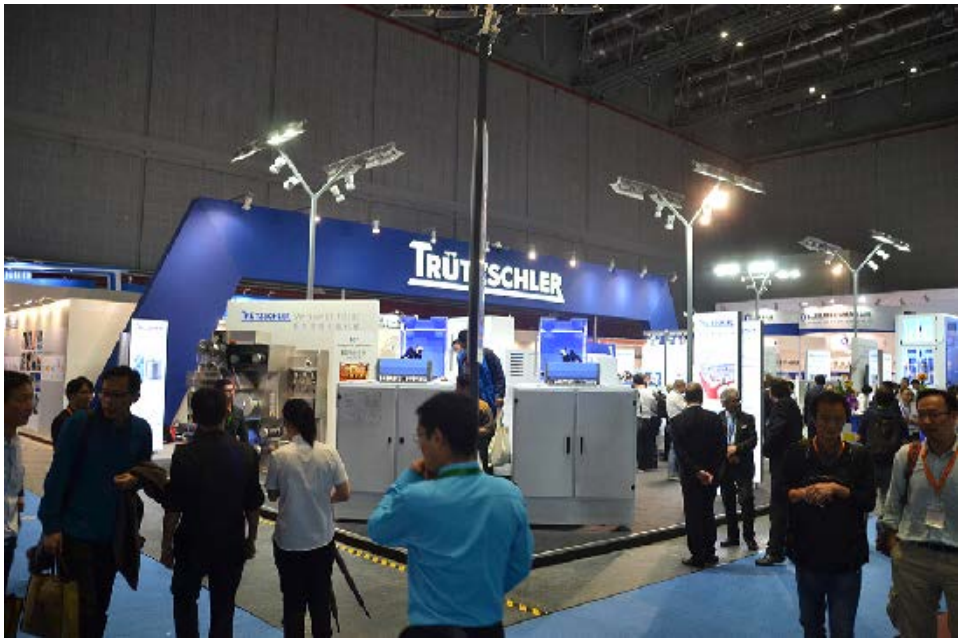

Saurer presented a wide range of their machines on a big booth. The red dots on the floor marked the way from fiber preparation to winding along the value chain.




The SSM booth was always full of people. SSM presented six machines and for the first time their X-Series.




As always Oerlikon showed a lot of innovations. In the center of the presentation was the concept, ‚The future is now!'.




Trützschler presented all three business units on a huge booth and showed all latest technology. Truetzschler and Zhejiang Wang Jin signed an agreement to supply 2 state-of-the-art spunlace lines.

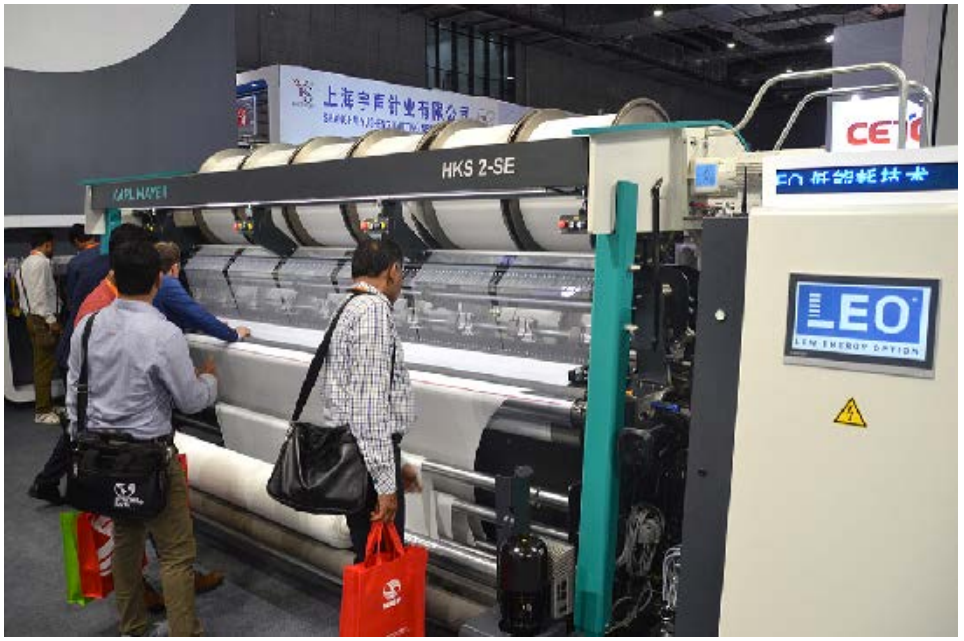

The new Jumbo cans and in particular the new Trützschler Card TC 15 have got highest interest by the visiotors.


Uster presented all the advantages of “Total Contamination Control” and of course Assistant Q, their quality management software system.


A lot of visitors showed interest in Savio 's latest solutions for winding.


For particular the advantages of Savio' s new Multicone technology addressed spinning mills from Asia.


The impressive booth of Karl Mayer.




Among other exhibits the LEO® Low Energy Option for warp knitting machine attracted a lot of attention.

Highlights on the Groz-Beckert booth were the „transparent“ knitting machines.

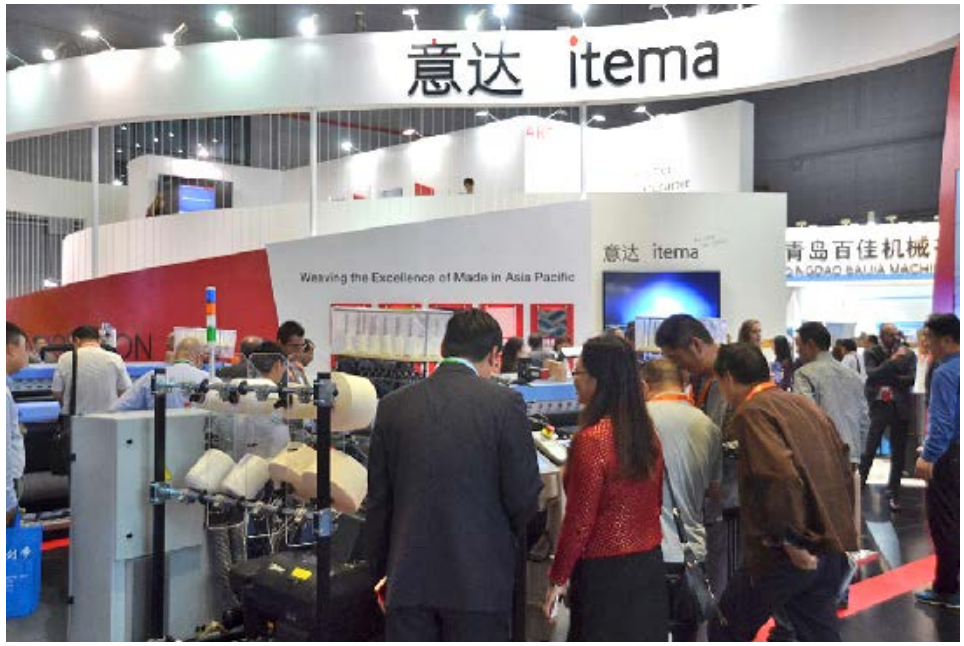
A smart demonstration of the 20% saving in electricity offered by the lite-speed® plus needle.


