

# **fibers** and **f!laments**

the experts' magazine

no. 31 | june 2019

**Clean Technology.  
Smart Factory.**

page 16

**The power of  
innovation**

page 8



# Dear Customers, dear Readers,

Although Henry Ford did not invent the automobile, he did however assist its breakthrough with mass production. Kodak launched the very first digital cameras, but then continued to focus on its core business of analogue film for too long and ultimately missed out on its own innovation. With its lifestyle devices, Apple is still influencing communication trends and markets alike.

These examples say a lot about technical innovations and their potentials: they can change the world and create a future for both businesses and people. Among other things, they have the power to establish and destroy markets. But one thing is crystal clear: only the successful marketing of a new idea makes it a 'genuine' innovation. Innovation and market – the two sides of the same coin.

We introduced a true innovation with the new WINGS concept for POY – a winder with an integrated draw unit, which was unveiled 12 years ago at the ITMA in Munich. The evidence? The fact that you, dear customers, have taken on this innovative principle so much so that we have rolled it out to virtually all our primary processes – a market success that continues unabated!

We would once again like to inspire you with such new technological developments at the ITMA 2019 in Barcelona – for instance, with our new eAFK Evo machine generation, which we hope you will make a true DTY innovation. Great opportunities arise from our solutions for preparing textile factories for the digital age. Those making the right decisions here and investing in trailblazing technologies have the future in their hands.

Let us show you our vision for this future at our ITMA trade fair stand. In our 4D show, we will take you on a journey towards diverse, sustainable systems concepts that promise – with automation and artificial intelligence – waste-free production and commercial success in both commodity and niche markets. These developments contain our innovation DNA!

Yours sincerely,



Georg Stausberg  
CEO Oerlikon Manmade Fibers Segment



# fibers and filaments

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## Original Parts Global stock management system increases availability of parts

The Manmade Fibers segment has introduced a new, global stock management system to increase the availability of spare parts, shorten delivery times and hence assist its customers more swiftly. The software-based system reacts more quickly to requirements; the availability from stock is increased at all sites using forecast algorithms.

The company – with its Oerlikon Barmag, Oerlikon Neumag and Oerlikon Nonwoven brands – is able to swiftly and competently provide its international clientèle with both spare parts and services with its global service network. Read more on the performance and availability of Oerlikon Original Parts in the next issue of Fibers & Filaments. » (ara)



## Roadshow for the market launch of the BCF S8

### The new BCF S8 launched at the DOMOTEX show

For Oerlikon Neumag, 2019 started with quite a fanfare. In January, the company presented its new BCF S8 plant at the DOMOTEX – the world's leading trade fair for floor coverings, – in Hanover, Germany. With a specially-developed show, the new system was unveiled to a wide audience along with the new HMI (Human Machine Interface). Details on the new plant can be found on page 24. Over the four trade fair days, more

than 250 interested parties visited the Oerlikon Neumag booth in Hall 11, all visibly impressed by the presentation. The responses were correspondingly positive, 'This is revolution, not evolution' or 'It's a game changer' were just two of the many promising comments.

### BCF S8 market launch in Dalton, Georgia, USA

The BCF S8 market launch roadshow in the US commenced immediately following the DOMOTEX trade fair. At the Dalton Convention Center, around 60 employees from 16 BCF yarn and carpet manufacturing companies were informed of the benefits of the BCF S8 and the new HMI with a combined 2D/3D presentation. Once again, attendees were clearly impressed by the new generation of systems.

### Further stations: Gaziantep and Shanghai

In Gaziantep, Turkey, a customer event hosted on March 26 and 27 allowed all Turkish BCF yarn and carpet manufacturers to enjoy the BCF S8 presentation. And the new plant was then unveiled to the Asian audience at the DOMOTEX asia/CHINAFLOOR in March.

### On display at Barcelona

Those who to date have not had the opportunity to discover the BCF S8 plant are cordially invited to visit the Oerlikon Manmade Fibers trade fair booth, A101 in Hall 7, at the ITMA 2019 in Barcelona between June 20 and 26. » (che)



Were very satisfied after the roadshow in Dalton: Rickey Steele, Nis Lehmann-Matthaei, Michael Rübenhagen, Sandy Lehman and Chip Hartzog (from left to right).

