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Business // Finance // Market // Technology

Yarn // Fiber *Spinning *Weaving * Knitting *Dyeing // Finishing // Washing // Drying * Nonwovens // Technical Textiles *Textiles // Apparel // Garment

Big boom for nonwovens?

- Interview with Johann Philipp Dilo, Dilo Managing Director
- Interview with Georg Statusberg, Oerlikon Manmade Fibers, Segment GEO
- ▶ Interview with Stefano Gallucel, SantexRimar Group GEO
- Interview with David Gerber, Author
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Dear Reader,

Have global economic growth figures been getting you down a lot lately too? At the end of the day, I believe that you sometimes need to take things as they come, and with a little patience, hard work and creativity, you will be able to see how your business can get ahead of the game. After all, 2016 hasn't been going that badly so far. What is much more important than the overall climate is what is happening within the multitude of smaller, individual sectors, and right now, these are brimming with positive news. According to a joint report from edana and INDA, the non-woven sector has been continuously expanding at an unprecedented rate. Idea16, which has just ended, reported record figures when it came to exhibitor and visitor numbers. It goes without saying that we will be taking a closer look at developments within this sector later on.

And what is the current situation like in the garment and home textile sectors? The ITM trade fair in Istanbul could be an indicator for the future in these terms, as it has traditionally been a hub for textile producers. As well as this, the location of Istanbul, with its proximity to Europe, Asia and Africa, covers a rather large selection of countries. This makes it one of the most important trade fairs in the textile machine sector. Exhibitors will be sure to impress with the ITMA innovations they present, and they can look forward to a trade fair which is just as successful. We shall be taking a look at Turkey itself and the technology exhibited at the trade fair in particular.

Furthermore, we are proud to present four interviews in this issue. Johann Philipp Dilo, owner of the DiloGroup, talks about the latest machines and participating in the ITMA, as well as topics such as brainstorming, loving his job and what he does in his spare time, allowing us an exclusive insight into both his personal and professional life. Georg Stausberg, CEO of Oerlikon in the manmade fibre sector, tells us about challenges in this industry, solutions developed within his company, and their latest acquisition.



Stefano Galluci, CEO of the new SantexRimar group, lists the motivations and goals of this recently established company group, including the further development of their newest member, weaving machine manufacturers Smit. Plus, David Gerber answers questions on his thought-provoking new book about his father, Joe Gerber, who fled Austria to the USA as a boy to escape the Holocaust, and over the course of his career became one of the most important inventors in the garment industry bar none.

In this issue, our Country Focus is dedicated to a country which has been very important for the European textile industry, and could become even more important when it comes to the fast fashion trend. This time, it's all about Spain.

Please recommend us to your colleagues and business partners, and do not hesitate to give us your highly esteemed feedback. Contact us, as always at: editorial@texdata.com.

We wish you successful business and an enjoyable time!

Best regards, Oliver Schmidt





New 2016: Monforts coating solutions System Timatec

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A lready for the sixth time the ITM International Textile Machinery Exhibition and concurrent HIGHTEX 2016 International Technical Textile & Nonwoven Trade Fair are taking place from June 1-4, 2016 at at TÜYAP Fair Convention and Congress Center in Istanbul, Turkey.

As in the years before ITM 2016 is organized by Tüyap Fairs and Exhibitions Organization Inc & Teknik Fairs Ltd partnership with the Cooperation of TEMSAD (Turkish Textile & Machinery Industrialists Association).

Let's take a look at a few facts about the ITM. More than 1000 exhibitors from 30 countries will be presenting their machines and services in 12 halls and over an exhibition area of 120,000 square metres. Not surprisingly, the host country, Turkey, accounts for the largest number of exhibitors - an impressive 267 - followed by China (125), Italy (115), Germany (83) and Switzerland (31). Necip Güney, Chairman of the board of Teknik Fairs Ltd, stated in an ITM preview news that the 2016 ITM exhibition attracted a great attention of the world technology producers and makes a splash with the increase in participants and also booth spaces. As in the case of the last ITM held in 2013, almost 40,000 visitors are expected to attend.

The indicators for ITM 2016 should be seen as positive overall. While according to latest OECD forecasts, the global economy has been growing at a slower rate than predicted in Autumn 2015, Turkey is proving itself a positive exception to the general trend. As early on as 2015, Turkey, with an economic growth of about 4%, was showing surprising results, and the OECD is even predicting a growth rate of 3.5% for 2016 and maybe even as much as 4% for 2017. This makes Turkey the 4th fastest growing economy among the G20 members! OECD Economic Outlook, Volume 2015 Issue 2 vom Dec 2nd 2015 states: "GDP growth is projected to increase from 3% in 2015 to above 4% in 2017, as political uncertainties are assumed to to fade, emplyment continues to rise and the echange rate depreciation and the gradual strengthening of global markets support export growth." Also the European Commission has revised up Turkey's growth forecasts for 2016 and 2017 in its Spring 2016 Economic Forecast. The commission predicted Turkey to grow by 3.5 percent this year and 2017, both 0.1 percentage points higher than forecasts released in previous research. The European Union is expected to grow 1.8 percent this year while the eurozone growth forecast was 1.6 percent. With its forecasted 3.5 percent performance, Turkey will grow more than most EU countries except Ireland, Romania, Malta and Poland according to the report.

As well as these excellent growth prospects, it is also an excellent time for the ITM, because it is taking place just six months after the ITMA 2015 in Milan. Exhibitors are now set to bring the latest developments to Istanbul. Let's look back briefly at the ITMA.

With a high visitor rate of about 123,000 people, it proved just how vibrant and future-orientated the global textile industry really is. This degree of interest should also be present at the ITM. Cematex, in any case, reported that Turkey, at 8%, was in third place behind Italy and India in the ITMA visitor statistics. This means that 9840 visitors to the trade fair came from Turkey alone, and this highlights the great interest that Turkish textile manufacturers have in new innovations and new developments within the textile machine industry. At the subsequent ITM, visitors to the ITMA can avail of a first-class opportunity to take a closer look at their favourite machines and learn more about them with their employees and colleagues. And if you didn't manage to make it to the ITMA, then don't miss out on the ITM, as here is where you will be able to see state of the art technology for yourself and learn about how it is going to change the face of the textile industry.

The Turkish textile industry surely is very much looking forward to the ITM 2016. And not only this country will be enjoying the show, because the ITM has truly become an international event since its first happening in 2004, whose attraction reaches from Europe over Asia all the way to Africa. 39.256 visitors came to the last ITM in 2013, 32897 from Turkey and 6.359 from all other countries. 28.6% of these foreign visitors came from neighbouring countries of Turkey, 22.5% from Africa, just about 20% from Mid-West Asia and 22.8% from Europe. These figueres make the ITM one of the most important textile machinery fairs in the world and the organisers are expecting an increase this current year.

The Turkish textile industry ranks very highly in the world and is also very important for Turkey itself, particularly in terms of the country's exports. According to WTO statistics, in 2014, Turkey exported goods amounting to a value of 157,617 million US\$. 120,984 million US\$ of this pertained to the "manufactures" sector, which in turn amounted to 76.8%. On the other hand, textiles, with a value of 12,522 million US\$ and garments, with a value of 16,680 million US\$ together made up a share of about 24%. As well as this, textiles at 9.9% in 2013 and 3.1% in 2014, as well as garments at 7.8% in 2013 and 8.4% in 2014, saw promising growth in terms of exports. Overall, "manufactures" grew at a rate of 0% in 2013 and at a rate of 4% in 2014. Compared to 2010, exports for garments increased by 30.7% and exports for textiles by as much as 39.6%.

Turkey's share in world exports was stated as 0.83% for 2014 by the WTO. In contrast, their share in world exports for textiles and garments is significantly higher, as Turkey is a textile country. Turkey raked in 12,522 million US\$ for 2014 with a share of 4% for textiles and 16,680 million US\$ with a share of 3.45% for garments. Therefore, it follows China (35.5%), India (5.8%), Germany (4.9%), the USA (4.9%) and Italy (4.5%) in sixth place for textiles and China, Italy, Bangladesh, Germany, Vietnam and India in seventh place for garments. Currently, it is Vietnam, which has risen significantly over the last few years and grew by 88% in the garment sector between 2010 and 2014, that is the chief competitor that other textile countries must hold out against to retain their positions in exports. This is also true for Turkey.

An important signal for the continued boom in the Turkish textile industry is the recent depreciation of the Turkish Lira in terms of the Euro from 3 to approximately 3.2 TL, as the EU is the largest of Turkey's trade partners and Eurozone countries are facing a high dollar exchange rate.

However, it will become even more important to prioritize efficiency and productivity through investments and modernisation and to potentially even increase the quality of the goods to be able to tap into new market segments in the face of Asian competitors. Of course, it would not be a bad strategy to give the "Made in Turkey" label a better profile. This would in turn increase the level of trust that global consumers have for Turkishmade products, so that they would have a similar reputation to "Made in Italy" garments.

The textile and garment industry could also win major plus points if they invested in sustainability, as in terms of European sales markets, they already have a clear advantage over Asian competitors with shorter and therefore more sustainable transport routes. When it comes to sustainable production, the most modern machines that they will need were presented at the ITMA under the motto of "Master the art of sustainable innovation."

This brings us back to ITM and technology and thereby to the most important aspect of the fair: the exhibitors and their machines.

Spinning

Reiners + **Fürst** (R+F) will present the latest generation of TURBO chromium coated rings and a selection of enhanced ring travellers. TURBO rings offer simplified running-in and extremely stable running performance with highest spindle speeds even under most challenging spinning conditions. Another highlight will be the CERADUR ring and traveller system. CERADUR optimizes capacity utilisation of long ring spinning machines and simultaneously reduces labour costs as well as traveller costs due to extremely long lifetimes.

Rieter is presenting new machine generations for preparation and end spinning as well as appropriate spare parts, is showing components for the economical manufacture of high quality yarns in addition to After Sales services and is demonstrating optimisation possibilities for spinning mills with the assistance of the so-called "Internet of Things". Exhibited machines will be the Rieter **combing set** – **E 36** / **E 86** and the new **K 46** compact spinning machine.

The K 46 compact spinning machine is a further development of its successful predecessor model, the K 45. With maximal 1 824 spindles it sets standards in compacting, machine length and economy. In addition, the K 46 offers greatest flexibility for quality yarns.

The K46 requires only about 25 % of the compacting energy necessary with comparable solutions and enables fast and easy machine set-up and together with MEMOset also the storage and transfer of data to other ring spinning machines. Costs and effort for the replacement of worn compacting aprons are eliminated . The Rieter compacting system with detecting air-guide element guarantees highest consistency in the yarn quality. This positively affects the running behaviour and consequently increases the production.



Furthermore Rieter will present the extended **SPIDERweb mill control** system with six new modules, two of which are linked to the Internet. SPIDERweb is a groundbreaking step in the use of the "Internet of Things" for optimising the spinning mill.

Saurer Schlafhorst and **Saurer Zinser** will present their latest innovations from the ITMA in the spinning and winding sector. With their E₃ label the German textile machinery manufacturers offer their customers a guarantee of triple added value in the spheres of Energy, Economics and Ergonomics.

In the field of rotor spinning the new Autocoro 9 and the semi-automatic BD 6 are in a class of their own. The new **Autocoro 9** with its intelligent individual spinning position technology sets new records for energy consumption, productivity, efficiency, ease of operation and quality. The machine outperforms its legendary predecessor with sensational output data: 25 % lower energy consumption, 19 % reduction in spinning costs, proven rotor speeds of 180,000 rpm, take-up speeds of 300 m/min and a 60 % lower servicing outlay. The semi-automatic **BD 6** machine produces packages in Autocoro quality across the entire range of yarn counts and with package sizes of up to 320 mm in diameter. Its low energy consumption, rapid take-up speeds of 230 m/min and high piecing reliability cut spinning costs and increase the profitability of spinning mills.





Saurer Zinser 72

At a length of 2016 spindles, the new **Zinser 72** ring spinning machine breaks the 2000-barrier and sets new standards for efficiency in the commodity business. It lowers production costs by up to 11 % and has a footprint that is up to 21 % smaller compared with shorter rival machines. The new two-end TwinSuction system saves two-thirds of the energy consumption in combination with the sensor-controlled OptiSuction yarn break suction system. The ZinserImpact 72 is equipped with the self-cleaning **Impact FX** unit. The new ZinserSpeed 5A speed frame boasts an energy-saving mode for suction and flyer table blowing that shaves 20 % off the total energy consumed. In 220 gauge the speed frame is also up to 17 % shorter than its predecessor. With a doffing time of less than two minutes, the **ZinserSpeed 5A** ensures maximum production efficiency.

Intelligent sensor technology, smart process control, autocalibration and functionally optimised processes turn the new **Autoconer 6** into an automatic package winder that pushes the textile-technological limits, winding at the most productive settings virtually without the need for operators. Innovations such as LaunchControl, SmartCycle, SmartJet and Speedster FX boost productivity by up to 12 % compared with the previous model. The new Eco-Drum-Drive system, SmartCycle and the intelligent vacuum control system "Power on demand" reduce the energy consumption on the Autoconer 6 by up to 20 %.

Visitors should also inform about **POC**, the Schlafhorst and Zinser Plant Control System. Spinning mills can use their production and quality data to improve efficiency. Service intervals can be optimised and production downtimes and quality problems avoided by prompt intervention when using the new Off-Standard analysis.

And last but not least it makes sense to learn more about **SUN**. With the innovative SUN - SERVICE UNLIMITED service concept, Schlafhorst and Zinser offer their customers support in their day-to-day operations. Over 500 service staff in 20 service stations and 3 technology centres advise customers all over the world with regard to productivity and quality increases as well as energy conservation. The ecommerce platform SECOS 2.0 guarantees minimum response times in the delivery of original spare parts. And in SUN-PLAN Schlafhorst has developed a new service concept that is unique within the industry: Individual service at a fixed price.

Turkey is ranked in the top five export markets of **Savio**, so the attendance at Turkish exhibitions is meant at massive level for being closer to the important customers who are interested in Savio machinery for either their green field or expansion projects. In Istanbul, Savio () will display the new **Eco PulsarS** automatic winder, the new **Volufil** machine, combining winding and thermic treatment, and the drumless **Multicone** technology.

After the world premiere at ITMA Milan 2015, attracting a lot of attention from customers, **Eco PulsarS** will be showcased in Turkey for the first time. EcoPulsarS, with its innovative platform can save up to 30% power bill, reduce yarn waste, air conditioning costs & noise inside the spinning room. Energy is a major cost component in the textile industry.



High and rising energy prices have reduced the competiveness of textile products in some domestic markets, where imported products may be cheaper. Suction represents 75% of the total energy of a winding machine.

Savio's well proven and the best-selling automatic winder model **Polar** is still the number one winder in many world markets, for the traditional standard winding platform. It stands for increased productivity, reduced energy consumption, reduced waste and production of yarn package of highest quality. Further emphasis has been given on friendly use and almost maintenance free for any type of working environments. **Savio's Multicone digital yarn layering technology** (drumless) is available for Polar range and represents the proper solution to achieve flexibility, for an easy and fast change in the winding process to prepare all formats. Packages for dyeing, warping, weft, knitting, twisting, require a different and flexible package formation in terms of geometry, edges shape and density and the Polar "Multicone" system achieves this kind of flexibility in the package formation.

Volufil Multicone combines thermic treatment and winding process on a single machine. The consolidated success of the "Volufil technology" and the new demand of different yarns for diversified fabric applications, has requested several new developments on the machine technology. The new Volufil Multicone represents the proper reply.

SUESSEN will demonstrate the competence in handling and processing natural and man-made-fibres within the ring- and rotor spinning process. Highlights will be SUESSEN's EliTe®Compact Set, the world's most in demand compact spinning system, the TwistPlus, a false twist unit for ring spinning machines with EliTe®CompactSet and the SUESSEN HP-GX 3010RPT Top Weighting Arm. Furthermore on an Open-End drafting model will be presented the SpinBox SQ modernisation, equipped with well-known SUESSEN Premium Parts Spinning Components such as ProFile®Rotors, ProFile®Brake Pads, TorqueStop, SOLIDRING and Fibre Channel. New Premium Parts products on display are PS7 TwinDisc and TwistTrap Navel. PS7 TwinDisc show a reduced width of the disc and thus resulting in smaller contact surface to the rotor shaft.



SUESSEN EliTe®CompactSet

This guarantees significantly reduced energy consumption. The TwistTrap Navel creates additional false twist in the zone of highest spinning tension - within the rotor - when spinning knitting yarn of cotton in the range of Ne 18 to Ne 40, achieving production increase of 5% to 15%.





Bräcker, as the specialist for key components for ring spinning machines, will present the important innovation STARLETplus traveller. In challenging conditions like high humidity or aggressive fibres, the STARLETplus offers additional benefits: The traveller service life can be prolonged by up to 50% and due to its improved coating, the new traveller shows a better resistance against corrosion. Another innovation presented at ITM is the BERKOL® supergrinder for automatic grinding of ring, roving and air spinning top rollers. The modular machine improves the grinding capacity compared to the previous version by more than 50%.

The BERKOL® supergrinder has a grinding capacity of up to 350 top rollers per hour and offers a storage capacity of 450 top rollers with 32 mm diameter. At the same time, the power consumption has been reduced by 10%.

Graf, as a leading manufacturer of clothings for flat cards and roller cards, will introduce several innovative solutions. One highlight is a new flat top system, which can reduce the stoppage time of cards by up to 70 %. The so-called **EasyTop** is applied on flat bars designed for magnetic attachment. Next innovation is the **X-Comb** segments which can be used on comb-bodies requiring individual segments from other manufacturers and thus now make the leading Graf technology also accessible for these conventional combs. The combing segments made from metallic clothings that undergo a special surface treatment, which substantially reduces the running-in period. **FlexComb** is a new circular comb series with height adjustable geometry, a detachable spoiler and a 130° combing surface.