Stoll presented a futuristic new booth design for their leading flat knitting machines.


SHIMASEIKI also came in a new booth design and presented a total solution for WHOLEGARMENT manufacturing from design to knitting.


Inside the booth the single steps of the process were explained.

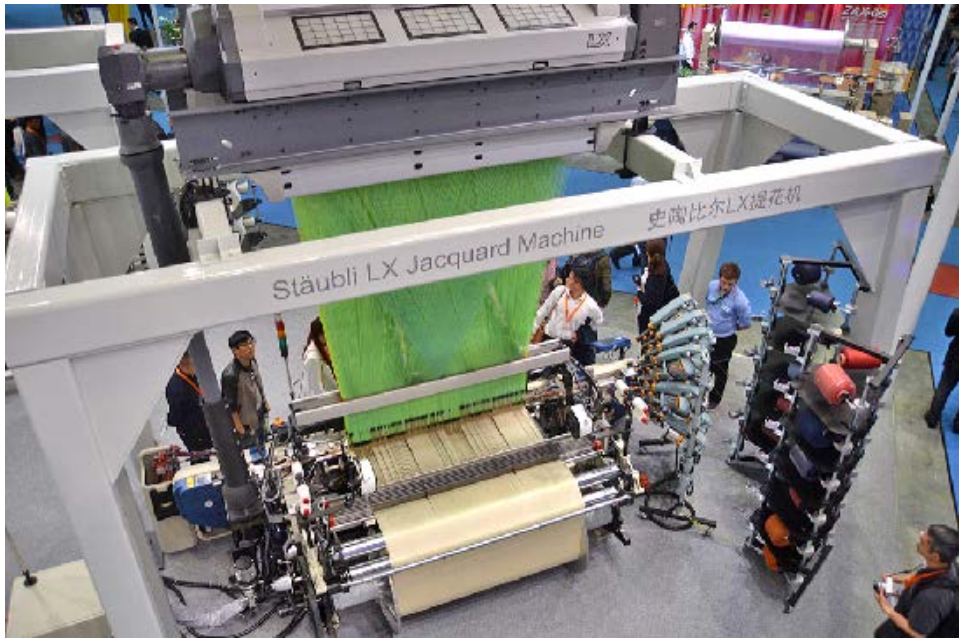

The Mayer & Cie. (MCT) booth. The German circular knitting machine manufacturer presented the OVJA 1.6 EE and the MSC 3.2 II.




Itema' s range of modern weaving machines attracted man visitors.


Itema Group CEO Carlo Rogora and the new new Group Sales & Marketing Director Christian Straubhaar introduced the new R9500denim.


Stäubli' s new mobile automatic drawing-in machine SAFIR S40.

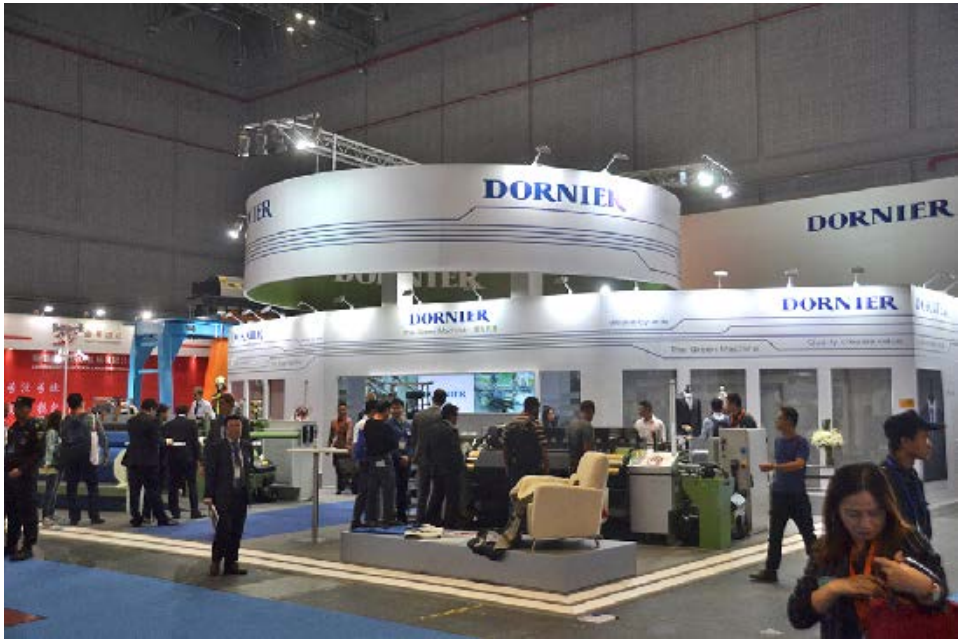



Top view on the LX Jacquard machine.

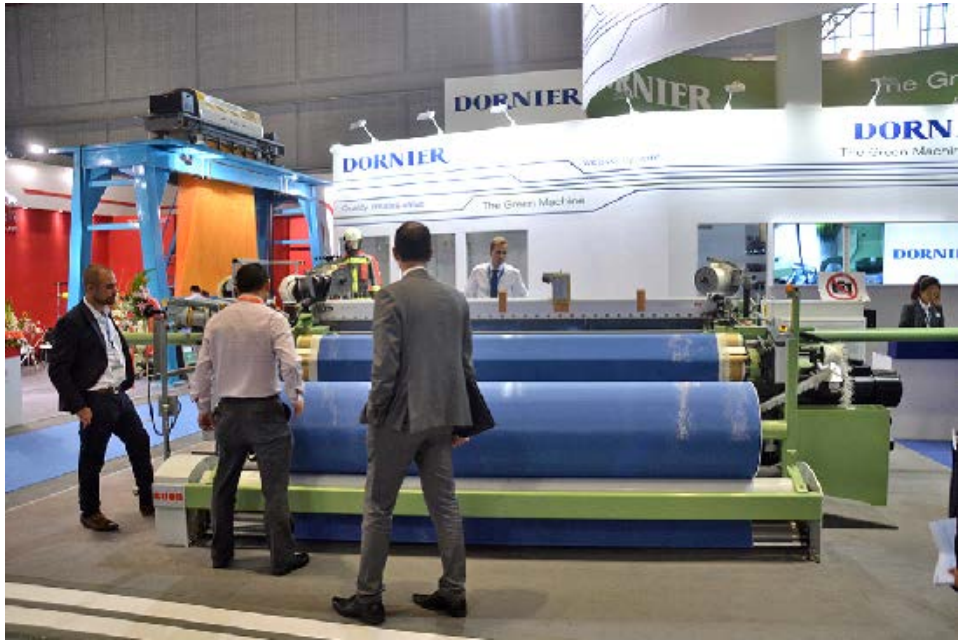
Picanol presented 6 machines and the booth was always full of visitors.
Picanol machines have a long tradition in China.