**ITMA Barcelona 2019**

June 20 – 26, 2019

Barcelona, Spain

[www.itma.com](http://www.itma.com)**World of Wipes Conference**

June 24 – 27, 2019

Atlanta, USA

[www.inda.org](http://www.inda.org)**PU China / UTECH Asia**

September 5 – 7, 2019

Guangzhou, PR China

[www.puchina.eu](http://www.puchina.eu)**FloorTek**

September 10 – 12, 2019

Dalton, USA

<https://floor-tek.com>**Dornbirn Global Fiber Congress**

September 11 – 13, 2019

Dornbirn, Austria

[www.dornbirn-gfc.com](http://www.dornbirn-gfc.com)**OUTLOOK 2019 Conference**

October 9 – 11, 2019

Athens, Greece

[www.edana.org](http://www.edana.org)**K 2019**

October 16 – 23, 2019

Düsseldorf, Germany

[www.k-online.de](http://www.k-online.de)**ShanghaiTex**

November 25 - 28, 2019

Shanghai, PR China

[www.shanghaiTex.cn](http://www.shanghaiTex.cn)**SINCE 2019**

December 11 - 13, 2019

Shanghai, PR China

[www.en.since-expo.com](http://www.en.since-expo.com)

## FAUS makes manufacturing even more efficient



With two new functions, the operating unit for Oerlikon Nonwoven meltblown systems helps save time and materials and makes processes more reliable.

When developing products, manufacturers of meltblown nonwovens for filtration applications no longer need to determine the precise air-permeability process parameters using time-consuming trial-and-error methods. The FAUS operating unit now permits the simple setting of the desired air-permeability for any meltblown nonwoven. This is made possible by a new function: an online measurement device is integrated into the system, which measures the air-permeability during production and transfers the data to FAUS. The unit then automatically controls the process parameters within a matter of minutes, saving time and raw materials, while also allowing access to the saved parameters for serial production. To this end, both the best-possible filter efficiency and the optimum air-permeability are simultaneously guaranteed.

A second new function ensures a smooth production process: if the system is integrated into the company network, FAUS initiates the dispatching of an info e-mail to operators and production officer whenever action is required. This permits the presetting of scenarios such as nonwoven roll changes and e-mail recipient groups, among other things. As communication only takes place between man and machine, the machine is protected against intervention through the network. » (gut)

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## For post-production and post-consumer waste **Polyester recycling with VacuFil®**

Polyester and its applications are omnipresent in our everyday lives. Whether as beverage bottles, film packaging, high-tech sports shirts or safety belts, polyester excels with its excellent mechanical properties and inexpensive production. However, the constantly rising demand requires responsible handling of global resources. For this reason, it is not only 'virgin polyester' generated from crude oil that is exclusively the raw material for manufacturing, so too is polyester recycled from post-production and post-consumer waste. Processing production waste also helps cut raw material, disposal and transport costs, hence increasing efficiency.

With the new VacuFil® recycling series, Oerlikon Barmag in cooperation with its subsidiary company BBEngineering is offering a solution catering to a "clean technology" production philosophy. Decades of experience in the areas of extrusion, filtration and spinning systems have been bundled into a new, innovative core component – the vacuum filter. It unites gentle large-scale filtration and controlled intrinsic-viscosity build-up for consistently outstanding melt quality. The vacuum unit – located adjacent to the filter – swiftly and reliably removes volatile decontamination (spinning oil, etc.). The excellent degasification performance additionally relieves the energy-intensive predrying process.

The modular structure of the VacuFil® range offers numerous possibilities for the process guiding system. Whether as a standalone solution with downstream granulation or as an inline variant with 3DD additive feed – customer requirements can be optimally catered for with various system configurations. » (msc)



## Oerlikon Nonwoven at the IDEA trade fair: new brand, new order

At the IDEA, the world's preeminent trade fair for nonwovens & engineered fabrics held in Miami Beach, USA, between March 25 and 28, the Oerlikon Manmade Fibers nonwovens business unit stood out for two different reasons. Firstly, it presented itself there under its own branding for the very first time – Oerlikon Nonwoven. And, secondly, it kicked off the trade fair with a customer placing an order. The client is a well-known European meltblown specialist and has invested in a two-beam meltblown system. This capacity expansion is a response to the strongly-growing demand for meltblown nonwovens. In the future, the system will be used to manufacture such nonwovens for numerous applications, particularly for the filtration and wipe markets. The commercial production launch has been scheduled for the first half of 2020.



The Oerlikon Nonwoven team presented its Airlaid, Meltblown and Spunbond service portfolio at the IDEA.

