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Preview: Techtextil & Texprocess 2013

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From the editor

Dear Reader,

We are sure you are really looking forward to the second quarter of the textile year just as much as we are as it is marked by the three large upcoming trade fairs.

The opening fair is at the end of May at the ITM 2013 in Istanbul. The event organiser justified the fixture in that demand in Turkey had nowhere near been covered last year. It sounds very promising and to a certain extent a little too confident. We hope that the high expectations will be fulfilled here. We take a look at the upcoming ITM and also at Turkey as a textile country.

At the beginning of June, the Shanghaitex and the Techtextil / Texprocess in Frankfurt are both on at the same time.

The Shanghaitex has lost a little of its enormous charisma in the Asian market as a result of the biennial ITMA Asia fixture, however may be able to profit in this year from the timing of the event. The present Chinese FYP (2011-2015) has reached its halfway point and is calling for investments in sustainable production and more automation. Rising wages underline this necessity. This is not a bad starting point for European textile machinery manufacturers to cultivate contacts outside ITMA Asia and to conclude the one or other business transaction.

Top Chinese purchasers might also be in Frankfurt at this time as China intends to expand into the market for technical textiles and to invest in high-tech. Attending the flagship Techtextil trade fair in Frankfurt is surely therefore an absolute must. The event has successfully established offshoots including in China but the most significant innovations are expected every two years in Frankfurt.

Brand director Micheal Jänecke describes in the extensive TexData interview what we can expect from Techtextil 2013 in detail.

What should not be missed is the Texprocess that takes place parallel to Techtextil and promises to provide just as many innovations. For example in the software area. Ever faster development cycles and ultra short time-to-market for collections demand software that shortens and optimises the processes. We will be taking a closer look in our separate report on what the software manufacturers are able to offer in the interaction of designers, brands and production companies.

We hope that through our reports we have been able to stimulate your interest in the parade of innovations and wish you all much success in your business. Your valued opinion is as always welcome at redaktion@texdata.com.

Best regards
Oliver Schmidt

Techtextil 2013 is a must!

From 11 to 13 June 2013, Techtextil will present the latest innovations from the fields of technical textiles, nonwovens and functional apparel textiles all together at the same time and place in Frankfurt am Main.

The next edition of Techtextil will be bigger than ever before. The number of exhibitor registrations for the trade fair is significantly higher than at the comparable time two years ago. “Never before has the booking situation for Techtextil been so good. Following the highly successful 2011 event, we are once again heading for a record fair in 2013”, says Detlef Braun, Member of the Executive Board of Messe Frankfurt. Thus, Techtextil continues to hold its position as the worldwide leading international platform for technical textiles, nonwovens and functional apparel textiles. To take place concurrently with Techtextil, the Texprocess trade fair will once again present cutting-edge technologies for processing textiles and other flexible materials.

The coming Techtextil is also distinguished by an increase in the number of exhibitors from outside Germany with more companies having registered from, e.g., India (+254%), Poland (+66%), Turkey (+14%) und Japan (+10%) by the beginning of January.

The most important new and returning exhibitors include Kaneka Belgium (Belgium), DyStar (Germany), Kufner Textil (Germany), J & D Wilkie (Great Britain), Huntsman Advanced Materials (Switzerland), Mogul Tekstil (Turkey) and Mitsubishi Rayon Co. (Japan).

The number and size of joint stands also remains at a high level. “To date, we have received registrations for eleven national pavilions from Belgium, China, France, India, Italy, Portugal, Spain, Taiwan, the Czech Republic, the UK and the USA”, says Olaf Schmidt, Vice President Textiles & Textile Technologies. “Thus, visitors to Techtextil will be able to see the sector’s growth markets concentrated in one place.”

The success of Techtextil is based on an interdisciplinary spectrum of products. Technical textiles, nonwovens and the associated textile technologies are used in many branches of industry. Techtextil’s twelve areas of application and eleven products illustrate the diversity of uses and products to be found in the sector.

They include building & architecture (Buildtech), sport and outdoor apparel (Sporttech, Clothtech), industrial textiles (Indutech), medical technology (Medtech), automobile, railway and aviation (Mobiltech) and packaging technology (Packtech). Flanking symposiums, competitions and innovation awards create additional value for both visitors and exhibitors.

Mr Francesco Marchi, Director General of EURATEX said at the Techtextil press conference in January: “I truly believe that the combination of Texprocess and Techtextil will generate synergies for the visitors providing them a unique spectrum of products covering the entire textile value chain. Attending in June both Fairs is a must for everyone in the textile & clothing sector who wants to be fully equipped to meet the challenges of the future.”

Techtextil will show a wide range of innovations in all areas of application. For example in field of automotive (Mobiltech) visitors will be able to see the fabrics to be used in tomorrow’s seat covers, roof linings, door panels and foot mats. Some of them are build with new fibers like Tencel or made from recycled polyester. Another focus will be on lightweight textiles with latest developments for different applications.

As in previous years, the leading international trade fair will be accompanied by the 17th Techtextil Symposium and the 7th Avantex Symposium with interesting lectures on the latest trends in the sector.

High-ranking international speakers will present the newest product, material and technological developments. EURATEX - European Apparel and Textile Confederation - has once again agreed to be the patron of the two symposiums. The detailed programme will be published in April.

“The Techtextil and Avantex Symposiums have been the main platforms for manufacturers from the textile and apparel manufacturing industries and their users for many years”, explains Michael Jänecke, Director Brand Management Technical Textiles / Techtextil, and adds, “What makes our programme so special is the orientation towards practical applications. All presentations focus on specific uses for the innovation.” The lectures and discussions revolve around the latest global trends, such as functionality, lightweight construction, mobility and sustainability. Altogether, visitors and exhibitors can choose from 66 different Techtextil and Avantex lectures.

World leading textile machinery manufacturers will present latest innovations

A.Monforts Textilmaschinen (Hall 3.0 / Booth F01) will be introducing its latest, second generation, Eco Applicator system for the application of liquors or functional chemicals and designed for a wide range of technical textiles applications: complying with the VDMA’s Blue Competence sustainability initiative.

It has been designed to apply a liquor to one side of the fabric; to apply a liquor to both sides of the fabric; to apply different liquors to either side of the fabric; or to apply two different liquors consecutively to a single side of the fabric. The system is also suitable for finishing narrow fabrics such as bands and ribbons. Also on display will be the latest Twin Therm chamber of the Montex 8000 stenter and a new heat recovery module ‘Eco booster HRC’.

Monforts Eco Applicator

Autefa Solutions Cross lapper

AUTEFA Solutions (Hall 3.0 / Booth H33) will introduce a new concept for fiber recycling. Dr. Stefan Schlichter, Managing director, explains:" With our fiber recycling concept we offer all necessary components from one single source for the nonwoven industry and thus ensure that all process steps are realized effectively and competently. The core components of our recycling line are high-performance fiber balers as well as a compact tearing machine." AUTEFA Solutions delivers complete lines as well as individual machines for nonwovens manufacturing. Application fields are the production of artificial leather, filter products and paper-machine felts, automotive felts, geotextiles, floor coverings, felts for insulation and nonwovens for the hygiene industry.

DiloGroup (Hall 3.0 / Booth H31,) will provide extensive information about production lines made in Germany and recent machine concepts from the DiloGroup companies. A major focus of the new equipment is to improve operation efficiency, web quality and uniformity with positive effects on all staple fibre bonding processes. All these elements are part of the "Dilo – Isomation Process" and aim at an even web mass for reduced fibre consumption as raw material is the biggest cost factor in textile production. One machine contributing to this process is the dosing opener DON manufactured by DiloTemafa which includes a fine opening stage. It delivers the fibrous material continuously and homogeneously to the card feeder. Another step to improve evenness is the card feeder MultiFeed designed by DiloSpinnbau which is available in working widths up to 5 m.

DILO - MultiFeed

Groz-Beckert - The car at the Groz-Beckert booth is cut open at the crucial parts, so that nearly all applications are visible.

In line with the trade fair motto „Innovations for life“ **Groz-Beckert** (Hall 3.0 / Booth F03) presents at Techtextil practice-oriented innovative applications. Technical textiles in automobiles assume important functions in terms of safety, comfort, design and acoustic. Today 35 m2 resp. 28 kilo of textiles are used per vehicle. Besides woven and knitted fabric, the classical material for the interior, especially nonwovens play a central role here. Groz-Beckert, the world’s leading provider of industrial machine needles, precision parts and fine tools as well as systems and services for the production and joining of textile fabrics, focuses on technical textiles in automobiles and will show them in a surprising way. This diversity of textiles will in an unusual way be demonstrated on the basis of a car. It is cut open at the crucial parts, so that nearly all applications are visible. For manufacturer of nonwovens the Board Master System will be presented. It is an innovative and money-saving system solution enabling safe and efficient needling of needle boards.

KARL MAYER (Hall 3.0 / Booth E18) will be presenting two new innovations. The Warp Knitting Business Unit has developed acoustic-damping, warp-knitted spacer textiles, which the manufacturer will integrate effectively into the design of its stand. A monofilament yarn is used in the spacer layer and the outer surfaces are made from a textured yarn – a clever construction that provides effective sound absorption. And the Technical Textiles Business Unit will be showing a new sun-screening system, which is designed primarily for greenhouses but can also be used in the home. The solar textile is marketed under the name of OMBRA-DLS®. OMBRA-DLS® comprises an elastic, warp-knitted grid-like textile, which combines elastic warp yarns with slit-film yarns that are inserted from a magazine weft insertion unitWith these two market-oriented textile innovations for providing acoustic insulation and sun protection, KARL MAYER is once again showing that it is an expert service-provider and project partner in the field of product development.

Karl Mayer - HighDistance® machine HD 6 / 20-65 EL double-bar raschel machine

Oerlikon - Alma CC4

Oerlikon Textile (Hall 3, Stand A03) and its Oerlikon Barmag and Oerlikon Neumag brands will be showcasing solutions for the efficient production of innovative yarns for very special applications. To this end, the company will however also be premiering new nonwoven production processes: in the future, Oerlikon Neumag will be offering systems for the manufacture of bitumen and underlay roofing membranes and with geotextiles as a total solution. With systems and equipment for manufacturing substrates for bitumen roofing membranes, for underlay-roofing membranes and also for geotextiles, Oerlikon Neumag, one of the leading suppliers of nonwoven technologies, offers the complete spunbond process – from polymer granulate all the way through to rolled goods. Oerlikon Barmag will present the WinOro winder for winding of viscose yarns, rayon, aramid, polyethylene or similar materials. Depending on de-sign, the automatic precision take-up head for specialty yarns winds – at a speed of up to 1,000 m/min – baler twine of up to 25,000 denier, PVC-coated multifilament yarn for various industrial ap-plications and also textured artificial turf filaments. Oerlikon Saurer will be exhibiting the Allma Technocorder TC2. Oerlikon Textile Components will also be showcasing state-of-the-art solutions for staple fiber and filament spinning equipment.

Dornier - The rapier weaving machine P1 PTS 4/S C, nominal width 220 cm, with a heavy filter fabric for the technical sector

Innovative and sustainable – this is how **DORNIER** (Hall 3, Stand D01) presents itself at this year's Techtextil in Frankfurt. The Bavarian-Swabian machine engineering company, already renowned worldwide for its versatile rapier and air-jet weaving machines, specializes more and more in machine developments for woven products meeting the highest functional standards. Intensified development activities have not only been brought to market maturity for technical textiles for fiber composite materials. In addition to the leno weaving process (DORNIER EasyLeno®), the DORNIER Open Reed Technology (ORW) for „multiaxial" usage has been further developed. Integrating this technology in a wide variety of applications has opened up new options in surface structures while at the same time improving functionality, e.g. for lightweight construction, in the transport and construction industries or in general protection functions.

(For detailed and latest information about exhibitors and their show presentation please visit:
http://www.texdata.com/48.techtextil-texprocess-2013.html)

Techtextil and Avantex Symposiums with innovative themes

The Techtextil Symposium begins on Tuesday, 11 June, with a lecture block on 'Textile technology goes sustainable' chaired by Dr Thomas Stegmaier of ITV Denkendorf – Institute of Textile Technology and Process Engineering. The subjects to be covered include sustainable fibre production with bacteria and fungi and environmentally friendly polyurethane emulsions for water-repellent textile finishes. The second lecture block to be held on the Tuesday of the fair is entitled 'Towards sustainable technical textiles'. Dr Klaus Jansen, Director of the Textile Research Board (Forschungskuratorium Textil e.V.), will chair the lectures on bio-degradable PLA tapes, solar-thermal active membranes and other innovative subjects.
On Wednesday, 12 June, Braz Costa of CITEVE, Centro Tecnológico das Indústrias téxtil e do Vestuário de Portugal, will chair lectures on 'Smart materials and flexible electronics' covering, inter alia, new heatable and electroluminescent textiles. Techtextil Symposium closes on Thursday with a special lecture block on new areas of application for 'Textile reinforced concrete', which will be chaired by Dr Silvio Weiland of Torkret Substanzbau AG and Dr Norbert Will of RWTH Aachen University, Institute of Structural Concrete.

Other future-oriented subjects at the Techtextil Symposium include: 'New developments in fibres and fibre-based composites', 'Finishing and surface modification,' 'Lightweight technical textile structures' and 'New processes'. The various lectures and discussions will be chaired by renowned experts Dr Jan Laperre of Centexbel Gent, Zwijnaard, Belgium, Prof Marijke Mollaert of Vrije Universiteit Brussels / Belgium and Prof Roshan Shishoo of Shishoo Consulting AB, Askom, Sweden.

The Avantex Symposium is concerned with innovations in the apparel industry and research. The main theme on Tuesday, 11 June, is 'Smart textiles – from research to products'. Dr Hartmut Strese of VDI/VDE Innovation + Technik GmbH and Sabine Gimpel of TITV Textile Research Institute (Textilforschungsinstitut Thüringen-Vogtland e.V. – TITV), Greiz, will chair the two lecture blocks, which include lectures on illuminating textiles, textile sensors and new, multi-functional auxetic structures. The symposium closes on the Wednesday of the fair with a lecture block on 'Apparel designed for function and protection'. Among the subjects covered will be heat-sensitive additives and breathable membranes.

The Techtextil and Avantex Symposiums will be held in the Congress Centre Messe Frankfurt and are split into morning and afternoon sessions, each with six lectures. See below for some admission prices. The individual lecture blocks have been compiled by a programme committee of internationally renowned experts. All lectures and contributions will be translated simultaneously into English and German.

Awards for innovations and students

Another important part of the complementary programme comprises the Techtextil and Avantex Innovation Awards, which are given for outstanding achievements in the research, development, material and product development and new technologies categories. The winners have been elected at the end of April. (Please have a look at the article ***"Techtextil and Avantex Innovation Prizes 2013 for ten outstanding developments"*** to get more information)

Organised by Messe Frankfurt with the support of the international Tensi-Net association, the 12th 'Textile Structures for New Building' Student Competition focuses on innovative ideas and concepts for building with textiles and textile-reinforced materials. Worth a total of € 8,000, the awards are given in the following categories: micro and macro architecture, the environment and ecology, composites and hybrid structures. New this year is the 'Textile Exhibition Stand' special award, which carries prize money of € 2,000.

