fibers and filaments
the experts' magazine
no. 32 | november 2019

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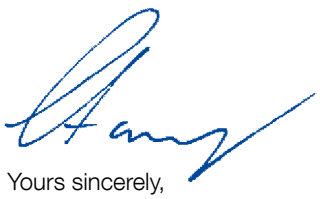
Dear Customers, dear Readers,

On a political level, the world appears to be drifting apart at the moment. All we seem to hear is ‘us against them’, a distorted image that is also being propagated by the media on a daily basis, enabling this attitude and its rigid boundaries to enter our minds. It feels like those who have always warned against ‘the others’ are being listened to, uniting people with an ‘us first’ mentality.

Is that what globalization means today: batten down the hatches and ‘every man for himself’? My experience has been very different. Wherever personal relationships play a role, people identify what they have in common and the benefits of a globalized world become evident. And this is not least noticeable in the personal associations with many of our international clients.

Which is why international trade fairs such as the ITMA are so important. This is where we experience lively, up-close-and-personal interaction and receive direct responses to our ideas and offerings. And there have been some encouraging responses again this year that not only come in the form of praise for our innovations. They also mean that our products and services from Germany meet with great approval in China, India, Turkey, the USA and many other countries, hence across all borders and boundaries. But should this come as a surprise, considering our company has been employing people from countless countries for many, many years now? No, it should not! This is precisely the kind of globalization we should be pursuing in the future as well.

I hope you enjoy reading this edition of fibers & filaments!



Yours sincerely,
Georg Stausberg
CEO Oerlikon Manmade Fibers Segment

fibers and filaments

58th Dornbirn GFC Congress
Circular economy and digitalization main topics

Around 700 attendees from 30 countries took part in this year's Dornbirn GFC Congress, held between September 11 and 13. The sponsor of the event, the Oerlikon Manmade Fibers segment, had Markus Reichwein, its Head of Product Management, give a talk on the sustainability drivers within the manmade fiber industry. CTO Jochen Adler also discussed digital transformation in the machine construction industry with IT and digitalization experts working for Microsoft, Palo Alto Networks and PriceWaterhouseCoopers. » (red)

China International Fair for Investment and Trade (CIFIT)
Going global

'Introducing FDI' und 'Going Global' was the motto of the China International Fair for Investment and Trade (CIFIT) in Xiamen at the beginning of September. The focus of the event was on nationality and internationality, investment negotiations and investment policy, coordinated development of the national and regional economy as well as economic and trade exchanges across the Taiwan Strait. Oerlikon Manmade Fibers' Segment CEO Georg Stausberg and Oerlikon China President Wang Jun spoke as delegates at the accompanying conference about Oerlikon's more than 50 years of involvement in China. » (aw)

Domotex 2020
January 10 – 13, 2020
Hanover, Germany
www.domotex.de

FiltXPO
February 26 – 28, 2020
Chicago, USA
filtxpo.com

Domotex Asia / Chinafloor 2020
March 24 -26, 2020
Shanghai, China
domotexasiachinafloor.com

Index20
March 31 – April 3, 2020
Geneva, Switzerland
www.indexnonwovens.com

Saigontex 2020
April 8 – 11, 2020
Ho Chi Minh City, Vietnam
sgntex.com

PU Tech India
April 1 – 3, 2020
Greater Noida, India
putechindia.com

13th World Filtration Congress
April 20 – 24, 2020
San Diego, USA
www.wcf13.com

Paint Expo
April 21 – 24, 2020
Karlsruhe, Germany
www.paintexpo.de

Polyurethanex
April 21 – 23, 2020
Moskau, Russland
polyurethanex.com

ITM
June 2 – 6, 2020
Istanbul, Turkey
www.itmexhibition.com

WTIN Conference
Innovate Textile & Apparel Forum

The ‘Innovate Textile & Apparel Forum’ – held between October 15 and 17 – focused on the changes in the textiles industry initiated by Industry 4.0. More than 120 attendees discussed the future of textile solutions in numerous workshops conducted over the three days. The event in Amsterdam was organized by the World Textile International Network (WTIN), with one of the sponsors being the Oerlikon Manmade Fibers segment. » (red)

Integrated and interactive development
Coordinated development of the global fiber industry

Taking place this year, the 25th Manmade Fibre Conference was held in Bengbu City, China, between September 3 and 5. The focus of the event was on integrated and interactive developments within the worldwide fiber industry. Against the backdrop of the requisite automation and digitalization trends, André Wissenberg – Head of Marketing for the Oerlikon Manmade Fibers segment – spoke about the challenges facing the future of the manmade fiber industry. He also focused on initial concepts of a circular economy, an increasingly important topic. » (red)

6th German-Chinese business conference
Tried-and-tested dissemination of best practices

Leading representatives from the worlds of business, science and politics in China and Germany convened in Frankfurt/Main on October 14 and 15 to talk about German-Chinese collaboration. Georg Stausberg, CEO of the Oerlikon Manmade Fibers segment, and Oerlikon China President Wang Jun spoke on the topic of 'establishing and operating production sites in China', whetting the appetites of the attendees for automation, robotics and digitalization with innovative machine and systems solutions for manufacturing polyester, polypropylene and nylon yarns. » (red)

Polyamide (PA) microfiber yarns
EvoQuench PA POY system convinces Chinese yarn manufacturers

Oerlikon Barmag recently signed contracts for two orders with a total of 120 spinning positions for manufacturing polyamide POY yarn with Chinese yarn manufacturers. What makes this so special is the fact that all positions will be equipped with the EvoQuench radial quenching system for polyamide.