Dr. Ingo Mählmann, Vice President Sales & Marketing Oerlikon Nonwoven, is pleased with the new branding mentioned above: "This represents the final step towards establishing a separate business unit." The Oerlikon Nonwoven business unit was set up back in the summer of 2017 in order to place the focus exclusively on nonwovens and to be able to act flexibly. And the trade fair success is of course providing a tailwind, which has also been reinforced by an expanded product range. "In the past, we predominantly focused on solutions for technical applications. With Teknoweb Materials we now have a strong partner for disposable nonwoven systems. Further, the recently entered partnership with Shaoyang Textile Machinery regarding the supply of SMS-systems allows us to broaden our product portfolio into the important market of hygiene SMS nonwovens. Our systems portfolio now comprises machines for manufacturing meltblown, technical and hygiene spunbond nonwovens along with hybrid materials", explains Ingo Mählmann. » (che)

## imprint

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### Electronic Version (PDF)



Creating the future

# The power of innovation

Innovation – there is barely another word that moves the textile industry more. And it has also characterized the motto of the ITMA 2019 trade fair in Barcelona, which around 1,600 exhibitors will be attending. However, this is about far more than merely technical progress. Market leaders such as Oerlikon – with its Oerlikon Barmag, Oerlikon Neumag and Oerlikon Nonwoven brands – are restructuring to become even more innovative. Those who are highly-innovative today have the power to shape the markets of tomorrow. This is demonstrated by current pioneering developments.



**M**icrosoft is becoming serious with 'Softwear', investing in textile technology for three years now and already using tactile, velvet-like microfiber fabrics on the covers and keyboards of laptops and PCs. Google has registered a patent for a new, conductive yarn designed to function as a touch sensor in washable textiles. These examples clearly show that change is happening. IT and digitalization are whisking the already fast-paced textile world into a cyberspace that is quite literally breaking out of its confines to date. Companies and sectors that until now barely knew each other are collaborating. This is opening the door to innovations, providing a view of new fields that will be tapped into.

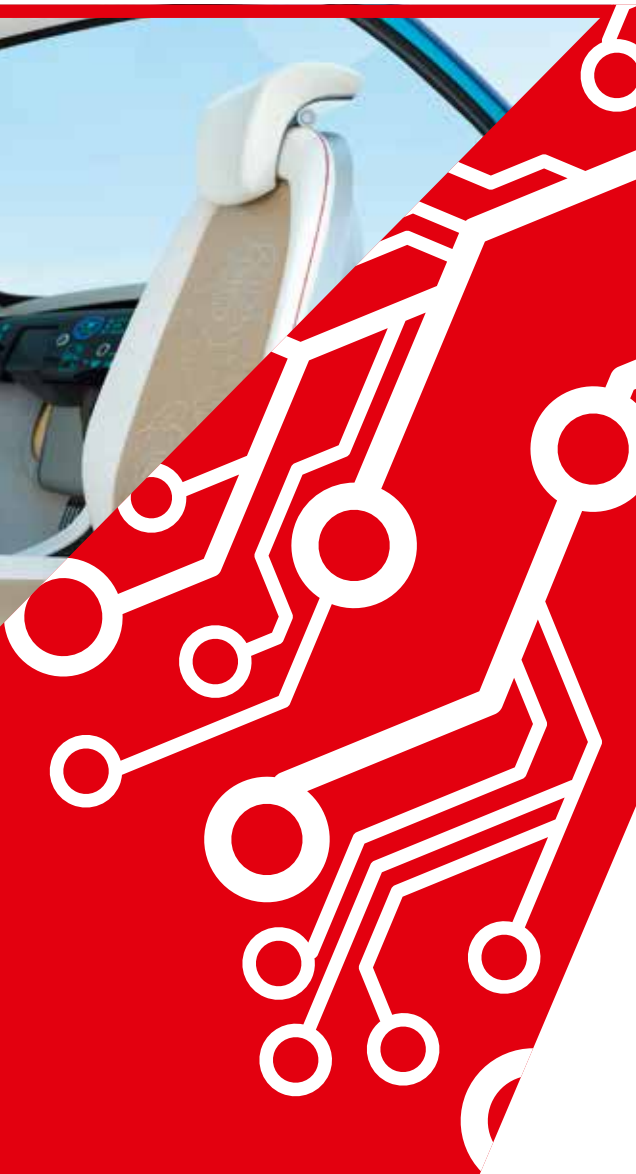
And even textile technology businesses will have to reinvent themselves if they wish to be part of this. But they should not simply distance themselves from the tried-and-tested fundamentals, emphasizes Jochen Adler, Chief Technology Officer (CTO) for the Oerlikon Manmade Fibers segment: "For several years now, we have been deploying innovative agile methods such as Scrum and Design Thinking in order to react more swiftly to market requirements and technology trends. But we have tailored them to our specific requirements, constantly asking ourselves: when are such methods really worthwhile? And when should we use classical business practices?" Because it is ultimately always about creating or changing certain customer values in the best-possible way using technological innovations or meeting market trends in a targeted manner. This is also what the innovation process is based on.