(Please also read the ***preliminary report on Texprocess 2013*** *as well as the* ***interview with the Techtextil Brand Director Michael Jänecke****.)*

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„Interview with Michael Jänecke“

(by Oliver Schmidt)

Michael Jänecke

Director Brand Management
Technical Textiles / Techtextil

Mr Jänecke, Techtextil is one of Messe Frankfurt's most successful fairs. You have created a leading fair and, with the various product groups and areas of application, practically supplied the international standard for a categorisation. Moreover, with Techtextil trade fairs in North America, China, Russia and India, you have founded successful offshoots at the same time as setting new exhibitor and visitor records in Frankfurt year for year. Take a brief look back at the development of the fair and the market for us. What was the idea and what do you think of the way it was implemented?

Michael Jänecke: The idea for a fair for technical textiles came about in the mid-eighties. At that time, there was no proper fair on this subject. Instead, companies made presentations at a variety of different events, such as Heimtextil in Frankfurt or K in Düsseldorf. Looking back, I would set the following milestones:
Techtextil made its debut in 1986 with 195 exhibitors, and has been held biennially since 1987. In close cooperation with the industry, we defined twelve areas of application for technical textiles – from Agrotech to Sporttech – and developed pictographs for them in 1997. This user-oriented concept has been continuously up-dated since then and is now a permanent part of Techtextil. Moreover, the terms have also become part of the general vocabulary used in the sector. After holding the first Techtextil outside Germany (Japan) in 1992, we have continuously exported the fair (since 1998) so that Techtextil is presently held at five venues outside Western Europe.

In 2011, Texprocess, Leading International Trade Fair for Processing Textile and Flexible Materials, was held concurrently with Techtextil at Frankfurt Fair and Exhibition Centre for the first time. Adding all this up, I believe I can justly say that Techtextil has been a success story from the initial idea to the current positioning.

And could you now take a look into the future. What can we expect from Techtextil 2013?

Michael Jänecke: This year's Techtextil will be the biggest ever both in terms of exhibitor numbers and the amount of exhibition space sold. Never before have we had so many requests for additional exhibition space as in this year. This is a very positive sign because it shows that companies want to make more striking and better presentations. Naturally, it is too early to say anything about visitor numbers. However, very great interest has been shown by the media and we have received more inquiries than ever before for pre-fair reports, interviews, etc. And we are increasingly being told that many companies and associations are planning to hold meetings at or on the occasion of Techtextil. Therefore, I am personally looking forward to a very intensive, high-grade event thanks also to the fact that it is being held concurrently with the second Texprocess.

The motto of Techtextil is 'Innovations for life'. Are you relying on Techtextil's good reputation as the leading trade fair and on the innovativeness of the exhibitors? Or do you know more that you could tell us to whet our readers' appetite?

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Techtextil 2013
Frankfurt/Main, Germany
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Michael Jänecke: At this stage in early April, it is still too early to be specific. However, from our discussions with exhibitors and journalists, we know that many companies plan to present new products and innovations. The experience of the last Techtextil in 2011 showed that companies and research institutes have become more open in this respect. This is important with regard to the position of the fair in the market and new-customer acquisition. A positive signal in this direction is the increasing number of entries for the Techtextil and Avantex Innovation Awards. The international jury of experts reviewed all entries and made its decision at the end of March. The ten awarded products include an innovative textile waterbag, new medical bed sheets, a biogradable and compostable agro textile, new technologies for electronics in yarns as well as other new fabrics and masterbatches for multiple purposes. The award-winning products will be on show during Techtextil in a special exhibition.

In which product groups do you expect the most innovations to be?

Michael Jänecke: That is very difficult to say. However, in purely quantitative terms, the most innovations come from the materials segment.

And in which product groups can we expect to see particularly big leaps forward or, perhaps, even a revolutionary new idea?

Michael Jänecke: I myself am very keen to see what our exhibitors will be presenting at the fair in the way of new products. The results of our Innovation Awards indicate that many new products can be expected, especially in the applications and materials segments.

In 2009, there were several innovations in the fibres segment and the Techtextil Innovation Award Techtextil was actually given to a fibre manufacturer, Outlast, for the first climate regulating polyester fibre with phase change material (PCM). Are you expecting more innovations in the fibre segment and what form could they take?

Michael Jänecke: There have been many exciting new developments in the past. Topical at present are natural fibres and, possibly, material blends with man-made fibres. Naturally, there is an on-going trend towards higher performance yarns for technical applications. We must simply wait and see what is on show at the fair.

Sustainability is a megatrend and one of the main challenges facing the textile industry. In the apparel sector, the shift towards greater sustainability is being driven by environmental organisations and critical consumers. However, sustainability is also very important at Techtextil, e.g., within the framework of the symposium. Why is sustainability such an important subject for technical textiles and what should visitors look for in terms of product sustainability?

Michael Jänecke: Technical textiles are often used in combination with other materials, for example, to reinforce automobile or aeroplane components and in protective clothing for steel workers or bullet-proof vests for the security forces. In such cases, it is important that the material combination is durable at the same time as account is taken of recyclability and, if appropriate, biodegradability. This is generally done because, in most cases, product development is conducted on an interdisciplinary basis. In other words, the customer works together with material and technology manufacturers on the development of a product from the initial idea to the finished article.

A good example of sustainability is natural fibres on the basis of fungi, bacteria and cellulose, which have an antibacterial effect and are characterised not only by greater stiffness but also by biodegradability. After many years of intensive development, such fibres are now used for a wide range of applications, from agriculture to the automobiles and apparel. Sustainable in the sense of alternative energy generation are, for example, textile dye-sensitized solar cells, which are becoming increasingly suitable for micro-systems with solar cells as the power supply.

'Smart textiles' is also a buzzword that is heard more frequently these days and you have included a slot for this subject at the Avantex Symposium. Can you give us some examples of smart textiles and say in which areas of application visitors can find textiles of this kind?

Michael Jänecke: The lecture blocks of the Avantex Symposium are a good example of this. Under the heading 'Smart textiles: from research to products', speakers will talk about new luminous textiles, textile sensors, e.g., pressure and heat sensors, and new heat-sensitive additives and breathable membranes. However, smart textiles have also found their way into the apparel industry. Thus, new, heated and electroluminescent textiles are ideal for generating and storing energy. Another example of smart textiles is to be found in the field of textile construction: the industry and researchers have developed a fabric mesh with integrated conductors, which can detect break-in attempts when fitted in the façade of a building.

This year, you are launching a new product group called 'Functional Apparel Textiles' instead of 'Avantex – Innovative Apparel Textiles'. Why have you made this change? What reception has been given to the new group so far and what are your expectations with regard to the fair and market developments? Has the focus been changed?

Michael Jänecke: As you rightly said at the beginning, Techtextil is an extremely innovative fair. Hence, it is no longer necessary to emphasise a particular product group in this way. If this emphasis also refers to a specific product group, it limits the spectrum covered. Therefore, after numerous discussions with our customers and the Exhibitor Advisory Council, we decided to call this product group 'Functional Apparel Textiles'. There were three main reasons for this.

Firstly, it enables us to take better account of growth in the field of functional apparel textiles. Secondly, visitors will be able to find companies specialising in functional apparel textiles even faster. And, thirdly, we have created a close link to the range of products to be seen at Texprocess. The echo to date indicates that this was the right decision. We have received numerous applications for this product group and I am looking forward very much to seeing what exhibitors in this segment have on offer.)

Is this change of product-group name also aimed at reaching new target groups?

Michael Jänecke: On the exhibitor side, yes. On the visitor side, we have always targeted the apparel industry and know that many companies, such as Adidas, Boss, Nike, Reebok and S.Oliver, visit Techtextil to find new materials. Thanks to the concurrent Texprocess, which is also of interest to apparel manufacturers, we expect an increasing number of visitors from this segment.

German and West European manufacturers hold a very large share of the world market for technical textiles. Other countries, which already hold a huge share of the apparel market, such as China, India and Turkey, see that the market is expanding and want part of it, too. Is this noticeable among exhibitors and visitors? And in which segments of the technical-textiles market are East Europe and Asia making headway. Are they attacking West Europe's cash cows?

Michael Jänecke CV

Michael Jänecke, a German citizen, is a graduate in business management and was trained in a textile company.

He has managed the export department of a technical textile manufacturer and later held the position of department manager responsible for order processing.

In October 1992 he became the Director of the Techtextil Frankfurt fair at Messe Frankfurt and, since 1997, he is responsible for the Brand Management of Techtextil worldwide with six shows at present.

Techtextil is the largest and most successful trade fair for technical textiles and nonwovens throughout the world. It represents the entire value chain of the sector and Michael Jänecke has helped to substantially develop the fair by introducing and establishing a very successful new marketing system.

In this function, he contributed to several EU-funded projects in the field of technical and high performance textiles.

Michael Jänecke: Naturally, this development is reflected by the exhibitor and visitor figures. There will be more Asian exhibitors this year than ever before, including companies from China and India. But not only. More and more companies that produce apparel, home and household textiles are showing an interest in technical textiles. However, it is a long way to becoming a producer of technical textiles – and calls for some big investments. European manufacturers have a significant lead in this field because they branched out in this direction back in the eighties.

Both exhibitors and visitors say the combination with Texprocess is important. Messe Frankfurt likes to underscore the synergistic effects between the trade fairs. Can you give us examples of how a visitor can take advantage of these synergies?

Michael Jänecke: There are several ways. Texprocess presents processing technology covering the spectrum from design, cutting, sewing, embroidery and knitting to finishing, logistics and IT. At Techtextil, you will find not only materials but also manufacturing technologies for technical textiles. In particular, manufacturers of functional apparel, upholstery, mattresses, home textiles, filters and packaging benefit from the complete textile value chain represented at the fair. Moreover, both fairs offer wide-ranging conferences that enable visitors to put together individual programmes. Another aspect is time. Texprocess visitors can concentrate on their fair on the Monday because Techtextil does not begin until a day later, the Tuesday.

Both trade fairs end at the same time, Thursday, 13 June. There is much to be seen and visitors can attend both events with just the one admission ticket. However, they should make sure they stay long enough because one day is certainly not enough to obtain an overview and still hold discussions.

Techtextil is always highly praised by both visitors and exhibitors. 96 % of visitors saying they are satisfied with the fair in 2011 is reminiscent of election results in the former East Germany. What is your recipe for success and how do you plan to develop the fair in the future?

Michael Jänecke: We conduct an open and constructive dialogue with customers, advisory councils and the journalists. The results of our exhibitor and visitor polls, as well as our own market observations, give us a very good basis for the future development of the concept, and for expansion of the Techtextil brand. Naturally, this is supported by the positive overall development of the market for technical textiles.

For our readers in the classic apparel sector – why should they not miss Techtextil under any circumstances?

Michael Jänecke: ...because there are always new materials, processes and technologies to be discovered there and they are not to be found at traditional apparel shows. At the request of the industry, Techtextil is held every two years. Thus, the focus is on properties and functionality and not on seasonal aspects.

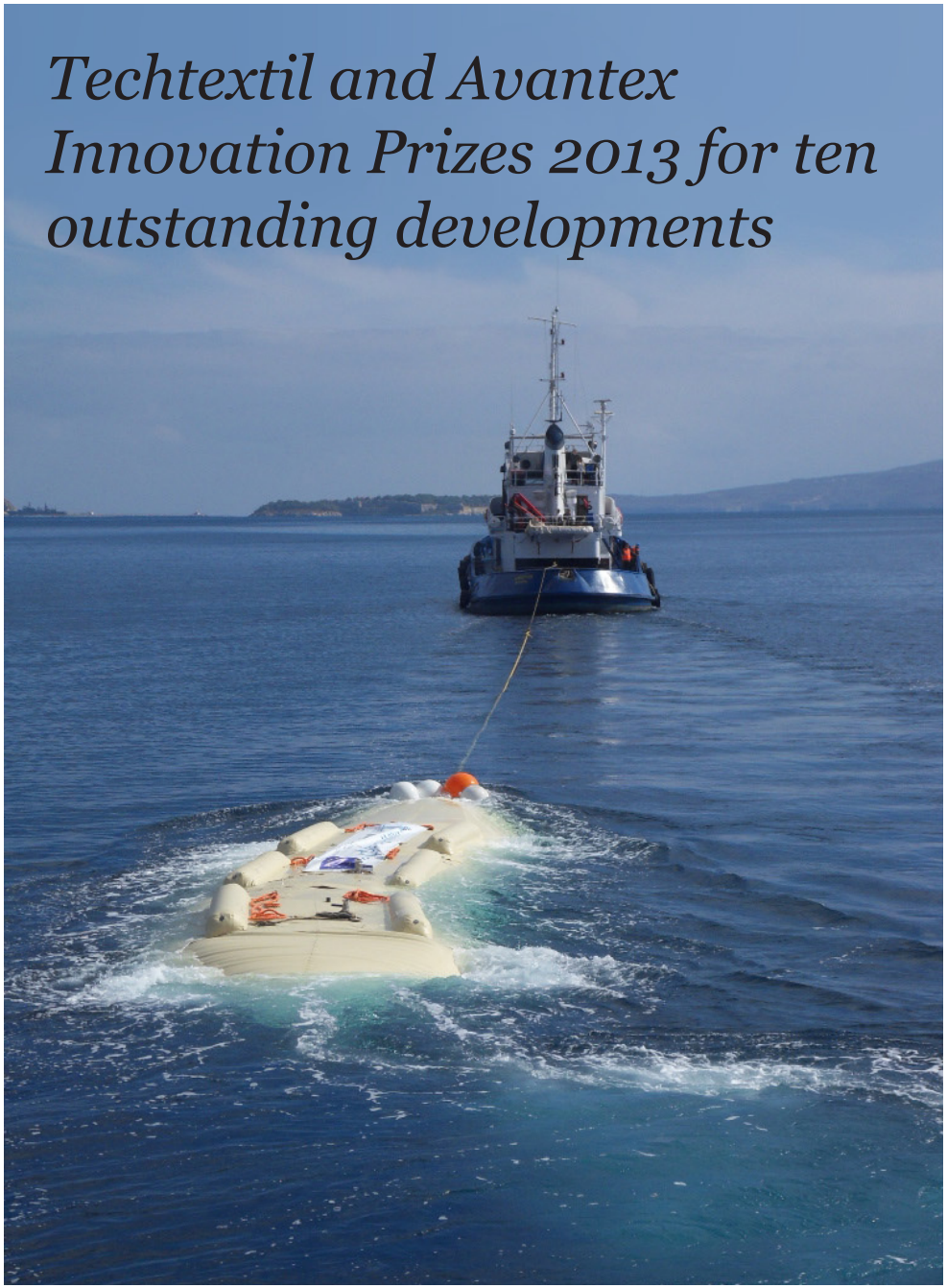
Experience shows that materials developed for specific application are then taken up in other fields. Take, for example, medical sensors, which are used to monitor patients' vital functions. Nowadays, they are also integrated into functional apparel to monitor the vital parameters of sportspeople or fire-fighters.

What do you recommend that readers who visit Techtextil should see at all costs and which highlight are you looking to most of all?

Michael Jänecke: Well worth visiting are the special shows of award-winning products and projects from the Techtextil and Avantex Innovation Prizes and the 'Textile Structures for New Building' student competition. Also always interesting are the various national pavilions, and there are 13 of them this year. For me, the event as a whole is the highlight because my team and I have worked towards it for almost two years and we are really looking forward to the opening.

We wish you a big success and thank you for the interview.

Techtextil and Avantex Innovation Prizes 2013 for ten outstanding developments



Energy efficient membranes, silicone-coated textile fibres, a new master batch for tintable polypropylene or technologies for integrating systems into apparel – these are just some of the inventions of the ten winners of the Techtextil and Avantex Innovation Prizes, which will be presented for outstanding achievements and new developments in various categories and disciplines at Techtextil, the trade fair for technical textiles and nonwovens to be held at Frankfurt Fair and Exhibition Centre from 11 to 13 June 2013.