It has been developed for high-performance combers of the latest generation. In addition Graf will present the **DABM flat striping machine** for the first time in Istanbul. The DABM allows gentle and correct removal of worn flexible flat clothings from the flat bars.

Novibra will introduce LENA (Low Energy consumption and Noise Absorption) high-speed spindles. Well proven Noise Absorbing System Assembly (NASA) ensures minimum neck bearing load, vibration and noise level at high speed, and in combination with unique wharve diameter 17, 5 mm and footstep bearing 3 mm diameter leads in lower energy consumption. LENA is designed for tube lengths of 200 mm to 210 mm. And Novibra presents the clamping and cutting crown CROCOdoff, which will also be available as the version CROCOdoff Forte for coarse yarns. The crown is operated by the spindle speed and allows an automatic doffing. The improved design of the "teeth" guarantees a reliable clamping and cutting of the yarn. In addition the CROCOdoff reduces the risk of yarn breakage during start-up, decreases energy consumption, minimises material loss and reduces maintenance. CROCOdoff is suitable for the use with new machines as well as an upgrade for some old machines.

The Global Meeting of Textile Technology Giants



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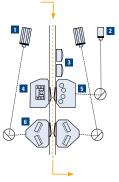
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SSM, the inventor of the electronic yarn traverse system, will continue their tradition of trend-setting with the presentation of breakthrough technologies. SSM will show twelve applications with the latest SSM technology - all machines are presented for the first time in Turkey. On display will be machines for dye package winding/rewinding (including technical textiles), assembly winding, air texturing, false twist texturing and sewing thread finish winding. Special attention lays on the new **XENO**-platform with the enhanced DIGICONE® 2 winding algorithm, enabling a 10-20% increase on dye package density with same dyeing recipe.







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Hall 3, Booth 311C

The new SSM modular winding machine platform XENO combines dye package winding, rewinding and doubling applications with three different winding technologies. The XENO is available with counter rotating blades (XENO-BW), with friction drive system (XENO-FW) and with high quality SSM yarn guide system (XENO-YW). With the new platform, SSM is able to offer the three winding technologies for assembly winding as well (XENO-BD, XENO-FD and XENO-YD).

Complying to the growing automation demand (due to increasing labor costs) all the XENO machines could be equipped with an automatic doffer system. Another advantage and benefit of the XENO platforms is the enhanced DIGICONE® 2 winding algorithm, enabling a 10-20% increase on dye package density with same dyeing recipe. The SSM XENO platform will be manufactured 100% in Switzerland for highest demands and quality.

Furthermore, SSM GIUDICI will present their new **TG2** machine platform for air texturing and false-twist texturing. Besides of the presented application, SSM offers the new **X-Series** (PSX-W/D, PWX-W and TWX-W/D) for dye package winding/rewinding and assembly winding as well as the well-known machines for air covering, draw winding, yarn singeing and conventional covering.

Trützschler Spinning has introduced a lot of new machines and modifications at the last ITMA in Milan. Lets list some of them.

Thereare the new card **TC 15**, the new **JUMBO CANS** with 1,200 mm diameter which hold 43% more sliver than regular cans with 1,000 mm diameter, and the new can filling station **T-MOVE** which bases on different thinking: the sliver feed moves – the can is stationary. Another Trützschler development is the new modular tuft blending system **T-BLEND** which combines maximum precision and high production. It also relies on accurate weighing instead of volumetric measurement methods. Based on a series of measures it was possible to double the performance per weigh pan. Concerning foreign part separation, Trützschler has raised the bar once again. In the new Foreign Part Separator **T-SCAN TS-T5**,



Trützschler JUMBO CANS

detection technologies five all-time high ensure an separation efficiency. T-Scan detects coloured parts, shiny parts, transparent and semitransparent parts, fluorescent parts and smallest thread-shaped parts. Furthermore Trützschler improved the autoleveller Draw Frame TD-8 and Trützschler-Toyota introduced the TCO 12, a comber for automatic lap change and automatic piecing.

We expect that they will exhibit a selection of these novelties.

On the Uster booth (Hall 3 / Booth 308B) the USTER® TESTER 6 will make its public debut in Turkey. This sixth generation of the USTER® TESTER incorporates the USTER® QUALITY EXPERT, an essential tool for quality management, creating the brand-new Total Testing Center. Accurate laboratory test results from the USTER® TESTER 6 are the starting point for Total Testing. This data is combined with real-time information from yarn clearers monitoring 100% of mill production.

Additional to its sensor technology and innovation the new tester also convinces with its look: the new USTER® TESTER 6 earned the Red Dot Design Award 2016 for its ideal blend of impressive functionality with distinctive looks.



Weaving, Knitting, Felting

Groz-Beckert (Hall 7 / Booth 707/B) will showcasing the products and services of its product areas Knitting, Weaving, Nonwovens and Carding. The product area Knitting will put the emphasis on the interaction of needles and system parts. The "CircularKnit" exhibit, a circular knitting machine replica made of acrylic glass, will visualize 14 different knitting technologies from gauge E10 to E50. The transparent "WarpKnit" exhibit will present the warp knitting modules that are new in the Groz-Beckert portfolio. A special highlight from the product range is the further developed litespeed® version "litespeed® plus". Its optimized needle geometry reduces the machine temperature and leads to significant energy savings in the knitting process. The acrylic model "litespeed® plus" will show the needle "live in action" in an extraordinary way.

In the product area Weaving, Groz-Beckert will among others present the quick and universal knitting machine KnotMaster AS/3. An advantage of the high-performance knotting machine is its service and maintenance friendliness. Touch screen control makes operation easy.

In the product area Felting, special needle solutions for different applications in the nonwovens industry will occupy center stage. The correct needle can be offered for each application. To obtain a high surface quality, the use of GEBECON® and EcoStar® felting needles is recommended.





Groz-Beckert KnotMaster AS/3

For the mechanical web bonding, among others used in the production of items for the hygiene and medical sector, Groz-Beckert offers jet strips. At the exhibition, jet strips made of three different materials will be presented: HyTec® Standard, HyTec® D and HyTec® GEBEDUR®.

The product area Carding will highlight SiroLock® as well as EvoStep® doffer and worker wires at the ITM. Together they guarantee a homogeneous fiber distribution and minimized fiber consumption in the nonwovens process. SiroLock® and EvoStep® wires feature a pronounced step undercut on the tooth front and a distinctive tooth shape. The optimized geometries of these wires allow an up to 30 % higher fiber take-up and retention. This significantly improves the fiber control and prevents fiber fly in spite of high production speeds. For the spinning industry, the product area Carding will also showcase a special doffer wire for synthetic fibers with a rib of 0.70 mm and 520 PPSI for the processing of microfibers.

In addition to that, Carding will exhibit revolving tops, stationary flats, and cleaning fillets.

Itema (Hall 2 / Booth 213) will display one airjet and three rapier looms. Turkey and the surrounding area represents for Itema one of the most strategically important regions in the world. Itema has been in these markets for more than 30 years and their technology is very well represented and highly estimated by their customers. On display at ITM are the R9500 – the most successful rapier machine in recent years – and the R9500p – the latest evolution launched at ITMA 2015, engineered for high speed and maximum performances. Both R9500 and R9500p are born out of half-a-century of expertise, know-how and excellence in rapier weaving technology of historic Somet, Sulzer and Vamatex brands.

The Itema positive pile back rest roller, unique in the market, guarantees a significant optimization of the pile warp tension, drastically reducing the friction during cloth displacement. Driven by a single motor, the new pile formation unit ensures an easy pile height setting directly from the user interface, guaranteeing superior fabric quality due to the pick-per-pick loop adjustment and cloth displacement up to 28mm, leading to endless creative possibilities. The new ground back-rest roller, equipped with light weight cylinders and a load cell to control the tension, perfectly drives the varn movement facilitating the shed formation.



Itema rapier Ioom R9500p

And the fourth is an airjet weaving machine: the A9500 which Itema names a rising star. It is designed for high productivity, whilst ensuring reduced levels of energy consumption and guaranteeing air savings, as well as top machine reliability. A trend to weave stretch and super stretch fabrics with dedicated weft yarns, inspired Itema to create and patent the innovative BLC – Brush Lycra Clamp – nozzle to weave elastic weft yarns. Thanks to the BLC nozzle, the weft is held without movable parts to ensure superior fabric quality and reliability. The patented ELD Electronic Leno Device with its innovative design, self-cleaning and no need to wind the leno spools, provides a perfect leno binding even at highest speeds, whilst reducing significantly operational costs.

In addition Itema will demonstrate the new Online Spare Parts Portal – MyItema – an immediate, easy-to-use tool dedicated to orders of Itema original spare parts.

KARL MAYER (Hall 7 / Booth 710A) is well prepared for the fair and will be the first port of call for anyone who is interested in innovative warp preparation machines for weaving and state-of-the-art warp knitting machines. On show will be the new HKS 4-M EL tricot machine and the Size Box VSB innovative sizing technology. But this stand is not restricted to just showcasing the technology – islands decorated with beautiful soft furnishings will be demonstrating new textile developments for innovative applications and will be showing innovative fabric collections for the Turkish market. The products on display will focus on applications for home textiles, especially upholstery fabrics and net curtains, as well as lace for outerwear and intimate apparel. Sophisticated bourdon lace is a particular speciality of the JL 65/1 B FASHION, as the products on display at the ITM exhibition will show. KARL MAYER will also be demonstrating its 360° service organisation with new technical support features.

For the duration of the fair, an **HKS 4-M EL** will be demonstrating all its features by producing a structured upholstery fabric. This innovative machine was premiered successfully at ITMA 2015. It operates up to 25% faster than its predecessor and is extremely flexible – now without a pile sinker bar. The EL feature enables patterns to be changed quickly and easily, and the repeat lengths are virtually limitless.

A wide variety of designs can be worked with long pattern cycles, as can the classic patterns from the patterning repertoire of this high-speed, four-bar tricot machine.

For representatives of the weaving preparation sector, KARL MAYER will be showing the **Size Box VSB**. The size box is the central component of the PROSIZE® sizing machine. It operates with three highly turbulent application zones, in which the yarns are treated with the liquor via patented application/squeeze rollers and a spray bar system. Compared to the immersion process, this efficient process requires fewer size additives, reduces energy consumption during desizing, and produces less effluent. The size application is also more uniform.



KARL MAYER HKS 4-M EL

In order to give its customers even more technical support during their day-to-day operations, KARL MAYER has integrated its reliable service operations into a comprehensive concept and has incorporated additional services into this system. An important new feature is the possibility of using online communication. When required, the client can communicate quickly and error-free with KARL MAYER's service organisation using the KARL MAYER CONNECT app, and the KARL MAYER WEBSHOP enables spare parts to be acquired quickly and easily.

Lindauer DORNIER (*HALL2 / Booth 201A*) did not announce what they will show. At ITMA they presented the brandnew rapier weaving machine P2. The successor of the famous P1 produced a high density filter fabric in super heavy design with a nominal width of 320 cm and two warp beams. For this width, this kind of fabric could, up to now, only be produced by means of special machines. The extremely high density is achieved by a specially developed cloth take-up, an absolute uniformity of the filling density and a reed impact force of 5 tons. Other machines from the DORNIER portfolio are the the air-jet weaving machine A1 which is for example a benchmark in weaving a high-quality fabric out of finest wool yarns with high productivity and the rapier weaving machine P1 which is able to weave a very wide range of different and exceptional fabrics.

On ITMA a P1 machine produced a fabric for sophisticated ladies outerwear. The special feature of this fabric was that it was woven with 16 filling colours and different materials at up to 600 fillings/minute.

Another P1 produced a sophisticated functional fabric out of different materials, e.g. upholstery fabrics for office chairs. Monofilaments and different flock yarns were used in the filling.



Picanol (Hall 2, Booth 218) will be displaying one airjet and two rapier weaving machines. On display will be the OMNIplus Summum and for the first time in Turkey the OptiMax-i and the TerryMax-i machines. In addition Picanol will surprise visitors with a brand new booth design at the fair and Picanol offers a virtual walk through its booth thanks to a new interactive app. People can navigate the entire Picanol booth from the palm and will be able to browse the complete list of machines, sort by product type or view the list of features all at once.

However, the stars are the machines by themselves. **The OptiMax-i** (4 – R – 190) will be displayed weaving a fancy denim. Highlights of this new rapier include the increased performance, redesigned and even more rigid construction, new applications, intelligent energy efficiency, improved ergonomics and user-friendliness and last but not least the industrial speeds of up to 750 rpm thanks to its optimized rapier drives. The OptiMax-i is available in reed widths ranging from 190 to 540 centimeters. The Guided Gripper system (GC) and its Free Flight system (FF) make it also very versatile.



Picanol OptiMax-i

Meanwhile, additional features that have been developed to respond to an ever increasing demand for versatility include, among other things, the Electronic Filling Tensioner (EFT), the SmartEye filling detector and the SmartCut filling cutter. The Guided Positive Gripper (GPG) system has been developed for dedicated technical fabrics.

The ITM fair will also see Picanol presenting its new **TerryMax-i rapier**, which has been developed for terry cloth production. The direct electronic drive of the cloth fell mechanism guarantees a perfect pile formation and enables weavers to not only program the pile height loop by loop, but also to program the pre beat-up distance of every single filling yarn, which in turn enables endless design possibilities. Special features include OptiSpeed, pile height monitoring and needle roller control. Besides the TerryMax-i, Picanol also has an airjet for terry production: the **TERRYplus Summum** weaving machine. This means that Picanol is the only provider on the market offering both airjet and rapier terry machines.

The **OMNIplus Summum**, weaving a shirting fabric on the stand, is Picanol's latest generation in airjet weaving machines. By introducing state-of-the-art technology in hardware and software, the OMNIplus Summum offers the latest next upgrade to meet new market demands in terms of quality, performance and energy consumption. The OMNIplus Summum is equipped with fully electronic pressure regulators, a separate built-in air tank for each weaving channel and a unique triple air tank configuration for the relay nozzles.

SMIT (Hall 2 / Booth 210 B) will exhibit a loom for high quality shirting which is an evolution of the series characterized by absence of guide block, flying ribbon technology and optimized warp shed studied to reduce yarn breakages or defects. SMIT smart platform of weaving machines is available in various configurations and can be used in all the textile sectors, including terry and home-textile. The entrance in SANTEX RIMAR GROUP will allow SMIT to use a vast sales and support network worldwide to open up new opportunities and to provide a higher level of know-how for customers. The synergy between SMIT and SANTEX RIMAR GROUP will allow customers to rely on global service network, high quality products, deep technological heritage and above all on an integrated technology provider for all production processes, from loom to finished - natural and technical - textiles.

Stäubli (Hall 2 / Booth 217) welcomes its customers and all other interested parties to the booth and will display a wide range of solutions. For particular the Turkish weaving market has long been amongst Stäubli's most important markets. Stäubli invested in a fully owned subsidiary in Istanbul back in the mid-90s and the sales and technical teams cover the whole country, closely collaborating with customers as long-term partners. As an industry partner, Stäubli constantly analyses customers' most important needs and integrates solutions to them in the development of its new products. Working in this way, Stäubli offers an extensive machinery range that perfectly meets weavers' expectations and offers mills increased advantages in terms of reliability, long service life and versatility in application. Let's take a look at the exhibited machines.

The LX Jacquard machine for exquisite flat fabrics, terry cloth and technical fabrics was successfully launched at last year's ITMA in Milan. At the ITM, visitors will see it demonstrated with Stäubli harnesses.

Built with uncompromising high-quality materials and designed to perform with utmost precision at very high speeds, The LX Jacquard machine allows mills to weave sophisticated fabrics for virtually any application – from colourful African damask to automobile airbags.

The third generation of Stäubli's rotary dobbies, the S3060/3260 series, can be seen with many application examples at the Stäubli stand and the booths of many other weaving machine manufacturers. This new generation of rotary dobbies reaches new heights of performance and reliability.

Furthermore weavers can see the recently launched SAFIR S60 drawing in a 100% cotton warp sheet (8,173 ends) with Ne 80/2 threads into 16 heald frames (steel J-shaped end loops), drop wires, and reed with a density 200 dents/10cm. Today, thousands of weaving mills around the world rely on the automatic drawing-in machinery from Switzerland.

A TOPMATIC warp-tying machine will demonstrate high-efficiency warp tying. This proven machine is designed for standard applications and handles even the finest yarns. The Stäubli business unit "Schönherr carpet systems" will showcase sophisticated carpet samples. These samples illustrate technological advances such as the recently introduced Magic Shadow Effect, the traditional carpet effect and other high-density applications.



Stäubli LX Jacquard machine

A recent innovation, the D4S automatic toe-closing device, will be presented on a circular sock knitting machine. Also at the booth will be a variety of servo motors, electronic control solutions, input/output devices and related programming tools used mainly in the textile industry. Additional examples of Stäubli products can be seen during the ITM at various stands of Stäubli partners in various applications with Jacquard machines, dobbies and cam motions.

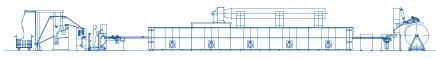
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parts with a weight of 172.635 tonnes are readily kept in our central warehouse in order to offer the best service to our customers worldwide, at any time. A total of 16.494 different products from the brands; Artos, Babcock, Krantz, Stentex, Hacoba, Müller, Famatex and other manufacturers, are always available here. With this unique After-Sales-Business, we ensure that our long-lasting machines maintain productivity for several years and decades. A decision in favour of our new systems is therefore also a decision for the best support.

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

Machine programme and contact information under: www.interspare.com





Still the peak in finishing machinery.

Drying, Dyeing, Finishing

Monforts (Hall 12, Stand 1207D) will present its latest innovations under the theme 'Thinking ahead – for sustainable solutions'; ensuring more productivity, more economy and more ecology in textile finishing. There will be several innovations and highlights.