Picanol' s highlight was the OptiMax-i.

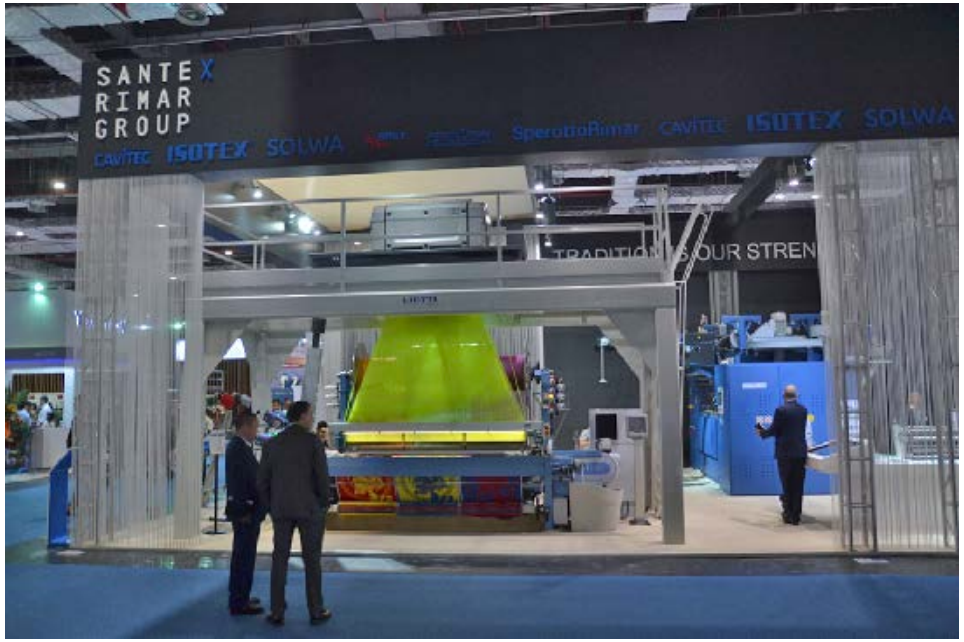
The huge Van de Wiele booth.



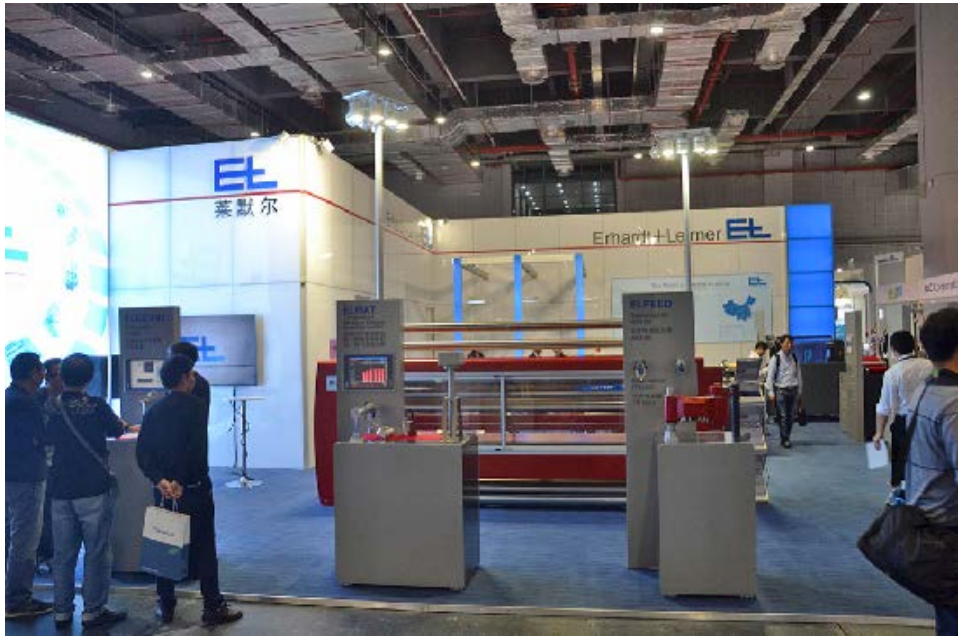

Lindauer DORNIER presented two machines and some applications on a big booth which was always full of visitors.




The new rapier weaving machine P2 type TGS was of particular interest.




The big booth of the SANTEX RIMAR Group. The SMIT division showed the terry jaquard loom GS940 F.




The Erhard + Leimer booth. The highlight was ELSTRAIGHT – the fabric weft straightener system.


Mahlo presented latest solutions for automation and process control.

The Monforts machine presentation was integrated with the large FONGS booth.


Monfongs presented the stenter Montex 6500.


The Benninger booth was always full of visitors.
They presented a TRIKOFLEX washing compartment.


Brückner with the new booth design first presented on ITMA. The company offers a very wide protfolio of excellent finishing machines.