All award-winning products will be on show in two special exhibitions at the fair.

From over 80 entries, a jury of renowned experts selected seven winners and one honourable mention for the Techtextil Innovation Prize and two projects for the Avantex Innovation Prize. “The award-winning products cover all areas of applications for technical textiles and are indicative of the great innovative power and variety in the sector”, says Michael Jänecke, Brand Manager Technical Textiles / Techtextil, of Messe Frankfurt. “All award-winning companies will be honoured fittingly during the official opening ceremony in the Congress Centre Messe Frankfurt on 10 June.”

All Techtextil Innovation Award winners

Four projects have been selected for an award in the ***‘New applications’*** category. The Institute for Textile and Process Technology in Denkendorf, Germany, four German companies – TAO Trans-Atmospheric Operations GmbH, TINNIT Technologies GmbH, Wagner Tragwerke and Arnold Group – and the Blum Laboratory have succeeded in producing an energy-autarkic textile membrane construction based on the fur of a polar bear.

The Italian companies D‘Appolonia and ZipLast, AIMPLAS – Instituto Tecnològico del Plastico und Industrial Sedò from Spain, the Spanopoulos Brothers Group from Greece and the Czech company Safibra developed “REFRESH”, a textile-based water bag, which makes it possible to transport large quantities of fresh water by sea.

Then there are the EMPA research institute from Switzerland together with the Swiss Paraplegic Centre and Schoeller Textil AG from Switzerland, who present their new type of a medical bed sheet for decubitus prevention, which reduces the friction for people who are bed-ridden for lengthy periods. Finally, there is also the Belgian exhibitor, Beaulieu Technical Textiles, who won over the judges with their product ‚Ökolys', a woven, bio-degradable and compostable agro textile that combats weeds and protects the soil.

The Techtextil Innovation Prize in the ***‚New Technologies'*** category goes to German exhibitors, LIBA Maschinenfabrik, for their new ‚multi-compact' woven fabric. An honourable mention in this category goes to the Textile Research Institute of the State of Saxony, Germany(Sächsisches Textilforschungsinstitut e.V.) for their circular woven fabric with variable cross section.

There are two prize-winning projects in the ***‚New Materials'*** category that are in a position to celebrate an award. Massebeuf Textiles, Bluestar Silicones and MDB Texinov from France have developed silicone based warp knitted textiles which is remarkable for the elasticity of its structure and its excellent resistance to temperature changes. Devan Chemicals from Belgium has developed a new masterbatch formula for dyeable and printable polypropylene, which, for the first time, enables the fibre to be coloured by conventional processes.

The winners of the Avantex Innovation Prize

In the ***‚New Processes'*** category, the Textile Research Institute of Thuringia-Vogtland, Germany (Textilforschungsinstitut Thüringen-Vogtland e.V.) received its award for a new and fully automated process for manufacturing luminous textiles, with embedded LEDs.

The manufacturing technology, which was developed in collaboration with the Tajima enables the completely automated assembly of building components on a textile base. CEA-Leti / DSIS from France receive the second Innovation Prize in the ***‚New Materials'*** category for their innovative e-thread® technology, which incorporates electronic component materials in threads.

Presentation of the awards during the Techtextil opening ceremony on 10 June

The presentation will be held in the 'Harmonie' Hall of Congress Centre Messe Frankfurt at 18.30 hrs on 10 June 2013. During the fair, visitors will be able to see the award-winning inventions in two special exhibitions. The winners of the Techtextil Innovation Awards will be on show in Hall 4.1 (Stand J21) while the winners of the Avantex Innovation Awards will be in Hall 3.1 (Stand B11).

Glass fabric finishing line for the production of printed circuit boards and construction reinforcements: ***Examination regarding the aspect of the energy saving possibilities***

by Mr. Dirk Städter - Sales Manager Glass Fibre Lines, Brückner Trockentechnik

There is almost no field in everyday life without technical glass fabric. Glass fabric is found in different compositions, qualities and finenesses - be it in smartphones, laptops or televisions, house façades, sun shade materials or grinding disks for the do-it-yourselfer, be it in the operating room or in medical devices. It is not only the high tensile strength, the low elongation and an excellent weight-related elasticity in comparison to steel, which are characteristic for glass fabric, but also the insulation characteristics, the bendability or its thermal resistance.

All these positive characteristics had the consequence that the worldwide production of glass fabric increased in the last 20 years explosively. Only the printed circuit card pro-duction in China increased in the period from 1995 to 2011 from 1,400 million US$ to 25,000 million US$ that is a multiplication by 18! For the year 2013 a turnover of 61,000 million US$ are predicted worldwide (sources: IPC and NTI).
The woven glass fabric amounts to about 30 % of the material costs.

Adding the glass fabric for the construction industry, for automotive, aerospace, for interior design or environmental protection, the dimensions of the market share for glass fabric in the worldwide industrial production can be guessed. If one considers that the production of glass fabric and its end products is connected with an enourmous energy consumption - glass melting, several thermal finishing processes - this dimension increases by a multiple. All these are enough reasons to think about the potentials for energy saving in these production chains. This should be motivated not only by the own best entrepreneurial interest of the relevant producing company but also of the complete national economy whose energy balance can be influenced significantly.

This paper discusses with the example of two application areas of glass fabric the realistic and technical marketable measures for an effective saving of primary energy. The are the fields of glass fabric finishign for the production of printed circuit boards and construction reinforcements.

The upstream process steps

At the beginning of the complete chain of processes of glass fabric products is the melting process. Depending on the required characteristics several additives are added to the silicon dioxide. Zirconium oxide for example is used for AR or Z glass and in case of E glass it is aluminium, boron and silicates. While AR and Z glass are mainly used for the production of constructions reinforcements and glass fibre wall paper due to the alcali resistance, E glass is found in all printed circuit boards. The fibre filaments with a diameter of 4 to 40 µm are made with micro-fine nozzles from the hot melt which has a temperature of about 1550 °C. These filaments can be stretched with a special production process for the different field of application so that a fibre diameter of 0.1 to 5.0 µm can be reached. Subsequently a defined number of fibres is twisted to form a yarn. The filaments and yarns are subject to extreme mechanical stress in the further treatment. To exclude the braking of filaments as far as possible and to make the further processing to form a planiform web, the yarns have to be provided with an auxiliary. This auxiliary, the so-called black wash is generally a poly vinyl alcohol and is applied either directly after the spinning process or in a separate process step onto the glass fibre. Depending on the respective quality the black wash application is up to 3 % of the raw fabric weight.

The formation of planiform webs can be made with several technologies. Beside the weaving and knitting also processes for the generation of clutches or fleece are used.

In the areas of printed circuit boards and construction reinforcements one speaks of woven glass fabric with a fineness in warp and weft of respectively 5 x 11 to 9 x 68 tex or of woven glass fabric with mesh sizes between 4 and 10 mm, fabric weights from 50 to 600 g/µ_ and yarn finenesses in the dimension of 136 to 1800 tex. Particularly in case of woven glass fabric for the electronic industry a clear trend can be seen: 5 years ago fabric weights between 48 and 106 g/m_ were normal, now it is 12 g/m_ and a fineness of 4 x 2,2 tex in warp and weft, which are written into the performance specifications of the mechanical engineers; an enormous challenge particularly regarding the control of the traction in all components, the absolutely precise parallelism and truth of running of all rollers and the exact temperature control in all steps of the thermal treatment.

The removal of the black wash is made generally in two steps.

The caramelizing

In a continuous high-temperature process the black wash is reduced to a weight percentage of about 0,2 % of the raw fabric weight. This is made in practise in radiation dryers based on IR gas radiators and in convection dryers with circulating air temperatures of up to 450 °C. Due to the considerable portion of black wash in the exhaust air it must be obligatorily be subject to an exhaust air cleaning. While East-Asian producers are still offering arguable solutions the European systems supplier for these lines does not compromise about these lines and provides the caramelizing lines principally with a highly effective thermal post-combustion (TNV).

Due to organizational reasons these lines are designed for a fabric speed of up to 120 m/min. This allows to deduce a thermal balance as shown in illustration 2 for the typical parameters (fabric with 1,32, fabric weight 48 g/m_). The main portion is with 653 kW attributable to the exhaust air. Modern post-combustion lines are provided with a corresponding solution to preheat the exhaust air which has to be cleaned to the highest possible temperature. This temperature must be about 750 °C for an optimum combustion of the pollutants. The deficit must be compensated by a further heat supply and is in this case 210.7 kW.

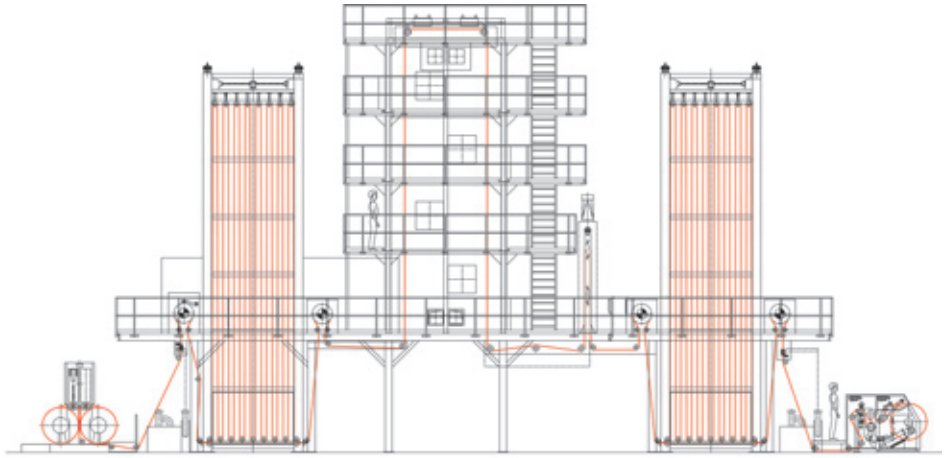


Photo 1: Schematic view of a caramelizing line for the desizing of woven glass fabric for the production of printed circuit boards.

This is the approach for a further energy saving: The required minimum partial air flow is branched from the now clean exhaust air volume flow and is discharged via the roof.

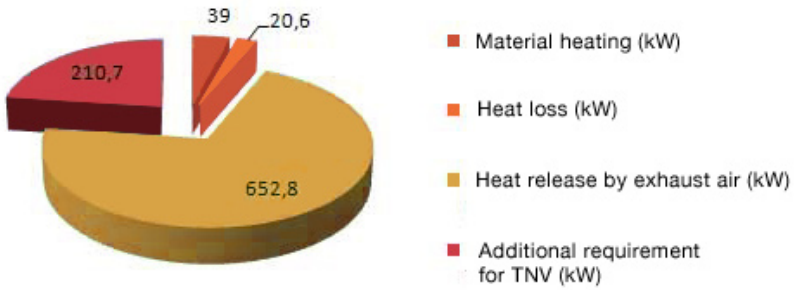


Photo 1: Schematic view of a caramelizing line for the desizing of woven glass fabric for the production of printed circuit boards.

The remaining partial flow is made available for the process. To integrate this flow optimally into the desizing process suitable measures to feed the cleaned exhaust air back and temperature control units are absolutely required. The saving effect is enormous: With the above indicated parameters and under optimum conditions it amounts to 592.3 kW that is 64 % of the complete process heat requirements!

The batch oven

In the so-called batch oven the discontinuous desizing process takes place and the resid-ual black-wash of about 0.2 % of the raw fabric weight is removed from the glass fabric by a thermal process. This process may take up to 72 hours including the heating, the holding of the temperature and the cooling. In high-tech ovens this time can be reduced to 44 - 48 hours. But this reduction can be only achieved with a very accurate and clearly intensified circulating air control as is standard in the Brückner ovens.

A very effective insulation and tightly sealed doors are the preconditions just as a special floor structure which is able to bear the extremely high surface load of the charged batch frames and on the other side inhibit that the heat is discharged in to the foundation. Figure 3 shows the result of this measures alone. As a comparison: In case of a process time of 72 hours the heat in the exhaust air adds to a plus of 1.610 kWh and the heat to be introduced via the burners is 17.930 kWh instead of 16.320 kWh. In view of the high portion of heat which is dissipated with the exhaust air it is absolutely necessary that the batch oven controls the exhaust air volume via an under-pressure control system to the absolute minimum as soon as the oven has reached the desired temperature. A further point of discussion can be if it is possible to pre-heat air for the burners with the hot exhaust air volume achieving thus further savings. This allows to calculate another saving of about 800 kWh for a process of 44 h. If this saving effect pays for the owner or not depends mainly on the additional cost for the heat-recovery equipment including the peripheral units and installations and of course on the current price for natural or liquid gas.

The Silan finishing

When the black-wash has been removed, the glass fabric is very sensitive for any kind of mechanical stress. For the production of printed circuit boards the glass fabric is impregnated with an aqueous blend of silan and other additives matching the following coating with artificial resin.

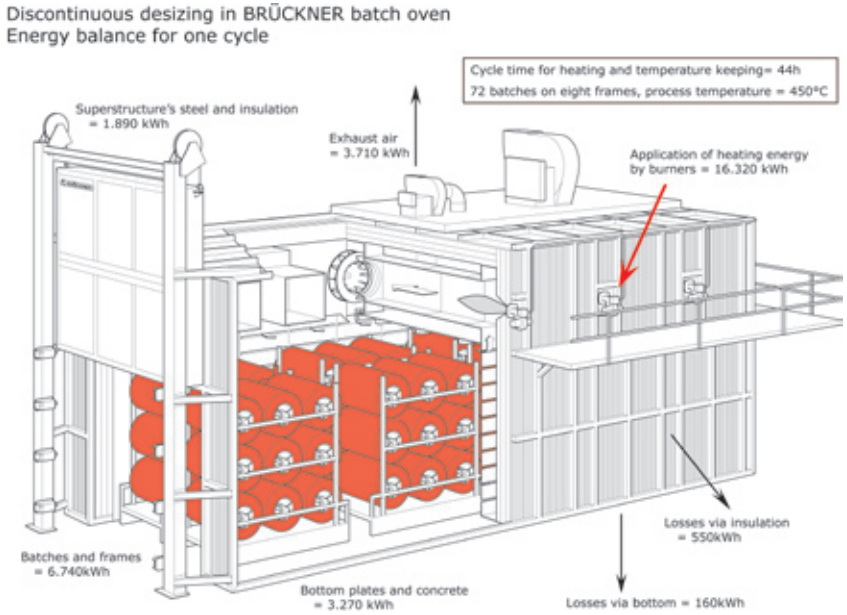


Figure 3: Energy balance at the batch oven in case of a process time of 44 h

This process step does not only improve the mechanical stress resistance but removes by selective measures filament ruptures and improves the surface quality of the woven fabric for the coating with artificial resin. For this it needs up to three steps which may be executed in differing order, depending on the quality requirements and the special know-how of the owner. The so-called fibre opening is in any case a part of it. Generally in this step broken filaments are removed by wet processes (vibro-washer or aquajet) and thus achieved a better uniformity of the surface structure. Experts call it „closing the fabric windows“. In one or two further steps the glass fabric gets impregnated.