The first is The Monforts **Eco Booster HRC**, designed to minimise energy costs during drying and heat setting processes on stenters will be available, for the first time, for retrofitting to existing Montex installations. By contrast with purely static heat exchanger modules, the new heat exchanger module actually cleans itself during operation; eliminating standstill times for maintenance. The Eco Booster permits a computer-controlled adaptation of the heat exchanger performance to the prevailing waste air stream. This optimised efficiency further reduces the process costs. Eco Booster runs fully automatically so that the operator has no additional duties to carry out. Its automatic cleaning feature means the machine doesn't have to be stopped during production runs.

Next is a completely maintenance free **Montex horizontal stentering chain** which will be introduced. This new chain type complements the well proven Montex chain systems for horizontal chain return. The new Montex Hybrid Chain will be also available for retrofit to existing Montex stenters.

A special highlights is the new and further **enhanced visualisation software** with 'finger tip' control features offering smart phone-type techniques for Monforts machine operators and ensuring smarter operating procedures. Available for Montex 8500 stenters, the new model also features a redesigned operator's platform with ergonomic advantages during finishing and coating processes.

A **new Denim stretching unit** will also be presented for achieving smooth stretching under the highest processing speeds during denim shrinking and finishing being incorporated into well proven twin shrinking units with twin felt calender.

The **Eco-Applicator** liquor application process offers significant energy savings with reduced drying capacity required for a wide range of applications such as felt finishes, coated materials and medical textiles including Nano coating, water repellancy, softeners, flame retardency and insect repellancy. The new version for knitted fabrics will be presented at ITM. 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.

And last but not least the new segment of **coating machines** will also be presented allowing the company to serve the market from a single source with Monforts-made, high class and most versatile coating ranges.

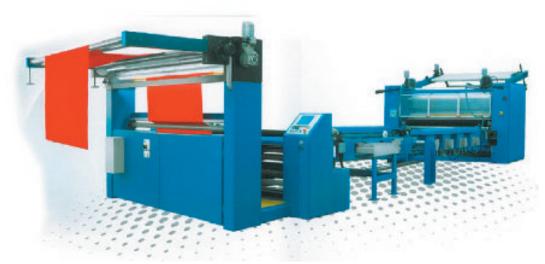


Monforts Eco-Applicator

Single sourced solutions ranging from single sided applications of finishing agents such as, for example, outdoor clothing and functionalization of textiles in the home textiles sector, through to sophisticated lightweight construction using innovative textile-based coated materials in the automotive and aerospace industries are now available.

The in 2015 new formed **SANTEX RIMAR GROUP** (Hall 14 / Booth 1402 A) will present a wide range of its current solutions based on a strong strategy focused on market needs. Sperotto Rimar has new solutions for decatizing wool and artificial fibers, a "must have" in Europe as well as in Asia: the new **Decofast 3.5** will be present at ITM 2016.

Moreover, as a result of a successful partnership on the development of plasma to reduce textile production costs, it is presenting **Plana** for long lasting anti-shrinkage effect on woollen fibers and deveability without chemicals. Textile machinery brands have three goals: processes for manmade fibers, greentech, flexibility. Santex is focused on Shrink Dryers for knitted fabrics and on the new **Santacompact RD**, an evolution of the compacting machine.



Santex Santacompact RD

The Technical Textile division has delivered impregnation lines for aerospace and insulation material: the new **Cavimelt P+P** is the latest solution under Cavitec brand for coating and laminating while Isotex is working on an exclusive partnership with Covestro, former Bayer, on water based solvent free synthetic leather.

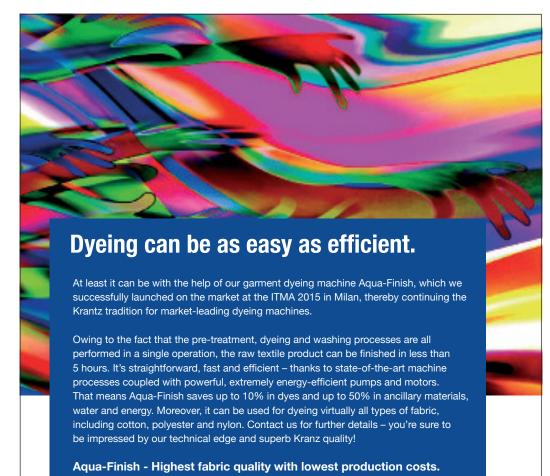
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As a technology partner for knitted, woven fabrics, nonwovens and green solutions the Group started as different companies that in 2015 have evolved into SANTEX RIMAR GOUP.

Setex, a global leader in designing, manufacturing and implementation of automation solutions for textile dyeing and finishing machines, will demonstrate the new OrgaTEX X1, which offers an efficient use of latest technologies. The OrgaTEX X1 production management software guides the intelligent communication to the machines for an efficient production and energy management. The process and recipe handling - constantly

used parts of the software - is new designed. The modules provide impressive new features to simplify complex production steps, to save expert know-how systematically and to optimize resource efficiency. OrgaTEX X1 is also highly customizable.

Furthermore Setex will demonstrate the new business App for mobile communication with SECOM controls, available for IOS/Apple and Android/Google tablets and smart phones.



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





SUPERBA, already mastering the sophisticated space-dyeing technique for years, will show their latest machine type MCD3. This new version is able to continuously dye a bundle of 72 yarns, with a production of up to 280Kgs/h combined with a TVP3 line and up to 400Kgs/h with a DL5 line with a range of 6 spot colors plus 1 base shade.

Dollfus & Muller will introduce its improved compacting **sanfor felt** for knit finishing with major evolutions compared with the other products in order to serve better the dyeing houses. Furthermore, Dollfus & Muller will display its new durable printing dryer belt quality **TAMIP HT 500 NR**.

Testing

TEXTECHNO Herbert Stein will present a number of brand-new testing instruments for fibres, yarns, and fabrics. To Textechno's 'Cotton Control Line' several innovative instruments have been added including the MDTA 4 microdust-, neps-, trash-, and fibre-length tester as well as the automatic capacitive evenness- and count tester for slivers and rovings COVASLIVE. STATIMAT DS combines testing of tensile properties, unevenness, and count of yarn and thread in one tester. The three tests on each package presented by the package changer are performed in rapid succession.

So much for the exhibitors on whom we have been able to gather information. No doubt the other well-known market leaders will also be presenting their latest technology at the ITM.



TEXTECHNO Statimat DS

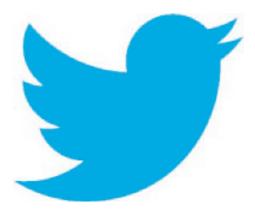
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Conclusion

This is the most important machinery trade fair for the Turkish textile industry and the neighbouring region, including states as far away as the Arabian Peninsula, Asia and Africa. Following on as it does from the ITMA, the main focus of the fair will not necessarily be on familiarising visitors with the latest technology, but on providing them with more indepth information about how to satisfy their own individual needs.

As always, the organizers have done their homework thoroughly and taken the necessary preparatory measures to ensure that the fair proves helpful to all who attend. Everything is now in place for the big event, and slowly but surely anticipation will be growing at the textile companies in the region. New technology is the key to improved quality, productivity and flexibility, which in turn are the decisive factors for the ability to withstand international competition. And the ITMA, which proved very successful for the machinery builders, has demonstrated just how many textile companies are up for this competitive challenge.

The Turkish textile industry, which is characterised by a high level of commitment and assertiveness, will no doubt use the ITM on its own turf to establish how and what investments can help to safeguard and strengthen its own market position. For our part, we look forward to seeing some flair and innovations at the ITM in Istanbul and, as always, will be keeping you up to date with all the latest news from the event.



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Nonwovens have been a booming sector with more than pleasant growth for years. In the decade from 2002 and 2012 the worldwide production volume more than doubled, growing from 3 million tons to 7.7 million tons, with a production value growing from USD 15.1 billion to USD 30.6 billion. The average annual growth can easily be calculated at over 7%, and in 2012 this growth was also predicted for the decade from 2007 to 2017. There are some new recent studies and reports which show whether these predictions can be confirmed for 2015 and further add a new projection through 2020.

Reason enough to take a closer look at the growth forecasts and along with it some of these studies and their numbers. We will further be taking a look at current industry meetings such as IDEA, and in addition, at annual reports of some producers of nonwovens and the latest innovations in mechanical engineering. Let's start with the studies.

Let us start with a new report published by the two leading global trade associations **INDA**, the Association of the Nonwoven Fabrics Industry, and **EDANA**, the International Association Serving the Nonwovens and Related Industries. The fifth edition of the report forecasts strong market demand for nonwovens materials through the next five years, according to the "Worldwide Outlook for the Nonwovens Industry, 2014-2020".

"As strategic partners, INDA and EDANA are committed to promoting the sustained growth of the nonwovens industry. This report provides the industry's best estimates on future demand by the key nonwoven segments predicated on sound macro-economic analysis," said INDA President Dave Rousse. "The Worldwide Outlook report is an essential planning resource for all those involved in global strategic planning for nonwovens across the supply chain."

According to the report the worldwide production for nonwovens is forecast to increase 5.7 percent annually through to 2020. China will lead the growth in production, adding an additional 1.2 million tons from the end of 2014 through to 2020, representing a 7 percent annual growth rate.

"The worldwide nonwovens industry's prospects are excellent and it remains an exciting industry in which to be involved," said the report's co-authors Jacques Prigneaux, Market Analysis and Economic Affairs Director at EDANA and Brad Kalil, Director of Market Research and Statistics at INDA.

Europe also with a respectable growth

Particularly interesting are the figures for Europe because the growth rate is much higher than the overall economic growth. According to figures collected and compiled by EDANA, the overall production of nonwovens in Europe grew by 3.6% in 2015 to reach 2,329,000 tonnes, despite an environment of slow economic growth. While the output of the European Union has limited growth, some countries showed strong growth development. Jacques Prigneaux said: "A country like Turkey continued to record double-digit growth, which more than compensated for the decline recorded in some other European markets."

Divergent trends can be observed, not only between the different Greater European markets, but also between the various production processes of nonwovens. The production of fiber-based materials for example, including Drylaid, Wetlaid, and Airlaid technologies, recorded an increase of 3.1%, and spunmelt nonwovens recorded the highest growth rate with 4.3%.



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Nevertheless, the highest growth in tonnes were observed in the drylaid-hydroentangled process, with a 7.0% increase and this production method will expand at the fastest rate, adding 7.6 percent annually. "For the first time, the volumes of air-through bonded materials are disclosed in our annual statistics, thanks to an expansion and improvement in the collection of data" continued Jacques.

Although the main end-use for nonwovens in Europe continues to be the hygiene market, with a 31% share of deliveries (717,200 tonnes), the most significant growth areas for nonwovens in 2015, by tonnage sold, were recorded in automotive (+9%), agriculture (+11%), personal care wipes (+11%), food & beverages (+12%), and air and liquid filtration (+17%). Countering this however, major declines were recorded in interlinings, coating substrates, and some applications for the construction markets.

Jacques Prigneaux emphasised "Trends in surface area can be different, as the product's weight is also important. As a result, EDANA also compiles data in square metres, giving our member companies the opportunity to follow this evolution year over year."

The report includes detailed regional information and forecasts on production, technology and investment requirements for North America, Greater Europe, Asia and South America. The report further features regional views of economic growth, population, production by end use, and trade flows. Other key topics include energy and raw material usage.

In addition to this future report of the industrial associations there are numerous other studies and forecasts by various market research companies and organisations.

The report "The Future of Global Nonwovens Markets to 2020" from **Smithers Pira** (available at http://www.smitherspira.com, price: £4,200) says that global consumption of nonwovens in 2015 is 8.95 million tonnes, equivalent to \$37.4 billion and 234.8 billion square metres (m2). In this report growth for the period 2015–2020 is projected at 6.2% (tonnes), 6.3% (\$) and 7.2% (m2), with the trend towards still lighter basis weights and continued stabilizing prices. The global nonwovens market will grow to be worth \$50.8 billion in 2020.

Smithers Pira has identified five key trends in the future of global nonwovens

The first is that spunlaid will remain the leading web forming process. Today spunlaid is the leading web forming process, accounting for 48.7% of all nonwovens consumed in 2015 – 4.4 million tonnes. It includes Spunbond (polypropylene, polyester, polyethylene, nylon and bicomponent fibres), Meltblown (polypropylene), SMS (spunbond/meltblown/spunbond polypropylene) and other miscellaneous materials. Since 2010, spunlaid has had the highest growth rate of any process, with an annual growth of 8.5% in 2010-2015. This has allowed spunlaid to widen its lead over the second largest process drylaid.

Consumption of drylaid nonwovens has grown from 2.9 million tonnes in 2010 to 3.4 million tonnes in 2015. Spunlaid is projected to grow at the highest rate of all processes (except the "other" category) through 2020 as well, with an annual growth rate of 7.3% from 2015-2020. This high rate reflects the final recovery of consumption depressed by the 2008 economic crisis —especially in Western Europe. World demand will be back on track under a healthy global economy in 2020, with Smithers projecting total consumption of spunlaid nonwovens reaching 6.2 million tonnes in that year.

The second that disposable nonwovens are predicted slightly higher growth. Between 2010 and 2015, disposable nonwovens essentially matched durables in relative value growth. The disposables segment rose from \$10.0 billion in 2010 to \$14.1 billion in 2015, at an annual rate of 7.1%; the growth rate for durable nonwovens was slightly less (7.0%) with a market worth \$16.6 billion in 2010 reaching \$23.3 billion in 2015. This trend is not expected to change over the next five years. Disposable nonwovens value will exhibit a 6.4% growth rate, pushing the world market to \$19.2 billion in 2020. Durable nonwovens will grow at 6.2%, with sales reaching \$31.5 billion. For the total study period (2010-2020), the growth rate for disposable nonwovens projects at 6.7%, while durable nonwovens projects at 6.6%.





Lines for Needled Nonwovens

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The value for disposable nonwovens is growing slightly faster than the value for durables, as the growing upper and middle classes in the central Asian markets demand higher performance, higher-value consumer goods (like diapers, feminine hygiene products and medical materials), and move away from lower cost, lower quality entry-level products. Hygiene

applications are the largest consumer segment of disposable nonwovens, due mainly to the large baby diaper, toddler training pants, and feminine hygiene markets.

Wipes are another important, large and booming disposable nonwovens market. Asia will be the largest and highest growth regional market - Asia is the largest consumer of nonwovens in the world, having overtaken Europe and North America over the last ten years. In 2015, this is manifest in a market share of 43.1% for Asia, with consumption of 3.9 million tonnes (up from 2.3 million tonnes in 2010). Growth between 2010 and 2015 was stellar at 10.7%. Asia will continue to grow in terms of both tonnage and market share between 2015 and 2020, with Smithers forecasting a global market share of 47.1% and volume of 5.7 million tonnes in 2020.

Within Asia China, India and Japan are the key national markets, together representing about 77.0% of nonwovens consumption (by tonnage).



Each of these countries presents a different proposition for the next five years. Japan is a mature market, with growth in many segments low or even flat. China is the current power in the region, alone accounting for about 56.8% of this region's nonwovens consumption in 2015.

India is the future of nonwovens consumption in the region, with a huge potential consumer base for the nonwovens. In 2015 it overtook a plateauing Japan to become the second largest national consumer in Asia ith a 10.5% share by tonnage of the regional market.

The third is that basis weights for nonwovens will continue to drop. Another important trend that is being felt across the ten-year study period is the ongoing push towards reducing basis weights across all nonwovens. This reduces raw material cost, shipping and warehouse charges, and waste disposal. For disposable nonwovens, the overall decrease in basis weight in 2010-2015 was about 5.2%.

For 2015-2020, this will continue at a slower rate, with a further reduction in basis weight 3.7% projected. This change in average basis weight can either be the result of newer equipment within a process being capable of delivering lighter weight products. For example, newer generation spunbond lines are capable of producing 8-10gsm hygiene nonwovens, instead of the historical norm of 10-12gsm. The same effect can be achieved as the result of substituting a completely different type of nonwoven; for example, spunlace for wipes as low as 35gsm are replacing airlaid nonwovens that have a feasible minimum of around 55gsm.

Durable nonwovens also have trended towards lighter basis weights, reducing by 3.6% in 2010-2015, and projected to lose a further 5.9% in 2015-2020. Some of this basis weight drop can be attributed to substitution of lightweight spunbonds, meltblowns, and SMSs for spunlace, carded, needlepunch and other nonwovens.

In spunlaids, the drop from 22gsm spunbonded polypropylene to as low as 9gsm spunbonded polypropylene or lower is now becoming commonplace, following technology improvements in the spunlaid process.

And the fourth is that raw material prices will remain low and stabilise. The use of raw materials for nonwovens is once more in a state of uncertainty. Petroleum is now at a much lower price and higher supply than it has been for several years. In theory, polymers and fibres used in nonwovens should be stable and lower in price. In reality, issues like refinery and spinning capacity, oil well and facility shutdowns, will continue to make nonwoven pricing and supply less certain.

Upcoming INDA Events

World of Wipes (WOW)

International Conference Jun 7 – Jun 10, Chicago, USA

Nanofibers, Applications & Related

Technologies – NART 2016 Sep 13 – Sep 15, Raleigh, USA

Hygienix 2016

Oct 24 – Oct 27, Orlando, USA

Filtration 2016 International Conference & Exposition

Nov 8 – Nov 10, Philadelphia, USA

OUTLOOK™ Plus Latin America 2017

Mar 7 – Mar 9, São Paulo, Brazil

Upcoming edana Events

International Nonwovens

Symposium 2016 Jun 1 - Jun 2, Warsaw, Poland

FILTREX India

Sep 14 – Sep 15, New Delhi, India

Dornbirn Man-made Fibres Congress 2016:

EDANA co-organised presentations Sep 20 – Sep 22, Dornbirn, Austria

OUTLOOK 2016

Sep 21 – Sep 23, Madrid, Spain

OUTLOOK™ Plus Latin America 2017

Mar 7 – Mar 9, São Paulo, Brazil

INDEX 2017

Apr 4- Apr 7, Geneva - Switzerland

EurAsian Geotextiles Symposium 2017

Jun 7 – Jun 8, Beijing, China There are many factors affecting the selection of raw materials for nonwovens, including process efficiency, product performance, and consumer demand; and in some cases, price is a determining factor. The price of polyester versus polypropylene can lead to producers switching from one to another.