### **Agile activities support innovative trends**

Despite such constraints, the speed of innovation has – driven by market forces – increased substantially. In the case of longer-term development projects, it is today about constantly rechecking, and adapting to, the objectives and the targeted market – in other words, remaining 'agile'. This includes increasingly thinking and acting in a cross-departmental, cross-functional manner. Which means new organizational structures and a new corporate culture that employees must embrace. The proximity to customers, markets and partners, also those with competencies outside existing expertise, is growing in order to find solutions for or within a process chain, for example, or to be able to find an innovation.

But in what directions should innovations be developed? Looking at the Oerlikon Manmade Fibers segment, Jochen Adler sees three major trends: "Firstly, the topic of the automation, integration and networking of systems for digital solutions focusing on machine technologies. Then, we are concentrating on the development and processing of new, sustainable polymers for textile applications. And, thirdly, the topic of recycling is gaining ever-greater significance at all stages of the value-added chain."

Sustainable innovations are also expected to be showcased at the ITMA 2019 in June. The announcements being made in the run-up to this year's market-leading trade fair in Barcelona also focus on innovative solutions for materials and processes providing greater efficiency and productivity, designed to counteract increasing competitive



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Jochen Adler, CTO of the Oerlikon segment Manmade Fibers

pressure and ever-shorter production cycles. It is claimed that the future needs more integrated, digital solutions and automation for flexible production and speedy product switch-overs in order to lower costs and avoid waste. Here, an increasing number of businesses, training facilities and research institutes worldwide are embracing new forms of collaboration in the spirit of open innovation. What this looks like in reality and what product innovations they harbor is showcased by many companies that will also be exhibiting at the ITMA.

### **Innovations that are speeding things up**

Although the areas of application and solutions may be different, many current innovations have one thing in common: they make operations more productive and speed up processes or product market launches. One of these is undoubtedly the new high-speed 3D winder of a British manufacturer capable of simultaneously laying several cables of up to 50,000 filaments each to be used for manufacturing curved composite parts for aircraft or vehicle construction. One Japanese producer of sewing machines has introduced a workflow monitoring system that permits the manufacture of a complete item of apparel using considerably fewer machines than to date, while simultaneously improving the procedural organization. 'Fast fashion' promises suppliers a total solution that combines design, development and production technology for more efficient apparel manufacturing – a one-stop shop in line with the concept of microfactories. And, for rising 'on-demand' fabrication, there are increasingly agile solutions for the 3D virtual design of apparel that dispense with product patterns and considerably speed up market launches.



### **Smart materials and the common digital thread**

Innovative materials also offer exciting innovations. These range from breathable tracksuits with live microbial cells, which react to moisture fluctuations, all the way through to smart apparel that determines biometric data such as heart beat, respiratory rate and muscle tension on the basis of electronically-activated dyes and films. Furthermore, technological advances have made it possible to provide cotton fabrics for sports apparel with similar properties to synthetic fabrics with regards to moisture transfer.

And – needless to say – there is a common digitalization thread running through many innovations. A successful example of correspondingly innovative collaborations is the SportsFactory of several textile printing market leaders, which – as recently as during the 2018 Football World Cup event – showed just how automation can unite a complete production chain for designing, printing and cutting customized soccer shirts virtually without any manual involvement. However, increasing digitalization is not only bringing companies together. It also promotes sustainable solutions such as the automated jeans finish of a well-known manufacturer, which can now dispense with the environmentally-unfriendly stone-washing process. And it pushes visions: researchers at the Massachusetts Institute of Technology (MIT) are already talking about a Moore's Law for intelligent fibers, whose abilities will multiply exponentially over time – practically the law of the textile microchip. » (tho)

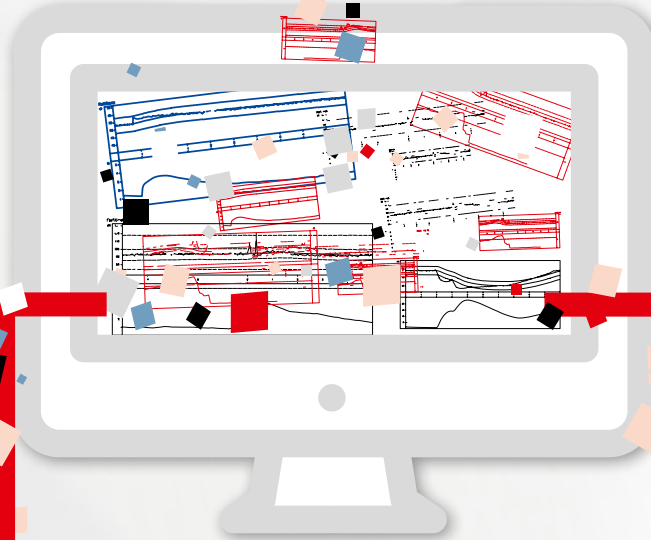
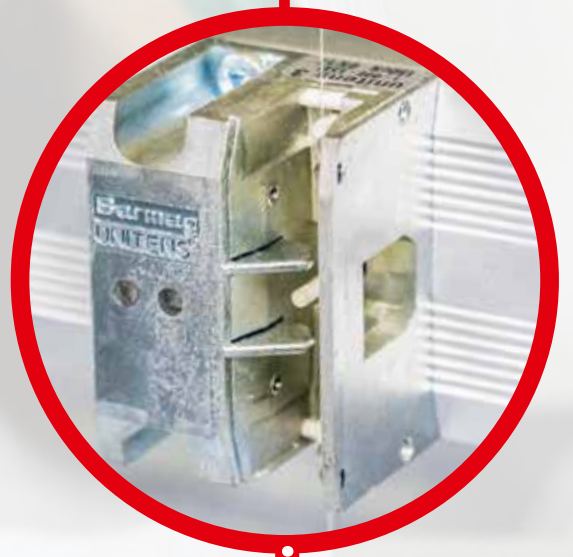
# AIMing for perfect DTY