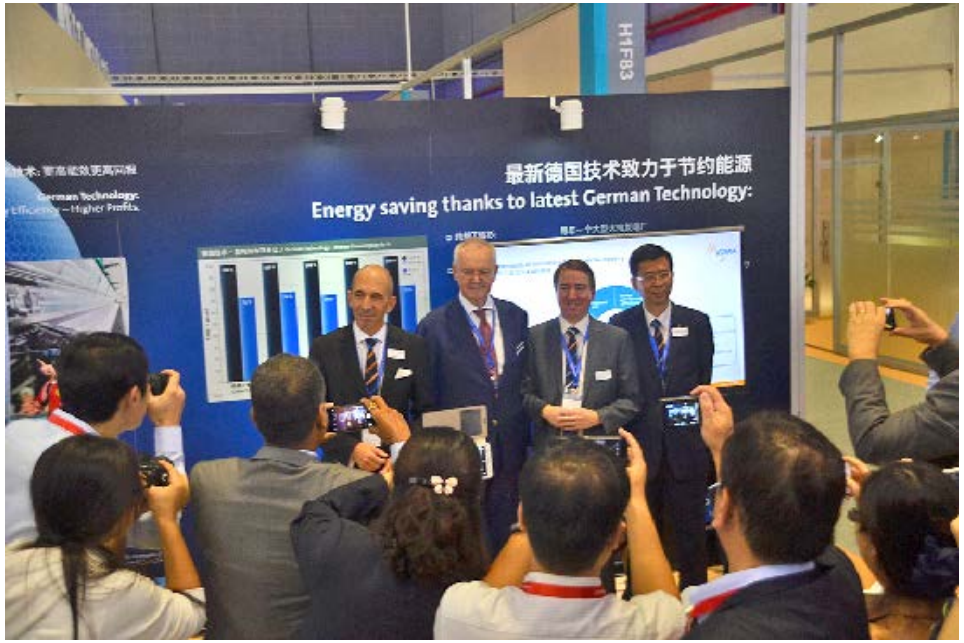

Again Brückner used small modells to explain the technical advantages of the machines. Brückner is the technical leader in finishing of nonwovens.


Sedo Treepoint showed its latest smart solutions to start integrated manufacturing already today.


Dilo is very successfull in China told us Mr. Dilo. This is no surprise because the complete nonwoven lines stand for extraordinary quality.


The ACIMIT press conference.

The SWISSMEM press conference.




The VDMA press conference.

# "Diverse Indian companies have in the meantime tested the Syncro for their products."


## Interview with:
## Mr. Dirk Polchow
**Managing Director**
**iNTERSPARE Textilmaschinen**

Picture © Texdata

*The ITMA 2015 had a very high attendance and you as textile machine manufacturers were impressive in your presentation. How was the response and how satisfied were you with your participation?*

**Mr. Polchow:** I can only repeat that the ITMA and above all the response to our trade fair booth and presentation as textile machine manufacturers was simply overwhelming. We had resolved to achieve so much at the ITMA and wanted in any event to present an innovative machine as well as making a great impression with our booth and new design.

The delighted faces that we saw were a massive acknowledgement of our work. Visitors to our booth were surprised by the way we had positioned ourselves as machine manufacturers. Many of the old Babcock Textilmaschinen customers were really happy at how we had developed as manufacturers of textile machines and how we had continued in the tradition of Artos and Krantz.

*Your exhibit was the Krantz Syncro shrink dryer. Why did you display this machine and what makes it so interesting as textile equipment?*

**Mr. Polchow:** The reason why we chose the Krantz Syncro is relatively simple. In shrink drying the Syncro provides a great technical advantage over our competitors, an advantage that has its source in the basic construction of the machine. This is in turn protected by patents ensuring the competitive advantage endures.

Shrink drying is very complex in its process which incorporates two particularly significant aspects. Firstly, there is the uniformity of the drying process. And secondly the reproducibility of this process. It is in these two specific points that the Krantz Syncro displays its special strengths. Both are assured through a variety of technical refinements and through the continuous adjustment of various parameters. It allows the perfect setting to be applied for any article which then produces the same result every time. The result is a soft article with a fantastic feel and volume with optimal residual shrinkage tolerances. That applies to woven fabrics and more especially knitwear.

It is also a fact that as we are continually in dialogue with textile companies and well aware of the challenges they face, we asked ourselves which of their challenges we would best be able to satisfy. The requirements of the market and chain of supply of premium knitwear are very demanding and many textile companies need to invest great effort in meeting them.

Wrong treatment causes the article to dry too quickly, becoming as hard as a board and a successive process is required to soften it again. This costs time, energy and money without even providing a really good result. There is therefore market demand for a shrink dryer serving to deliver the highest quality.

*The India ITME is currently about to start. Is India an important market for iNTERSPARE?*

**Mr. Polchow:** India and also Bangladesh are very important markets for us. It is since ITMA that we have been receiving a growing number of orders from India. The first Krantz Syncro shrink dryer was put into operation in August by Jubilee, a customer in India and other machines are to follow shortly. An interesting aspect here is that diverse Indian companies have in the meantime tested the Syncro for their products. The individual results are more convincing than words can describe.

A reason for the buoyant demand is surely that India has set challenging objectives as an emerging industrial country. India is the Worlds leading producer of cotton and as such wants to expand its leading position in textile production. In order to achieve that textile producers want to modernize and expand their production capacity. This applies especially to exports. As the focus of several Chinese companies is on the massive domestic market textile manufacturers in other countries see great opportunities to expand exports. Obviously, quality of the articles and the productivity of the machinery are paramount in beating the competition. Premium quality for textiles while at the same time increasing productivity can only be achieved by deploying the best machines. In all our discussions, we notice that Indian textile producers look very closely at who is in the position to deliver the quality desired and we are pleased that they seek to hold discussions with us. Our technical solutions and our machine designs are persuasive.

The good level of orders is certainly based on the fact that Babcock Textile Machines, Artos and Krantz have supplied textile machines for decades to the textile industry in India and these brands have acquired an excellent reputation in India as a result of their excellent performance standards.

*Is it true that textile companies are fixated on the Artos and Krantz brands?*

**Mr. Polchow:** I am myself sometimes still surprised at the extent of the enthusiasm expressed by some textile entrepreneurs for the Artos, Babcock and Krantz machines. There are real hardliners that do not want any other machine as they have had such an unbelievably good experience. Naturally, this is qualified somewhat in the negotiations on the price but in the end the product that always sells better is the one with the good reputation or the one that delivers the best experience.

*How important is the business as a textile machine producer these days?*

**Mr. Polchow:** Importance is an aspect that we do not compromise on as all of our business and customers have equal status. The quick delivery of high-quality original spare parts remains as ever very important. If you also wish to know how serious and professional our business is conducted then I should say that we have today found our place as a textile machine manufacturer and we also have gained a very high level of acceptance from the market.

Our greatest concern is to ensure the continuation of the long tradition behind the brands of Artos, Krantz and Babcock Textile Machines as market leaders in so many areas with innovative and quality products. That means our machines are only manufactured using top-quality components in Germany and also that we continue our development all the time. It is absolutely crucial however that our customers achieve the quality of production they require and that we promised during the sales process. That also applies to productivity.

*Have you decided on a particular quantity of machines at all?*

**Mr. Polchow:** The question regarding the number of units is likely to arise in order to evaluate the productivity of a company. Our productivity benchmark however is quality rather than quantity. This also means that our company operations are not based on manufacturing a specific number of units. It may sound banal but it is central to understanding iNTERSPARE as a company. It is essential that the installation delivered does justice to our quality standards, that they are low in maintenance and result in satisfied customers. It is the core of our business. Because we are a small family-run business and our commitment is only to ourselves and to our customers.