Figure 4: Silan finishing line

After each of theses steps the fabric has to be dried in a process with intense consumption of thermal energy. In practise either a combination of infra-red gas radiator oven and a convective dryer or a mere convection dryer is used. At this point the energy saving concepts will start: A simple but nevertheless effective measure is to control the exhaust air moisture - which is known from the finishing of normal textiles. But these finishing units are designed for production speeds of 120 m/min and more and the range of products is generally limited. It is therefore very well known which exhaust air moisture is reached with which production parameters.

But there is another interesting possibility shown by Brückner: Considering the combina-tion of infra-red oven and convective dryer, we can state that the exhaust air has a rela-tively high temperature level. We can use this high temperature level intelligently to preheat fresh air and make it available for the process in the lower part of the convective dryer via a special nozzle system.

The saving effect is, at least, about 170 kW or 18 % of the overall heat requirement of one drying process. But if one considers the mere convective dryer, it has naturally a lower heat demand. The same process requires thus if a mere convective dryer is used only about 75 % of the primary energy which would be required by a combined dryer. But of course also the heat-recovery effects are lower and only in the range of approx. 85 kW.

The glass fabric mesh impregnation

Glass fabric mesh is mainly used in the construction industry. Its characteristics make it an ideal material for reinforcements. But first the glass fibre has to be made resistant to alcalines and the node structure of the glass fabric mesh has to be protected. The im-pregnation agents used for this process are aqueous polymer dispersions based on acry-late or vinyl-polymerizate. Depending on the end product additional chemicals are used for example for hydrophobic finishing.

The application of the impregnation agent is made in a dipping bath with subsequent squeezing unit. After the drying in a vertical infra-red radiation gas dryer the impregnated glass fabric mesh has to be led into a thermal dwell process where the molecule chains of the polymerates are being cross-linked and the characteristics of the glass fabric mesh will form. Experts call this a condensation process which has a duration of up to 5 min depending on the polymerizate which has been used.

This work is done by special loop dryer which ensure this dwell time with a defined fabric contents.

Generally a printing station follows which apply the logo of the respective sales organiza-tion in one or several steps to the end product. This offers an excellent possibility to save energy. Behind the printing unit a drying process is required - for which a separate additional dryer has been used in the past - and here Brückner offers a new and innovative way: The concept is shown in figure 5. The printing unit is located below the condensation dryer. The glass fabric mesh leaves this dryer after the end of the cross-linking process, the logo is then printed in the printing unit and is led back again into the dryer.

Via a specially modified short dryer segment a part of the exhaust air of the gas radiation dryer is introduced and the colour of the logo printer is thus dried. The big advantage: There is no additional thermal energy required, space-saving placement, lowest possible technical efforts and cost.
Another energy saving potential offers itself with the optimized design of the infra-red radiation gas dryer with integrated utilization of the exhaust air heat.

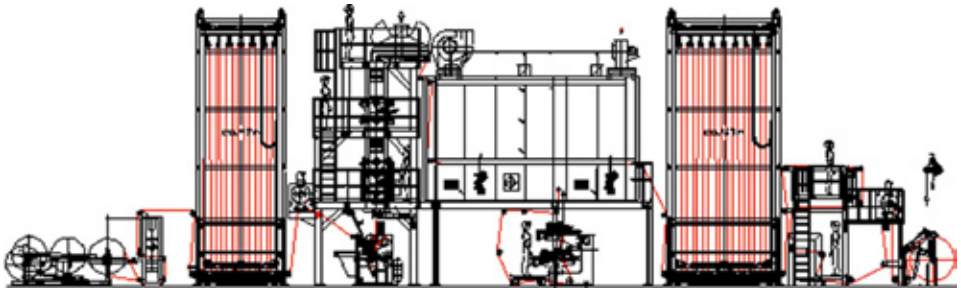


Figure 5: Schematic drawing of glass fabric mesh impregnation line

The gas demand is reduced by 17 % with this measure alone. In addition it provides for an increase of the production capacity by 8 %. Such a concept is offered by Brückner and has been proven in practice at one of the world-wide leading producers of glass fabric mesh.

Resume

The world-wide production of glass fabric mesh increases more than proportionate since the nineties. Even the years of crisis 2001 /2002 and 2008 / 2009 could not affect this development durably. The reason are the excellent characteristics of glass fabric mesh which make it a perfect material in the semiconductor industry, in the construction industry or in the aeronautic industry. But its energy-consuming production, processing and finishing forces to look for energy saving potentials. With the example of four processing steps of glass fabric finishing we discussed in this paper effective and intelligent measures allowing a considerable saving of primary energy for the allocation of process heat.

If one considers the glass fabric finishing chain for the printed circuit industry, that is caramelizing, batch ovens and silan impregnation, about 25 % of the primary energy can be saved with the use of innovative, energy efficient and high-quality technology! An argument which the cost-conscious owner cannot ignore in his investment decision because it means an additional chance of yield.

Texprocess 2013: the international high-tech fair for the apparel and textile industry

International market leaders will present their cutting-edge technologies and high-tech solutions for greater sustainability, energy efficiency and automation at Texprocess, Leading International Trade Fair for Processing Textile and Flexible Materials, in Frankfurt am Main, which opens its doors for the second time from 10 to 13 June 2013.

Texprocess is held concurrently with Techtextil, International Trade Fair for Technical Textiles and Nonwovens, from 11 to 13 June 2013. Detlef Braun, Member of the Executive Board of Messe Frankfurt, explains, “The second edition of Texprocess continues with the success achieved by the première. The unique concept of holding the fair parallel to Techtextil, its innovative character and the ‘Source it’ procurement platform are exactly in line with the needs of the market.”

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The extensive spectrum of product segments at Texprocess ranges from preparation, design and pattern making, via sewing, embroidery, knitting and joining, to finishing, logistics and IT. Together with Techtextil, the result is an assortment that covers large sections of the textile value chain. The combination of Texprocess and Techtextil takes account of the fact that textiles are being used and, therefore, processed in more and more new fields.

One main topic will be innovation in sportswear. New product developments from both small companies and large brands alike, not only make garments look and fit better, they also help athletes perform better. Many of these require uses of new or specialist technology within the manufacture of the garments, not just the materials they were made from.

Smart textiles are an example. The Adidas miCoach Elite System was included within Adidas's Olympic Performance Sports Bra. It has also been introduced to football to help with coaching and game monitoring. For this, the miCoach Elite System includes a small data cell that fits in a protective pocket located within the back of a player's base layer, between the shoulder blades. Connected by a series of electrodes and sensors woven into the fabric of the base layer, the cell wirelessly transmits more than 200 data records per second from each player to a central computer which is instantaneously displayed in a series of simplified insights and results on the coach's tablet or iPad enabling the coach to monitor the work load of an individual player by measuring every move, heartbeat and step, compare one athlete with another, or view the whole team, to gain a complete picture of the game both physically and physiologically.

International manufacturers take advantage of Texprocess to present their cutting-edge technologies. To date, registrations have been received from numerous companies including Amann, Assyst, Brother, Coats, Dürkopp Adler, Expert Systemtechnik, Ferd. Schmetz, FK Group, Gerber Technologies, Gütermann, Human Solutions, Hornung Indupress, Kaiser Lutra Textilmaschinen, Kansai, KSL, Lectra, Juki, Macpi, Madeira, Martin Group, Morgan Tecnica, Sunstar, topcut-bullmer, Veit, Vibemac, X'ian Typical and ZSK.

The conceptual partner of Texprocess is VDMA Garment and Leather Technology. Director General Elgar Straub says, "At Texprocess, the industry presents its entire innovative expertise.

Against the background of rising production costs, increasing expectations in terms of sustainability, energy efficiency and reaction times, the level of investment in future-oriented technologies is set to climb. Hence, the exhibitors have great hopes of Texprocess 2013, which will generate important impulses for the turnaround in the production of apparel and technical textiles."

One of the highlights at Texprocess is IT solutions. In Hall 4.0, exhibitors present a comprehensive range of applications that not only support both production and the trade but also optimise and accelerate processes. Also in focus are 3-D simulations, which are used across the board, from design and cutting to marketing. The meeting place for software producers and users is the IT market place, 'IT@Texprocess, Successful Software Solutions for the Fashion Industry'. (Please read the article "Garment 2.0" for more information about PLM and CAD)

'Source it' at Texprocess is a top service for the apparel industry. The integration of a procurement platform into a technological fair is unique and offers additional benefits for fashion labels and contract manufacturers. National pavilions and production companies demonstrate their expertise and offer insights into the conditions for contract manufacturing in their countries.

Taking part are leading sourcing countries from all over the world. Additionally, a contact exchange at the sourcing area gives decision makers from manufacturing companies and the apparel industry the chance to make new business relationships.
Discussing the significance of 'Source it', Detlef Braun says, "With this service, we offer the fashion industry great additional value. Besides the latest technologies, buyers at the fair also have the chance to gather information about suitable contractors."

And Ina Stoltze, Texprocess Director, adds, "'Source it' gives fashion labels an excellent opportunity to find out about the world's sourcing hot spots without having to travel to the individual countries. A sourcing platform at a technology fair is a unique service, which combines the search for innovative machinery with the search for alternative production facilities."

This year, 'Source it' is being held for the first time in Hall 5.0, in the middle of the sewing and joining product groups. Also new is the contact bourse in the Source it Lounge: visitors from the apparel industry registered there can look up which production companies or fashion labels are represented at Texprocess and make appointments with them. During the run-up to the fair, visitors and exhibitors can once again make use of the i-tex online business portal, an apparel sourcing system that is going online at the end of April. This gives sourcing decision makers from the fashion industry the chance to set up a detailed search profile that includes, for example, the products, technical expertise, standards, supplier countries, etc. required, and to obtain results specifying suitable production companies.

The range of products and services to be seen at Texprocess is rounded off by an extensive complementary programme, which includes the Texprocess Innovation Award, Texprocess Forum lecture programme and the Texprocess Campus promotional programme for young people. 326 exhibitors from 40 countries and around 17,000 trade visitors from 86 countries (including Techtextil visitors) attended the last Texprocess in 2011.

Texprocess 2013 will be held concurrently with Techtextil, International Trade Fair for Technical Textiles and Nonwovens, from 11 to 13 June 2013.

(For detailed and latest information about exhibitors and their show presentation please visit:
http://www.texdata.com/48.techtextil-texprocess-2013.html)

Garment industry 2.0

How companies are gearing up for the future with modern PLM and CAD systems

by Oliver Schmidt

Even though it literally symbolises change, the fashion and garment industry has had at least one constant in the last 20 years: it needs to continually meet new challenges.
For example Cotton Incorporated's Mark Messura said during his presentation at the annual meeting of the International Textile Manufacturers Federation, held in Hanoi, Vietnam Nov. 4-6: "The real concern for all of us in the textile industry is that people today have increasingly diverse expenses that eat into their expenditures on clothing.
In the United States, for example, clothing's share of total consumer spending has dropped from 5.7% in 1989, to 4.7% in 1999, to 3.5% in 2011."

Despite decreasing consumer budgets and full wardrobes in the households of the industrial nations, some companies seem to easily master the challenges with sophisticated concepts and a high degree of innovative ability. The triumph of Zara and H&M is certainly a good example in this respect, as they manage to attract customers to their shops with ever more up to date products. Multiple collections based on current trends and as a reaction to creations by world-renowned designers with an ultra short time-to-market has created a new segment of success and the appropriate slogan for this is: 'Fast Fashion'.

Fast Fashion has changed the fashion world decisively not only in clearance sales but also with numerous new processes that needed to be designed in order to master the high complexity of fast delivery. Besides demands on production and logistics the business consultancy McKinsey names the high organisational degree of the entire supply chain, transparency and safety of the processes and optimal networking of all participating companies as decisive criteria for successful implementation. Special focus applies to the processes from the design of a garment or a collection right up to the prototype.

Although 'Fast Fashion' itself may not be suitable for every company due to different market and price segments it makes sense for each company in the garment industry to learn from the best and to review that segment of their own value chain with regard to the possible level of organisation required for time and especially cost savings.

Process optimisation and networking are drivers of value

Essential elements of this review are the level of networking and performance capacity of the ERP, PLM and designer software (CAD) applied. In industry, product lifecycle management (PLM) is the process of managing the entire lifecycle of a product from its conception, through design and manufacture, to service and disposal.

PLM integrates people, data, processes and business systems and provides a product information backbone for companies and their extended enterprise. According to Wikepedia, the systems affected by PLM include construction (CAD) and calculation (CAE) through production planning (equipment and technology) and PPS to sales planning, sales, distribution logistics, end of life management including service and recycling issues.

Besides the SAP PLM (SAP), Windchill (PTC) and Teamcenter (Siemens) systems that dominate the market in respect of turnover and quantity, there are a number of systems available specialising in the garment industry. Two examples are the PLM GOLIVE system of the German company Assyst that is a part of the Human Solutions group and the Lectra Fashion PLM system.

The implementation of PLM pursues the following aims: Improvement of efficiency, simplification of collaboration, shorter cycle times, higher acceptance quotas, fewer quality defects and therefore overall lower production costs.

The decision for a PLM especially designed for the fashion industry stands to reason as it differs fundamentally from most other industries. The large number of products and the frequent and regular change of products or the complete collection should be mentioned in particular. The system based processes need to be built on long-term specialist knowledge and the ergonomics of the software needs to be attuned precisely to the individual activities of the fashion sector.

The above mentioned systems fulfill these requirements. They are customised to the garment and fashion industry to a high degree and the producers have offered solutions in this area for many years. The products comply with the most demanding requirements and cover a wide range of performance. Networking with other MIS such as ERP and PPS by supporting standards and interfaces and the availability of best-practise processes while providing flexibility in order to adapt them individually to customers are essential.

For example Assyst writes in this regard: “If data has been seamlessly stored throughout the system, everything is happening automatically and the right control mechanisms are set up, you can reduce your workflow times by a factor of 3. The optimal system environment is the one that increases your competitiveness. Requirements can be quite different from company to company and from country to country _ and our systems are made to master these variations. They set the standards and offer maximum flexibility at the same time.”

The requirement for best-practise processes initially sounds as if the company needs to adapt to the software. This is however not the case. These best-practises can instead help companies to query and optimise their own processes. Should companies decide on other processes the suppliers help to adapt the software individually to the customer.

Often however the new processes besides the investment costs discourage companies from introducing PLM systems.

The introduction of software and a change to processes is seen as complex and some companies fear that they are unable to cope with such a change. The question is justified as companies certainly need to forfeit some productivity during implementation. There is however the question of what the alternative would be. Companies that have successfully implemented PLM work faster, more customer orientated and cost efficient and are therefore altogether more competitive.

Lectra for example writes in respect of the implementation of the system: 'Owing to its web based architecture and the Easy Start method that contains sector specific processes and established methods, companies are able to readily implement PLM and therefore increase profitability. The solution is flexible and is able to grow with demand; it advances change management in the design area and allows users to quickly start working with the program.'

Companies that nevertheless fear implementing the complete system are able to introduce the system step by step owing to the modular structure of the systems.
The module for the design and development process is an essential part in this regard. This includes design, pattern layout and the creation of sectional views. The pattern layout in CAD has long been the cornerstone of the entire design process and the specific patterns and designs represent the stored capital of the companies. AccuMark, the first PC-based pattern making, grading and marker system was launched to the apparel market in 1988.

Since then programs have continually improved and the latest software still offers changes and improvements in respect of interfaces to other systems and therefore automation and collaboration of the entire data management and last but not least usability and convenience that enable easy familiarity and intuitive operation.