Equally the price of either polyester or polypropylene versus rayon or cotton may change a 50%/50% composition ratio to 60%/40% to reflect these price changes. In the fibre market, this can change the estimated future consumption patterns, or at least add uncertainty. In the polymer market for spunlaids, other variables make switching based solely on price much more difficult, and so projections there can be made more reliably.

The Future of Global Nonwoven Markets to 2020 presents a complete review of the nonwovens industry and discusses global market drivers and regional factors affecting performance.

The report is based on both primary and secondary research. Primary research included interviews with key participants in marketing, sales, production and product development for the entire nonwovens supply chain.

Other reports come with almost similar predictions

The report "Non-woven Fabrics/Textiles Market by Technology, Material Function, End-Use - Forecast to 2020" by Marketsandmarkets projectes the global market for non-woven fabrics to grow from USD 32.7 billion in 2015 to reach USD 47.7 billion by 2020 (+46%), at an estimated CAGR of 7.86%. The segments considered for this report are based on material, technology, function, end use, and region. On the basis of material, polypropylene accounted for the largest market share, in terms of both volume and value, among all raw materials for non-woven fabrics. The spunmelt technology accounted for the largest share of the market, in terms of both volume and value.

In terms of function, the market is segmented into disposable and nondisposable. In 2014, the end-use segment was dominated by the hygiene sector followed by construction and wipes sectors. The market is driven by growing personal care & hygiene and medical industry. The summary says that the disposable segment is projected to be the fastest-growing in the next five years. Due to increasing population and increasing aging population, the consumption of hygiene-related products is also growing. The medical industry also plays a huge role in the growth of the non-woven fabrics market.

According to the study "Global Nonwoven Filter Media Market Analysis And Segment Forecasts To 2022" by Grand View Research, Inc., published in June 2015, the global nonwoven filter media market is expected to reach USD 7.18 billion by 2022. Increasing requirement for access to purified drinking water is expected to remain a key driving factor for global nonwoven filter media market. Rising particulate matter content in air due to uncontrolled carbon emissions from automobiles, factories and power generation plants has also prompted the increased use of nonwoven filter media. Favorable environmental regulations by EPA and EEA are also expected to have a positive influence on the market growth.

Spunbond was the leading nonwoven filter media technology and accounted for 39.6% of total market revenue in 2014. Spunbonding has been traditionally used for nonwoven filters that constitute of polypropylene, polyester, and bicomponent fibers. High operational speed and better efficiency compared to other technologies have been instrumental in spunbond nonwoven filter media market growth since last few years. Meltblown is expected to register highest CAGR over the next seven years on account of its ability to produce nonwovens of minute diameters up to 0.1 micrometers. The technology is expected to witness a growth of 8.2% from 2015 to 2022.

Further key findings from the study suggest that global nonwoven filter media market was valued at USD 3,991.4 million in 2014 and is expected to reach USD 7,178.3 million by 2022, growing at a CAGR of 7.6% from 2015 to 2022.

The leading application segment was transportation. It accounted for 21.2% of total market revenue in 2014. Increasing regulatory intervention to reduce carbon emissions from automobiles is expected to remain a key driving factor for this segment over the forecast period. Growing automotive after-sales market is also expected to have a positive impact on nonwoven filter media demand in transportation industry. Additionally, increasing passenger car sales and subsequent emission norms along with increasing filter media application in fuel systems is expected to further complement the global market growth.

Asia Pacific was the largest regional market and accounted for 32.7% of global revenue in 2014. Asia Pacific is also expected to witness the highest growth rate with meltblown nonwoven filter media being the most lucrative segment. Increasing application in healthcare and advanced filtration technologies along with food & beverages and water filtration are expected to drive Asia Pacific market over the forecast period. Major companies operating in the global nonwoven filter media market include Donaldson Company, Honeywell International, Toyobo Corp., Ahlstrom Corp., Delstar Technologies, Freudenberg & Co., Eagle Nonwovens Inc., Hanes Company Inc., Pegas Nonwovens, Clarcor Corporation and Norafin Inc.

Research and Markets has published the "Global Medical Nonwoven Disposables Report" in December 2015. This reports suggests that surgical caps would be the fastest growing segment in the surgical nonwoven disposables market during the forecast period.

China continues to be the market leader in Asia Pacific medical nonwoven disposables market, while Germany, France and U.K. collectively accounted for over 50% of the Europe medical nonwoven disposables market. Market leader in the global medical nonwoven disposables market should be Freudenberg Performance Materials.

Furthermore the summary says that North America is the largest market for nonwoven medical disposable products, but with growing medical tourism and increasing spending on sophisticated hospitality services, Asia Pacific would marginally lead the global nonwoven medical disposable market by 2020. Developing countries are the largest suppliers of medical non-woven disposables, owing to the economic pricing of raw materials and cheaper labor work force. The demand of the medical nonwoven disposables market in LAMEA is increasing due to high prevalence of infectious diseases, interventions from the government through awareness campaigns and large scale public initiatives for maintaining hygienic environment. Major companies operating in the global medical nonwoven disposables market include Ahlstrom, Domtar Corporation, First Quality Enterprises, Freudenberg Performance Materials, Georgia Pacific LLP, Kimberly-Clark Corporation, Medtronic Inc., Molnlycke Health Care AB, Svenska Cellulosa Aktiebolaget and UniCharm Corporation.

In the report "Staples PP (Polypropylene) Nonwoven Fabric Market Analysis By Application And Segment Forecasts To 2020" Radiant Insights suggests that Middle East is expected to witness significant growth in demand for staples PP nonwoven fabrics.

A high demand for nonwovens business in Middle East was also stated by David Price at IDEA16 in Boston, twitterd JoanIzzo from the fair.

The report says that the region is expected to grow at an estimated CAGR of 9.4% from 2014 to 2020. Furthermore the report says that global staples PP nonwoven fabric demand was 1,949.2 kilo tons in 2013 and is expected to reach 3,103.9 kilo tons by 2020, growing at a CAGR of 6.9% from 2014 to 2020. Asia Pacific emerged as the largest regional staples PP nonwoven fabric market and accounted for over 40% of the total market volume in 2013. Growing baby diapers demand in India and China coupled with increasing investment from companies such as Kimberly-Clark in these countries is expected to remain a key driving factor for the regional market.

Even if the exact numbers of the various studies do not match and their growth rates also vary little, they do attest an equally relatively high annual growth of 5% and 8% for the nonwovens industry. We'll leave it at that, since it's virtually impossible to render a different view of the situation without comparing all studies in great detail.

Furthermore, nonwovens is a very broad field and it's not always clear, at least to study participants, which products should without a doubt fall into this category.

New definition for non-woven

A message from the Global Nonwovens Summit held during IDEA in Boston is quite fitting and should not be amiss from a forecast. In it, EDANA President Pierre Wiertz announced the current state of the objective of redefining nonwovens and establishes a new classification system. All three big associations, EDANA in Europe, INDA in North America and **ANFA**, the Asian Nonwoven Fabrics Industry, have been working on this for some time.

Redefining comes down to the definition of materials specifying what exactly they are, and not, what they are not: woven. On the Summit Wiertz told the audience this new definition for nonwovens: "an engineered fibrous assembly which has been given a designed level of structural integrity by physical and/or chemical means with the exclusion of paper, woven or knitted materials."

The new classification system will be the next step to the redefinition. But since this does require numerous referendums, including with the International Standardization Organization (ISO), this process will still take a few years.

But back to growth. Let's first look at other indicators and sources which also substantiate industry outlooks: trade fairs, business operations of some companies in the industry and mechanical engineering for producing nonwovens.

IDEA16 a great success for the nonwovens industry

One of the most important exhibitions of the nonwovens industry is the IDEA and its recently wrapped up triennial event took place May 2-5 at the Boston Convention & Exhibition Center. Attracting over 7,000 attendees from more than 60 countries and 555 exhibitors, an increase of 15 percent over IDEA13, IDEA16 broke all prior exhibitor and attendee records. And there come more good news from the show. For example Rick Jezzi, well-reputed consultant in the nonwovens industry from A.D. Jezzi & Associates, LLC presented a view on the disposable hygiene markets of South America. In his outlook he stated that feminine care is reaching full penetration in Latin America countries and will rise to 85% in 2020 from 67% in 2015. Baby diapers will rise from 53% to 65%.

Nonwovens producers with high investments and solid results in 2015

How did 2015 look among the nonwovens producing companies? To have a profiles of companies of different sizes and structures we decided on three companies from the top 15 in nonwoven producers for 2014: The worldwide number 2 by turnover, Freudenberg Performance Materials (part of the Freudenberg Group of companies), number 9, Suominen (listed on the Nasdaq Helsinki Stock Exchange) and number 15, Sandler (family business).

As part of the organizational realignment of the Freudenberg Group, the two formerly independent Business Groups Freudenberg Nonwovens and Freudenberg Politex Nonwovens were brought together to form a new Business Group called **Freudenberg Performance Materials** effective January 1, 2015. In 2015, Freudenberg Performance Materials generated sales of €976.6 million (previous year: €904.7 million). Exchange rate effects had a positive impact. Overall, business development for Freudenberg Performance Materials in the year under review was positive, although market conditions in the various global regions were mixed: in Asia, particularly Vietnam and Bangladesh, there was very strong momentum in the apparel market.



Freudenberg PM invests 3 million Euros in its Kaiserslautern site. Dr. Volker Röhring, Manager Process Development, and Michael Ehret, Head of Operations Regional Business Unit Europe and Site Manager in Kaiserslautern, inaugurated the new pilot plant . (c) Photo 2016 Freudenberg Performance Materials

The hygiene segment and sales of microfilament textiles for anti-allergy encasings based on Evolon® technology also developed well there.

In China, growth in the apparel market was subdued, while Freudenberg Performance Materials reported an appreciable rise in automotive business in the country. In Europe, market conditions for Freudenberg Performance Materials were generally good. Apparel business was, however, affected by the Russia-Ukraine conflict, and demand in Southern Europe remained low. The construction industry in Western Europe and North America benefited from good weather conditions in the first half of the year. Demand slackened off in the second six months. Furthermore, Freudenberg Performance Materials reported very satisfactory development in the growing market for carpet tiles in North America.

The General Motors Malibu Program heralded an important breakthrough in automotive solutions for microfilament textiles based on Evolon® technology in 2015. The microfilament textile weighs less and offers better sound absorption than comparable products. In South America, on the other hand, economic conditions were extremely challenging, particularly in Argentina and Brazil. Consequently, Freudenberg Performance Materials restructured business there in order to create a basis for future successful development.

Suominen with headquarter in Finland and locations in Europe, North and South America, writes in their annual report that the year 2015 marked the start of a new era at the company.

Thanks to determined work carried out across the organization in recent years, they have turned the business around and now have a solid foundation to build the future success on.

As stated in their strategy for 2015–2017, they are targeting growth through product leadership and, indeed, aim to take Suominen to a whole new level. The divestments executed in the last few years have clarified Suominen's position in the value chain. Today, Suominen is a 100% nonwovens manufacturer and is located midway in the value chain, between fiber producers and end-product manufacturers (converters) and brand owners.

In 2015 Suominen increased net sales from 401.8 million EUR to 444.0 and the profit for the period to 17.0 million EUR from 10.2 million EUR in 2014. The nonwovens roll goods manufacturer has chosen three market segments where it operates: wiping, medical and hygiene. Suominen is the ninth-largest of all nonwovens suppliers. In nonwovens for wipes, the company describes themselves as the global market leader, while in the medical and hygiene markets, Suominen is a challenger. Suominen's main market areas are Europe and North America. They also have a foothold in the growing South American markets.

In these areas, demand for nonwovens used in wipes and in hygiene and medical products is increasing at an annual rate of some 3% in Suominen's selected segments. Exceeding this average growth rate organically is one of the financial targets of their strategy for 2015–2017.

In 2015, Suominen focused on executing its EUR 60 million growth investment program and introducing new nonwoven products with higher added value in its portfolio.



Nonwovens production at Suominen. Suominen invests almost 50 million Euros in a new production line at its Bethune plant in South Carolina, USA. With this investment, Suominen wants to take wetlaid technology to a whole new level in the nonwovens industry. (c) Photo 2016 Suominen Corporation

German nonwovens producer **Sandler AG** reports a successful year 2015, having generated sales of 288 million Euros (2014: 286 million). The Sandler team grew to 710 staff members. With the expansion of the Schwarzenbach location and the contract conclusion for a new nonwovens production site in the USA, 2015 marked the start of a new chapter in Sandler's company history.

For Sandler, 2015 was shaped by further development and the turning over of a new leaf. With its wide product range the nonwovens manufacturer was able to achieve high levels of capacity utilisation.

Nonwoven innovations, the expansion of the Schwarzenbach plant and the establishment of a manufacturing location in the US will be the engine of further growth in the years to come, Sandler says.



Sandler invests 48 million Euros in its "Plant 5" in Schwarzenbach. District Administrator Dr. Oliver Bär and Mayor Hans-Peter Baumann got a first-hand look at the building site. Left to right: Horst Graf, VP Plant Operations, Dr. Ulrich Hornfeck, Management Board, Dr. Christian Heinrich Sandler, CEO, Hans-Peter Baumann, Dr. Oliver Bär (c) Photo 2016 Sandler AG

The filtration industry is a vital market for Sandler and is set to continue gaining importance further down the road. Filter media are becoming increasingly essential for our quality of life, particularly in congested urban areas where air pollution is rapidly becoming a problem. They provide clean air to breathe in air conditioning systems for residential homes and industrial buildings or as cabin air filters in vehicles. Sandler supplies durable, efficient filtration nonwovens for these applications. In 2015, however, the keyword Indoor Air Quality did not only address air quality in public places: A new norm on the energy efficiency of filter media is shaping the industry. Sandler offers synthetic filter media which already meet these new requirements. They contribute to lowering the energy consumption during the operation of the filter plant.

Nonwovens machinery manufacturers presented many innovations at ITMA 2015 in Milan

At the close, let's take a quick look at mechanical engineering, since growth rates of 5-7% per year mean a total growth of up to 40% over 5 years, which also requires investing in new plants and production systems.

All market-leading technology suppliers presented a number of new machines and processes at ITMA 2015 in Milan which will significantly improve the productivity, flexibility and efficiency of production.

In addition to increasing sales due to growth, this also promises more profitability for the nonwoven producers.

Autefa Solutions, the premier supplier for drylaid nonwovens process, has redesigned and developed the most successful card of the F.O.R. technology to fulfill the requirements of the nonwoven industry and inaugurate a new generation of cards at ITMA. The result is the new AUTEFA Solutions Web Master FUTURA Card. It combines the proven quality of the successful Web Master cards with developments focusing on economic aspects. All new features ensure that the Web Master FUTURA stands for highest quality of carded webs, an increased production, easy cleaning of the machine, easy access to all the parts of the machine and a reduced time for maintenance and re-wiring.

Another new machine is the Automatic Needle Exchanger 2.0 which is an efficient and economic unit for needle board maintenance and greatly improves the efficiency of a needle board workshop. Every single needle can be accessed individually, so there are no limits with regard to needle densities and patterns.

Dilo, the leading company in the field of complete staple fibre nonwoven production lines, presented at ITMA two complete lines to show the latest developments in all components. The large production line with a working width of 7 m was a fountain of innovations and offers advantages in productivity, flexibility, efficiency and also costs. Of particular interest is the new horizontal crosslapper, the heart of the displayed line.

The new crosslapper type "Super-DLSC 200" allows electro-mechanical speeds of up to 200 m/min for web infeed speeds, depending on the fibre specification. It aims at reducing a possible bottleneck for the total throughput of the complete installation. Likewise interesting is the presented compact line which is designed for the production of small amounts of high quality felts used in the medical sector and for specialty felts made from fibres such as carbon. The working width of the compact carding machine is 1.1 m, the layering width is 2.2 m.

Oerlikon Neumag payed particular attention to the efficient production of spunbonds for technical applications presented at ITMA new developments for this purpose. We have learned from the studies that spunbond and meltblown are on the rise in technical applications thanks to their technical and economic advantages.