With this, two well-known yarn manufacturers are now committing to the EvoQuench concept to produce polyamide yarn, equipping themselves for the efficient manufacture of microfiber yarns in the process. The benefits of radial quenching vis-à-vis conventional cross-flow quenching when manufacturing microfibers are well-known from polyester processing: manufacturing outstanding quality in a more production-reliable manner, i.e. with fewer yarn breaks, is a convincing argument and makes producing polyamide microfibers considerably more efficient. "Used to create fabrics, the materials feel very pleasant to the touch", comments Stephan Faulstich, Head of Development POY Process at Oerlikon Barmag, who has held the the results produced by the currently sole operator of such a system in his hands. "I can imagine this will be used above all in the manufacture of sports apparel and underwear."

Currently, Oerlikon Barmag is the world's only supplier of an already operating radial quenching concept for polyamide. This was absolutely decisive for both customers – well-known polyamide yarn manufacturers from the Zhejiang and Fujian provinces. "We are anticipating a similar effect in the development of the polyamide market as we did in the case of polyester. The efficient production of high-end microfiber yarns has become possible with the introduction of radial quenching for polyester yarns; the products have quickly developed from niche into standard products", assesses Regional Sales Director Detlef Heinze, talking about this quantum leap. The new systems are scheduled to begin manufacturing in early 2021. The high-end yarns are destined for global export. » (bey)

Setting new standards in polyamide microfiber yarn manufacturing: the EvoQuench PA radial quenching system.

ITMF Annual Conference 2019
Digitalization and sustainability

Participants from science, business and associations discussed the impact of digitalization and sustainability on the global textile industry at this year's ITMF Annual Conference 2019. The three-day event took place in Porto, Portugal, between October 20 and 22. » (red)

ACI European Textile Polyester Summit in Amsterdam
Future prospects in a continuously growing textile market

For the very first time, ACI hosted a European trade forum on the topic of 'textile polyester', with more than 50 experts from across the globe convening in Amsterdam on October 23 and 24. André Wissenberg, Head of Marketing for the Oerlikon Manmade Fibers segment, held a talk on the topic of 'future prospects in a continuously growing textile market', showcasing solutions for future challenges focusing on the topics of automation, digitalization and recycling. » (red)

imprint

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Technological inspirations for textile fabr

Warp-knitting, knitting, weaving, nonwovens manufacturing – textile fabric formation processes represent a decisive step towards increasingly efficient and more feasible textile products made from synthetic fibers. Here, current machine technologies not only improve efficiency, productivity and sustainability in manufacturing, they also permit new functions for textile fabrics and inspire user markets – as demonstrated by several innovative, randomly-selected examples.

ics

Traditionally, machine-manufacturing textile fabrics comprises a series of specialized production processes. It is completely self-evident that anybody producing with weaving machines does not generally also purchase knitting machines. And this is unlikely to change much in the future. Nevertheless, some boundaries between conventional fabric manufacturing processes are softening and their users are increasingly looking beyond their strict confines. It is above all advanced textile technologies that are fueling this trend. Today, their innovations make it possible to tap into new functionalities using fabric formation processes and to expand product portfolios. This allows users to target new markets.

Warp knitting: creating smart shirts with fully-integrated technology

"This is precisely the way of thinking we are promoting among our customers", emphasizes Gabriela Schellner, Senior Manager Textile Development at Karl Mayer Textilmaschinenfabrik GmbH. The leading, internationally-active developer and manufacturer of technologies for stitch-formation warp knitting unveiled innovative concepts and sample solutions at the ITMA 2019 trade fair in Barcelona. The Smart Shirt includes textile sensor systems made from conductive yarns capable of measuring the user's heartbeat, body temperature and body moisture. Similar filaments utilize a textile control panel that transmits signals to a robot at the touch of a button, for example. A textile structure made from twisted, insulated copper wires can be used for inductive charging of smartphones, for instance.

The most important aspect of these concept studies? The fact that they can be implemented directly into the production process using existing systems and equipment and without any additional manufacturing steps. Here, diverse forms of functional textile materials are placed precisely where they are required. This also applies to cutting-edge 4D knit solutions that practically add a fourth functional dimension by means of additional filling threads. With this, cushioning or air ducts can be added in certain areas of the fabric, providing greater comfort in car seats, for example. The basis for this is a double-raschel warp-knitting machine, which normally manufactures spacer fabrics for shoes, mattresses and chairs. “In general, our sights are on developing fully-integrated technologies to allow products that used to be manufactured using several machines to now be produced on one. We are always endeavoring to integrate as many functions as possible into textile fabrics, hence reducing the assembly requirements for customers”, adds Matthias Arnold, Head of Development & Construction Mechanical at Karl Mayer.

And just how such advancements in technology are also fueling competition among fabric formation processes is demonstrated by further projects: with woven-like fabrics, Karl Mayer is offering an ecological alternative to weaving on water-jet looms, which loop the yarn using chemicals and which have meanwhile also been banned in China for environmental reasons. And in the outdoor apparel sector, new warp-knitting technologies also generate benefits compared to woven fabrics that are less comfortable to wear. “The diversity of warp-knitting, which includes industrial textiles, is frequently not known, as many customers only focus on their usual product range. Which is why we aim to inspire our clientèle and communicate our knowledge. And with great success: our consultation services are becoming increasingly popular, as customers realize that they can reap benefits”, sums up Gabriela Schellner.

Circular knitting: body mapping and shoe uppers

Focusing above all on high productivity, the topic of diversity in textile fabrics is – as a result of technological innovation – also becoming increasingly important in circular knitting. At the ITMA, German machine manufacturer Mayer & Cie., a technology leader in its segment, unveiled a mesh and body mapping specialist for sports leisurewear. The electronic single-jersey machine

> We are always endeavoring to integrate as many functions as possible into textile fabrics, hence reducing the assembly requirements for customers”
>
> Matthias Arnold, Head of Development & Construction Mechanical at Karl Mayer

can create net-like hole patterns or produce thicker areas, outlining the various sweat areas of the human body with corresponding patterns. It cannot only provide a huge pattern diversity and superlative productivity, its flexible technology ensures – depending on the settings – that the knits are of high quality and elasticity.