Triumphal march of the Avatars

Today days designs are preferably done directly on the avatar, a graphic representative of a real or artificial person that should appear as realistic as possible. In this case the task of the computer generated image is to evaluate the design of the garment as such as well as the form and fitting for all sizes on the avatar. As a result problems and the wrong cut can already be established in the design phase and the number of samples that do not fit can be reduced considerably. Avatar and interfaces are connected in such a way that changes adjust each other automatically. When the appearance of the avatar is changed, the two-dimensional interfaces change and in reverse each change to an interface leads to a new appearance of the avatar.

While the rendering of a computer image, and therefore the calculation of the parameters and illustrations on the monitor still took several hours 20 years ago depending on the level of detail, today this is done more or less at the press of a button. the new challenge is therefore real-time rendering in motion.

The advantages of this process during a review are clear: Designers and decision makers are not only able to view garments from individual, firmly defined perspectives but gain a complete 360 degree view. The latest products of 3D visualising software master this as well. The Vidya software of the German producer Assyst for example is a program that meets these requirements.

Vidya offers highest simulation quality for fabrics, patterns and human beings, enabling the basic fit, quality and effect of design drafts to be controlled at an early stage on the PC. A 2D pattern is imported from Cad.Assyst, tried out on the virtual 3D model and then altered to suit. On a virtual model — and in highly detailed and realistic imagery — vidya makes it possible to see how a fabric drapes, how prints look on various different sizes and where a design sits too tightly on the body. One really special feature here is the real implementation of the original fabric and clothing attributes into vidya. This implementation of the 2D cut pattern into authentic 3D models not only saves the costs involved for the high number of prototypes and garment alterations — the timeframes needed for recurring try-ons and alterations (plus idle time due to the unavailability of the model) are also reduced.

Vidya 20.12 has a whole new range of functions: in addition to the simulation of realistic drape, Assyst has integrated the animation/posing of the vidya model and much closer links with cad.assyst: in the transfer of 2D patterns, for instance. Vidya can also be integrated into one seamless process, from development all the way to the point of sale.

Apart from the handling, the abundance of functions and system integration, the image quality of the rendered picture is still a major quality criteria. The aim of each computer generated picture is to be the true to life which means that the computer generated picture cannot be differentiated from a photograph.

In this case the computer pictures should not be expected in the quality of the large Hollywood film productions but that the quality has already reached a point where the observer is able to well imagine the finished textile product. The latest developments such as Vidya or Modaris have even mastered a realistic arrangement of the folds.
The results always need to be seen from the context that they have been accomplished not on super computers but on customary, though powerful computer systems.

Many fashion designers have long since transformed their work procedures and create their collections on the computer. For example the London designer Maria Grachvogel recounts that her expectations have been more than fulfilled in her work with the support of a software program and that creativity can even still be enhanced as the designer is able to test many ideas quickly and immediately.

As is to be expected most of the fashion and textile companies also work with computer aided design tools. This is also confirmed when taking a look at the long list of customer references for the companies Human Solutions and Lectra.

An almost perfect realistic portrayal is possible using data export and high-end rendering (design with Vidya, rendering external).

Bogner of Germany for example known worldwide not only through legendary ski scenes in earlier James Bond films but primarily also for its high quality fashionable sportswear relies on Cad.Assyst software by Human Solutions. The Munich company applies Assyst technology in order to enhance cost effectiveness. For example using macros when forming lining, inserts or wind breakers.

At the same time a uniform style statement and the knowledge gained by the Bogner designers are secured. Maier Sports, also of Germany, has decided for Modaris software from Lectra and comments as follows: 'Without the effectiveness of Lectra technology in creating models we would no longer be able to manage the complexity of our collections.'

Next big thing: the Cloud

Companies that want to buy a new software or want to undertake a more extensive upgrade of their software should in any event inform themselves of the advantages and disadvantages of a cloud solution. Cloud computing outlines the approach of providing abstracted IT infrastructures via a network (e.g. server capacity, data storage media, network capacity or even complete software) dynamically adapted to requirements. From the user perspective the abstracted IT structure provided appears remote and non-transparent as if enveloped in a 'cloud'.

Cloud solutions also offer apart from simplified and quicker implementation the advantage of better networking, as new partners can be connected to existing solutions with less effort, which is of great benefit especially in the fashion and clothing industry with its numerous and diverse partners involved and the broad geographic distribution. A time consuming installation of the software on site is no longer required. Instead the user simply accesses a server in the cloud containing the respective software via his computer.

Cloud solutions require though a powerful and stable internet connection. The object of the cloud is have the complete process from design to production with all the data available and to provide the individual partners with the appropriate processes, tools and data with the respective rights. Such solutions promise great potential in time and cost savings.

The Human Solutions group will present a cloud solution for an integrated process from development to production at Texprocess - supplied throughout with current data.

The new Fashion Cloud consists of software services, real-time data synchronization and user management; the necessary infrastructure is provided via the data center. Depending on the type of task, customers of the Human Solutions Group can access their data or software and flexibly integrate their partners into their processes.

Human Solutions also offers another very interesting feature. Numerous countries conduct serial measurements (including Germany and Italy) and these provide the latest data for the individual sizes. The avatars can be adapted to these up to date standard sizes allowing these to be be adjusted for the purchaser in the shop.

And companies that offer tailored garments are also able to create individual avatars of their customers with the assistance of a 3D body scan. Such a great degree of individualisation is used for example by JK Defence in the production of protective clothing.
It would be of benefit for the future if quantitative statements on the sustainability of garments and collections could be made with the assistance of the design programs as was presented in the Higg Index introduced in the last issue of the magazine. The Higg-Index enables products to be designed in the most environmentally friendly and sustainable manner especially when selecting materials and processes in the planning of new textiles and new garments. The tool delivers a score or more precisely three independent scores (product, brand, facility) that can be compared with each other and optimised in respect of materials and processes. It seems to make more sense here to integrate the calculations performed by the Higg Index for existing products used by designers than to use designer software and at the same time to check with other software whether the garment fulfills the requirement of sustainability.

In conclusion we would like to risk a brief look at the future. It would be really interesting if the customer could also be involved in the process.

That could happen for example in that social networks are included in the decision process relating to a collection or - even more daring - in the design process. A core community could design garments of a particular brand within the scope of crowd-sourcing using pared-down versions of the design software and with immediate agreement on what is to be produced - in the best case through an order for the respective goods . Sounds like the remote future? Not really. Polyvore.com for example has begun to dip its toes in a crowdsourcing venture. The site receives over 15 million page views per months and collaborates with fashion brands to engage consumers.

For example, Rebecca Minkoff created a Polyvore contest in which users designed a purse, picking and choosing from images like studs, tassels and zippers. The winner got to see their design in stores and Rebecca Minkoff received a better understanding of what her consumers want.

Solutions at Texprocess 2013 in Frankfurt / Germany

Whoever is interested obtaining information on the latest stage of technology regarding the software for the garment industry as detailed should visit the Texprocess, international trade fair for the processing of textiles and other flexible materials from 10 to 13 June 2013 in Frankfurt am Main. The aforementioned producers Assyst / Human Solutions (Stand C21) and Lectra (Stand B20) will present their solutions for PLM and virtual fashion design in Hall 4.0.

Turkey is one of the most important textile producing countries of the world and is considered to be the textile powerhouse in Europe as well as being sometimes described as the China of Europe which certainly refers to its relatively low wage costs for European standards and high economic growth over a number of years.

Turkey ranks number 4 in the 2011 WTO table of export statistics with a value of 10.8 bn USD for textiles and 13.9 bn USD for garments. The ranking remains unchanged compared to 2010, growth however amounted to 15% and was only just below the growth of 17% for all exports of textiles and garments. Ahead of Turkey in the ranking are India, the EU (27) and of course China, the absolute number one with 94.4 bn USD for textiles and 153.8 bn for garments. Turkey ranks just behind Italy when the EU is split up into its individual countries. According to Eurostat 3.9 bn USD of exports from Turkey went to the EU in 2011, garments amounted to 8.186 bn USD which represented about 59% of exports to the EU. Germany and Italy are the most important countries for exports to the EU. Textiles and garments combined form a 19% share of exports (2010) and represent the most important trade group for exports from Turkey (source Fischer Weltallmanach). Motor vehicles, iron and steel, electrical machinery and food products are further important export trade groups. These figures show the great importance of the textile and garment industry for Turkey as well as on the other hand how important the sales market EU is. Turkey has been part of the European customs union since 1996 that led to the removal of customs duties and provided Turkey with a competitive advantage over other textile producing countries.

The EU has however progressively concluded agreements with other countries and reduced restrictions or abolished them completely, which is why the country on the Bosporus has been faced with ever growing competition from Asia in recent years. Despite low unit labour costs the country cannot compete with the prices of cheap products from the Far East any longer.

The advantages for Turkey are the relative close proximity to the European single market, automation already well advanced to a large part and flexibility in production batch sizes. According to the EU report 'Worldwide Sourcing 2012' presented by the French association 'Fédération de la Maille et de la Lingerie' in February 2013 at the Sourcing trade fair 'Zoom by Fatex', Bangladesch has been able to double its share of exports of textiles and garments to the EU in the past five years and was ahead of Turkey in 2012 (+9% compared to 2011) whose share was reported to have declined by 4%. It is therefore only a small consolation that India has declined by 19% and even China by 10% for the first time. Besides Bangladesh, the countries of Vietnam (+2%), Sri Lanka (+8 %) and Cambodia (+38 %) are the beneficiaries of the altogether lower imports to the EU. Another impending adversity is the re-orientation of the Chinese textile industry towards more quality, more sustainability in production and transformation to an automated high-tech industry.

Economic development in Turkey

Let us have a look at the development of the Turkish economy as a whole.

At the end of 2000 and the beginning of 2001 political influences caused an extensive economic crisis that was accompanied by massive capital outflows to countries abroad and required an IMF loan amounting to 16 bn USD. Thereafter the economy recovered again and in the subsequent years was one of the fastest growing economies worldwide. A solid macro-economic strategy coupled with a prudent financial policy and extensive structural reforms since 2002 enabled the inclusion of the Turkish economy in the globalized world and made the country one of the largest recipients of direct investment from abroad. The structural reforms that have been accelerated by the process of becoming a member of the EU have paved the way for profound changes in many areas. This caused the economy to increase at an average GDP growth rate of 5.2% in the nine years between 2002 and 2011. GDP more than tripled from 231 bn USD in 2002 to 772 bn USD in 2011; in the same period the GDP per capita increased from 3.500 USD to 10.444 USD. The visible improvements in the Turkish economy have also given a boost to foreign trade: export volumes rose from 36 bn USD in 2002 to 135 bn USD at the end of 2011. Improvements of this kind in such a short period have established Turkey as an exceptional emerging market country in the global economy and measured against GDP (in PPP) have made it the 16th largest economy in the world and the fifth largest economy in relation to EU countries in 2011.

Turkey has survived the financial and economic crisis in Europe relatively well and seems to have moved on rapidly. In 2011 Turkish economic growth of 8.8% - just behind China with 9.4% - was in second place worldwide and growth of 4% was predicted for 2012 at the beginning of the following year.

However what followed was a sharp decline and economic growth reduced by 6.6% to 2.2% compared to the previous year. The 4th quarter proved to be especially problematic as the average expectation was still 2.7% at the beginning of the year. Overall the country produced a GDP growth rate of 1.4% in the fourth quarter of 2012. The result is rated as the lowest growth rate on a quarterly basis since 2009. Crucial factors for the decline in growth were reports by the Turkish statistics office on weak domestic demand and the debt crisis in Europe.

Since then economists have been concerned about Turkey to a certain extent. Although wages are stable [an important component of the employment costs in Turkey is the legal minimum wage which is prescribed pursuant to art. 55 of the constitution for the maintenance of a minimum standard of living. It is adjusted and announced at the beginning of each year by the respective commission (government, employers, unions). The gross minimum monthly wage for workers from 16 years of age and older in force since the middle of 2012 is 940.50 TL or around 550 USD.] as well as the currency, the Turkish Lira, the over-indebtedness of private households and the balance of trade deficit is a burden.

Outlook and vision

There are however a number of aspects that promise a quick recovery and further positive development in Turkey. Firstly, there is the strong export economy that utilises currency flexibility offered by the Turkish Lira.

Low unit labour costs also provide positive conditions for favourable export trade. Secondly, the demographic picture is excellent. Turkey is quite a young country which promotes consumption. Thirdly, Turkey is geopolitically as well as geographically in a very good position. Recep Tayyip Erdogan, the prime minister, has created a country that is perceived as an economically stable partner in the Middle East. The country is a valued trading partner for Iraq and Iran, the hub and linchpin to large continents both in the direction of Southern Europe as well as the Middle East. Turkey has a stable foreign policy and has relatively neutral to positive relations with all its neighbouring countries. Trade relations to neighbouring countries is to be intensified and as a result a free trade agreement with Lebanon and Jordan has been concluded. The country on the Bosporus is also striving to intensify international cooperation with the countries of North Africa. The introduction of a regular shipping line between the harbours of Alexandria and Mersin is intended to invigorate trade with Egypt. Furthermore Turkish investments in Libya are to increase.

The USA has also indicated confidence in the Turkish economy. Nouriel Roubini, awarded the Nobel Prize for economics, is of the view that Turkey is on the right path both economically as well as politically.

The top economist and Nobel Prize winner born in Istanbul with Persian roots from the USA considers that Turkey is in a stronger and more stable position in the region since the easing of tensions on the Turkish - Kurdish front. Hürriyet quotes Roubini as saying: ‘Turkey has the substance of becoming a real success story’.

He also portrays the trading account deficit as a weak point of the economy that needs to be combated in a sustained and well controlled manner.
In 2008, Roubini had already forecasted numerous events including the global economic crisis. That earned him the name 'prophet of doom' which makes his positive evaluation of Turkey appear even more amazing.

His assessment should be entirely in accordance with the view of the Turkish prime minister Erdogan as he plans to transform his country into of of the largest global economies - which is to be accomplished by 2023 at the latest. Until 2001 this vision seemed to be on the right path. However due to the poor economic position of the EU, Sinan Ulgen, chairman of the center for economic and foreign policy studies (EDAM) in Istanbul says, '2013 will be a critical year for Turkey' in a discussion with the Deutsche Welle (German international radio broadcaster). 'After all, 40% of Turkish exports go to the EU and 85% of foreign direct investment in Turkey originates from the EU' according to Ulgen. For 2013, economists are again expecting growth of 4.5% (Reuters, 1.4.2013)
Another indicator promises a positive outlook for Turkey. According to Tübitak (The Scientific and Technological Research Council of Turkey) Turkey is now among the 20 top countries that invest the most in research and development.

Even more important seems to be the fact that Turkey is growing at the fastest rate in the area of R&D behind China. While Turkey grew by 15.7% on average annually in the area of R&D between 2006 - 11, the Chinese rate was 19.8%.

The USA is the leader in R&D expenditure (415 bn USD) ahead of China (178 bn USD), Japan (141 bn USD) and Germany (92 Mrd. USD). Turkey is ranked at position 18 with 11.1 bn USD and as such is already ahead of Switzerland (10.5 bn USD and Austria (9.8 bn USD).