In DTY production, the UNITENS®<sup>1</sup> monitoring sensor permanently measures the yarn tension and generates up to 1,000 fault graphs per day and machine. Their manual analysis is very time-consuming and personnel-intensive, thus often only 5% can be processed. With the artificial intelligence of AIM<sup>4</sup>DTY, 100% can be analyzed in the shortest possible time - and thus the root cause can be identified much more quickly.

<sup>1</sup>UNITENS® is an internationally registered trademark exclusively owned by Saurer FibreVision Ltd., Macclesfield, UK.

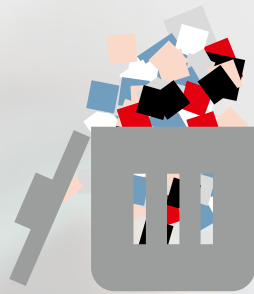


**Unitens®** creates approx. 500 to 1000 tension fault graphs per machine per day.



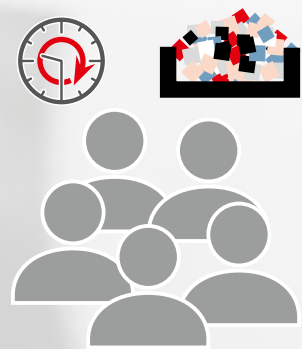
For reasons of personnel capacity more than

**95%** of the tension fault graphs remain untreated.



**maximum 5%**

of the tension fault graphs are analyzed and the relevant information is used to optimize the production process.



# Our AIM is your success!

**AIM**<sub>DTY</sub> digitalizes your know-how and makes it available 24/7/365



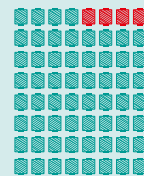
**AIM**<sub>DTY</sub> considers all information



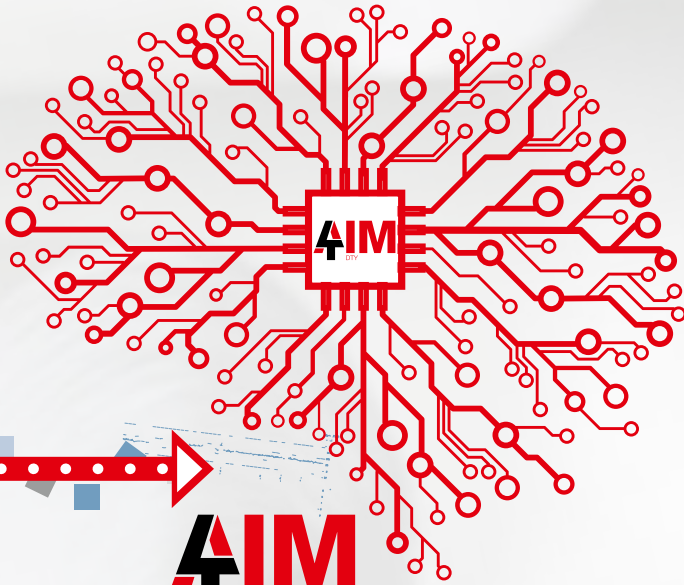
**AIM**<sub>DTY</sub> speeds up your processes