Back however to the number of units. We are capable of producing a double-digit number of new installations and delivering them to the customers.

*Apart from new machinery you also offer several types of installation optimization. They include modification, expansion and modernization. Why is it interesting for textile companies and why don't they sell new installations when the old one gets outdated?*

**Mr. Polchow:** We, as a fair partner to our customer, are always focused on providing optimum support. There are, to be exact, more than 15,000 existent Artos, Babcock, Krantz, Stentex, Hacoba, Müller and Famatex installations in 116 countries worldwide. That is quite something. And many of these installations set up in the last 50 years by Artos, Krantz, Deutsche Babcock Textilmaschinen and Moenus continue as ever to dry and finish textiles. That shows how robust and lasting these installations are.

Especially in recent years demands on productivity have particularly increased. There is an additional demand for sustainable production nowadays. Our range of product optimizing installations provides a textile company with an excellent opportunity to succeed by leaping to a modern standard of technology by means of a manageable capital investment outlay.

*How would such a leap look like then?*

**Mr. Polchow:** One consequence of a modification may be for example improved energy efficiency or the extension of the machine to expand production capacity. Additional units also increase flexibility and economic efficiency. Equally interesting are refits as they allow installations to be adapted to changed circumstances. Worthy of note here are the refits from oil to gas heating systems or the replacement of tension chains with modern chain systems that do not require any lubrication. Large alterations such as the refitting of a tenter frame for woven articles for knitted goods are also possible.

Besides that upgrades make excellent economic sense. This is possible to achieve by converting from S5 to S7 controls or replacing a PIV transmission with individual drives. For many customers, integrating modern electronic components represents an opportunity to improve their older systems, so that their manufacture becomes more efficient and cost-effective.

Our basis for optimizing such an installation is actually a very efficient database containing all the construction drawings in digital form of all the machines delivered. This enables us to make sound recommendations quickly and constructively. The same can be said for the collaboration with Alexandra Frida; however for us is almost a habit to have these close collaborations with our customers, in fact we always try to understand their needs and to develop them in collections that are designed and personalized for every single customer.

*Have you by any chance got a particular example of a refitting ?*

**Mr. Polchow:** While there have been many such examples over the years, I always like to take the example of Vlisco. Many projects are also treated confidentially though. The Vlisco group is well known as a market leader in the manufacture of clothing fabrics for West Africa and Central Africa.

At their headquarter in Helmond we replaced an old Artos counter type dryer, built in 1971, with a new Artos 4 field Unistar tenter frame dryer in only 3 weeks. The new dryer was fitted perfectly into the existent old tenter frame installation. The refitting of the Artos Uni-Star allows Vlisco to exploit the considerable cost savings benefit of the Econ-Air energy savings system and the high performance Star jet nozzles.

It was important for Vlisco to have the refitting completed as quickly as possible to ensure production continued at the facility. The project was in turn a good opportunity to apply our specific know-how of refitting for the benefit of an innovative and excellently positioned customer.

*You mentioned the low maintenance of the machines earlier. Is that something your customers appreciate?*

**Mr. Polchow:** I wish sometimes that customers would appreciate the low maintenance, low wear and tear and low energy consumption a little more as right there they really do save hard cash. Let me give you a really trivial example that is often neglected. Using a chain that does not need oiling saves lubricants. That does not seem a lot but it adds up in the course of the years. It is more noticeable in power consumption but not all companies are aware of the exact energy data of the individual machines. In addition maintenance costs are frequently seen in combination or en bloc and not allocated to individual machines. Customers that keep accurate cost accounting records of their products are as a result even more impressed with our machines than those who do not.

*At the time of our last interview you had just inaugurated the new logistic center and now, four years later, a new production hall is in operation. You are really turning up the throttle?*

**Mr. Polchow:** We always want to progress with our development which is especially relevant as a manufacturer of textile machines and which by definition includes growth and investment. We have therefore this year once again invested several million Euros in our ability to deliver improved customer satisfaction and above all being able to respond quicker to customer requirements.

The new production hall is certainly another milestone as it is state of the art compliant and bountifully equipped with modern technology. It contains for example a Trumpf laser processing center and a high performance paint shop. Our aim is to include more of the value added in-house enabling us to respond quicker and more effectively to the demands and requirements of our customers.

Even more important than the production technology in our estimation are the employees which have also shown an increase in number to over 50 meantime. We plan our personnel requirements very conservatively and with a great deal of foresight as we very much want our employees to remain in the company over a longer period of time. Many of our employees have been with the company since the start and still exhibit great commitment and enjoyment in their work. There are in addition a great number of employees in the company who completed their apprenticeship at iNTERSPARE.

We are naturally pleased about that and the benefit our company derives, as the apprenticeship qualification also complies with our strict commitment to quality standards while creating a really good team spirit. Football is a good example of how important that is to success. It is especially significant for us as a family-run company to preserve and foster our entrepreneurial spirit and company philosophy.

*What are your next objectives?*

**Mr. Polchow:** Our next objective is to set up the operation of a very special machine from our range here in Reinbek as a production process for specific applications where the customer is able to conduct trials under controlled conditions. I personally support this development very much for two reasons. The first is the uniqueness of the machine - the exact nature of which I do not wish to divulge - that customers repeatedly refer to in discussion. And the second reason is the pleasure I feel when customers visit us from around the world. They then gain a personal impression of our production facilities and our company while testing their articles on our machine themselves. We want to be transparent for our customers while also presenting authenticity as an aspect of quality.

As a whole our objective is to proceed in our chosen direction and continue with the tradition of the superb machines of Artos and Krantz. That also applies to both the unequivocal technology leadership established in many areas and the global reputation of the trademark. The Babcock Textilmaschinen legacy is as ever a great challenge for our medium-sized company and every day all our employees do their very best to live up to it.