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

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

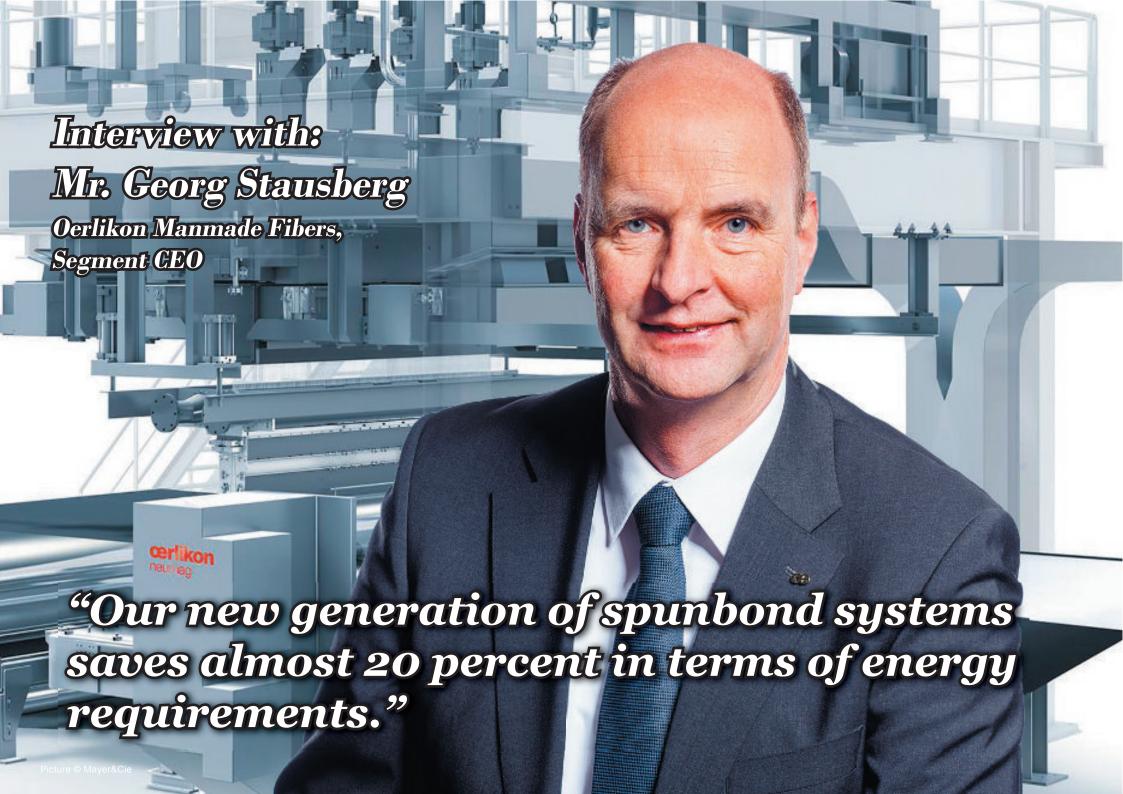
Trützschler Nonwovens highlighted at ITMA the advantages of their new wet-in-wet process they have developed together with Voith Paper, the well-known paper machine manufacturer. Together they are offering complete production lines for the manufacturing of wet laid and hydroentangled nonwovens. Flushable wipes, standard cleaning cloths, coating substrata and technical webs are only a few examples of the end uses for these webs with special characteristics. In summer, the first Voith-Trützschler installation has been successfully commissioned.

Another exciting innovation on display were structured nonwovens from the thermobonder. A patent-pending, replaceable structuring shell allows the production of fluffy webs with permanent 3D structures during bonding in the thermobonder. Furthermore they introduced the modular AquaJet, a new high-speed foulard for ADL systems and new developments for needling machines.

Conclusion

So much on the development of the nonwoven industry in the near future. This is of course only a rough outline and nonwovens producers will take a closer look at trends among the individual segments and the efficiency of the individual production methods to form projections for their specific company alignments. The full studies will certainly be helpful in doing so.

And what do we think of the future of the nonwovens industry as a whole? It appears just as successful as it is determined, i.e. greatly crisis-proof if you look at the growth scenarios of the studies. The latest technologies could further increase growth, as they will help producers become more profitable. And there may be some growth factors such as new applications which were yet to be conceived or tapped or which will emerge from immediate necessity. One conceived example would be ocean cleaning systems as a substantial contribution to the megatrend of countering pollution in the interest of sustainability. But luckily we don't have to go to the extent of this imagination to reach a positive conclusion, since the nonwovens industry will remain what it is: a booming industry.



Oerlikon Neumag focuses its spunbond technology on industrial applications. What market potential do you see for this in the future?

Mr. Stausberg: Today, almost 50 percent of all nonwovens are already produced directly from polymer chips – and this share is growing. Although the majority is used in hygienic, medical and wipe products, spunbond and meltblown products are on the rise in industrial applications, increasingly replacing classical materials such as wovens and films, but also carded nonwovens as a result of their technical and commercial benefits. In building construction, for example, the share of spunbond products is already over 80 percent and more than 50 percent in the case of filter nonwovens, while geotextile applications are also growing in significance.

Polyester is increasingly gaining significance as a raw material for industrial spunbonds. What benefits does polyester offer over other polymers?

Mr. Stausberg: Raw material and manufacturing costs and the actual material properties play important roles in manufacturing nonwovens. Here, polyester has clear advantages. On the one hand, the global market price of polypropylene, frequently used as the raw material to date, has been consistently higher than that of PET. On the other hand, sustainability, heat protection, energy consumption and insulation are hugely important to users in the construction industry, for instance.

And polyester nonwovens often satisfy the corresponding requirements with the minimal use of materials and without additives. They protect against cooling, absorb only minimum moisture, can be easily used as insulating materials, are good for insulation and recyclable, hence are an alternative to plastic foams, glass wool or mineral wool.

You mentioned minimal use of materials and no additives. What does that mean?

Mr. Stausberg: The strength of the nonwovens is frequently hugely important in industrial applications. They need to be extremely tearresistant and simultaneously very extensible. These properties must be achieved with the lowest possible weight and optimized raw material usage, as the raw material costs make up around 75 to 85 percent of the manufacturing costs in the case of spunbonds.

Here, benchmark comparisons with conventional products in Europe have shown that considerably higher nonwoven strengths can be achieved with comparable weights using our innovative spunbond technology.

Can you name concrete figures with regards to the savings?

Mr. Stausberg: Here, we can – thanks to the process-optimized solutions of our engineers – make raw material savings of more than five percent possible.

What other benefits can be achieved by deploying Oerlikon Neumag technology?

Mr. Stausberg: In addition to the quality of the end product, low operating costs play an important role in the decision to invest in modern spunbond systems. We have comprehensive developments in our portfolio aimed at keeping these operating costs as low as possible. Our focus has been on reducing energy consumption, the second largest operating cost. In this way, our new generation of spunbond systems saves almost 20 percent in terms of energy requirements. This optimization can make a difference of around 30 percent compared to conventional PET spunbond processes.

30% lower energy requirements results in significant savings?

Mr. Stausberg: That's right. Together with raw materials savings and further optimizations in our technology, the conversion costs are up to 30% below those of conventional spunbond systems.

With what measures have you achieved this?

Mr. Stausberg: By focusing on industrial applications for our spunbond technology, we have built up comprehensive know-how covering the overall process, including the necessary in-line further processing.

In collaboration with well-known companies, we have been able to considerably expand our further processing knowledge and expertise and draw conclusions for the spinning process and hence the overall process. Within this context, we have once again considerably expanded our applications R&D center in Neumünster over the past three years.

As part of the Oerlikon Manmade Fiber segment, Oerlikon Neumag is a company offering a broad range of technologies for the most diverse applications. Do these technologies profit from each other?

Mr. Stausberg: The three Oerlikon Neumag technology divisions – BCF, staple fiber and nonwovens – benefit heavily from each other. Add to this the experience from PET, PP and PA filament spinning systems at Oerlikon Barmag. With this knowledge and expertise, we have for example adapted our extensive know-how in manufacturing bicomponent staple fibers to the spunbond process, which has considerably simplified optimizing the bicomponent nonwovens process. To this end, we can today also offer our customers requirements-oriented production solutions for these applications.

Furthermore, the process know-how acquired from spinning hightenacity fibers, for example, while improving the spunbond spinning system has enabled us to offer solutions for demanding products.

Do you see any other trends?

Mr. Stausberg: Our strengths are in processing polyester and manufacturing special nonwovens from mono-component and bicomponent fibers produced from all relevant melt polymers, regardless of whether PET, PP, PE, PLA, PA6, PA6.6, PBT, etc. And we have identified a trend in this direction not only in the industrial sector, but also in other areas. Competition is becoming fiercer among nonwovens manufacturers, and they are differentiating themselves increasingly through new products and special applications. We see ourselves as specialists in these applications and support our customers as a product and process development partner.

In addition to spunbond technology, you also offer other nonwoven technologies. What is the situation with these products?

Mr. Stausberg: We are needless to say constantly further developing our meltblown and airlaid technologies as well. Current installations at leading manufacturers show that we are also a coveted partner when it comes to these technologies.

We are very much looking forward to showing our customers our latest product developments at the various machinery exhibitions this year. I am certain that we will be able to convince them with the nonwoven products that can be manufactured using our machines and systems.

You recently have acquired the entire staple fibers technology portfolio of Trützschler Nonwovenswhich makes you the leader in machinery for the staple fibers market. Was leadership the main reason or what is the greater idea behind the deal?

Mr. Stausberg: The former Fleissner staple fibers technology portfolio of Trützschler Nonwovens & Man-Made Fibers GmbH is an ideal fit for our business. It enhances our existing technology offering and broadens our service business. Furthermore, it opens up attractive business opportunities with key customers in that field. Combining the staple fibers process solutions and key components of both companies will enable us to increase customer value through developing further innovations. In addition, we will be able to offer the entire range of customer services for all installed machines and plants of the former Fleissner staple fibers technologies.



The ITMA is considered by many textile machinery builders to be the industry's most important trade fair. All the exhibitors at the ITMA in Milan are raving about the number and calibre of the visitors. How satisfied are you with the ITMA?

Mr. Dilo: We're more than satisfied with the fair. We've had a large number of knowledgeable visitors who have shown considerable interest in our new products, and virtually everything we have displayed is new – some things have been modified and others have been revolutionised.

It is of course gratifying for us when large numbers of visitors commend us on our machines and instantly recognise the numerous benefits they offer. That has certainly been the case this time round. Of course, you also have to consider the costs involved in participating in the ITMA, but I view those costs in relative terms. This is an opportunity that only comes round every four years; in fact it's the best possible opportunity.

The only thing I'd like to see at the next ITMA is more directors and managers of textile companies attending the fair to gain first-hand information about the technological options available over the next four years. People in these positions are often extremely busy running day-to-day operations – especially in large global companies – and have to delegate the job of attending the fair to experts within the company.

Of course, it's only right to delegate; I do that too.

But it would be much better if the people responsible for running companies were able to keep up to date with technological developments themselves. That's something I do, but it's easy for me to talk, as I only run a small company and come from a technical background.

You are exhibiting an exceptionally high number of innovations at this fair. We are particularly impressed, not to say taken aback, by the fact that you are presenting two full machinery lines, including all the relevant innovations, in production mode; this type of machinery demonstration is something rarely seen nowadays?

Mr. Dilo: Well I don't just want to display a heap of steel. Some machines may of course have visual appeal for the mechanical engineers among the visitors, but most customers aren't interested in the machine itself, but in the textile product it's capable of manufacturing. It's certainly a wonderful feeling when the sight of innovations sparks the enthusiasm of customers from the textile manufacturing sector and makes their faces light up, as has been the case at this ITMA. That gives me satisfaction too.

Let's take a closer look at the innovations and modifications to the machinery. What purpose do they serve?

Mr. Dilo: The purpose of the modifications to the machines – I'm referring here mainly to those made by Temafa in the field of opening, blending and fine opening – is to facilitate the processing of longer staple fibres measuring anything from 90 to 150 mm.

This is extremely important in the case of geotextiles, as longer staple fibres allow us to achieve greater strength, which is of course crucial for geotextiles. We have also adapted the card feeder to create the new VRS-P; based on a conventional vibration chute feeder, this device permits a better, more regular feed, and a partial vacuum is applied to the underside of the discharge conveyor, with the result that the web is denser and hence more even. Here too, the overriding goal is to improve quality. The carding machines in the "VectorQuadroCard" series have been completely redesigned. Although still based on existing components, they have been completely reconfigured by means of a variable intermediate transmission module. This allows us to modify the carding machines within the space of 1 to 2 hours and configure them in a way that optimises either the quality of the fabric or throughput or even a combination of the two. In other words, we're offering a very flexible modular system. We can even provide added flexibility by installing compression rollers or randomiser rollers on the discharge side of the carding machines if desired. We are therefore able to offer the full spectrum of carding technology in a single system comprising variable components to suit all applications. This is a costefficient option for the manufacturer, and also offers significant benefits for customers who want a universal machine that can be used for a range of special purposes.

The highlight of our range is of course the new crosslapper Super-DLSC 200, a crosslapper which reaches web infeed speeds of 200 m and over. That makes it the world's fastest web-laying machine.

Our web-laying device is the only one that actually demonstrated in public its capacity to operate at this speed. That's why it attracted a great deal of interest at the fair.

Our needle loom is more conventional. However, we have made some technical changes to reduce costs. When developing new products, we adopt two different strategies. Firstly, we want to offer the best and hence the most complex technology in order to improve quality, throughput and efficiency. Secondly, we aim to offer machines that are straightforward and affordable.

Does the web-laying device determine the speed of the entire system?

Mr. Dilo: Yes, the carding machine could operate at a slightly higher speed, as could the needle loom. The web-laying machine is always the bottleneck, but that is less the case now. It's all part of the Dilo strategy: the solution can be found by analysing the problem.

Is this system suitable for a broader spectrum of applications owing to the fact that the carding machines can be modified so quickly? Is it possible for the machine to be adapted specifically for individual applications?

Mr. Dilo: Nowadays, machinery is often used for very specific purposes. The reason for this is generally mass production; the machines have to be configured in such a way that they can manufacture the same product every day with high productivity.

However, sometimes the demand for individual products falls; at the same time, quality requirements are constantly rising in all markets and for all products. This system offers greater flexibility, as it allows you to continue manufacturing large volumes with maximum productivity, while also offering a fast, straightforward means of squeezing in another smaller order for a top-quality product. The customer benefits from the versatility of the system and the speed at which it can be adapted. Another advantage is that we are able to supply the machine at a more cost-efficient price thanks to the modular design.

Does this flexibility mean – in theory at least – that the potential customer base can be expanded by addressing not only customers who produce very large volumes, but also companies which wish to produce smaller quantities and consequently have changing requirements with respect to the products?

Exactly, this system is ideal for companies like that. We certainly intend to tap into new markets with this system. We can reduce the investment risk for our customers by offering them universal, upgradable machines that are flexible, thus allowing them to respond to changing requirements.

You describe the second machine on display as a compact machine. What makes it so compact and special?

Mr. Dilo: The compact machine is of significance for niche applications which involve the processing of special fibres costing up to 30 euros per kilo, such as carbon fibres or high-strength fibres produced in small volumes. Despite its compact dimensions, this is not a laboratory machine, but meets the requirements of small-scale industrial production. The machine has been completely rebuilt; it hardly includes any components we have used previously. However, there are no fundamental differences, except perhaps that it has been optimised for carbon. The carding machine and web-laying feed table are 1.1 m wide, and the web-laying and needling width is 2.2 m. The machine on display is reserved for an institute. It will be going to Prof. Dr. Gries and Prof. Dr. Schlichter at the ITA, who intend to use it for developing carbon fibre products from recycled materials. The market is in urgent need of applications for waste materials, which means new products have to be developed. We are also seeing a constant increase in the quantity of carbon fibres being warehoused. The aircraft construction industry alone produces thousands of tonnes of carbon waste every year; it is important to find applications for this waste, as it can't be dumped in landfill sites. Consequently, some intensive product development work is necessary, and that's what the ITA in Augsburg will be doing. Incidentally, this system is very good for processing teflon as well as carbon, and for special fibres used in medical applications. In principle, it's suitable for processing all types of expensive fibres for niche products.

You mention the word "carbon" in connection with this system. That's a material deemed to have great potential, but so far, we haven't seen much increase in its use. How do you see the use of carbon progressing in the future?

Mr. Dilo: Firstly, we have to bear in mind that change generally comes about by means of evolution as opposed to revolution. I expect carbon to undergo an evolutionary process, albeit an exponential one. At the moment, we're at the start of a curve that is set to take a sharp upward turn some time in the future. As in the past, the majority of demand in the immediate future is likely to come from the aviation industry, given that components made of carbon are lightweight and very rigid. In the aircraft construction industry, material wastage can be as high as 50%, which is why carbon recycling is so important. Carbon is very expensive compared with steel, and steel is an excellent material. As can be seen from the major efforts being made in the car industry, it isn't easy to replace steel by carbon when not all the necessary criteria are met. Of course, the current focus on sustainability is driving the trend towards electromobility, but this is also dependent upon vehicles having sufficient range and charging stations being built on a widespread basis. I don't see the demand for steel waning; in my opinion, hybrid materials consisting of steel, aluminium and carbon will offer the best solution in many cases.

Dilo has always attached great importance to research and development as a basis for new, innovative machines. Will you be exhibiting possible future advances in needling technology at the fair?

Mr. Dilo: Yes, we've launched some new development projects, for which patents have already been filed; naturally we want to demonstrate that needling technology has an important role to play and that we're in the process of making it even better and more attractive. Take the X22 needle module, for example. It consists of 22 needles mounted in a plastic carrier plate. This is an innovation for high-density needling tasks, where we use over 20,000 needles per metre of board and four boards per needle loom, with working widths ranging from 2.5 m to 3.5 m. With up to 6 machines arranged in sequence, the number of needles is multiplied to such an extent that even a robot capable of hammering in a nail in the space of 2 seconds would be unable to handle the task efficiently. Consequently, this modular technology, allowing the automated insertion of 22 needles at a time, is practically a must for efficient and economical needle fitting.

Another of our development projects is "VarioPunch". In this case, the conventional needle-punching process is followed by an analysis of the surface, for example by scanning it with a CCD camera, in order to identify any missing or uneven perforations. Evenness calls for a low advance rate per stroke. This poses a restriction, and in order to solve this problem, you have to be able to get away from the drill holes in the board and vary the spacing between the rows of needles.

In theory at least, we are now able to work with variable spacing between rows and variable numbers of needles per slot in order to rectify faulty areas in a targeted way. Therefore only the identified areas need to be reneedled. If this system works in practice as it already does in theory, it will be highly efficient. In mathematical simulations, we have been able to prove that we can achieve very significant improvements of 40 and 50% in the coefficient of variation (i.e. the ratio of the stitching density to the mean). When applied to a needling task, this would mean that instead of 6 conventional needle looms in sequence, we could get by with maybe three conventional and one special needle loom for achieving the same result. If we manage to attain this goal with our technology, it will represent a major benefit for customers.