**AIM**<sub>DTY</sub> improves your product quality



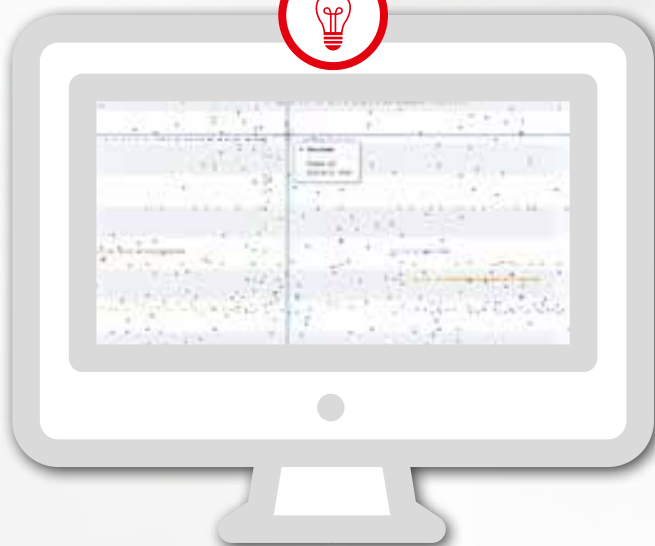
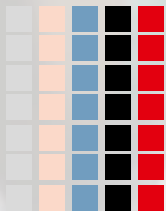
**AIM**<sub>DTY</sub> boosts your productivity



**AIM**<sub>DTY</sub> analyzes and evaluates

# 100%

of the tension fault graphs, and gives instructions for action. AIM<sup>4</sup>DTY is a learning system.



# ‘Technology, ecology are the keys to strengthening innovation’

In our interview, Duan Xiaoping, Vice President of the China National Textile and Apparel Council and President of the China Chemical Fibers Association, describes how China’s textile industry is becoming more focused on innovative strength.

## **Where is the Chinese textile industry today in terms of innovation and innovative strength?**

There is currently an extremely innovative mood and characteristic in China’s society. The new economic models in China are experiencing an explosive development, such as the information services sector. Mobile games, internet shopping, ride-hailing platforms, tourism platforms, big data cloud computing and many other sub-industries are booming. This is also showcased by the investment into high-tech production, which rose by 16.1 percent in 2018 – higher than in the case of the general manufacturing sector. In contrast, the growth rate

for traditional manufacturing slowed down, and the textile industry has been affected to some extent.

Under the new trend, this sector has a new positioning. Technology, ecology and fashion will in future be key areas for strengthening innovation. Meanwhile, internet, big data, intelligent manufacturing and textile industry have been closely combined, bringing new vitality to the textile industry.

## **What developments are noticeable in the digitalization of the textile industry?**

The digitalization and intelligentization of the textile industry is providing important support for the development of innovation. The accelerating promotion of machine replacing human beings is quite remarkable especially in such sub-industries as chemical fiber, cotton spinning and clothing, which not only reduces the manufacturing cost, but also stabilizes the production. Currently, the textile industry is still confronted with challenges in terms of intelligent IT, including control devices, sensors, or special control devices, control software and management software for

“The specific objectives are to establish a green manufacturing system of the textile industry by 2020”



**DUAN Xiaoping**, Vice Chairman of China National Textile & Apparel Council, Chairman of China Chemical Fibers Association, born 1969 in Jiangsu Province of China, holds a Master of Engineering of China Textile University and a Master of Management of Fu Dan University. He has years of experience in management of chemical fiber and textile industry, industrial development planning and enterprise strategic decision. He successively held the posts of Vice Division Director of China National Textile Council, Secretary General of China Chemical Fibers Association, Vice General Manager of China National Chemical Fiber Corp., Vice General Manager of Zhejiang Hengyi Group Co., Ltd. And General Manager of China Garments Co., Ltd.

# ogy and fashion

manufacturing equipment. There is also a lack of qualified talents who possess interdisciplinary knowledge in textile manufacturing and network information with practical skills. Systems, processes and products are still not being networked. Organizational structures are subdivided into numerous levels. In a nutshell, the intelligent development of the textile industry requires the systematic promotion of the entire value chain.

## **‘Going green’ – what are the development objectives of China in terms of sustainability and energy-saving and environmentally-friendly technologies?**

The ‘13th Five-year Governmental Development Plan for the Textile Industry’ is the overall strategy of five-year development of the industry. The specific objectives are to establish a green manufacturing system of the textile industry by 2020, widely use clean manufacturing technologies, reduce the energy consumption in textiles manufacturing by 18 percent, lower the water consumption by 23% and decrease the overall emissions of main pollutants by 10%. Furthermore, key technologies for recycled textiles are expected to lead to breakthroughs and continually increase the ratio of recycled textile fibers in fiber processing.