Turkish textile industry

We now return to the Turkish textile industry. Although the crisis of 2008/2009 was mastered relatively quickly it produced reform in the market and a change to the business model. Only ca. 40000 of the original ca. 75000 textile and garment factories remained in existence in 2009. It was mainly the small medium-sized companies lacking capital reserves that were not able to counteract the decline in demand. According to the industry association ITKIB exports declined from ca. 22 bn USD to ca. 18 bn USD. Many companies restructured during the crisis and became more specialised. Above all the opportunity was taken of identifying segments that did not require competing with the products on offer from low-wage countries. The restructuring was directed towards
high quality manufacturing, a higher percentage of own designs and the strategy of producing and delivering smaller quantities in a short period of time. Marketing was also considered important. This applies to the design of own brands as well as the diversification of sales markets.
Instead of competing with Asian goods only in European markets, representatives of the IHKIB association are setting the target on
global competitiveness.

Education is also an important issue for diversification in the Turkish textile industry. Turkey wants to act consequently in taking the next step from a mass producer to a design orientated service provider with a full service. Therefore the focus needs to be on know-how and education. There are already 18 colleges that qualify designers and study courses have diversified. Whereas design studies were previously very much orientated towards art, the focus is meanwhile also on the industrial sector. Since 2004 the TU Istanbul has had a prestigious partner in the New York Fashion Institute of Technology.

Turkish textile companies

Some of the largest textile companies are Sahinler Holding (fabrics/ stitching/ garments), Sanko Tekstil (yarns/ fabrics), Isko Dokuma (yarns), Yesim Tekstil (yarns) and Kordsa Global (yarns).

The number one among Turkish textile companies, the Sahinler Group, is actually a German- Turkish company. Founder Kemal Sahin came to Germany in 1973 on a scholarship, studied German for one year and then started studying metallurgy at the RWTH Aachen (technical university).

After graduating in engineering studies he founded the Santex Moden GmbH (fashion company) in 1982 - the start of the textile group. In Turkey Sahinler Group began operating in 1984 under the name of Konteks.

With its wide range of apparel including sportswear, intimate apparel, women‘s, men‘s and children‘s wear, the company has become the largest fashion and integrated textile group in Turkey. The Group has subsidiaries in Turkey, Europe and the USA and manufactures over 50 million units of ready-to-wear garments. Sahinler plans for consistent growth in the future and has already reached an annual volume of 1.4 billion dollars.
Kordsa Global maintains a leading position in the industry with a workforce reaching 4500 at 10 facilities in 9 countries, spanning 5 continents. In 2011 Kordsa Global reached a sales -gure of US$ 985 Million. In February 2013 Kordsa Global receives the highest amount of awards at Environment Awards of Istanbul Chamber of Industry. In the category of Innovative Environmental Friendly Products, Kordsa Global received the premier award with Capmax. And the company received second place awards in two different categories of Energy Efficient Product category with Twixtra®, and of Environmentally Friendly and Energy Efficiency Applications category with the Cavitation project.

Cotton processing No 4 and cotton producer No 8 in the world

Turkey ranks in fourth position among the global cotton processing countries. It should be mentioned that Turkey is also one of the cotton producing countries and ranked in 8th position worldwide according to a report of the cotton exchange in Bremen with a market share of 2.5% in the 2011/2012 season.

Cotton growing had been on the decline for a number of years as more cereal crops were farmed. This has however changed in the last two seasons and in 2010/11 an area of 380.000 hectares (+35%) and 2011/12 as much as 475.000 hectares have been planted with cotton. A harvest of 675.000 tons is expected for 2011/2012 which corresponds to an increase of 50%.

In 2008 Turkey protected its domestic cotton industry and a 'protective tax' was imposed on cheaper imports. Instead of the maximum 5% tax as agreed with the WTO Turkish import duties were set at 15% to 20% for cotton yarns. Protective measures in form of 'protective taxes' are permitted by the WTO as long as they only help to temporarily overcome an unexpected rise in imports. According to the report of the Bremen cotton exchange, imports of raw cotton to Turkey increased from around 600.000 tons in 2007 to 955.000 tons in 2009. In 2012 imports of the raw material then gradually declined to the value of an estimated 624.000 tons. The protective measures for cotton yarns were planned for three years up to July 2011. Turkey however simply extended the deadline until 2014 and consequently fell out with India. India demanded 'consultations' with Turkey as a last resort before a legal dispute. At the beginning of 2013, it was reported that the dispute had been resolved and Turkey had withdrawn the protective duties of tariff nr. 5205 (all combed and uncombed yarns with an 85 percent content of cotton, excluding sewing yarns and packaging for the retail sale).

Safeguard provisions

Protective duties are however still in place for a range of textiles e.g. for underwear, sleepwear, T-shirts, pullovers, sport and swimwear, a multitude of knitted garments as well as numerous fabric types. The controversial safeguards with protective duties of up to 30% were introduced in 2011. In this way Turkey intends primarily to protect the market in its own country from cheap competing products from the Far East.
Free trade partners of Turkey are excepted provided their imports are not produced in the Far East. Documentary proof of this requires a great deal of bureaucratic effort.

The actions of the Turkish government are understandable when taking a look at the household textile market segment for example. After the rapid and successful growth of the 1980s and 1990s both domestically and in the global markets, this traditional industrial sector has gradually been driven to desperate straits by fierce competition from Chinese imports. In the process many producers found themselves on the brink of collapse. Several companies have even had to close their doors as they have not been able to cope with the competitive prices of the low cost Chinese producers. An immense distortion of competition ensued especially as Turkish companies operated in accordance with the international regulations applicable and were not receiving state subsidies. The local market became noticeably overwhelmed by Chinese household textiles. The fate of the whole industrial sector was at risk.

The turning point in this dire development occurred in 2010. At that time the Turkish government imposed an anti-dumping duty of 70.44% (maximum 5 USD/kg) on imported fabrics made of synthetic and artificial fibres from the PR China. Furthermore on 15.09.2011 a protective duty of 20% was introduced for other household textile goods from China that had not been affected by the anti-dumping duty.

The protective duty enabled the Turkish household textile industry to recover. In 2013, the industry is aiming for growth of 15% in turnover and an export volume of 3.3bn USD. A number of companies whose very existence was once under threat are able to resume production thanks to the imposition of protective duties. The improved outlook has encouraged several companies to invest and to expand production. The value of production reached an amount of ca. 12bn USD in 2012 according to the association of the household textile industry TETSIAD. At the same time goods to the value of about 9bn USD were sold on the local market, the rest was exported. Turkish producers want to further expand their exports and estimate sales revenue will be 3.3 bn USD for 2013. Compared to 2012 that would mean an growth of almost 18%.

At present investments are increasingly undertaken to expand capacity and to raise the level of quality. Furthermore Turkish producers are making funds available for improvements in the sales distribution network both domestically and abroad. Modern designs and innovative offers are intended to attract the attention of foreign customers.

Besides providing protection to the Turkish market, the Turkish government is also giving stimulus to the Turkish economy through an attractive market incentive program for investors.
On 05.04.2012 Prime Minister Erdogan announced a new framework for the promotion of investments. The program is based on 4 pillars: General investment promotion, regional investment promotion, large investments and strategic investments.

For example, ‘general investment promotion’. In this instance projects are promoted that involve a minimum investment amount. The amount of the minimum investment depends on the location of the investment. The provinces were divided into six zones (previously four) for this purpose. These zones have a significant importance within the framework of the four pillars of investment promotion. Should the investment be located in zones 1 or 2 (the most developed areas), then the minimum investment amount is 1 mio TL (ca. 430.000 Euro) in order to gain benefit from the investment promotion program. In zones 3 to 6 the minimum investment amount is 500.000 TL (ca. 215.000 Euro).

Should an investment fulfill these requirements then the machinery or other equipment (independent of origin) necessary for the investment and recorded in the investment certificate is exempt from sales tax (VAT). This machinery and other equipment are also exempt from the payment of duties when imported. Besides that, the income from new jobs created in zone 6 is not subject to a tax on wages as a withholding tax for a period of 10 years.

'Regional investment promotion' is concerned with attracting very specific industries to prescribed areas. For this purpose, there is additional tax relief and the state assumes the employer's share of social benefit insurance contributions for a particular period of time for the newly created jobs.

The incentive package concluded by the Turkish government on 19 June 2012 has quickly proven its worth. After 40 days there were already 480 project proposals with a total value of 5.5 billion Lira, ca. 3.2 billion USD. Above all the textile and garment industry was in great demand. It was the target of 19% of the applications submitted.

Modernisation of the production facilities

The protective measures taken has provided Turkey with a certain time window to first and foremost expand their textile industry via the investment programs and then to modernise in such a way that they remain competitive in the face of Asian counterparts.
The latest Chinese FYP affects Turkey mainly in that the planned transformation of the Chinese textile industry to more high-tech in automation and improved quality of textile goods targets a segment where Turkey has so far been clearly better positioned. That in turn demands the modernisation of the Turkish textile industry in order to maintain the competitive edge in knowledge and automation. The latest generation of machinery with its high productivity would be of benefit and support the global trend for more sustainability in production at the same time.

In future this will be a decisive factor of competitiveness that is intensified by the geographic proximity of Turkey to the EU. Long transport routes cause a lot of CO2 and the overall purpose is to reduce it.
The textile machinery industry in Germany contributes to this as the largest machinery supplier to the Turkish textile industry. In 2011 German exports of capital machinery to Turkey reached a record level of 3526 mio Euro, an increase of 28.4% on the previous year. Textile machinery and products of general ventilation technology from Germany recorded the greatest demand.

An event that connects supply and demand and deliberates on the requirements for the future and possible solutions has been organised by the German textile machinery association VDMA. 25 German textile machinery manufacturers presented their latest solutions on occasion of two VDMA conferences mid of November in Istanbul and Gaziantep (Southeast Anatolia). Roundabout 600 participants from the Turkish textile industry used the chance to learn, how German technology can help the sector to cope with the tough competition from Asia. Fortunately, several German companies were able to close deals with Turkish customers during the VDMA event.

The additionally scheduled ITM 2013 presents the next great opportunity and takes place from 29 May to 01 June in Istanbul.

http://www.invest.gov.tr
http://www.dw.de
http://www.deutsch-tuerkische-nachrichten.de
http://www.td-ihk.de
http://www.ulm.ihk24.de
http://www.itkib.org.tr
http://ec.europa.eu
http://www.wto.org

ITM 2013

'Flexible response' to market development

You should have only read this preliminary report on ITM Texpo Eurasia in 2014 as the next trade fair planned for this year was to be in Istanbul. News however had reached us in July, three months after the very successful trade fair in 2012, from the event organisers Teknik Fuarcilik Yayincilik, Reklamcilik, Danismanlik Tic. Ltd. Sti. and Tüyap Tüm Fuarcilik Yapim A.S. that the most important exhibition for the Turkish textile industry had been brought forward to 2013.

As a result the 5th ITM will take place, as was the case last year, in association with the 30th Texpo Eurasia, the 5th Hightex International Technical Textiles and Nonwovens fair and the 10th International Yarn Fair at the trade fair grounds Tuyap Fair in Istanbul from 29 May to 01 June.

The reasons for the rescheduling according to Necip Güney, Exhibition Sales and Marketing Director, are clear. The trade fair last year was very successful and demand for innovative textile machinery remains at a high level in Turkey. 'Investments not completed in 2012 will be completed in 2013', he says. He described in detail the competitive position of the Turkish textile industry as opposed to that of the Far East and the resulting necessity to modernise the stock of machinery, the potential for an increase in demand for domestic products as a result of protective duties on diverse textile groups and not least the incentive program passed by the government in mid 2012 as reasons for essential investments. [For further information please refer to 'country focus on Turkey']

Whether the rescheduling is successful will only be finally known to us at the end of May. The 2013 trade fair is certainly going to be again a real highlight for the textile industry in Turkey and the neighboring Eurasian countries as they will be able to take a close look at the latest innovations and improvements at first hand and in a compact event. The association with Hightex and the International Istanbul Yarn Fair particularly has created a real one-stop shop trade fair and the four days of the trade fair provide sufficient time to communicate with suppliers and obtain the first concrete proposals for modernization solutions.

The next ITM is then not to take place again before the second half in 2016. Not a bad idea as ITMA 2015 is sure to deliver many innovations to Turkey.

As in 2012 many well-known manufacturers from all sectors of the value-added chain in textile production will be represented at a stand and exhibit machinery. The allocation of the individual sectors to the various halls varies slightly to that of the previous year.

Hall 2 will feature cotton and yarn preparation machinery and yarn twisting machinery. Exhibitors to visit for watsching latest state-of-the-art technology are **Oerlikon** from Germany and Savio from Italy.

Savio (Hall 2 / Booth 215A) will be presenting high-perfomance, energy saving and less labor intensive products like the Automatic winder POLAR/ I DirectLinkSystem for linking the ring spinning frames to winders. Many important developing markets are investing on this kind of high-automatic systems, because of the growing difficulty of hiring operators, for the end product quality and production advantages that such solution offers. In fact Polar I DLS has been designed in a “modular type” granting the possibility of reaching the highest number of winding heads to match the trend of the spinning frame manufacturers with longer and longer machines up to 2.000 spindles . This modular solution gives the Polar/I DLS the highest potentiality, being the same equipped, upon request, with N° 3 end finder stations, where the ring frames bobbins are prepared and get ready to the winding heads for the subsequent process. The POLAR/ I DirectLinkSystem winding solution represents Savio’s most high-end product.

In hall 3 visitors will find dyeing-printing-finishing machinery, textile chemicals, laboratory equipments and quality control systems as well as CAD-CAM-CIM applications & automation systems.

In hall 4 will be found again CAD-CAM-CIM applications & automation systems and –this group is new- all kind of machinery spare parts.

Hall 5 and 6 are reserved for the 10th International Yarn Fair. The Turkish Yarns Sector which wants to enter new markets will have in 2013 a record participation with over 150 companies. Highlights will be technical yarns manufactured with high technology and products for the 2014-2015 fashion season. And there will be special tracks supporting the ecological trend. From yarns made of bamboo and soy fiber yarn to organic yarn; from regenerated yarns obtained by recycling, to yarns manufactured by processes free from hazardous chemicals, a large range of green products will be offered to the visitors‘ taste.

Weaving preparation machinery and weaving machinery will be hosted in hall 8 and 9 which have been the home of Hightex in the last year. **Van de Wiele (Hall 8 / Booth 816)** will show carpet and velvet Innovations. For example Van de Wiele presents a new carpet quality in reed 500 dents/m, 16 colour frames, made on the Handlook Carpet Innovator HCi X2, a three rapier weaving machine, producing 50% more than double rapier machines.

Hightex 2013 is located in hall 10 and hall 2. The German **DiloGroup (Hall 10 / Booth 1004)** sees Hightex as an excellent opportunity to present its portfolio of equipment to the Turkish market. DiloGroup is the premier builder and supplier of complete nonwovens lines made in Germany for staple fibre nonwoven production. Each line is specifically engineered to customer needs. A major focus of the new Dilo equipment is to improve operation efficiency, web quality and uniformity with positive effects on all staple fibre bonding processes. All these elements are part of the "Dilo – Isomation Process" and aim at an even web mass for reduced fibre consumption as raw material is the biggest cost factor in textile production.

DILO - MultiFeed by DiloSpinnbau

And last but not least the huge hall 12 will be the home of flat and circular knitting machinery, hosiery machinery and embroidery and quilting machinery. This is not a surprise because the knitting area was the most crowded during the last ITM.

The world market leader in warp knitting machinery and warp preparation units, **Karl Mayer (Hall 12 / Stand 1202A)**, has an ML 46 in its exhibition package and will demonstrate the advantages of an electronic multibar Raschel machine of the latest generation. The innovative production equipment had already attracted attention with a typical performance at last year's ITMA Asia+CITME. The ML 46 is characterized by an extremely high productivity, by the top quality of its products, and by its versatility in different application fields – and, last but not least, it also comes at a moderate price.
With its excellent cost/performance ratio the new ML 46 is the first-choice machine as it permits rapid adaptation to rapidly-changing market demands. In this case, those visiting the exhibition can see for themselves. During ITM Texpo Eurasia 2013 the newcomer will produce net curtains with complex patterns.