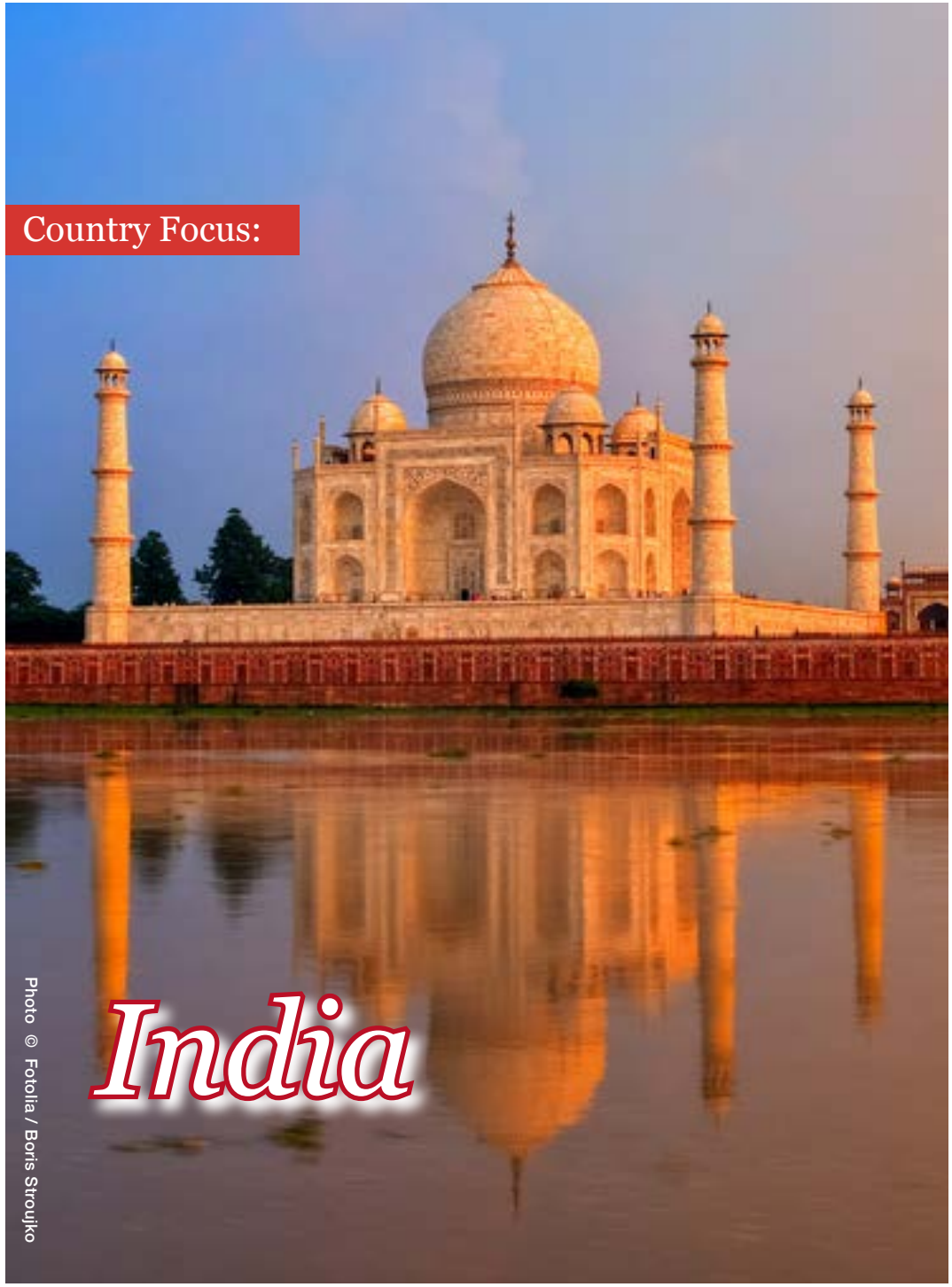



Photo © Fotolia / Boris Stroujko

**In this edition of our 'Country Focus' series we have good reason to be taking a look at India. The India ITME machinery exhibtion will start in a few days. Furthermore India is one of the most important textiles producer of the world and has ambitios goals to strenghten its position and grow in key textile markets. Let' s start.**

India, officially the Republic of India, is a country in South Asia. It is bounded by the Indian Ocean on the south, the Arabian Sea on the southwest, and the Bay of Bengal on the southeast. India shares land borders with Myanmar and Bangladesh to the east, Pakistan to the west and China, Nepal, and Bhutan to the northeast. With an area covering 3,287,263 km2 (1,269,346 sq mi) India is the 7th largest country in the world in terms of area. Official languages are English and Hindi. However, there is a very large number of recognised regional languages like for example Assamese, Bengali, Gujarati, Kashmiri, Maithili, Nepali, Sanskrit, Tamil or Urdu. The official number of different languages is 122 (more than 10.000 speakers), but scientists think there are up to 780.

By population (CIA World Factbook 2016: 1,266,883,598 est.), India is the second largest country in the world. The capital of India is New Delhi, which was designed by British architects and inaugurated on 13 February 1931. The biggest city is Mumbai with an estimated city population of 18.4 million people. Other metropolises include Kolkata (4,496,694), Chennai (7,088,000), Bangalore (8,443,675), Hyderabad(6,809,970) and Ahmedabad (5,577,940).

India is a parliamentary republic and a federation with a parliamentary system governed under the Constitution of India, which serves as the country's supreme legal document. It is a constitutional republic and representative democracy, in which "majority rule is tempered by minority rights protected by law". Federalism in India defines the power distribution between the federal government and the states. The country has a multi-party system with six recognised national parties, including the Indian National Congress and the Bharatiya Janata Party (BJP), and more than 40 regional parties. The Constitution of India, which came into effect on 26 January 1950, states in its preamble that India is a sovereign, socialist, secular, democratic republic. India is a federation composed of 29 states and 7 union territories. Since the late 1990s India's form of government has grown increasingly federal.

The legislature of India is the bicameral parliament. It operates under a Westminster-style parliamentary system and comprises the upper house called the Rajya Sabha ("Council of States") and the lower called the Lok Sabha ("House of the People").

The Rajya Sabha is a permanent body that has 245 members who serve in staggered six-year terms. Most are elected indirectly by the state and territorial legislatures in numbers proportional to their state's share of the national population.

All but two of the Lok Sabha's 545 members are directly elected by popular vote; they represent individual constituencies via five-year terms.

The executive branch of the Indian government consists of the president, the vice-president, and the Council of Ministers—the cabinet being its executive committee—headed by the prime minister. The President of India is the head of state and is elected indirectly by a national electoral college for a five-year term. The 13th and current President is Pranab Mukherjee, who was elected on 22 July 2012, and sworn in on 25 July 2012. He is also the first Bengali to be elected as President. The Prime Minister of India is the head of government and exercises most executive power. Appointed by the president, the prime minister is by convention supported by the party or political alliance holding the majority of seats in the lower house of parliament.The 14th and current Prime Minister of India is Narendra Damodardas Modi, in office since 26 May 2014. He is a leader of the Bharatiya Janata Party (BJP) and from 2001 to 2014 was the Chief Minister of the western Indian state of Gujarat. Currently Modi is a Member of the Parliament from Varanasi. Any minister holding a portfolio must be a member of one of the houses of parliament. In the Indian parliamentary system, the executive is subordinate to the legislature; the prime minister and his council are directly responsible to the lower house of the parliament.