“We are currently being driven predominantly by sports topics”, states Marcus Mayer, Technical Managing Director at Mayer & Cie. These also include knitted shoe uppers for sports shoes, which are no longer the preserve of the expensive flat-knit segment, but are now mass-produced. For this, Mayer & Cie. has developed Jacquard machines for complex knits, which are heat-set to generate the required tenacity before being bonded with the sole.

According to Mayer & Cie., there is a clear development: the trend in the sports apparel market is very much towards smooth surfaces. This caters to knitted goods that are draped to create 3D structures. “Every user is looking for something special – an attractive pattern, for example. Which is why honeycomb effects and double-face and piqué structures are particularly in demand. Also becoming increasingly popular are fine, two-ply knitted fabrics for leisurewear made using double-jersey machines that give the textile fabric greater functionality – such as sweat-wicking features, for example.

Knitted fabrics are particularly suitable for the production of 3D structures. The background picture shows a warp-knitted fabric, the machine detail in front is part of a circular knitting machine.

Nonwovens: surfaces for the highest demands

Technological progress has also resulted in nonwovens superseding woven solutions in some market segments due to ever-better surface properties. “We are, for example, observing extreme growth in wipe applications across all nonwoven manufacturing technologies. Today, these disposable articles are high-tech products, fulfilling the highest demands, capable of being tailored to desired properties such as ‘super-soft’ and ‘voluminous’. They are also very quick to manufacture. And the filter market is an example of nonwovens today offering unparalleled properties for some applications and even tapping into new market segments”, states Ingo Mählmann, Sales Director at Oerlikon Nonwoven.

The huge advantage of systems technologies for nonwovens is their tremendous flexibility and process efficiency, as the fabric is formed without any interim steps such as yarn manufacturing or weaving. Furthermore, combining technologies and raw materials allows the development of nonwovens with innovative properties. Oerlikon Nonwoven has already combined spunbonds (PP), airlaid nonwovens (pulp) and carded nonwovens (PP or cotton fibers) using combination systems. Another innovative process that is already successful within the market bonds synthetic filaments with natural fibers. Here, a polymer has been combined – while being laid – with pulp fibers using a modified meltblown process. The result are nonwoven products of extreme softness, with excellent absorption and cleaning properties along with tremendous tenacity, which can be used as baby wipes. “Nonwovens systems provide potential for a huge product range and can therefore

cope superbly with the rapid market changes within their respective segments", comments Ingo Mählmann.

Innovative trends: from nanomaterials to 3D printing

Needless to say, technology is also looking at future innovative textile fabrics. As apparent very early on, one focus is on smart solutions. To this end, experts at the Deutsche Institute für Textil- und Faserforschung (DITF/German Institutes for Textile and Fiber Research) in Denkendorf are working – within the context of the ConTex project – on intelligent textile surfaces for smart homes aimed at making the walls and floors in living spaces usable for cable-based power supply and communication. Including nanoparticles in textile compound materials or implanting usable material properties by integrating nanoscale function carriers into fiber surfaces offers further future potential. For example, apparel can be made more comfortable or is able to provide completely new properties through materials that execute medical analyses, infuse the skin with active substances, regulate temperature or improve performance.

And work is also being carried out on developing alternatives to textile fabric processes: to this end, high-end fashion designers are already using 3D printing. Silicon dresses and classic suits are being created in this way – without fabrics or seams. However, this remains an extremely expensive process, with the economical production of T-shirts using 3D printers still very much in the realm of science fiction. » (tho)

3D printing is a future trend in textile production.

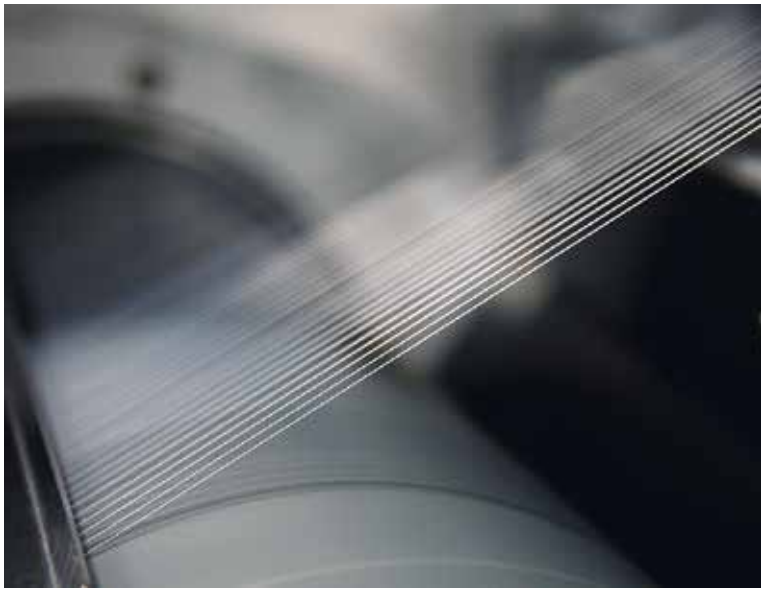
Filament yarns in further processing

Evenness above everything else

Textile fabrics are like football: it is always the team that wins. The textile 'team' comprises thousands of threads that have to stand together and work together perfectly. In the lead-up, it is all about ensuring that each and every thread has the same fitness level to guarantee their extremely challenging further processing. For this, there are fitness factories that know no mercy: Oerlikon Barmag POY, DTY and FDY machines.