*(The **TexData website** provides you with the latest reports on ITM in the **category ITM 2013** as well as some impressions of the 2012 trade fair in pictures.)*

http://www.texdata.com/43.itm2012.html

As one of the most influential textile events in China, The 16th International Exhibition on Textile Industry (ShanghaiTex 2013) will be held at Shanghai New International Expo Center, Pudong, Shanghai, PR China on June 10-13, 2013.

The Shanghaitex that has taken place since 1984, could profit this year from the timing of the event, despite losing some of its charisma due to the biennial ITMA Asia fixture. The present Chinese FYP (2011-2015) has reached its halfway point and is calling for investments in sustainable production and more automation. Rising wages reinforce this necessity.

The broad technology portfolio of the Shanghaitex and the participation of numerous leading manufacturers in the market could become a very important event while definitely accelerating the new direction and transformation of the Chinese textile industry, this process takes time and in 2015 there should be results.

As far as the event organisers Adsale Exhibition Services Ltd, Shanghai Textile Technology Service & Exhibition Center and Shanghai International Exhibition Co Ltd are concerned the Shanghaitex 2013 is to outperform the last trade fair held in 2011 that had already yielded very good results with over 1000 exhibitors from 23 countries, an exhibition space of 92.000 sqm and 55.080 visitors. Once again in 2013, more than 1000 companies will be exhibiting and will show innovations and latest improvements in productivity, energy saving and new materials for the textile industry, especially for the Chinese market.

The 16th International Exhibition on Textile Industry (ShanghaiTex 2013) will feature a full array of textile products, machinery and technology. Eight theme zones cater to industry trends and market needs. Drei der Zonen sind nagelneu und die Veranstalter versprechen sich einiges von den neuen Zonen, denn sie wurden extra für die Bedürfnisse der Industrie geschaffen. Mr. Stanley Chu, Chairman of Adsale Exhibition Services Ltd, stated that, „Since the business environment becomes more competitive and dynamic, industry players request a one-stop platform for their total sourcing requirements. Many of our visitors are leading manufacturers who are constantly exploring options to improve their productivity and to respond quickly to customers‘ demands. The newly added theme zones are industry-focused, which will surely bring plenty of inspirations for new materials and technology to our visitors.“

The new zones are:

New Materials, Technologies & Designs for Knitting Products

With new materials and technology advancement, finer knitted products can be produced and more sophisticated designs can be achieved. This zone will demonstrate the latest knitting products and the related technology applications.

Techtextile Technology & Product

This zone is one of the show highlights and the exhibiting area will gather a wide range of performance fabrics and value-added products in this blooming technical textile market.

Digital Printing Machinery

The marketplace will feature an integrated digital textile printing solutions and machinery with new industry standard in the market sector. The new generation of machines with higher outputs, higher resolution printing heads, and more sophisticated textile material handling systems are the must-see items!

With ever changing and improving technology, the application of digital printing technique on textile industry is moving at the fast lane. Industry researchers estimate that there will be an increase of 30 billion yards of material volume on annual growth rate in worldwide textile printing industry, while the application of digital printing on textile goods accounts for growing share and continues expanding, which moves from mass-production to mass-customization. The „Digital Printing Machinery Zone“ has received overwhelming support from numerous key enterprises.

One of the exhibitors will be **Storck Prints (Hall W3 / Booth J01)**. The company will confirm its leading position for the textile industry and will show new digital textile printing ink. Visitors to the Stork Prints stand can see the complete digital ink portfolio, presented by plenty of printed samples with Stork Prints' FLARE, NEBULA and QUASAR inks. Furthermore the company will present better end results in rotary screen printing with NovaScreen®, the new NovaScreen® 195 - 19% 8 (see article in this issue) which distinguishes itself by combining high paste transfer rates with superb resolution, the reduction of Moiré effects with RandomScreen® and the future of intelligent digital pre-press. The new direct laser exposing system smartLEX, containing Stork Prints' blue-ray technology, combines perfect imaging quality with an outstanding ease of use. And there's more. Storck Prints wants to demonstrate at Shanghaitex that they are the only global partner that can offer solutions for every phase of the production process as well as consumables including (digital) pre-press, printing and drying. Other exhibitors in this area will be Kornit Digital and Durst.

Well-established Product Zones for Easy Visiting

The other five well-established zones will fulfill the interests of the industry buyers with wide spectrum of technology, machinery and services in the Industry displayed at ShanghaiTex 2013. They are: Knitting & Hosiery Machinery, Weaving Machinery, Spinning & Techtextile Machinery, Printing, Dyeing & Finishing Machinery & Textile Chemicals and Spare Parts and Accessories for Textile Machinery.

Oerlikon will present latest innovations from Oerlikon Textile with the brands Oerlikon Barmag, Oerlikon Neumag, Oerlikon Saurer, Oerlikon Schlafhorst and Oerlikon Textile Components.

Savio (Hall E1 Booth E41) will be presenting high-perfomance, energy saving and less labor intensive products like the Automatic winder POLAR/ I DirectLinkSystem for linking the ring spinning frames to winders or the new generation of Two-for-One twisters SIRIUS. In fact Polar I DLS has been designed in a “modular type” granting the possibility of reaching the highest number of winding heads to match the trend of the spinning frame manufacturers with longer and longer machines up to 2.000 spindles . This modular solution gives the Polar/I DLS the highest potentiality, being the same equipped, upon request, with N° 3 end finder stations, where the ring frames bobbins are prepared and get ready to the winding heads for the subsequent process.

The POLAR/ I DirectLinkSystem winding solution represents Savio’s most high-end product. The SIRIUS twister responds to the demands of Far East 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

Savio Two-for-one twister Sirius

Traditionally, all the important companies belonging to the knitting industry are present at ShanghaiTex, and this is also valid for **KARL MAYER (Hall W1 / Booth E01)**. The world market leader for warp knitting machines and warp preparation units will be displaying its products on an exhibition area of 744 m_ and will be showing its latest developments in the lace and tricot machinery sections. Among other things, the visitors will have the opportunity to see the high performance of KARL MAYER'S new 4-bar TM 4 EL tricot machine. It completes KARL MAYER's portfolio of TM models and is intended for the production of plain fabrics, being the counterpart of the TM 4-T EL in the 4-bar tricot machine range, which is designed for manufacturing terry articles and which will also be presented at ShanhaiTex. The guests will also have the chance to take a look at innovations related to the topic of Jacquard fabrics made on double-bar Raschel machines.

KARL MAYER - Tricot machine with four guide bars TM 4 EL

The business unit Warp Preparation will be showing its new elastic warper DSE 21/21 EC. This newcomer completes the manufacturer's offer of direct warping machines, being the price-performance-improved equivalent of the DSE-HH type. Compared to the top-performance model, the DSE 21/21 EC produces beams with smaller maximum diameters. The KARL MAYER stand will also be presenting the efficiency of various yarn tensioners fitted to a demonstration creel, and the company will also display a SMS size box – all in all, a wide-ranging showcase of new developments.

Interspare (Hall W5 / Booth A28) from Germany will showcase spare parts and new machinery. Textile companies that use finishing machines by **Artos (Babcock, Famatex), Krantz, Stentex** in their production have an excellent opportunity to inform themselves on innovative modifications to their machinery by visiting the INTERSPARE stand at Shanghaitex. Such modifications lead for example to enhanced results in energy efficiency. Not only is greater productivity achieved but also an improvement in the environmental record - very important for the sustainability strategies of textile producers and for satisfying the increasing demands of major brands and retailers. Besides modifications to existent machinery INTERSPARE is also able to offer the complete supply of new machinery as a result of the expansion of production capacity in Germany. Companies planning investment in tenter frames or dryers can convince themselves of the advantages of the state-of-the art machinery of the Krantz, Artos and Stentex brands at the INTERSPARE stand.

Show Highlights in 2013

From Fibers & Yarns to Ready–to–Wear Apparels – Fashion Manufacturing Lines

In collaboration with renowned exhibitors and design institutes, ShanghaiTex 2013 will display the whole processes of manufacturing lines of knitwears - from fibers & yarns to the ready-to-wear apparels in this practical demonstration corner.

Concurrent presentations on design and knitting technology as well as catwalk parades will be organized, aiming at showcasing how manufacturing technologies and applications work on fashion.

The Onsite Digital Print Shop

In the newly–added Digital Printing Machinery Zone, a direct print shop will be set up exclusively to allow printers to demonstrate their machinery, software applications and printed outputs in a total solution. Visitors can learn first-hand innovations and technical instructions from our industry experts. The lucky ones can even get the printed souvenirs!

From Manufacturing to Brand Building – Interactive Forum

It is designed for industry leaders to get new ideas on fashion designs, branding, trends as well as marketing and promotion with the audiences in the interactive workshops and insightful presentations – a survival kit for the textile and garment industry.

The Shanghaitex 2013 promises to be an interesting and top quality event as a direct result of the new fields of focus and the participation of the leading machinery producers in the market.

*(The **TexData website** provides you with the latest reports on ITM in the **category Shanghaitex 2013**:*
http://www.texdata.com/56.shanghaitex-2013.html)

Additive injection and mixing in modern spinning plants

by Friedel Dickmeiß and Jörg Alexander - Oerlikon Barmag

Statistics reveal that spinning line capacities are becoming increasingly large

The majority of recent installations for polyester have been spinning lines directly connected to a common reactor. Lines of this kind are economically prudent, although flexibility is very limited compared to extruder spinning lines. Here, additive injection and mixing systems can help regain this lost flexibility.

With the help of these systems, masterbatches and additives can be introduced into the melt path at various points between the reactor and the spinning positions. Any number of units can be installed at one reactor spinning line. Depending on the position of the melt distribution pipework, the injection unit can feed additives into anywhere between 2 or more than 48 spinning positions. Today, units are already in operation in 2-, 4-, 12- and 24-position direct spinning lines.

Thus, the variety of yarn to be manufactured simultaneously can be increased dramatically.

Typically, customers inject the following additives: TiO2 masterbatches, various color masterbatches, flame retardants, UV stabilizers, etc.

In order to find suitable positions, numbers and capacities for installing these additive injection and mixing systems, the following aspects need to be taken into consideration:

What are the typical sizes of production batches and how often are such orders expected? How many different products, with regard to additive or color, are to be produced at the same time?

In all cases, the system comprises three main components:
feeding extruder, metering pump and powered dynamic mixer. A typical configuration is shown in Figure 1.

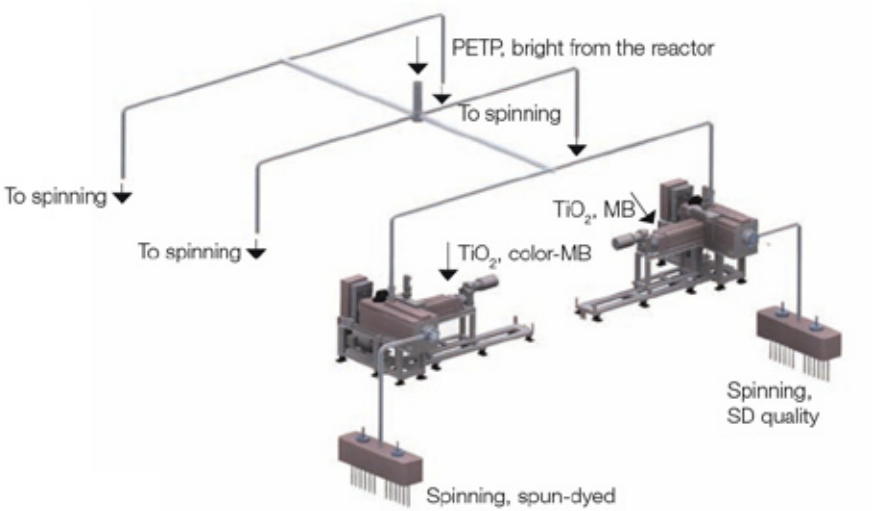


Figure 1: Additive Injection and mixing in a spinning plant

- The masterbatches or additives need to be injected in a defined ratio with very high accuracy and reproducibility. This is achieved by using a metering pump that runs at a pre-calculated speed, taking the speeds of all relevant spinning pumps into account. The design of the metering gear pumps guarantees high volumetric efficiency, which makes the metering accuracy independent of viscosity and melt-pressure variations. Due to the very abrasive behavior of the masterbatch, the metering pumps are partly manufactured from PM steel. In order to reduce the number of bends in the melt pipes for the entire masterbatch melt system, “inline design” metering pumps are used nowadays.

- The masterbatches or additives need to be mixed into the main polymer stream in a very even manner so as to achieve the optimum homogenization of all components. This function is carried out by the powered 3DD mixer (three-dimensional dynamic mixer). The arc-shaped cavities of the internal rotating section and the stationary cylindrical section divide the axial melt streams into extremely fine layers, which are constantly rearranged in the tangential and axial directions and then reunited. The melt flow characteristics inside the mixer combine the two principles of mixing: the dispersive mixing effect, with the high-shear principle, and the distributive mixing effect, which divides the flow into a large number of small units. Distributive mixing is designed to improve the spatial distribution of the components, while dispersive mixing can cut agglomerates wherever minimum stresses and deformation are required. Thus, melt is cut into thousands of small slices, resulting in excellent mixing results.

A broad range of mixer speeds is possible, independent of the melt volume passing through the mixer. Insufficient mixing energy will result in poor homogeneity. On the other hand, excessively-high mixing power will cause high melt temperatures and a high pressure drop. In the case of the3DD mixer, selecting the appropriate rotor speed generates the desired mixing effect.

In addition to the mixing elements, the rotor inside the mixer also incorporates a metering screw section. This enables the mixer to work with virtually no pressure drop.

The pressure drop necessary for mixing is compensated by the pressure generation in the screw section. This allows the retrofitting of this mixing system without the need for additional booster pumps.

The barrel of the mixer is electrically heated and cooled by air blowers. The melt temperature can be influenced by heating or cooling the melt. For this reason, the melt temperature at the mixer outlet, for example, can be kept at the same level as at the inlet.

- Processing of masterbatches needs to be trouble-free over long eriods of time. Today, masterbatches are highly pigment-loaded. This makes the design of the entire system extremely challenging so as to avoid any stagnation areas. In addition to the special coating of the feeding extruder's screw, the melt path needs to be as short and straight as possible. An easy-to-operate discharge valve allows the feeding extruder to be flushed when one masterbatch is replaced with another. Using a freezing valve, the mixer can be separated from the additive supply in the event that production does not require the addition of masterbatches or additives.