India is a member of the Commonwealth of Nations, the South Asian Association for Regional Cooperation, the Non Aligned Movement, the G20, the G8+5, the International Monetary Fund, the World Bank, the World Trade Organisation and the United Nations.
Now let's take a look at the economy. India is classified as a newly industrialised country, one of the G-20 major economies, and a member of BRICS, the association of five major emerging national economies. In the 2015 GDP rankings for all member states of the World Bank, India is in 7th place with 2,073,543 million USD and contributing 2.8 percent of global economic output, just ahead of Italy and just behind France. The country's per capita GDP in 2015 was 6,187 USD according to IMF figures. Here, India lies in 122nd place of 185 countries in IMF statistics, behind Cape Verde and ahead of Nigeria.

GDP Growth Rate in India averaged around 6 percent in the last two decades, reaching an all time high of 10.26 percent in 2010. According to information from the World Bank, India had growth rates of 6.6% in 2011, 5.6% in 2012 and 6.6% in 2013. In 2014 this rose to 7.2%, in 2015 to 7.6% and about 7.6% is also expected for 2016. This means for the first time since 1990 India grew faster than China which registered 6.9% growth in 2015. In the latest South Asia Economic Focus from October 2016 the World Bank reported that "given its weight in the region, India sets the pace for South Asia as a whole. Its economic activity is expected to accelerate to 7.7 percent in 2017, after maintaining a solid 7.6 percent in 2016. This performance is based on solid growth contributions from consumption – boosted by normal monsoon and civil service pay revisions. Over the medium term, accelerated infrastructure spending and a better investment climate may help increase private investment and exports."

India's two major stock exchanges, Bombay Stock Exchange and National Stock Exchange of India, had a market capitalisation of US$1.71 trillion and US$1.68 trillion respectively as of Feb 2015, which ranks 11th & 12 largest in the world respectively according to the World Federation of Exchanges.

According to World Trade Organization data, India was on the 19th place on the list of exporting countries for merchandise in the world in 2015 with a share in world total exports of 1.62 percent. The WTO reports that in 2015 India exported goods worth a total of 267,147 million USD (-17%), compared with imports worth 391,977 million USD (-15%), thus generating a trade deficit of 124,830 million USD. India's most important trading partner is the EU(28) which accounts for 16.9% of exports and 11.2% of imports, followed by the USA with 15.2% of exports. Other important export markets for Indian products are United Arab Emirates (11.3%) and Hong Kong China (4.6 %). Other major suppliers of imports to India are China (15.8%), Saudi Arabia (5.5%) and Switzerland (5.4%). Major exports include petroleum products, textile goods, jewellery, software, engineering goods, chemicals, and leather manufactures. Major imports include crude oil, machinery, gems, fertiliser, and chemicals. India has classified and tracked its economy as three sectors — agriculture, industry and services.

Agriculture and allied sectors like forestry, logging and fishing accounted for 17% of the GDP and employed 49% of the total workforce in 2014. Major agricultural products include rice, wheat, oilseed, cotton, jute, tea, sugarcane, and potatoes. Largest share in the GDP has the services sector accounting for 57% in 2012, up from 15% in 1950. Industry accounts for 26% of GDP and employs 22% of the total workforce. The 487.3-million worker Indian labour force is the world's second-largest, as of 2013.

And this brings us to the textile industry. According to the WTO statistics textile exports of India were valued at 15348 million US$ in 2012, 17417 million US$ in 2013 (+13.4%), 18339 million US$ in 2014 (5.3 %) and 17289 million US$ in 2015 (-5.7 %). Clothing exports were worth 13928 million US$ in 2012, 15542million US$ (+11.6 %) in 2013, 17742million US$ (+14.2 %) in 2014 and 18254 million US$ (+2.9 %) in 2015. Between 2011 and 2015 clothing exports added 25% which is a considerable jump. Both sectors together contribute to more than 19.6 % of India' s manufacturing exports, 13.3% of total merchandise exports and also 1.7% of the Gross National Product of the country. In 2015 India's textile exports makes up 6.0% of the world textile exports. And Clothing exports in the same year makes up 4.0% (18254 / 453894 million US$).

The textile industry as a whole contributes about 4 per cent to the country's GDP and 14 per cent of the industrial production. India's textile industry has transformed from a declining sector to a rapidly developing one in recent years. During the period from 2004 to 2008, total investment into textile sector increased by 27 billion dollars.

Ludhiana produces 90% of woollens in India and is known as the Manchester of India. Tirupur has gained universal recognition as the leading source of hosiery, knitted garments, casual wear and sportswear.
Expanding textile centres such as Ichalkaranji enjoy one of the highest per capita incomes in the country. India's cotton farms, fibre and textile industry provides employment to 45 million people in India.

As many other countries India has a Ministry of Textiles. It is responsible for the formulation of policy, planning, development, export promotion and regulation of the textile industry in India. The Ministry has the vision to build state of the art production capacities and achieve a pre-eminent global standing in manufacture and export of all types of textiles including technical textiles, jute, silk, cotton and wool and develop a vibrant handlooms and handicrafts sector for sustainable economic development and promoting and preserving the age old cultural heritage in these sectors. In July 2016 Smt. Smriti Zubin Irani took over as the new Union Textiles Minister. Speaking on the occasion, the new Minister thanked the Honourable Prime Minister Shri Narendra Modi for placing her in charge of a sector that employs the largest number of people, next only to agriculture. She said that the sector has a lot of unrealized potential in terms of skilling and employment, and that it can play a very important role in scaling up the 'Make In India' vision of the Prime Minister.

The Make in India initiative was launched by the Indian Prime Minister in September 2014 as part of a wider set of nation-building initiatives. The plan is that 'it had to (a) inspire confidence in

India's capabilities amongst potential partners abroad, the Indian business community and citizens at large; (b) provide a framework for a vast amount of technical information on 25 industry sectors; and (c) reach out to a vast local and global audience via social media and constantly keep them updated about opportunities, reforms, etc.'

A workshop titled "Make in India – Sectorial perspective & initiatives" was conducted on 29th December, 2014 under which an action plan for 1 year and 3 years has been prepared to boost investments in 25 sectors. Textiles and Garments is oneof the sectors of the Make in India initiative. The corresponding website makeinindia.com lists some facts about the current situation in textiles and garments. India is the second largest textile fibre producer in the world and the largest cotton and jute producer in the world. In the 2015-16 season nine million tonnes of fibre have been produced. Furthermore India has the second largest textile manufacturing capacity globally and accounts for 18% of world's spindles and 9% of world's rotor.