High-performance circular knitting machines from German manufacturer Mayer & Cie. complete an incredible 500,000 stitches per second – an absolute benchmark within the sector. "Filaments must be able to cope with this processing speed without breaking", emphasizes Marcus Mayer, Technical Managing Director. There are many other demanding requirements, as evident in warp knitting. "For our high-performance machine, we require stretchable filaments capable of coping with the high tension fluctuations during stitch formation", states Matthias Arnold, Head of Development & Construction at Karl Mayer Textilmaschinenfabrik GmbH. Stability and reproducibility are always the absolute priority, with wear also a central topic, as the yarn material can be extremely abrasive and instantly place a strain on the yarn-guiding elements. Therefore, the filaments must have good anti-friction properties.

To cater to these collective requirements, nothing is left to chance even when producing the synthetic starting material. In the case of Oerlikon Barmag systems, this starts with the production of pre-oriented (POY) or fully-drawn (FDY) filament yarn and continues all the way through to texturing POY yarn on DTY machines. Here, there is one top requirement that applies across all machines and process steps: absolute evenness of the products and production parameters. Once all the required properties and quality attributes have been defined and set in the production process, each and every filament must fulfill them. There are good reasons for this: from yarn manufacturing through to the creation of textile fabrics, hundreds – or even many thousands – of filaments have to simultaneously run in parallel through the respective machine. Here, a single yarn break results in an expensive system shut-



The evenness of the spun yarn is crucial for the quality of the textile fabric.

down. Even the smallest technical deviations lead to unevenness in the yarn, which will become visible and tangible in the subsequent textile – for example, in the form of uneven dyeing or disparate tension in the fabric of a sports shirt.

Superlative quality – from yarn end to yarn end

For this reason, setting temperatures, speeds and pressures, heating and cooling and the package winding performance are monitored during production in the case of Oerlikon Barmag POY machines, for example. Such systems process up to 1,000 tons of plastic melt per day, each equipped with up to 750 spinning positions. “Each spinning position runs a dozen yarn ends – and these quality requirements apply to all positions, all yarn ends and across the entire yarn length”, emphasizes Stephan Faulstich, Technology Manager POY at Oerlikon Barmag. Here, the tenacity and stretch of the filaments demanded must always remain within tight parameters, as the result might otherwise be yarn breaks – immediately or later on.

To ensure the individual filaments of a thread do not fan out and hence lead to errors in further processing, tangling knots are set using air jets and the individual filaments are tangled with each other. This applies to all textile filament processes. Here, the individual filaments are twisted in this manner, ensuring that no filament sticks out and is pushed open when the yarn is subsequently processing by means of needle guidance. “Depending on the requirement, a precisely-defined number of tangling knots has to be evenly distributed here”, explains FDY expert Detlev Schulz.

> “Each spinning position runs a dozen yarn ends – and these quality requirements apply to all positions, all yarn ends and across the entire yarn length”
>
> Stephan Faulstich, Technology Manager POY at Oerlikon Barmag

Consistent yarn dyeing is a further challenge. Most yarns are raw white and are only dyed once they have become fabrics. “However, dye errors can be traced back to the melted polymer, the yarn cooling or yarn tension. This can result in individual yarn ends appearing too dark or too light in the subsequently dyed fabric or the dyeing becomes uneven. And the human eye is very sensitive to such color discrepancies”, explains Engineering PhD Philip Jungbecker, Technology Manager DTY. The yarn shrinkage is important for the frequently thermal after-treatment – such as coating textile fabrics, where undesirable effects include rippling.

High-tech highlights for best practice

For these many requirements, Oerlikon Barmag has developed systems that are known for their robustness and low maintenance intensity and come with cutting-edge technical features. The EvoQuench radial quenching unit guarantees excellent yarn evenness, as does the entire WINGS technology with its especially gentle yarn path. This applies to POY as well as FDY.

In DTY technology, innovative components such as the Evo Heater and EvoCooler also support superlative yarn evenness. The friction unit rotates each thread at precisely the same speed using synchronous motors. And the AIM^{4}DTY analysis software also represents a huge advancement in terms of digitalization. This self-learning artificial intelligence system filters thousands of error graphs generated every day by the UNITENS® (registered trademark of Fibervision) monitoring sensor whenever the yarn tension exceeds the prescribed tolerances. “A huge leap forward for our customers when it comes to identifying faults and alleviating them”, summarizes Philip Jungbecker. So, all very much benefiting the team, getting back to the football analogy. » (tho)

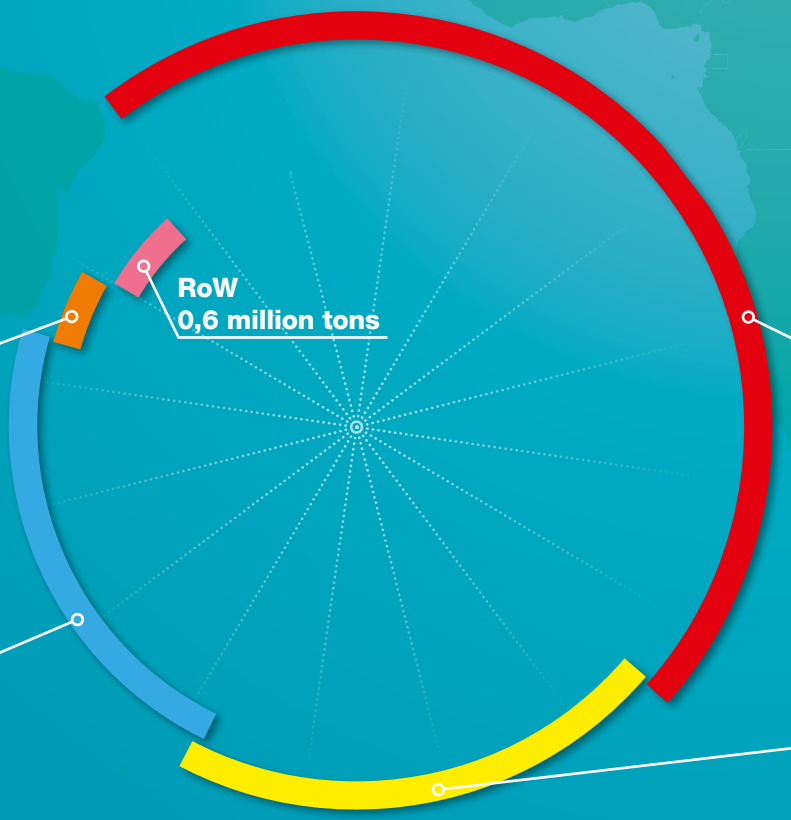
Projected consumption in 2020 – the global nonwoven markets