## **What innovations are required for automating the Chinese textile industry?**

We must firstly focus on intelligent textile workshops (plants) and the corresponding new technology models, including the manufacturing technologies of synthetic fibers, spinning and weaving, dyeing and



During the ACFIF conference in Denpasar, Indonesia, Oerlikon's Manmade Fibers segment's Head of Marketing André Wissenberg (right) had the chance to talk to Duan Xiaoping, Vice President of the China National Textile and Apparel Council and President of the China Chemical Fibers Association.

finishing, intelligent manufacturing technologies for industrial apparel manufacturing, scaled and personalized customization technologies, networked collaborative manufacturing, remote operation and maintenance, etc. Secondly, we must establish an intelligent basis for textile production and supporting technologies. These include the adoption of common and standard technologies for intelligent manufacturing in the textile industry and the utilization of robots for linking processes and special robots, as well as special basic parts for intelligent textile equipments and intelligent manufacturing of textile equipments. Thirdly, we must develop materials for smart textiles as apparel or for household and industrial purposes. This is very important to improve productivity and quality, lower operating costs and resources and energy consumption and shorten product manufacturing and development cycles. Also, because labor costs in China will continue to increase with economic development, rising incomes and an aging population in China.

## **German companies such as Oerlikon Barmag are top of the list of textile machine suppliers for China. What strengths do you see and what innovations do you anticipate from Germany?**

Oerlikon Barmag is a globally leading manufacturer of textile equipments and has a brand influence representing manufacturing spirit and precision manufacturing technology. The majority of high-end Chinese mechanical equipments for manmade fiber are built by Oerlikon Barmag. The rapid development of our textile and manmade fiber industry is inextricably linked to the equipments provided by Oerlikon Barmag. These are one support and foundation for the intelligent development of the sector. We are confident that Oerlikon Barmag will continue to supply innovative ideas, core technical support and comprehensive solutions at all stages of the manufacturing chain in the manmade fiber sector, and cooperate with Chinese intelligent equipment and technological superiority enterprises to accelerate the marketization of related technologies. » (aw)

Oerlikon celebrates four world premieres at ITMA Barcelona 2019

# ‘Clean Technology. Smart Factory.’

Oerlikon invites all visitors to this year’s ITMA in Barcelona on a journey into the future of manmade fiber production. From 20 to 26 June 2019, the world market leader will show all its guests its vision of sustainable and automated manmade fiber production in a virtual 4D showroom at its 1,000 m<sup>2</sup> stand in Hall 7, A101: ‘Clean Technology. Smart Factory.’ is the motto of the future. And this is only a stone’s throw away from reality at the stand. Because today Oerlikon is presenting four world premieres for efficient machine and plant concepts in a new, innovative industrial design. Together with numerous other innovations, all this forms the new DNA of the Oerlikon Manmade Fibers segment.

**T**he challenges for the manmade fiber industry are manifold and Oerlikon shows its customers solutions:

## 1. Choosing the right business model

Price pressure on fiber and yarn manufacturers is growing due to global market consolidation. Here it is important to position oneself correctly. Are you producing polyester, nylon or polypropylene for the niche market and skimming off good margins with innovative products

and ingenious material properties, or are you looking for business success through economies of scale in the volume market such as the constantly growing apparel sector? Oerlikon has the right answers for both business models. And the most important thing: the market leader supplies all solutions from a single source. See for yourself at the world premieres of the machine and system concepts of WINGS FDY PA6 (page 23), BCF S8 Tricolor (page 24) and the revolutionary eAFK Evo texturing machine (page 28).





## 2. Finding alternatives for good personnel

Finding good operators in the manmade fiber industry is becoming increasingly difficult, even in emerging industrial nations such as China, India and Turkey. The solution is obvious. What, for example, the automotive industry achieved years ago with the 3rd Industrial Revolution is now also taking its course in the textile industry. And at the same time it is even shifting up a gear. In the next step, automation in combination with digitization will lead to new, sustainable production. Oerlikon will be showing how automation and digitization interact at ITMA. Self-learning machines and systems, artificial intelligence (AI), remote services and edge computing are just a few of the key words in the digital half of the new Oerlikon Manmade Fibers DNA.

## 3. Guarantee quality and traceability

The qualities of the fibers and yarns must meet the highest demands and their production must be traceable throughout the textile value chain. This no longer only plays an important role in the automotive industry, where safety is of paramount importance. Other branches of industry that use fibers, yarns and nonwovens also want to know where the raw materials they produce for consumer articles come from. Legal regulations are demanding this more and more frequently. Oerlikon offers optimal solutions with its DIN ISO certified manufacturing processes. More than half of the world's manmade fiber producers are convinced every day that the qualities produced on Oerlikon Barmag, Oerlikon Neumag and Oerlikon Nonwoven equipment are right - and all visitors to ITMA can do the same on site.