As far as the further development of machines is concerned, would you say that the post-ITMA period is actually the pre-ITMA period?

Mr. Dilo: No, it's a continual process. The ITMA merely provides a point of reference, and many of the things we display here aren't finished yet, but still part of the ongoing development programme. Dilo is an innovative company that invests a considerable amount of time and money in development. That's how we see ourselves and what we're known for outside the company. We've registered over 100 patent families since 1987. And in some years, up to 7% of our turnover has been invested in research and development. That's way above average, and it's the way it should be.

Research and development call for bright minds, not to say the brightest on the employment market. Judging from your innovativeness, you must have plenty of high-calibre employees. How difficult is it for Dilo to attract engineers to the company and the textile machinery sector?

Mr. Dilo: That's a classic problem in the machine building industry, but we have little or no difficulty on that score. We recruit on a regional basis and our company is a major employer in the area. We do of course benefit from having two major technical universities practically on our doorstep: Darmstadt and Karlsruhe. And there's no lack of enthusiasm for the industry, at least among my staff. It's all a matter of spotting and promoting talent, offering training opportunities and challenging tasks, giving staff the freedom they need and placing the best possible equipment at their disposal. That doesn't just apply to academic recruits, but also to apprentices in technical occupations. We sometimes find young people among our apprentices who have a special talent for designing machines, for example. One way in which we have sought to further such talent is by installing a 3D CAD system in our training workshop. Anyone interested in this aspect of the business can reach his/her full potential with us.

While we're on the subject of research, you told me at our last interview that you enjoy working as an engineer. As owner of the company, do you ever have chance to undertake engineering work yourself?

Mr. Dilo: Yes, to an increasing extent, as I make a conscious effort to do so. Of course, it's all on a somewhat abstract level. I try to develop speculative ideas which I follow through up to the patent registration stage; if we had greater capacity at our disposal in development and design, we'd be able to achieve even faster results. But I've organised my work in such that way that I have time for activities of that kind. And it's not just a matter of finding the time, but about being in a relaxed frame of mind. It's practically a law of nature. Some people come up with their best ideas while cleaning their teeth; in my case, it's when I'm driving the car or lying on the couch and gazing out at the garden on a Sunday. Some of the things on display at our trade fair stand have been born from hours of quiet contemplation. However, I increasingly engage the help of others in order to speed up progress, for example the Fraunhofer Institute in the case of the "VarioPunch". That works well for clearly defined tasks. I've always enjoyed practising the profession in which I trained.

That's certainly reflected in what you've achieved.

Yes, I think so, though it isn't always the case. Not every idea you come up with proves successful. You have to be clear about that right from the start.

But even when you embark on a new venture, only to realise later that it isn't going to work, you learn something from the process that you wouldn't otherwise have known. If you weren't to take that initial step, you'd just keep running on the spot. There's always scope for adjustment. We head into the future step by step, and after each step forward we have to reconsider the direction we want to take. I believe very strongly that you should have the courage to simply embark on a venture, even if it's unconventional, and see what becomes of it. And there's another very important factor too. In mechanical engineering, you need to maintain continuity of knowhow by holding on to your staff. In many cases, innovations are launched too soon and the market lags behind. You have to think a long way ahead. A lot of things may not bear fruit until ten years later.

I believe in things that are intrinsically logical and novel. Provided they fulfil these criteria, they're worth believing in, even though the path to development is sometimes a stony one. Edison once claimed that genius was 99% perspiration and 1% inspiration, and never has a truer word been said. Without wanting to place myself on a par with Edison, I would add that the 99% can only be put to good use in the presence of the 1%.

Do you think medium-sized owner-managed companies have the advantage of being able to plan on a long-term basis and take a high-risk, experimental approach to research?

Mr. Dilo: Yes, because I don't have to please anyone – shareholders for example.

I'm free to decide what strategy we pursue in the fields of development, staffing, investment, etc. We've fared well with this strategy for three generations. The fourth generation is on the way to embarking on a technical career. I'm very happy about that. And it's important that you enjoy your work. But that doesn't mean you have to enjoy everything you do every day. There are obligations as well, and you have to remain steadfast in fulfilling them.

The theme of the ITMA is "Master the art of sustainability". That includes environmental protection and hence energy efficiency. Is that an important topic for Dilo?

Mr. Dilo: No, it isn't our main concern; needling and web formation are already extremely energy-efficient processes, as the mechanical energy is transported very efficiently to the operating area. When a needle makes perforations and transports fibres, there are no energy transmission losses, as the process involves direct action. This also applies to the carding machines. Fibre transport is the area in which we are conducting our research. We're collaborating with the ITA in Aachen with the aim of reducing the energy required to transport the fibres from the opener to the feed device. That's something we want to improve. And we're also working on further improving our already very high level of energy efficiency. We have lever elements, for example, working as non-sliding guides, which keep friction down to an absolute minimum.

The thing often forgotten in discussions about sustainability is that many of the products manufactured by the textile industry aid sustainability. This applies in particular to nonwovens, one example being filters. How many of your customers operate in this field?

Mr. Dilo: That's very true, and we're making a significant contribution in this respect, as we have a lot of customers in the filtration industry. Filters constitute one of our main segments, as needled nonwoven textiles make very good filters owing to the minimal pressure drop and high separation efficiency. And of course pressure loss determines energy consumption for the required air flow. That makes needle-punched nonwovens ideal for filters, which is why they are produced in extremely high quantities. Our systems are often purchased for these purposes by China, where there is high demand for air-cleaning filters.

China is currently in a state of change. The problem of air pollution is now being addressed, for example, and has become a subject of public debate; China is striving for sustainability and advanced technology. Is this shift having an impact on your company?

Mr. Dilo: Yes, overall we've seen a considerable increase in our business with China. Quality products are in demand there now, and quality machinery is required to manufacture them. This is a general trend, and it certainly wouldn't be true to say that China values quantity over quality. That's something we're feeling the benefit from.

What are the main advantages of needle-punched nonwovens?

Mr. Dilo: It must be stressed that needling technology is the most important branch of the staple fibre nonwoven sector. Half of all products manufactured using staple fibre processing techniques are created by means of needle-punching. Although these figures are published by Edana or INDA, not many people are aware of them. And these figures don't include products made from recycled or natural fibres. Naturally, continuous fibres can also be used for needling. That brings the figure to over 50%, and we're now seeing growth rates that are well above the average. In 2014, consumption of needle-punched nonwovens rose by 9%. A 7% growth rate had been seen in previous years. That means this sector is on the up, and our technology is far from conventional or antiquated. On the contrary, our sector is young and dynamic.

The technical progress seen in our field leaves nothing to be desired, and all these developments can be put to good use for shaping our future. Our sector is characterised above all by diversity, as virtually any kind of fibre can be processed: all manner of synthetic and natural fibres, and a large number of mineral fibres as well as carbon fibres. This opens up a vast range of applications, while also sowing the seeds of sustainable growth. I'm not familiar with the exact growth figures for the three other processes, but if you opt for needling technology you can't go wrong and will be well prepared for the future.



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In November you restructured your business and implemented the transition to the Santex Rimar Group. New structures. Greater integration of the individual companies. A new CI conveying objectivity and clarity. Were these the reasons for implementing the transition or were any other factors involved?

Mr. Galluci: Santex Rimar Group has the ambition to become a landmark for customers and partners in textiles, technical textiles, nonwovens and weaving not only as a supplier of machines, but also as a partner to make their business more profitable and sustainable and to develop new processes and technologies to improve their markets. Santex Rimar Group is daily improving its processes and integration to give customers always the best solution with an outlook on global market and technology trends that only a group with our integration throughout the world can supply.

You state on your website that the individual companies have evolved into a group. How difficult was the integration process and how do the individual companies cooperate with each other today?

Mr. Galluci: Santex Rimar Group is today organized in divisions (Textile finishing, Technical textile, Nonwovens, Weaving and Greentech) and brands (Cavitec, Isotex, Santex, Smit, Sperotto Rimar, Solwa), we have concentrated services that have a strategic importance and are recognized as values by our customers.

For example our Mechatronics and Automation Competence Center is in our Swiss site, developing solutions for the whole Group. ITC are shared using common infrastructures and solutions, this allows to give customers of all the brands access to Service and Logistics info for whatever question they have, wherever they might be.

As a group, you offer a very large portfolio of companies, machinery and services. Last year, you extended this portfolio by investing in startups. Why such a broad spectrum, and what are the advantages for the group as a whole?

Mr. Galluci: SolWa has ready to market solutions now delivering globally through our companies and agents. The approach is welcome by the market. SolWa is now cross fertilizing all Santex Rimar Group with sustainability programs and ideas contributing to innovate our lines.

We have recently awarded another startup related to green technologies with a seed investment and are evaluating other external growth operations. Santex Rimar Group has a strong sustainability tradition, but we welcome ideas coming from fresh minds and we are open to receive more. Our shareholders are the promoters of a startup prize in Italy which has become the biggest prize in Europe for young entrepreneurs: I can easily say our Group is deeply devoted to innovation.

The ITMA in Milan in November was extremely well attended, and your stand attracted a large number of visitors. How would you sum up the event?

Mr. Galluci: The global boost in capital equipment investments seems to continue with new markets opening to renovate their facilities with state of the art technologies.

ITMA Exhibition in Milan was giving an important impulse to the textile machinery industry in general and in particular also for Santex Rimar Group. _

We were able to sell all machines exhibited and furthermore were able to close some substantial orders: 2016 will be definitely a strong year for us.

At 9th. November, shortly before ITMA, you announced that you have started the acquisition of SMIT Textile, one of the world leading manufacturer of looms and weaving machines. Is the takeover complete and what exactly have you taken over? Premises? Brands? Patents and designs? Staff? Please be so kind and tell us more about the details of the deal.

SMIT is now one of our team members and it will be a very strong one. Santex Rimar Group now owns all the rights on know-how, patents and designs. We have hired the same people as they are best of breed and well recognized by customers. Human factor is a key value in Santex Rimar Group.

We have not acquired the premises as we have built new ones, active and producing looms from end of spring 2016. The new premises are state of the art, very well organized using lean production principles.

It is always gratifying for the textile industry when a long-standing company like SMIT manages to survive and find an investor, in this case Santex Rimar Group, which stands for innovation and reliability and is capable of making a difference. What do you find interesting about SMIT and what makes you so sure that the manufacture of weaving machines and SMIT itself are right for your portfolio?

Mr. Galluci: SMIT fits in our vision of a single point of reference for our customers: Santex Rimar has now knowledge and potential to help the customer's strategy from the loom to the last finishing station, both in textile finishing and technical textile. SMIT is one of the acknowledged brands, with edge technology very close to customers' specific needs. Our customers will have incredible benefits from the synergy of our brands with SMIT: the integration of activities such as R&D, communication and partnerships with strategic key players are only some of them.

If we are to believe reports in the Italian media, SMIT has had major problems for a very long time. How do you intend to build on SMIT's previous successes and get the company back on track? What makes you think that SMIT has a future?

Mr. Galluci: SMIT presence at ITMA together with Santex Rimar Group was very important. Key customers have come to the show and we shared with them our plans. I have personally started visiting customers from Asia to USA and I shall visit more to let them know how serious we are on this. The reaction of the market to the come back of SMIT backed by a solid group has been very important for us. SMIT is and shall be one of the best weaving machines producers in the world.

In the weaving sector, the competitive situation is even more problematic than in the textile finishing sector; it has to be said that there are some very large, well-known competitors who have launched a significant number of developments in recent years, particularly in the field of technology. How do you intend to help SMIT catch up with these companies given their apparent technological edge?

Mr. Galluci: SMIT was so advanced in products development that its current technology is still better than the competitors'. This is what today customers tell us. Nevertheless we have launched new developments and new research projects to define a new product roadmap. Some of these have been launched together with customers, in the tradition of SMIT and Santex Rimar. We are engaging universities and research institutions to make basic research and are looking at new technologies to integrate the looms in Santex Rimar vision of the industry.

You were very keen to ensure that SMIT was able to showcase its capabilities at its own stand at the ITMA in Milan. How important was it to participate in the trade fair? Were you able to speak to many of SMIT's former customers, and how have they reacted to the takeover?

Mr. Galluci: SMIT presence at ITMA was key to meeting customers, just as it has been to restart the network of agents. Customers know now SMIT has restarted to produce looms and supply spare parts. The volume of orders received for looms and spare parts is impressive, probably also because the textile sector has restarted to invest.

Santex Rimar Group invests around 4% of its annual turnover in R&D, which is undoubtedly one of the keys to success. You have announced that you will also be investing in R&D for SMIT. Will this be to the detriment of the other companies?

Mr. Galluci: SMIT restart has been financed by the Santex Rimar Group, our holding company which is financially very sound and cash positive. We are very determined to make SMIT restart a success but really do not need to use any extraordinary tool as SMIT order backlog is so impressive that we only need to use standard finance.

Over time, SMIT has produced more than 40,000 gripper weaving machines, with many still in operation around the world. How important is the spare part business as a motivation for the acquisition?

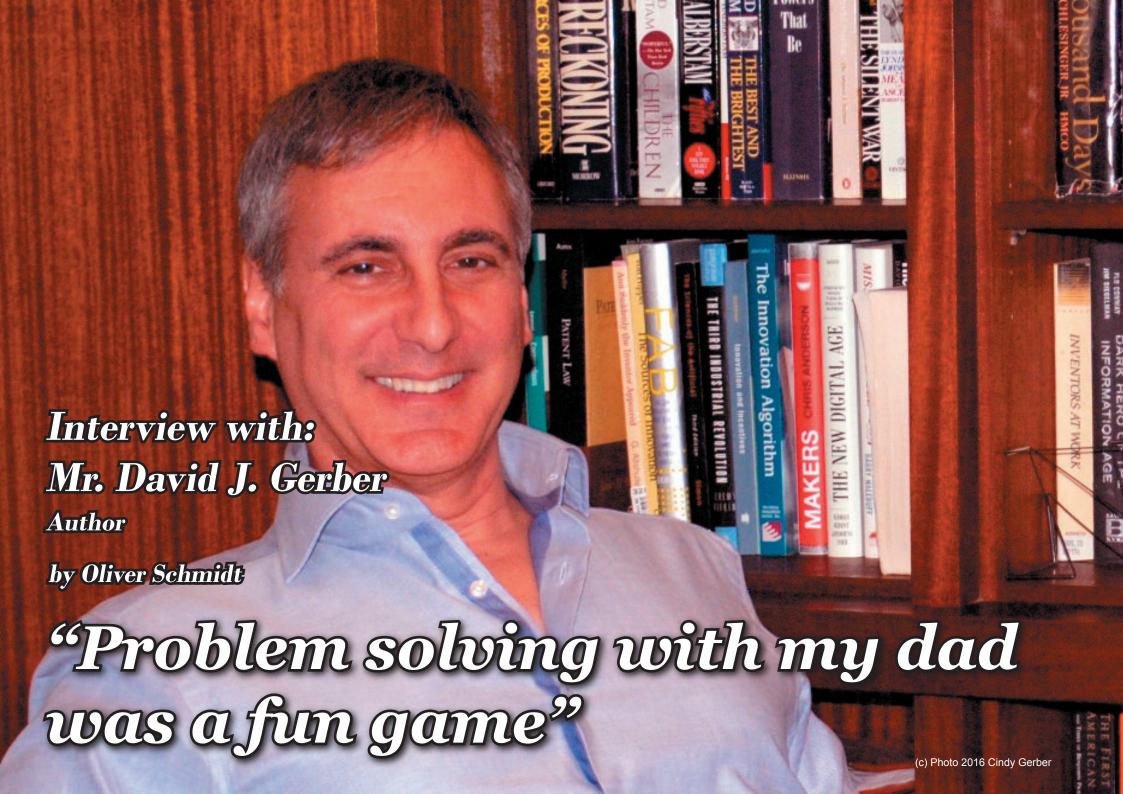
Mr. Galluci: Spare parts are important because they show how SMIT is in close contact with customers. Grippers are fundamental, as several customers have custom made ones and several want original SMIT grippers because they last longer and have better results. This shows how SMIT successfully invested in materials research, again a perfect fit with SANTEX RIMAR GROUP.

And what's the situation with regard to machinery installation services? Is there a demand for new machines and, if so, would you be able to satisfy it?

Mr. Galluci: Since ITMA we have received the request of new looms and spare parts, as well as service on existing looms. Operations to manufacture looms have started and the first deliveries are due during the summer, we have already started to manufacture spare parts, especially grippers, and our technicians are traveling to assist customers Worldwide.

You are yourself an expert in corporate development; you studied information technology in Italy and the USA before going on to found numerous startups and make them successful; you've worked in a variety of industries; you joined Santex Rimar in 2008 and have been CEO of the group since August 2011. Startups generally have a unique position in a niche market as well as a technological edge. SMIT is more like the exact opposite. Is this a completely new challenge for you, or does it bear some relation to the work you've done in the past? What is it that appeals to you about this task?

Mr. Galluci: SMIT had a unique position, was technologically very advanced and had the leadership in several markets. My role is now to refocus the team of SMIT eventually complete it with new people and back it with all our Group sound and enthusiasm. We believe people are key to success and we are investing in SMIT people. My personal attitude in re-startups and technologies is only one of the ingredients we will use; people, teamwork, close collaboration with customers, research synergies, communication and a good product roadmap are part of our recipe to success.



You recently published a book on the life of your father, the famous inventor Joseph Gerber, with the title "The Inventor's Dilemma." How did this book come about?

Mr. Gerber: I decided to write the book in 1989, with the desire to share my dad's remarkable story: a boy who survived two years under Nazi rule, and rose as a fatherless penniless refugee to be a celebrated innovator in America conceiving hundreds of inventions and transforming industries. At that time, he and I travelled to Vienna to retrace the places of his childhood and where events of the Holocaust took him. At night in our hotel room, we talked with the lights off about his history, values, and ideas. When my dad fell asleep, I tiptoed into the bathroom for light. I sat in the empty tub, and wrote my notes from our conversations.