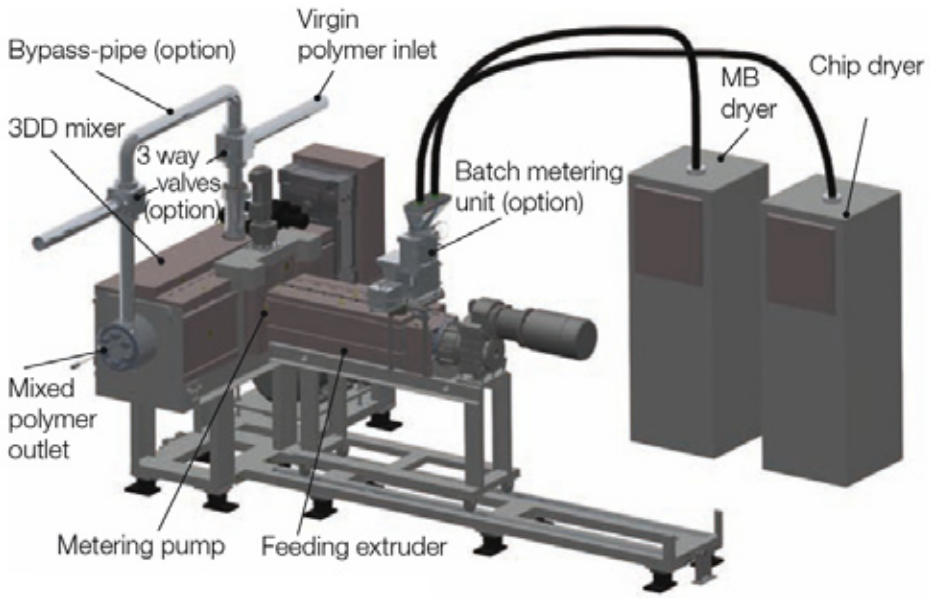


Figure 2: Full equipment layout: feeding extruder metering unit, metering pump, 3DD-mixer with bypass

A second positive feature of these systems is the environmentally-friendly introduction of the dyes into the yarn.

The experience acquired from the systems installed to date shows that – even for the manufacture of very demanding types of dyed yarns suitable for the automotive industry – additive injection and mixing systems are a convincing solution for direct spinning lines.

The Oerlikon Barmag range of products covers capacities of between 50 kg/h and 5,000 kg/h for the main polymer flow, with mixers with diameters of between 60 mm and 350 mm and capacities of 3 kg/h to more than 450 kg/h for the masterbatch polymer flow to be injected. If the feeding extruder is equipped with an additional batch metering unit, the capacity of the masterbatch flow can be as low as 1.0 kg/h.
This also makes these systems suitable for supplying smaller lines with just two spinning positions, for example.

A further option is a bypass pipe with two 3-way valves to bypass the unit if required. Chip dryers are required for hydrophobic granulates such as PBT- or PET-based masterbatches. All the equipment is displayed in figure 2. Figure 3 shows a system prior to shipment.

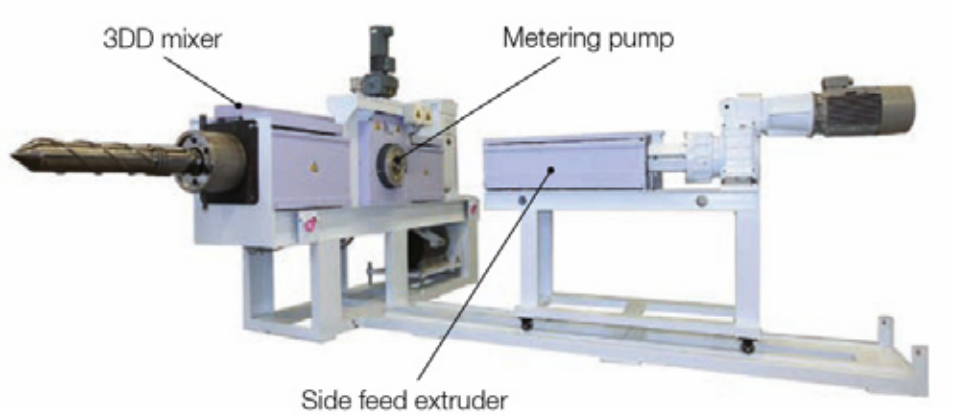


Figure 3: A 225-mm-diameter powered 3DD mixer with metering pump and a 60-mmdiameter injection extruder processes up to 2,250 kg/h of main flow. The masterbatch flow can be between 13 and 84 kg/h.

Stork Prints introduces new NovaScreen® type for textile printing

by Mr. Albrecht Gebhard - Stork Prints

Stork Prints introduces a new NovaScreen® type to the international textile printing world.
NovaScreen® features the top end of Stork Prints' textile screens collection. This screen is an established brand and delivers the best printability and printing definition. The new NovaScreen® combines the benefits of the existing NovaScreen® 165 (mesh) and NovaScreen® 195 (mesh).
NovaScreen® 165 is known for its large open area (19%); whereas NovaScreen® 195 offers a very high printing resolution. This unique combination allows printers who prefer NovaScreen® 165 for the voluminous paste supply purposes, to work with the new high resolution NovaScreen® 195-19%.

The new screen has a number of benefits:

- the highest printing resolution combined with the highest screen volume;
- improved surface printing;
- benefits in geometrical printing.

Screen parameters

To fully understand the benefits of the new NovaScreen® 195-19%, one must appreciate the general screens' characteristics, or parameters. The parameters open area, mesh count and screen thickness have a close relation. This is due to the nickel growth occurring during the screen manufacturing process. Simply put, a higher mesh count and a higher thickness of the screen decreases the open area.

During the screen making process, the nickel grows from the mandrel in both directions, to the top and to the sides. Being the experts in electroforming, Stork Prints is able to steer the nickel growth mainly in the top direction. This way, the dam shape stays thin and gets streamlined. Therefore the ratio between hole-size, mesh count and thickness of the screen can be pushed beyond the conventional boundaries of the rotary screen printing industry.

The existing NovaScreen® program illustrates the possibilities in thickness, open area and hole-size:

- NovaScreen® 135, thickness 120 micron, 22% open area, hole-size 88 micron
- NovaScreen® 165, thickness 115 micron, 19% open area, hole-size 67 micron
- NovaScreen® 195, thickness 115 micron, 16% open area, hole-size 52 micron

These specifications indicate the boundaries of what was possible in the recent past. However, due to the improved production process as described above, it is now possible to increase the open area for a given mesh count even more. The new NovaScreen® 195-19% specifications are:

- NovaScreen® 195-19%, thickness 115 micron, 19% open area, hole-size 57 micron.

Printability of regular NovaScreen®

To fully appreciate the printability of the new NovaScreen® 195-19%, we must first look at the printability of regular NovaScreen®. Looking at the process of paste transfer from the inside of a screen onto the substrate, we see that the main direction of the paste flow is downwards, straight into the fabric.

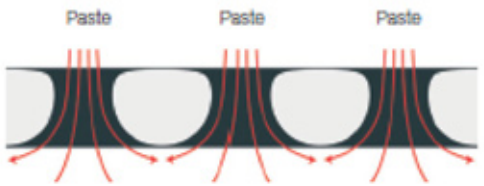


Fig. 1: Paste transfer through a conventional screen

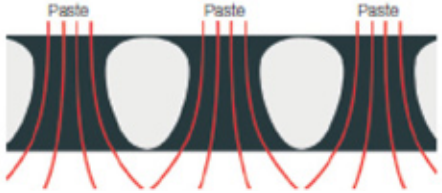


Fig. 2: Paste transfer through NovaScreen®

Paste flows of neighbouring holes must come together to obtain an even spread of paste on the substrate. In order for this to happen, paste flows need to flow beneath the dams. Logically, smaller and more streamlined dam shapes increase the chance of this to happen, with less squeegee pressure. This permits surface printing as demanded for pigments. This specific design of NovaScreen® allows for better control of paste transfer. For example, by applying low shear stress inside the screen, the paste is kept on the textile substrate's surface.

On the other hand it is also possible to do penetrative printing, depending on the given print parameters.

Printing with the new NovaScreen® 195-19%

The current NovaScreen® 195 has a 16% open area. Increasing the open area has several technological advantages, such as better paste flow and printability. The pitch, which is the dimension of one hole and one dam together, stays the same size at a given mesh count. The hole-size however gets bigger, resulting in a higher open area while the dam width decreases.

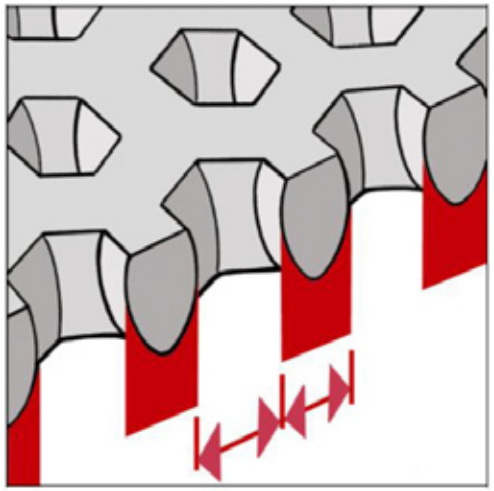


Fig. 3: Pitch of a rotary screen

	195-19%	195-16%	165-19%
Pitch (micron)	133	133	158
Hole-size (micron)	57	52	67
Dam width (micron)	76	83	91

Tab 1: Comparison of hole-dam ratio of various types of NovaScreen®

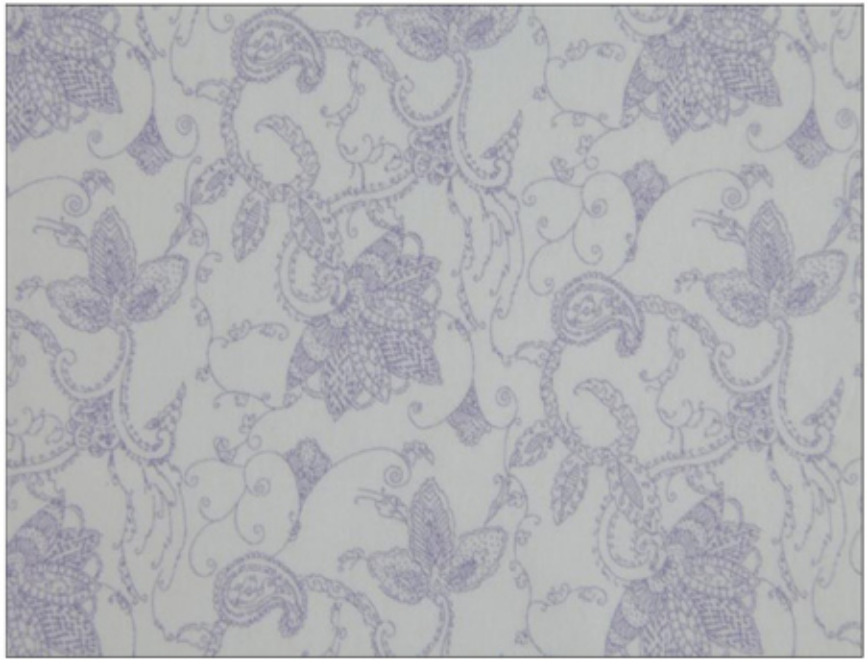
This way, the screen's printability is substantially improved. Less printing pressure is needed to achieve a decent coverage of the substrate. This is especially interesting for pigment printing, because here the printing takes place at the surface. Avoiding penetration leads to a softer hand and a higher colour yield. Therefore the new NovaScreen® can even save paste and it is more cost-effective in comparison to lower mesh screens.

Exploring the results with NovaScreen® 195-19%

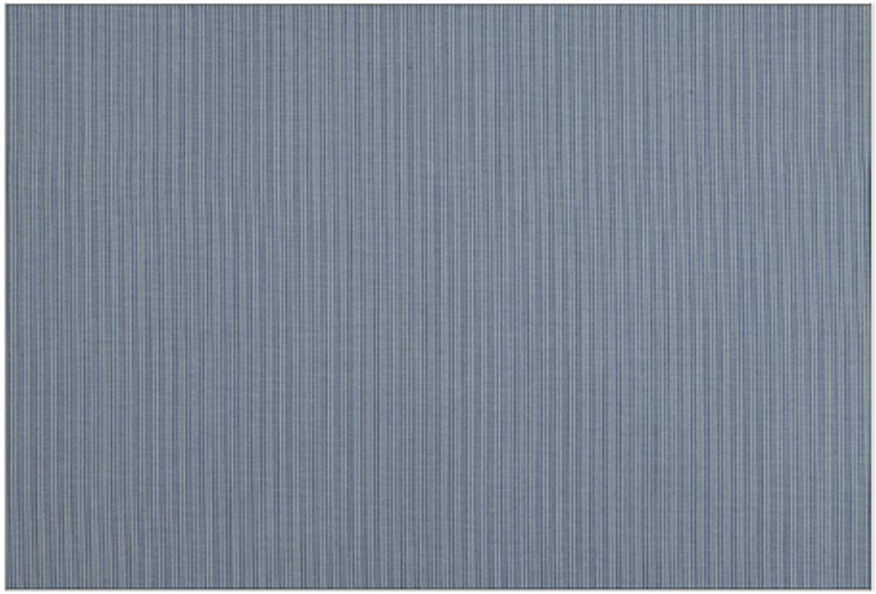
When using NovaScreen® 195-19% the most visible and rewarding results are obtained in prints with voluminous substrates and high resolution. Let's explore 3 printing techniques: fine-line printing, halftones and reactive printing. Geometrical and fine-line printing Geometrical and fine-line printing depend mainly on a screen's mesh count. The pitch defines the finest line that can theoretically be printed.

Any given line will not always be completely straight; in some spots it will be constricted and look more or less curvy/wobbly. The reason for this is that the engraved line is covering spots with more or less holes or bridges.

A screen with a wider hole diameter is therefore contributing to a better line straightness. The open area in an engraved line is higher and allows for better filling of the engraved design. Along with this, the straightness of the printed shapes' edges is also improved.



Geometrical printing



Fine-line printing

Halftones

Generating halftone impressions in screen printing depends on rasterisation. A shade impression between full tone and no print is achieved by printing a grid structure with dots instead of a continuous print. The human eye mixes the impression of printed and none-printed areas and a halftone impression is produced. The quality of rasterisation depends on dot definition and on the finest printable dots. The wider hole diameter allows for a better filling of the engraved grid structure and therefore higher definition of the raster dots.

Halftone printing

Penetrative printing

In penetrative printing, such as reactive printing, a wider hole-size enables more voluminous paste transfer. This way, the paste can completely penetrate the substrates, which require complete print-through. Substrates used for instance in ladies' fashion such as knitted viscose or viscose georgette with highly twisted yarn, require a complete saturation by the paste. As the fabric is entirely saturated with paste, superficial unprinted spots which might occur during washing are avoided.

Breezy materials in ladies' fashion often need a print-through effect - the backside also being covered by printing paste - for optical and design reasons. Really deep and full shades require a high paste volume. Therefore NovaScreen® 165 with its high open area is often preferred for those applications.

The new screen features the same open area as NovaScreen® 165 and the same definition as the existing NovaScreen® 195.

In summary: the new screen type can be seen as a hybrid between the existing NovaScreen® 165-19% and NovaScreen® 195-16%. It features the advantages of both screen types and can therefore be used for full penetrative printing as well as surface printing, both providing the best possible printing resolution in textile printing.

Stork Prints Stork Prints is a global leading company in the textile and graphics printing market. Providing total system solutions: from screens, lacquers, inks and digital engraving to a broad range of rotary screen and digital printing systems. Being the expert in electroforming this not only entails highly reliable rotary screen technology but also an extensive program of precision metal products.

Topics of the next issue 3 /2013

TOP STORY:

Energy efficiency consumption

Interview

Yarn & Fiber trends

Cotton

Country focus: *China*

Nonwovens & Technical Textiles:

“Protective Clothes”, „Automotive”, “Filters” & „Geotextiles”

Textile Machinery:

“Spinning, Weaving, Knitting, Dyeing, Drying & Finishing Improvments”

ITM Review
Techtextil Review
Shanghaitex Review

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