Versatile, innovative and with high potential

The market for nonwovens is growing by over 6% per year. Increasing demand for these materials is generating tremendous opportunities for all manufacturers. As a leading solution provider of a wide range of nonwoven technologies, Oerlikon Nonwoven covers the disposable and durable nonwoven markets.

GEOGRAPHIC CONSUMPTION

in million tons



SOUTH AMERICA
0,5 million tons

Disposable nonwovens: 0.19 million tons
Durable nonwovens: 0.30 million tons

NORTH AMERICA
2.7 million tons

Disposable nonwovens: 1.50 million tons
Durable nonwovens: 1.23 million tons

APPLICATIONS
in $ million

ASIA
5.7 million tons

Disposable nonwovens: 1.96 million tons
Durable nonwovens: 3.74 million tons

EUROPE
2.6 million tons

Disposable nonwovens: 1.32 million tons
Durable nonwovens: 1.29 million tons

SPUNLAID
is the largest nonwovens web forming process and the fastest growing, with products in almost every nonwoven market, durable and disposable. By **2020,** this will reach **6.2** million tons:

Spunbond nonwoven:
2.15 million tons

Meltblown nonwoven:
0.3 million tons

Spunbond-meltblown combined nonwoven:
3.76 million tons

MELTBLOWN
nonwoven has major uses in:

liquid filtration **(54.5%)**

hygiene **(28.4%)**

medical **(7.8%)**

AIRLAID
nonwoven is used in disposable applications, mainly in:

hygiene **(41.8%)**

wipes **(47.6%)**

Source: Study: 'The Future of Global Nonwoven Markets to 2020' by Philip Mango, published by Smithers Apex

Seamless transition

More than 200,000 shades to choose from

Whether on floors or walls, whether as a runner or wall-to-wall, carpet is and remains one of the most popular floor coverings. It long ago migrated from being functional flooring into a key piece, one that not only improves room acoustics and makes homes cozier, but also transforms spaces into stylish eye-catchers.

To date, carpet designers and interior decorators have faced immense challenges when visually fine-tuning decisions regarding carpeting, tiles or wooden floors. Because flooring – especially in the high-end segment – plays a hugely important role as the 'largest item of furnishing' due to the fact that it decisively shapes the overall impression of a space.

This clearly huge demand was underlined by the offerings of the more than 2000 carpet manufacturers and traders exhibiting their products at the DOMOTEX 2019 trade fair in Hanover. However, simple variation of materials, structures and colors alone is today no longer sufficient to also consistently fulfill the most demanding customer wishes in a targeted manner.

Be bold, overcome boundaries and prepare for success

Worldwide, BCF carpet yarns are predominantly manufactured as monocolor or tricolor products, whereby – without further production steps – an understandably limited number of shades can be fabricated.

All manufacturers planning to produce their tricolor yarns using Oerlikon Neumag BCF S8 Trico systems in the future will be able to overcome this limitation with total ease. Using the patented Oerlikon Neumag Color Pop Compacting Unit (CPC-T), they can achieve a considerably broader spectrum of in excess of 200,000 different shades – hence becoming the first port of call for the target group of carpet designers and interior decorators.

BCF S8 with CPC-T – color separation has never been so easy

Manufacturing more than 200,000 different shades using just three colors – this has become possible as a result of the CPC-T's innovative design. Here, each color is individually tangled and can be additionally accentuated with specific air pressures. This is a reproducible process for yarn manufacturers, as the process data can be saved using the machine process control system and accessed at any time. And – due to the virtually endless adjustment possibilities – the shades cannot be copied by others. The BCF S8 Trico is color differentiation par excellence.

One color accentuated

Simple handling for greater process stability and flexibility

The CPC-T has not only been given a new design, it is now also located in a place that is perfectly accessible for operators – directly above the texturing unit. This means considerably better access and simplified string-up, making the process faster and more stable. And if mélange yarn or monocolor yarns are to be manufactured for the next order, the CPC-T can be very quickly replaced with the monoguide with just a few simple steps.

Smart HMI – ready for Industrie 4.0

The BCF S8 is the first Oerlikon Manmade Fibers segment system equipped with an innovative human-machine interface (HMI) for intelligent controlling and monitoring. With its new 'look and feel', it supports intuitive operation and comes with smart features that simplify everyday work.

To this end, an optional touchscreen offers direct access to important information, operating statuses and actual and target values at each take-up position. A completely new 'alarm philosophy' also reduces the time required for troubleshooting and malfunction analysis. As a result, the operator is able to acquire a better overview of the current status of the system and secure the planned operation. » (che)

Color pop

Mélange

Decision to diversify

Turkey's first airlaid pla expectations

Suna Karakurd Elma, sales and marketing manager at Selcuk Iplik, shares how investing in an Oerlikon Nonwoven plant took Karweb Nonwoven to the next level.