My dad began to write his memoirs after our trip. He never lived to complete them, but I suspended my work on the book while he explored his life story. After my dad died in 1996, I became an officer and a director of the company that he founded, Gerber Scientific, Inc. (now Gerber Technology, Inc.) I was concerned about the deterioration in America's manufacturing base, which could only be stemmed by improvements in manufacturing technology. I wanted to explore my dad's inventive process and the company's culture of innovation, as well as his remarkable life story, which was critical to improving productivity. I accumulated company historical materials, dusted off my notes from our Vienna trip, and took a visiting fellowship at Yale University to conduct further research and write.

Your father is considered one of the greatest inventors in the USA of all time. In 1994 he was awarded America's National Medal of Technology, the country's highest recognition in technology and innovation, by President Bill Clinton for his "technical leadership in the invention, development and commercialization of manufacturing automation systems for a wide variety of industries." In total, your father registered over 600 U.S. and foreign patents. What is someone, who comes up with so many ideas, actually like? Was your father constantly busy thinking about how he could improve machines and products and fiddling around with them? How did you get to know him in his role as an inventor?

Mr. Gerber: My dad had a boyish restlessness. He loved to solve problems. He would sit in his office to attend to the executive matters of running a business, meeting with financial people and attorneys. But the moment these meetings ended, he eyed the door in the back of his office, swung his chair around, and darted out to a lab or the machine shop to propose a design or check on an experiment. He was motivated to do things that people said were "impossible."

Behind the restlessness was a quiet fervor. One day, while his colleagues debated the best way to punch paper, my dad walked into the next room and built a prototype. He returned with a slip of punched paper. On it, he had written: "Quicker done than said." If we drove in the car, he might remark that tires should be cement and roads paved with rubber.

At the dinner table, he might run his index finger along the edge of an injection-molded bottle cap and wonder how he could fabricate plastic bristles. He would become quiet, and leave for a few minutes to sketch an invention.

Problem solving with him was a fun game. When my mom needed dozens of eggshells for her artwork, my dad lined-up egg cartons on the kitchen table and drilled holes in the tops and then bottoms of the eggs. He fitted a bicycle pump needle onto an old air compressor, inserted the needle into each egg, and evacuated the eggshells in an assembly line fashion. When I wanted to run a private phone line across the street to a friend's house, my dad sat on the floor with us, shoulting "Hello" into the microphone. When we heard a voice from across the street, he jumped up and cheered.

Joseph Gerber together with his wife Sonja, his son David and his daughter Melisa, after receiving the National Medal of Technology, 1995. (c) Alan Grant

Although irrepresibly confident in his ability to solve problems, he also prayed every morning and evening in his bedroom. He used an old dog eared bible. He was impatient with ideas, but patient with his kids. He was warm and funny, if also driven to succeed. When relatives once joined us for a trip on our boat, they jokingly called their little cabin "the chicken coop." The next morning, my dad placed a boiled egg in the cabin before they awoke.

Your father was not just a great inventor, but also a very successful businessman who founded Gerber Scientific and Gerber Technology, among other companies. However, the book's title is "The Inventor's Dilemma." What, may I ask, was his dilemma?

Mr. Gerber: Throughout his life, my dad faced intractable problems and overcame these through his ingenuity. As a boy living under Nazi rule, he and his father were placed on a train headed toward Dachau, and he figured out how to disengage a latching mechanism so they could escape and jump from the train. In America, he conceived a way to use his pajama elastic to solve engineering problems, and launched his company to sell these devices. He rose from an indigent refugee to build a company and transform antiquated manufacturing processes though invention.

Dilemma also means a difficult choice. My dad's method of invention was to invent systems, not merely components that improved existing systems of manufacture. This method relied on long term investment in research and development and in interacting closely with manufacturers. By employing this method, the Gerber companies generated healthy returns to inventors, enhanced manufacturing productivity, and helped

manufacturers to compete with imports made by lowcost labor. However, the increasing short term pressure from Wall Street and declines in our manufacturing base threaten to make long term investments and close interaction with manufacturers more difficult. This presents a dilemma for inventors as well as manufacturers.

From the viewpoint of the garment industry, the legendary GERBERcutter is his most impressive invention. Could you explain to us how your father came to invent this product? What methods did he use and what steps did he take to realize the invention?

Mr. Gerber: My dad first became interested in garment industry automation in 1967. IBM contacted him and asked him to develop a system for producing redboard templates of graded apparel patterns. This project interested my dad for two reasons. First, it represented a new product opportunity in a "non-automated" industry. Second, my dad was familiar with the garment making process. He had studied dress design as a boy in Vienna in 1939-40 to have a trade to support himself should he immigrate to another country. He soon focused on the task of cutting cloth. He envisioned a new way of cutting: "plunging" a knife from above into the stack of cloth resting on a "knife permeable cutting bed," instead of entering from the sides. Garment makers saw "no problem in the cutting room." My dad's insight was that automated cutting could solve problems in the pre-cutting and post-cutting rooms. First, he recognized that his "plunge cutting" would improve material utilization.

Second, he recognized that automation would produce more-accurately cut parts and reduce the time that sewing workers spent to fit the cut parts together before actual sewing. He also determined that his automated cutter would be "the basis for further automation" in the industry, since it would simplify the tasks of marker-making and sewing, organize the factory for a mass production model, and integrate with other computer-based systems. Within a couple of years after launching the GERBERcutter, he introduced the first automated systems for sewing and for marker plotting.

To create a "knife-permeable cutting bed," he designed a table surface composed of bristles, which he conceived by looking at a shoe brush. To compress the cloth layup into a firm easy-to-cut mass, he employed a vacuum from below and a sacrificial sheet of plastic on top—like vacuum-sealed packaging. To keep the long plunging knife from bending despite strong side forces imposed by the stack of cloth, he analogized the knife to an airplane wing.

This story reflects the hallmarks of my dad's method of inventing. First, whereas many other inventors received problems to solve, my dad imaginatively identified and framed inventive problems. Second, he did not seek to improve an existing component, such as a hand-guided cutting machine, but invented a very new process. Third, he and his company conceived and integrated numerous products to enable a new manufacturing system. Finally, my dad approached technical problems on a fundamental level, often employing analogies.

Many of your father's groundbreaking inventions revolved around automation in the garment industry. In many Asian countries, too, wages have increased by so much that more and more automation technology is being incorporated into the textile and garment industry. How would your father explain to Asian companies that automation is the way of the future?

Mr. Gerber: My dad didn't simply automate processes. He innovated. He didn't primarily replace a skilled laborer with a machine. Instead, he changed manufacturing method and system. As a result, computer automation generated benefits in quality, materials cost, and agility, as well as labor savings. It did not simply—or primarily—replace laborers.

That automation is the way of the future was acknowledged even by organized labor. In a most remarkable letter to my dad in 1995, the president of the largest apparel labor union cited "Gerber [Garment Technology]'s advanced apparel technology as one of the keys to maintaining a domestic apparel industry based on good and productive jobs--as well as a global industry built around productivity and a living wage." This reflects the reality that a sustained competitive position depends on more than labor advantages.

Today's automation reflects the continued evolution of the apparel factory system that my dad envisioned—a system for delivering productivity, quality, and agility.

The performance, cost, and functionality of computerized technologies will continue to improve. Increased wages adds the benefits from this automated manufacturing system, of course.

Robots, artificial intelligence and industry 4.0 are the future of globally interconnected automation. Based on your knowledge of how steadily automation has developed over the last 50 years - How should companies go about tackling this future?

Mr. Gerber: My dad's story illustrates that automaton proceeds step by step. The challenge was not only to envision a new manufacturing system, but to help manufacturers get there. From a product development standpoint, this entailed developing new technologies that fit within the existing manufacturing system but also could be eventually integrated to form a new manufacturing system. From a customer support standpoint, this entailed working closely with customers to understand their processes and infrastructure needs.

The lesson is for manufacturers to develop close long term partnerships with the developers who have a deep knowledge of their industry as well as advanced technology. My dad was an extraordinary inventor because he had insights into manufacturing processes; his ability was not only to invent technical solutions, but also to recognize customers' problems based on the deep understanding of the customer's workflows and industry demands that he—and others at all levels of his company—developed.

Which of your father's inventions impressed you the most and which do you think was the most important?

Mr. Gerber: You already asked about the GERBERcutter automated cloth cutter. As many observers recognized, this product paved the way for a broad system of apparel production. This product was also important as a technical achievement in its own right. Inventors had attempted to automate cloth cutting for a century. My dad's fundamental inventions which enabled the first GERBERcutter largely did not depend on the prior century's advances in technology, except for computers and for general motion control technology, which my dad and his company also played a role in advancing. My dad's inventions just were very clever.

My dad is also known for pioneering contributions in data reduction, digital graphics, circuit board manufacture, and printing, among other fields. But to me, his most impressive invention is actually a little known device called the "Gerber Equameter." Based on special sliding plates and tally sheets, the Equameter enabled a user to determine the equation of almost any graphical curve, which previously required knowledge of advanced mathematics. The Equameter user only needed to know simple addition. To understand this invention, I spent weeks studying manuals and patents and asking my dad's engineers and patent attorneys. Finally, I engaged two post-docs from Yale University to obtain the full explanation.

You write at the beginning of the biography, that the book is mostly about dreamers, guided by skill, imagination and courage. It is implied that you see the ability to dream as one of the key characteristics of people who create things, which are highly innovative. Could you expand upon this a little for our readers?

Mr. Gerber: My statement was a riff on Kurt Vonnegut's 1956 dystopian view of automation, "Player Piano." In the preface to this novel, Vonnegut wrote: "our lives and freedom depend largely upon the skill and imagination and courage of our managers and engineers." His preface was written wryly. His characters included a futuristic automated drafting table named "Drafting Dan."

My dad envisioned automation with a more optimistic bent, introducing the first machine to draw graphics under digital control and pioneering the field of automated drafting. His first "Automated Draftsman" and embryonic design functionality for digitizing, storing, editing, and sharing shapes was arguably the first use of automation to enhance human creativity. In his CAD systems, he envisioned an "intimate" relationship between man and machine in the design process. He and his colleagues created products that had sometimes had never even existed in the minds of dreamers. This was dreaming about something that didn't exist, but was possible.

I came across the following sentence in my research: "But his book is about an earlier time, when the American Dream was clearer." What makes the American dream blurry today?

Mr. Gerber: Today, Americans face economic and cultural threats and opportunities as our society contends with the dislocations from computer automated manufacturing and globalization. My book begins with a chapter on Vienna's fin de siècle for two reasons. First, my dad's role model was his grandfather, a man of science, who came of age during fin de siècle, when the city led much of the modernist movement. Second, modernism was one of the paths that Austrian society took in the wake of the first industrial revolution and its forces of societal change. This path then turned in other directions, and ultimately led to the Nazism that profoundly impacted my dad. In this way, my dad's story extended from the first industrial revolution to the second industrial revolution—the computer automation revolution, which has engendered new societal challenges from import and technological unemployment. Without imposing the pattern of one period and place on another too closely, I think it's valuable to consider earlier experiences in framing today's challenges.

You yourself are a very gifted individual, who firstly studied political science and engineering before going on to complete a law degree. You then worked in many different executive positions within the Gerber concern.

As well as this, you demonstrated a talent for writing from a very early age and received a distinction in 1988 for the best written work by a graduating student at the University of Virginia Law School. How much of this special dreamer is in you - in David Gerber?

Mr. Gerber: After graduating law school, I worked at a corporate law firm in Manhattan and then took an assignment at Gerber Scientific. On my first day at the company, one of my dad's long-time engineers said that they would "Gerberize" me. I would come to understand what he meant—and that he was right. My dad and his colleagues had created a unique company culture. I learned about ideas: how you find them in their embryonic form; how you must nurture them in your mind, then champion them or they will vanish; and how they can change the world. At the company, I became involved in inventing new kinds of products. This experience shaped me in a way that allowed me to undertake the challenge of seriously writing my dad's biography and the related history of computer automation as a first time author.

Who should read your book about your father? Perhaps someone who has a lot of ideas but does not believe in themselves? Or is it more something for people interested in technology?

Mr. Gerber: I believe that my dad's story cuts across these categories of readers. Many readers will find inspiration; many others will learn about his strategies.

Technology is a significant aspect of his story, certainly, as it illuminates forces that shaped automation in the second half of the 20th century. But I wrote "The Inventor's Dilemma" in a way so that lay readers could enjoy the story, skipping over specific invention descriptions if they wish and focusing on the human aspects of my dad's life and his creative drive.

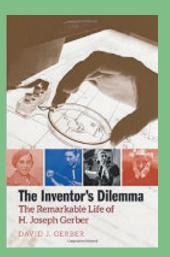
I envisioned the book to be like a novel. My dad's life had such strong elements of narrative and character that I believed these would propel readers forward. At heart, I saw my dad's life as presenting the relationship between imagination and hope. This thread ran through his boyhood inventiveness to help his family survive Nazi rule; his dreams to be an engineer in America, when he was a penniless fatherless refugee; how he approached transforming antiquated industries and inspired the confidence in his employees that he (and they) would develop the next breakthrough product despite recessionary times; and his ability to instil faith in existing industries that technology could help to preserve domestic manufacturing and good jobs.

To have ideas is one thing. But to make them a reality is quite another. What can we learn from your father in these regards? Should you follow your dreams, or is this idea much too simplistic in itself?

Mr. Gerber: My dad told me, "Do what you love. If you do, you'll do it well. Success will follow." I believe that his story teaches both that we should follow our dreams and that this idea is too simplistic in itself.

My dad followed his dreams. A poignant moment in his life story was when he was recently arrived in America. He was penniless and fatherless. He had just survived the psychological and physical assault from Nazi rule. His uncle in New York City urged him to be a waiter (for the pay). When my dad sought to become an engineer, his uncle dismissed this idea as a fanciful dream and criticized him.

My dad realized his dream for many additional reasons: tenacity, hard work, intellect; a self-confidence, which grew with each small success; and the desire (inculcated in him during his boyhood) to contribute to society. His experiences under Nazi rule contributed to shaping his risk-taking and can-do orientation. If he hadn't taken calculated risks, developed self-control, and acted decisively at the right moments during those years in Germany, he may have died.



The Inventor's Dilemma: The Remarkable Life of H. Joseph Gerber

Hardcover – October 27, 2015 by David J. Gerber (Author)

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In this edition of our 'Country Focus' series, we we stay in Europe and will be taking a look at a country that has managed the turnaround in 2013, after a five-year crisis in which the economy shrank by nearly 9 percent. We want to take a look at Spain, the country with the fourth largest economy in the EU. In the last two years Spain has achieved decent growth and, what is more important from a view with a focus on textiles, has become more and more a textile country by high growth rates in the export of garments. Furthermore the country is often mentioned in connection with the trend towards fast fashion. A good reason for our brief analysis.

Spain is a sovereign state largely located on the Iberian Peninsula in southwestern Europe, with archipelagos in the Atlantic Ocean and Mediterranean Sea, and several small territories on and near the north African coast. Its mainland is bordered to the south and east by the Mediterranean Sea except for a small land boundary with Gibraltar; to the north and northeast by France, Andorra, and the Bay of Biscay; and to the west and northwest by Portugal and the Atlantic Ocean. With an area of 505,990 km2 (195,360 sq mi), Spain is the second largest country in Western Europe and the European Union, and the fourth largest country in Europe.

y population (46,423,064, 07/2015), Spain is the sixth largest in Europe, the fifth in the European Union and the 30th largest in the world. The capital and largest city of Spain is Madrid with a population of around 3,2 million people. Other big cities are Barcelona (1,602,386), Valencia (786,424), Seville(696,676) and Zaragoza (666,058).

Spain is a constitutional monarchy, with a hereditary monarch and a bicameral parliament, the Cortes Generales (General Courts). The executive branch consists of a Council of Ministers of Spain presided over by the Prime Minister, nominated and appointed by the monarch and confirmed by the Congress of Deputies following legislative elections. The Monarch is King Felipe VI and the current Prime Minister Mariano Rajoy (since 21 December 2011).

Spain is a member of the United Nations (UN), the European Union (EU), the Council of Europe (CoE), the Organization of Ibero-American States (OEI), the North Atlantic Treaty Organization (NATO), the Organisation for Economic Co-operation and Development (OECD), the World Trade Organization (WTO) and many other international organisations.

Now let's take a look at the economy. In the 2014 GDP rankings for all member states of the World Bank, Spain is in 14th place with 1,404,307 million USD and contributing 1.8 percent of global economic output, just ahead of Mexico and just behind South Korea. The country's per capita GDP in 2014 was 25,865 USD according to IMF figures.

Here, Spain lies in 29th place of 187 countries in IMF statistics, behind South Korea again and ahead of Bahamas.

As mentioned at the beginning Spain has faced a difficult time. After a good start in the millennium with growth rates between 3 and 4%, the crisis periods of the real estate crisis, bank crisis and Euro crisis followed from 2008 hit Spain especially hard. According to the World Bank the Spanish econmy declined by 3.6% in 2009, by 1 % in 2011, by 2.6% in 2012 and by 1.7 % in 2013. However, since 2014 Spain has been able to register economic growth again. There was a recovery with a growth of 1.6%. And in 2015, the growth even reached 3.0 %, which is again almost pre-crisis levels.

The European Economic Forecast Spring 2016 sees an economic growth of 2.6% for 2016 and of 2.5% for the year 2017. The report says: "Economic growth is set to continue easing but to remain robust, underpinned by sustained job creation and declining unemployment, improved financing conditions and low oil prices. Inflation is expected to remain negative in the short term due to falling energy prices. The general government deficit is expected to narrow, mainly thanks to the economic recovery." The OECD writes in their economic summary in November 2015: "A robust economic recovery in Spain is projected to continue into 2016 and 2017, though at a gradually slowing pace as the positive impact of the depreciation of the euro, and lower oil and other commodity prices, dissipate.