The website also gives good reasons to invest in India's textile industry. For example they highlight the abundant availability of raw materials such as cotton, wool, silk, jute and manmade fibres or the comparative advantage in terms of skilled manpower and cost of production over major textile producers across globe.

What is also of major importance is the availability of well trained workers. Here the Integrated Skill Development Scheme aims to train over 2.675 million people up to 2017, covering all sub-sectors of the textile sector-textiles and apparel, handicrafts, handlooms, jute and sericulture. The Centers of Excellence focused on testing and evaluation as well as resource centers and training facilities have been set up. There are more reasons on the website.

However, one of the best reasons to invest in India is still the assumed growth in the domestic market which bases on rising per capita income, higher disposable incomes, favorable demographics and shift in preference for branded products. The changing lifestyles and an increasing demand for quality products are set to fuel the need for apparel. And India also wants to grow in export with costs lower than China and reliability higher than Bangladesh. China's bulging domestic market will also need more attention than earlier from its textile and apparel manufacturers which will probably decelerate their export growth. Global buyers are looking towards sourcing destinations and are diversifying their sourcing. Even though exports from the competing countries like Vietnam, Bangladesh, Cambodia and maybe in near future Ethiopia will continue to grow, India stands to gain most in the long run with abundant availability of skilled manpower and a bigger and well integrated supply chain from fiber to finished product.

On the other hand there is a large gap between the export figures of India and China. While India stands for 4% of World's exports in garments, China is responsible for 38% which correlates with 174,082 million US$ in value.

Please remember: India is the number one of the World in cotton production with 6.25 million tons in the 2015/2016 season according to ICAC. And India has the second largest installed capacity of spindles in the world after China, with around 50 million spindles (2015) across 1,300 mills. According to the China Cotton Textile Association, China posesses around 120 million spindles. Although India has a large share in world trade of cotton yarn, its trade in garments is very poor in comparison to the potential. It seems to be that the textile industry has neglected the processing of the cotton yarn for their own account leaving the value generated in the processing chain to other countries. If India seriously has the target to follow China in terms of export volume, the textile companies of the country have to do large investments in newest machines along the textile value chain.

Following a presentation by Arvind Singhal, Technopak, India, given on the ITMF Annual Conference 2016 at Jaipur, India's T&A industry was about USD 104 billion in 2015 (including both domestic consumption and exports) and is projected to grow at a CAGR of 9% to touch about USD 238 billion by 2025 with domestic market being the bigger growth driver (~10% CAGR). India's domestic apparel market is expected to grow at a CAGR of 10%. The growth will be driven by increases in both the per capita consumption and the average spend on apparel. Currently, menswear is the biggest segment within the apparel market; however, kidswear and womenswear are growing more rapidly. It is estimated that, within another decade, the womenswear category will rival menswear in dimension.

The Home Textiles market is expected to grow at a CAGR of 8% over the next decade. Arvind Singhal lists some major growth drivers for India's T&A industry: First is a higher focus from Gov't of India on "manufacturing" sector, with Textiles being one of the big focus sectors. Second is a relatively complete and robust fibre – finished product value chain within India. Third are competitive labour & energy costs and fourth the strong growth in domestic T&A consumption, driven by multiple factors.

The focused and favorable policies instituted by the government should give the industry a fillip and there are a lot of initiatives to strengthen textile production and encourage this industry to cater to the domestic and international market efficiently.

For example the Technology Upgradation Fund Scheme (TUFS)TUFS has infused investment of more than USD 41.33 billion in the industry. TUFS supports modernisation and upgradation by providing credit at reduced rates and capital subsidies. The Scheme for Integrated Textile Parks (SITP) provides funding for infrastructure, buildings for common facilities like design & training centre, warehouse, factories as well as plant and machinery. Till now 74 textiles parks have been approved and there are at various stages of implementation. The investment of USD 692 million is sanctioned by the government which will create 66,000 jobs. Furthermore the Integrated Processing Development Scheme (IPDS) is being implemented to make Indian textiles more competitive and environment-friendly.

The Integrated Skill Development Scheme (ISDS) plans to bridge that skill gap by training 1.5 million people for which USD 300 million has been allocated by the government. In June 2016 the Union Cabinet has given approval for a special package for employment generation and promotion of exports in Textile and Apparel sector. The move came in the backdrop of the package of reforms announced by the Government for generation of 10 million jobs in the textile and apparel industry over next 3 years. The steps will lead to a cumulative increase of US$ 30 bn. in exports and investment of US$ 10 bn. over next 3 years. These are just a few examples. There are a lot more initiatives.

The association for textiles in India CITI writes on its website that 'the efforts of CITI for obtaining policy inputs from the Government targeted at the overall growth of the textile and clothing sector have helped in shaping Government initiatives like The Technology Upgradation Fund Scheme, The Technology Mission on Cotton, the Debt Restructuring Package and significant rationalization of the excise duty structure for the sector.'

CITI has its roots in the Indian Cotton Mills' Federation (ICMF) established in March 1958. In May 2005, it was broad based to represent the entire textile sector with the formation of Confederation of Indian Textile Industry (CITI), a Company registered under Section 25 of the Companies Act 1956. The Confederation is an apex industry chamber representing all the sub sectors of the textiles sector through its Member Associations, Associate Members and Corporate members.

As of now, CITI has 11 Member Associations as regular Members, 4 other industry associations as Associates Members and 16 Corporate Members.

The most important textile machinery fairs in India are the India ITME in Mumbai and the Knit-Tex in Tirupur, which is Asia's largest technology fair for knitting. The next India ITME will open in a few days on 3rd December 2016 and the next KNIT-TECH 2017 will be held in February.

## Conclusion

That concludes our Country Focus report on India. We have paid a lot of attention to the growth prospects of the country and have seen the extraordinary potential of India. At WorldTextileSummit 2011 Prof Barry Eichengreen looked into the crystal ball and painted a picture that India will become the economic powerhouse of the World.

At least for the textile and apparel industry that seems to be realistic. However, India has to do its homework and has to turn the plans into reality. The 10th India ITME will serve as an ideal convergence point to do so.

# Topics of the next issue 1 /2017

TOP STORY:

**Sustainability**

Sustainability – review 2016 and outlook
News from TE Conference in Hamburg
Recycling
**Textile Machinery focus:** Nonwovens
Cards & Web layers

Review India ITME,
Domotex 2017,
Heimtextil 2017

***Interview***

***Preview: INDEX 2017***

Research: Nonwovens
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