In 2013, Selcuk Iplik invested in an airlaid nonwoven plant from Oerlikon Nonwoven. The Karweb facility is the first of its kind in Turkey. Why did you invest in airlaid technology?
Selcuk Iplik was established as an integrated yarn company in 1989. Over the last decade, the global market has continued to evolve, so our management team decided to diversify the product range. This brought us into contact with airlaid technology. After thorough research, we identified a clear market need for such a product. Airlaid was not particularly well known in Turkey at the time, so it was a big challenge to enter into the nonwoven business with airlaid technology. It was, of course, also quite exciting, because there was no one in Turkey making this type of nonwoven at the time.

How did you identify the opportunity for this investment?
Taking advantage of our vast business network, we discussed all the opportunities of such an investment with a multitude of people. Through our contacts, we even met with an expert on airlaid technology. All the analysis of market and economic trends, including our competitors, pointed towards a positive investment.

Which factors led you to choose this investment?
Market demand was one of the biggest factors. Besides, no one had used this kind of technology in Turkey. During our investigation, we also had a chance to sit down with some of the market leaders. That was also a huge influence on our investment decision.

Why did you choose a plant from Oerlikon Nonwoven?
During our research, we had several meetings with Oerlikon. Thanks to the whole team, we received the best support, throughout the process. We became more than familiar with how their technology surpasses the competition. And we came to the conclusion that Oerlikon technology will give us a better position for our product needs. We have been running the line for a few years now, and

nt delivers on

Oerlikon Nonwoven's cutting-edge technology has proven to be a great decision.

Would you say that the expectations you had so far have already been met?
Airlaid was our entrance into the nonwoven market. As such, we did have difficulties in the beginning to run the line effectively. However, with amazing support from Oerlikon, we have acquired the necessary experience and met all of our targets.

How has your business developed since entering the nonwovens market with airlaid products?
Investing in an airlaid line led us to focus on the nonwoven market. In addition, we built up quite an impressive network in this area.

This led us to focus on even more nonwoven investments. In essence, our first investment in an airlaid line changed the trajectory of our company's growth plans.

How is the manufacturing base in Turkey?
Turkey has the strength of its geographical location, and it will continue to be the leading production base worldwide. Even with some geopolitical risks, Turkey remains a key manufacturing powerhouse.

How does Karweb fit into the textile market in Turkey?
Even before Karweb, Selcuk İplik was very well known and one of the largest textile companies in Turkey. With our investment in airlaid, as well as our latest investment in spunlace, the company has had the chance to display its capability in the nonwoven market as well.

How would you describe the Turkish market for nonwovens? Will there be any changes in the future?
The nonwoven market is also growing in Turkey, and it is particularly well known worldwide. Nonwoven textiles also have the highest export rates in Turkey. In the future, there will be an increase in future investments in nonwoven areas, and new products will emerge. Companies will also focus more and more on R&D initiatives.

What are your main markets and how do you evaluate your general business outlook over the next few years?
Our main market is feminine hygiene products and some wipes. Since 2012, we have been observing rapid increase in our customer demand. Growth of the feminine hygiene market worldwide is leading to more customers, so there will be an increasing demand for airlaid in the future. As such, the market will need even more airlaid producers.

Which steps will Karweb Nonwoven take moving forward?
We have already invested in spunlace, our second nonwoven line. And most recently, we have also invested in a Lyocell fiber-production line which will be finished in 2021. So we are actually diversifying in multiple business areas. This will lead us to invest even more in our nonwoven business in the coming years. » (wca)

Investing in Oerlikon nonwoven airlaid technology was only the beginning of a successful nonwovens business.

To the very top with Oerlikon Neumag staple fiber technology

At the ITMA 2019 trade show in Barcelona, GAMA Recycle Elyaf reinforced its partnership with Oerlikon Neumag, signing a service contract covering original parts for the already purchased staple fiber plant from Neumünster. The Turkish enterprise wants to become the largest manufacturer of R-PET fibers and yarns in Europe.

The Oerlikon Neumag staple fiber plant installed at the customer's site is able to manufacture around 90 tons of fibers a day. GAMA Recycle Elyaf ve İplik San. A.Ş. uses this high-performance process technology to transform bottle flakes into high-end synthetic staple fibers for textile yarn production. And to accomplish its ambitious targets, the Turkish enterprise – headquartered in the industrial Gaziantep region – is planning to establish Europe's largest capacities for manufacturing R-PET fibers and yarns by 2020.

Here, the Oerlikon Neumag technology plays a major role: "Oerlikon delivers high-tech, sustainable solutions for the production of staple fibers", praises GAMA founder and boss Zafer Kaplan, talking at the ITMA trade fair in Barcelona – underlining this statement with his signature on an order for original parts for the core components of the staple fiber plant. A prudent investment, as the resulting available on-site warehouse stock allows downtimes to be minimized. Furthermore, it ensures that the best-possible manufacturing quality can be achieved: in line with the quality demands of Oerlikon Neumag, original parts have longer lifespans and influence the quality of the end products to a significantly greater extent. Using original parts results in stable processes and superior process efficiency.

Closed a deal for original parts from Oerlikon Neumag: Zafer Kaplan (3rd f.l.)

With this investment, GAMA is seamlessly pursuing its ambitious company strategy. Founded in 1997, the company meanwhile comprises three businesses: GAMA Recycle Elyaf ve İplik San., GAMA Polyester San. and GAMA İplik ve Dokuma. According to an in-house statement, the enterprise is today Turkey's largest manufacturer of polyester yarns produced from recycled material. The final products include open-end and ring-spun yarns for the most diverse textile applications. In four factories, 700 members of staff currently manufacture around 4,000 tons of regenerated yarn each month, exported to 30 countries across the globe.