Low borrowing rates for businesses and households will also continue to provide support together with the fiscal stance, which is expected to be mildly expansionary over the next two years. These factors, together with the implementation of significant structural reforms, are increasing business confidence."

However, Spain's strong economic growth cannot mask huge challenges. Biggest one is the high rate of unemplyment, one of the highest in the developed world. In 2015 it was at 22,1% which means that about 5 million workers were looking for a job. The EU forecast sees a development to 20,0% in 2016 and 18.1% in 2017.

ccording to World Trade Organization data, Spain was on the 18th place on the list of exporting countries for merchandise in the world in 2014 with a share in world total exports of 1.71 percent. The WTO reports that in 2014 Spain exported goods worth a total of 324,863 million USD (+2%), compared with imports worth 358,498 million USD (+5%), thus generating a trade deficit of 336,35 million USD. Spain's most important trading partner is the EU(28) which accounts for 62.2% of exports and 52.5% of imports, followed by the USA with 4.4% and 3.9% respectively. Other important export markets for Spanish products are the Marocco (2.4%), Turkey (2.1%) and China (1.7%). Other major suppliers of imports to Spain are China (7.5%), Algeria (3.4%) and Nigeria (2.5%). The biggest importer of Spain's exports as of 2015 is France with \$44.1 billion or 15.9% of Spain's overall exports.

And this brings us to the textile industry. According to the WTO statistics textile exports of Spain were valued at 4003million US\$ in 2012, 4342 million US\$ in 2013 (+8.4%) and 4528 million US\$ in 2014 (+4.3 %). Clothing exports were worth 9983 million US\$ in 2012, 11592 million US\$ (+16.1 %) in 2013 and 12627 million US\$ (+8.9 %) in 2014. Between 2010 and 2014 clothing exports added 77% which is a big jump. Both sectors together contribute to more than 5% of Spain' stotal exports and also 5% of the Gross National Product of the country.

Like in many other European countries the textile and clothing industry in Spain has a long tradition. In recent decades both these industries have undergone a major transformation and restructuring process which has led to increased turnover and a greater presence in both national and international markets. Let's have a closer look on the industries.

The Spanish Intertextile Council is an organization of business associations and federations in the textile sector, national level, which was established on 22 October 1979 as the highest organ of coordination and representation of its members. Council members are ATEVAL, AITPA, FITEXLAN, FNAETT and FTS, the last four integrated TEXFOR. On their website the Spanish Intertextile Council announce, that currently, the textile sector employs to 43,186 people and consists of a total of 3,565 companies, representing a turnover of 5,500 million euros.

The "sector presentations sector textil und apparel" by the Spanish Ministry of Industry, Energy and Turism from April 2016 lists 14.378 companies and 82.593 people working in the sector along the textile value chain from spinning preparation to clothing manufacturing. They represent 7,63% of all manufacturing companies in the country. With 14.363 almost 100% of the companies in the textile sector are small and medium sized companies (SMC), as this type of company has a greater flexibility to adapt to evolutions, which is especially relevant due to the phenomenon of fashion. Only 15 companies occupy more than 250 employees. On the other hand the Ministry estimates that 8940 or 62% of all companies export their textile goods to other countries although the firms in some cases do not reach the 50 employees. What are the reasons why more and more Spanish firms are increasing their presence and relevance in the international market?

Euromonitor wrote in in the report "Apparel in Spain" in July 2013 that the economic crisis changed consumers' attitudes: Spaniards turned to price-seeking, highly informed about different offers, critical and more demanding for a fair equilibrium between price and quality. In order to compensate the drop in consumption of domestic apparel sales, Spanish manufacturers invested in internationalisation as a way to generate new incomes and continue to grow. During the last years a lot of small and medium firms (SMEs) have jumped into the international arena. These firms have known how to turn the threat of the Spanish economic crisis in the opportunity of exploring new markets.

The portal "fashionfromspain.com" lists almot 500 Spanish textile and clothing manufacturers as well as fashion brands.

been the creativity and design in the product development. The textile, clothing and footwear sectors are closely linked to the fashion world and good design is one cornerstone of the Spanish textile industry. This aspect has become increasingly important outside Spain in recent years thanks to the work of creators such as Jesús del Pozo, Adolfo Domínguez, Roberto Verino, David Delfin, Hannibal Laguna, Paco Rabanne and Pedro del Hierro among others. The showcase par excellence for Spanish fashion is the Mercedes-Benz Fashion Week Madrid, which brings together the latest avant-garde creations on the Spanish fashion scene. Other key dates for Spanish fashion are o80 Barcelona Fashion and Valencia Fashion Week.

And of course there is the issue of quality of the products in connection with competitive prices. The fast fashion idea is simple, modern and attractive: make the garments more style than its competitors, closely following the catwalks, days or weeks later, with materials that are not expensive but give a look of quality and provide a continuous rotation in the stores.

Zara was the pioneer in having a business model that combines creativity, quality and low prices and it seems that many other companies are trying to follow the way of Zara.

lready in 2001 Werner Stengg described in a paper for European Comission "The textile and clothing industry in the EU" Zara' s way to success. He wrote: "Zara's success is based on a vertically integrated business model embracing design, just-in-time production (starting with basic fabric dyeing), marketing and sales. This gives the company the flexibility needed to respond to fast changing fashion trends. Its products are developed in a design-and manufacturing centre in La Coruna, with most of the sewing down by 400 local subcontractors. Designers are in constant touch with store managers to find out which items are most in demand. As they are also supported by realtime sales data from all 450 stores, they are able to feed repeat orders and new designs into the manufacturing plant. The plant, in turn, ships the goods to the stores twice a week, which eliminates the need for warehouses and keeps inventories low. As a result, Zara only needs three weeks to make a new line from start to finish – compared to an industry average of nine months. 10,000 new designs are created each year, none of them staying in a store for more than one month. Whereas Zara has committed only 15% of its production at the start of a season, the figure at the average EU retailer is as high as 60%. Zara can therefore more easily dump a product line which has turned out to be unpopular."

Today many fashion magazines and research companies name Zara the most valueable fashion brand in the world and Inditex, owner of the Zara brand, is the biggest fashion group in the world. In 2015 Inditex Group's net sales increased by 15.4% i to €20.90 billion, underpinned by growth in all of the Group's geographic regions.

Sales growth in local currencies reached 15%. Net profit was €2.88 billion, up 15% from FY14. In FY15, Inditex generated 15,800 new jobs, boosting its worldwide headcount from 137,054 a year earlier to 152,854. The pace of job creation in Spain – where 4,120 new jobs were created across stores, head offices and logistic platforms – was a particular highlight. These new opportunities emphasise the benefits of Inditex's global growth. In the anual report Inditex CEO Pablo Isla sought to highlight the Group's ability to create jobs, particularly in Spain, noting: "The investments carried out in head offices and logistics platforms, and in upgrading the company's technology have continued to translate into significant job creation and enabled Inditex to attract talent all over the world".

The Group's global growth has also had an indirect impact on the entire industry in Spain, where the Group has over 7,500 suppliers, which in turn employ some 50,000 people. These suppliers have invoiced Inditex €4.1 billion in 2015.

One could think that apparel from Spain is only Inditex but there is another big fashion group which is present in more countries than any other brand: Punto Fa, S.L., trading as MANGO. MANGO is a clothing design and manufacturing company from Barcelona with 1871 stores in 107 countries. At present, MANGO has over 8,600 employees and describes its concept as follows: "The MANGO concept is based on an alliance between a quality product, with an original design and a coherent and unified brand image.

Dressing the modern, urban women for her daily needs is the formula we have analysed, adapted and applied in all the countries in which MANGO is present: it has been and remains one of the keys to our commercial success and international prestige."

MANGO wites that they can be differentiated for having this highly-defined concept but it seems that this concept is going to be the concept of more and more clothing companies from Spain.

However, there are more ideas for having success in the international markets. For example a popular concept is to position in the so-called affordable luxury. Mihara shoes are sold in New York for \$ 300 and corsets of Maya Hansen between 300 and 500. And the wedding dresses of Jesus Peiro advance because, being custom made, cost between 2,000 and 3,000 euros while the price for a suit couture can be 10,000 or 20,000 euros.

To make the country focus complete we would like to mention that Spain also has a remarkable number of textile machinery manufacturers. 56 companies presented their innovations at the last ITMA 2015 in Milan. A worldwide well-known company, for example, is the manufacturer of stenter frames Icomatex. Another one is Jeanologia specialized in sustainable technologies for garment finishing. At ITMA Milan Jeanologia made an exclusive presentation of the zero discharge production center, what they have declared the first Jeans finishing plant that guarantees zero contamination.

Conclusion

So much for Spain. It should be noted that the spanish textile and clothing industry is very unique in its identity and concept. The right mix of design, orginality, quality, price, speed and trends is a recipe for success. Their courage to expand internationally in response to buying restraint in the national market may pay off. Some fashion experts even speak of the beginning of a second big wave which places fashionable products and shops of Spanish SMEs in the middle of the best inner city locations. And it might even include a company that comes close to Zara or Mango in terms of growth. In any case with the trend of fast fashion, the intention to expand internationally and the high quality of domestic manufacturing, next to Italy, Spain has the best chances of becoming the fashion and clothing country of the world. However it also poses a danger: Asian textile countries may adopt the successful Spanish way of doing things.

Successful launch of the German Textile Specialist Conference

The first German Textile Specialist Conference (original: Deutsches Fachkolloquium Textil) took place in Denkendorf this May. From this year onwards it will complement the traditional Aachen-Dresden-Denkendorf Textile Conference. Over 300 participants accepted invitations to this new series of events, and were very enthusiastic about the new concept. The first specialist conference was held under the motto "raw materials in the textile industry – modern processes, versatile applications" and chose yarn and material surface generation as its key topic. In parallel seminars on the topics of yarn, weaving, and meshing, 35 industrial and research experts talked about product and process innovations, new procedures and areas of application, and gave their own prognoses on the future of the industry. Global leaders in textile machine engineering, successful textile manufacturers and garment manufacturers provided contributions which spanned a wide spectrum of topics, from the fibre to the yarn, to the material, and the finished product.



"By founding this conference, we are creating a unique platform which will bring mechanical engineering and the textile industry together", concluded Prof. Götz Gresser in his closing speech. The "German Textile Specialist Conference" event series will take place every spring presenting a multitude of special themes, and will run parallel to the traditional International Textile Conference in autumn.

Researchers from TU Dresden set up research center for carbon fibers

Highly innovative carbon fiber technology is a prerequisite for many modern lightweight engineering applications. Researchers at TU Dresden have therefore combined their expertise in this field to form the new Research Center Carbon Fibers Saxony (RCCF).

The aim of the RCCF is to establish a joint research initiative in the field of tailored carbon fibers for pioneering functionalized and structural materials. The official founding ceremony took place in April 2016.

The RCCF clusters TU Dresden's existing expertise in the high-tech field of fiber-reinforced lightweight engineering. It also aims to consolidate Dresden's position as a leading lightweight engineering location by shifting research focus onto tailored composites with polymeric, ceramic and metallic matrices. These novel materials are set to become a market-leading technology, and it is with this trend in mind that the Institute of Lightweight Engineering and Polymer Technology (ILK) and the Institute of Textile Machinery and High Performance Material Technology (ITM) have joined forces to create a center for research into continuous development chains stretching from fibrous raw materials to finished products.

Modern precursor fiber production facilities have already been installed at the ITM. Prof. Chokri Cherif, Director of the ITM and Professor of Textile Technology at TU Dresden, sees a bright future for the new research center: "The establishment of the RCCF and the commissioning of the carbon fiber production plant herald the start of a new, intensified phase of both fundamental and applied research into carbon fibers. We look forward to setting new benchmarks in the field of carbon fiber development and gaining insights which will resonate around the world."

ITV Denkendorf to cooperate with Bode Chemie

ITV Denkendorf and BODE Chemie GmbH have signed a cooperation contract. This will involve a closer working relationship between the companies for example in regard to disinfection, by working together to find optimal solutions for users. ITV will take on analysis, research and/or development work for BODE in the area of surface disinfection using wet wipes which contain active ingredients.

ITCF Denkendorf works on replacing established GRP construction components

Because there is still no evidence of a real solution for true recycling of GRP materials in the future, the new research project at the ITCF Denkendorf aims towards finding a substitute for these materials. A new, pure, recyclable composite material of pure cellulose presents an alternative. This should ensure a safe, stable and affordable supply of raw materials for the GRP manufacturing industry. The biopolymer cellulose is used both as a high-strength reinforcing fiber and as a matrix component.

In this way, a pure, chemical composite made of cellulose, ("PURCELL") will be generated, which can be completely recycled by means of technologies that already exist. The purity of the PURCELL composites thereby guarantees a technologically simple recycling process.

From Plant to Polymer – First Cross-border ABC Conference in Maastricht, Netherlands

On 29th April 2016, the first ABC Applied Bio-based Materials Conference 2016 of Aachen-Maastricht Institute for Bio-based Materials (AMIBM) in Maastricht, Netherlands, took place. The AMIBM is the worldwide unique transnational research institute that bundles the industrial and scientific strengths along the value chain from plant to polymer. It summarises the forces of Institut für Textiltechnik (ITA) of RWTH Aachen University, of Maastricht University, of Fraunhofer Institute for Molecular Biology and Applied Ecology IME, and of Helmhholtz Institute of Applied Medical Engineering (AME).

The conference's target was to discuss the actual research results and future prospects in applying bio-based materials together with keynote speakers of industry and research.

News from Textile Research Centers

In future, premium products should be developed out of bio-based materials which help to improve the economic situation of EUREGIO e.g. new applications in medicine and automotive engineering. Bio4Self is a common project of ITA and the Maastricht University.

This approach is aimed to substitute products based on fossil oil with bio-based manufactures. For further information please look at www.bio4self.eu.

ITA in VDMA compilation "Industrie 4.0 Research at German Research Institutes – An Overview"

The Institut für Textiltechnik (ITA) of RWTH Aachen University is featured in the VDMA compilation "Industrie 4.0 Research at German Research Institutes – An Overview" with some actual research projects. Key issues are cognitive and self-optimising textile machinery, the human-machine-interface, the networked textile process chain and the textile factory operation.

ITA signifies the following most important projects with reference to Industrie 4.0:

- Excellence Cluster Integrated production technology for high-wage countries
- SmartFactory Elaboration of specific requirements of Industrie 4.0 in the textile industry
- SpeedFactory Automated piece production of sporting goods and car seats
- StoreFactory Real-time implementation of customised, knitted products based on customer-specific design requirements and physiological requirements
- SozioTex Analysis and design of new socio-technical systems based on the handling of an innovative cross-linked production process through an ageing personnel
- AugmenTex Realistic, time independent and independent learning of the functionality of textile machinery with the aid of Augmented Reality
- Many further direct research and development projects.

The VDMA provides its members and interested companies with the compilation "Industrie 4.0 Research at German Research Institutes – An Overview" an insight in the work of German research institutes in the range of Industrie 4.0.

IRG Meltspinning – Industrial Research in Progress

On the 21st of April 2016, the kick-off meeting of the Industry Research Group (IRG) Meltspinning was held at the Institut für Textiltechnik (ITA). The IRG represents a consortium of companies and the ITA, which runs application-related and industrial-aligned fundamental research. The idea is to systematically address technological, economic and strategic issues in the field of meltspinning.

The target group of the IRG Meltspinning is companies along the entire process chain - from plant manufacturers over polymer proto chemical fibre producers. In joint decisions, the members of the IRG determine a research topic which will be investigated. The results are exclusively available for the companies participating in the IRG. Furthermore, half-yearly meetings provide the possibility for all members to network and to define upcoming steps in the research project. The research is fostered by the members of the IRG. In return, the companies obtain an exclusive access to the research results beside the possibility of joining the half-term meetings.

The ITA presents the platform for the IRG and implements the industryrelated fundamental research in meltspinning. At present, six companies are members of the IRG: Reifenhäuser Reicofil, Oerlikon Barmag, Trützschler, NV Michel Van de Wiele, DSM, and Heberlein. The members of the Industry Research Group define the topics to ensure an industry-related targeted research. Thematically, the IRG will investigate the modelling of the meltspinning process in the long run. The superior aim is to develop a self-optimized meltspinning process, which allows drawing a conclusion from the spinning parameters to the filament's characteristics. The subject area for the first year of IRG is the field of measurement and sensor technology for the spinning process. Other companies are welcome to join the IRG Meltspinning - please contact Inga.Noll@ita.rwth-aachen.de.

ITA Augsburg`s new home inaugurated

On 10th April the core of the Augsburg Innovationspark, the Technology Centre (TC), has been inaugurated. The aim of the TC is to support and implement innovation for manufacturing companies in the areas of mechatronics and automation, Internet of Things, fibre composites and lightweight construction, environmental technologies and resource efficiency. TC Augsburg is also the new home of the ITA Augsburg, subsidiary of Institut für Textiltechnik der RWTH Aachen University (ITA) focussed on textile aspects of composite manufacturing. ITA Augsburg is working in the network of the composites excellence cluster in Augsburg and cooperates with the University of Augsburg and other institutes. Managing Director of the ITA Augsburg is Dr Stefan Schlichter.

Topics of the next issue 3 /2016

TOP STORY:

Fiber Innovations

International Cotton Conference Bremen Textile Machinery:

"Spinning high-end technical fibers"

"Weaving & knitting technical textiles"

Coating-Special

What's new in Denim?

Interview

ITMA Asia + CITME 2016 Preview

Country Focus: Pakistan

Review: ITM 2016

News from Textile Research Centers Retail news summery Fashion news summery

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