GAMA purchased its Oerlikon Neumag staple fiber plant in 2018, with the company planning to start producing staple fibers and R-PET fibers and R-PET chips in 2020 – establishing itself as Europe's largest manufacturer in the process. "We are supporting GAMA in its endeavors – from assembling and commissioning the system and beyond. Our Customer Service department assists each and every one of our clients in order to guarantee optimum operation – for example, with upgrades, coordinated service concepts and regular servicing", emphasizes Robert Jürgens, Regional Sales Director of Customer Services at Oerlikon Neumag. » (tho)

Thousands of professionals visit Oerlikon's trade fair presentation

Four world premières at t

At its 1,000-m² booth, Oerlikon invited all visitors on a journey into the future of manmade fiber production. The world market leader showed its vision of sustainable and automated manmade fiber production in a virtual 4D showroom. 'Clean Technology. Smart Factory.' was the motto, inspiring visitors from across the globe.

"The ITMA is the leading exhibition worldwide", states Oerlikon Manmade Fibers Segment CEO, Georg Stausberg. "This is the place where our customers expect to see innovations. Our booth is, of course, only the showcase. The real innovations take place in the background."

With its 'Innovating the World of Textiles' theme, the 18th edition of ITMA came to a successful close in Barcelona, Spain, on June 26. The global textile and garment manufacturing industry converged at the ITMA 2019, chalking up new records for the exhibition, which has been held every four years since 1951. 1,717 exhibitors from 45 different countries launched many exciting new products and showed innovative technologies and products, including those that leverage the Internet of Things.

"Today, we believe our DNA has two streams – one the mechanical part, the second the digital part. We are now merging these two strengths, the best hardware with new digitalization solutions"

Georg Stausberg,
CEO Oerlikon Manmade Fibers Segment

Oerlikon presented four world premières for efficient machine and plant concepts with a new industrial design. Together with numerous other innovations, all this forms the new DNA of the Oerlikon Manmade Fibers segment. "We believe our DNA has two streams – one the mechanical part, the second the digital part. We are now merging these two strengths, the best hardware with new digitalization solutions", explains Georg Stausberg. "Our exhibit featured a fantastic

the ITMA Barcelona 2019

blend of great experience and new topics. And this was a pretty inspiring mix", comments CTO Jochen Adler, convinced that Oerlikon has opened a new chapter for the future of the manmade fiber industry.

World première: eAFK Evo

"We had something really new to present to the world of texturing", states Philip Jungbecker. "We showcased our new eAFK Evo, which convinces with superlative yarn quality, with speeds that are up to 20% greater than in the case of conventional machines. And we can combine this with energy savings of up to 25%. It is an all-new platform concept."

World première: WINGS FDY PA6

"We brought our new WINGS FDY PA6 prototype to the ITMA. What is so special about this machine is the high number of yarn ends – namely 24 – permitting the highly-efficient manufacture of FDY PA6 yarns. Compared to existing machines available on the market, our solution is a very compact design and produces high quality yarns using less energy", states Alexander Schweers, Project Manager R&D.

'Clean Technology. Smart Factory.' was the motto of Oerlikon segment Manmade Fibers' presentation at ITMA 2019.

World première: BCF S8 tricolor

“The BCF yarn manufactured on our new BCF S8 machines ultimately enables the production of unique carpets”, states Stefan Kalies, Project Manager R&D. “After introducing a monocolor version at the 2019 DOMOTEX in Hanover, we are unveiling the tricolor version here at the ITMA. Without any modifications to the spinning system, more than 200,000 color shades can be created using our new invention, the CPC-T. Its new Human-Machine Interface (HMI) opens up a new dimension in terms of flexibility and digitalization.”

World première: VacuFil®

“Recycling is on everyone’s mind, the focus of every discussion – day in, day out”, states Dr. Klaus Schäfer, Managing Director of Oerlikon subsidiary BBEngineering. “The recycling of bottle flakes is already state-of-the-art today. But recycling POY back into POY is really something new. I strongly believe that our VacuFil solution will change spinning plant production, reusing waste that has already been generated. It will be a kind of ‘zero waste’ manufacturing.”

Innovative 4D cinema simulator

As new way of presenting its comprehensive product portfolio Oerlikon chose a 4D cinema simulator. Being one of the main attractions throughout the entire fair, passengers of the 'rollercoaster' were taken on a journey into the future of manmade fiber production. More than 3,000 visitors took the chance to experience the "Oerlikon factory of the future", as one visitor put it. » (aw)

“We have a long legacy of working with the Oerlikon team. I am very excited to undertake the eAFK Evo as our next great endeavor with the Oerlikon family. This will allow us to meet our customers’ demands and to bring new innovative products to the markets that can only be enabled by this special technology.”

Meredith Boyd, Senior Vice President Unifi Manufacturing

“The new technology of the BCF S8 is really incredible. It offers magnificent color choice and a huge range of colors, which translates into new carpets for the future.”

Chris Yarbrough, Director Carpet Technology R&D Shaw Industries

“We are really satisfied with the quality and also the production costs, the excellent service and the fantastic relationship we have with Oerlikon. These are the reasons we are more than happy to collaborate with the Oerlikon team.”

Mustafa Taşdelen, Founder of Polyteks Tekstil

New texturing machine eAFK Evo

Unifi to upgrade its texturing capabilities with exclusive use of unique new technology

Unifi collaborated with Oerlikon to develop a specially-designed eAFK Evo pilot machine that has been operating for the last year, using it to manufacture various Unifiber virgin and REPREVE®-branded recycled polyester and polyamide yarns. Unifi has obtained exclusive rights in the Americas to their unique design, which enables the new machine to operate at considerably higher texturing speeds, delivers consistently high-quality yarn across a broad range of products, and enables new, innovative performance yarns.

"Unifi is proud to collaborate with Oerlikon Barmag on its innovative new texturing technology that is positioned to revolutionize yarn manufacturing," said Tom Caudle, president and chief operating officer of Unifi. "True innovation starts in the fiber, and the new eAFK Evo texturing machine will allow us to continue our history of manufacturing excellence and provide our customers with an expanded portfolio of performance products with broad market appeal."

With its active cooling technology, the eAFK Evo sets new standards in texturing.

Cost-efficient production, reduced energy consumption

Additionally, Oerlikon exhibited a configuration of the eAFK Evo texturing machine at ITMA designed for the cost-efficient production of commodity yarns. At just 4.7 meters in height, this compact machine still comes with a four-deck winding system. The most important foundation for both machines is the 300-millimeter-long EvoCooler with its active cooling technology. The EvoCooler's controllable cooling unit opens a huge production window, with titers ranging from around 30 to 300 denier and including microfilaments; combining it with the EvoHeater increases texturing speed by about 20 percent. The EvoCooler also enables extremely even yarn dyeing and provides significant benefits using no additional energy compared to current offerings. With the optimized, extremely energy-efficient EvoHeater and its connected peripherals, the machine offers up to 25 percent energy savings.
» (bey)

Customer Services

New upgrade transforms the ACW into WINGS

In addition to savings in terms of energy, waste and HR, the benefits of the WINGS concept above all include the consistently high yarn quality, making WINGS yarn a winner in further processing. Particularly with regards to its dyeing properties, the yarn is considerably superior to products manufactured using conventional winder technology.

Recently, upgrades and retrofits were made available for Oerlikon Barmag ACW-series winders, with which the benefits of the WINGS concept become tangibly close for operators of POY spinning systems equipped with ACW technology. Worldwide, thousands of winders could take advantage of this system upgrade.

Yarn producers can now also achieve these typical WINGS properties with ACW winders – with a corresponding system upgrade. The ACW WINGS conversion components and ACW upgrades for draw units can be installed as plug-in units in virtually no time at all, hence minimizing system downtimes. Analog to WINGS, the new ACW WINGS draw unit is more compact and also guides the yarn using rollers instead of yarn guides. This minimizes friction for the yarn and the angles of deflection remain the same, which in turn optimizes the yarn tension on all packages.

Already being used in China

The first expansion phase with 96 positions is already successfully operating at Chinese polyester yarn manufacturer Zhejiang Rongsheng. “We achieved excellent yarn values after just four days. The yarns are of AA quality for a full package rate of 98% and a yarn break rate of 0.5 per ton”, summarizes Xu Yongming, Plant Manager at Rongsheng, talking about the upgrade package. “This has allowed us to once again become one of the top manufacturers with our ACW yarns.” A second expansion phase with 88 further positions will follow at the end of 2019.

The conversion package is also particularly interesting as a result of its fast ROI (return-on-investment) of less than one year. ACW WINGS is available for all ACW-type POY / HOY winders for polyester, polyamide 6 and polyamide 6.6. » (bey)

With the appropriate modernization package ACW offers WINGS advantages.

Retrofitting with RoTac³

Fitness package for Tu

Pleasant rendezvous for Oerlikon Neumag at the DOMOTEX Turkey in Gaziantep in April: Flament Textile, local manufacturer of BCF carpet yarn, signed an order for retrofitting of a RoTac³ tangling unit, hence increasing its production efficiency.

Today, BCF carpet yarn manufacturers across the globe are coming under increased pressure with regards to quality and efficiency. Flament Textile has now shown just how to deal with this issue without having to invest in completely new systems technology. The Turkish BCF carpet yarn producer, which manufactures its polypropylene and polyester yarns using two BCF S+ and an S5 system from Oerlikon Neumag, contacted the Oerlikon Neumag Customer Service team headed up by Tilmann Seidel to place an upgrade order for the RoTac³ tangling unit for three BCF positions.

Even at high production speeds, tangling knots can be set considerably more evenly with this rotating component than in the case of other conventional tangling units.

Metin (3rd.f.l) and Mesut (2nd.f.r.) Özkeçecì are pleased with an even more efficient BCF yarn production.

Frequent tangle dropouts are now a thing of the past. This ensures better yarn quality and has a positive impact on further processing. The result: the carpet has a visibly more even appearance.

“Stable and efficient yarn production is extremely important to us”, explain Metin and Mesut Özkeçecì from Flament Textile. “Not only does the evenness of the tangling knots make the investment interesting for us, so too does the energy efficiency of the RoTac³.” The unit requires up to 50 percent less energy for generating compressed air. Against the background of rising energy prices, this creates advantages and represents a fantastic prerequisite for optimizing production costs.

As an optional extra the RoTac³ is available for the single-end system Sytec One and for the three-end system S+. Here it can, if required, be retrofitted. The tangling unit is included in the standard scope of delivery for the newer BCF S8 system. » (tho)

urkish BCF producer

Tilmann Seidel, Vice President, Head of Customer Services at Oerlikon Neumag, talking about tailored customer solutions that are not off-the-peg.

“Every customer is unique”

We have been able to assist Flament Tekstil with an upgrade: the RoTac³ retrofit basically comprises a process upgrade for superior yarn quality and a component upgrade that cuts energy costs. But our clients are always unique: each has its particular pool of systems tailored to its specific requirements, with specific features and including operating staff with specific needs and wishes. And every customer has its own objective: some want to expand their product ranges, others are targeting new markets and some wish to remain future-proof with their machines and equipment without having to invest too much.

For this reason, customized consultation is hugely important. We first meet up with customers, study their situations and objectives and then recommend how they can upgrade or convert their existing systems and equipment in order to increase quality and efficiency. Here, none of our solutions is off-the-peg.

Depending on the process and the systems in question, the solutions can be extremely customized. For this, we have a huge range of technology upgrades and modernization solutions for systems and components available, which also allows us to cater to highly-specific requests such as improving throughput performance and yarn properties, optimizing lifespan and operating friendliness, increasing production volumes and product quality, fulfilling legal stipulations and cutting costs.

With all our solutions, we strive towards building long-term relationships with our customers, focusing on partnerships that are built on transparency. And this applies to the entire lifecycle of our products and services.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