## 4. Efficient and sustainable production

In the future, the materials produced from manmade fibers must become part of a further improved global recycling economy. The recycling of



Enter the virtual 4D showroom and follow Oerlikon's vision of future manmade fiber production.

polyester - with over 80% market share the most frequently used manmade fiber in the world - has not only been on the agenda since today. Oerlikon already has solutions at hand: from PET bottles to fibers and filaments, to textiles and carpets. ITMA is the next step. With VacuFil® (page 6) Oerlikon presents in cooperation with its subsidiary company BBEEngineering the world premiere No. 4 - a recycling solution within a running polyester production with the approach 'Clean Technology. Smart Factory.'

## Vision becomes reality

The Oerlikon Manmade Fibers segment thus demonstrates what the ITMA in Barcelona promises as the world's leading trade fair for textile machinery and plant construction: "Innovating the world of textiles - sourcing for a sustainable future". In Hall 7, A101, this is already reality.

» (aw)



## Further information about the fair:



[www.itma.com](http://www.itma.com)



[www.oerlikon.com/manmade-fibers/en/](http://www.oerlikon.com/manmade-fibers/en/)

Oerlikon Nonwoven expands process portfolio

# Masters of TPU d

TPU nonwovens have many talents, although these are not easy to tap into. Now, nonwoven manufacturers can receive help: Oerlikon Nonwoven has expanded its know-how, providing support in all areas: from the selection of the right primary materials and their processing – all the way through to ensuring the colors are the right ones.

Industry, agriculture, textiles, outdoor equipment – the applications for thermoplastic polyurethane elastomer-based (TPU) meltblown nonwovens are extremely diverse. This is due to the fact that each of the numerous TPU elastomer types have very specific properties in terms of stretch, tenacity, wear abrasion resistance and hardness as well as varying resistances to oils, lubricants, oxygen and ozone.

For this reason, items manufactured from TPU meltblown nonwovens can be used for the most diverse applications – such as toothed belts and tool handles for industry, ear tags for cattle, foldable kayaks and breathable, coated textiles, soccer boot soles and ski boots and equipment for outdoor enthusiasts and sportspeople. However: as different as the applications for TPU nonwovens are, so too are the requirements for processing thermoplastic polyurethane elastomers when manufacturing the nonwovens. Meltblown nonwovens manufacturers therefore frequently specialize in manufacturing one or just a few TPU types.

If the product portfolio now needs to be expanded and another TPU type processed, nonwoven manufacturers have to invest a lot of time and effort into process optimization. The challenges here include the extreme temperature sensitivity of the TPU raw material, for example. As a result, the temperatures in the system have to be set precisely when switching production from one TPU type to another. This procedure is frequently extremely time-consuming.

# iversity

In comprehensive research work, Oerlikon Nonwoven has acquired expertise covering the properties and processing of the various TPU types.

“We can supply in-depth consultation services if non-woven manufacturers wish to switch to a different type of nonwoven or would like to produce an appropriate TPU type with special properties. We also help adapt processes accordingly, as well as train staff”, comments technology manager Michael Latinski, talking about the available services. Furthermore, Oerlikon Nonwoven assumes the time-consuming development work on behalf of nonwoven manufacturers on request.

There is yet another great benefit for textiles industry manufacturers: Oerlikon Nonwoven not only knows which TPU type is best suited to which application. Thanks to the collaboration with a masterbatch manufacturer, the nonwovens experts also provide recommendations as to how TPU nonwovens can be accurately dyed in accordance with the RAL color chart. To this end, the nonwovens become deep-black and not gray or intensive red and not pink, for example, by correctly adding colored granulate. » (gut)

Oerlikon Nonwoven technologists also have the accurate staining of TPU meltblown nonwovens under control.



Whether POY or FDY – EvoQuench makes it possible

# Opening the door to p

For the very first time, the EvoQuench quenching unit enables the production of quality POY and FDY microfiber yarns made from polyamide. The first system with this technology has been successfully operating at Chinese polyamide manufacturer Fujian Jinjiang since the end of 2018.

**M**icrofiber yarns have been around for 40 years, although it has only been over the past 15 years that the niche product has become a mass product, whose market share is growing dramatically. These yarns, spun together from fine filaments are popular above all in the apparel sector, as fabric made from microfibers feel especially soft and supple, while simultaneously being excellently air- and water-vapor-permeable. This allows them to be woven into textiles, ideally suited for underwear, sport apparel and other functional clothing.

Ten kilometers of one of these microfilaments weigh less than one gram (1 dtex), supermicrofilaments only half a gram. Conventional melt spinning processes can currently be used to economically manufacture filaments with a fineness of down to 0.50 dpf (denier per filament) or lower. This has to date only been possible for polyester. But it is polyamide yarn that has not only the highest tenacity of all textile raw materials. Apparel made from polyamide is even more shape-retaining and at the same time more stretchable than other polymers. Furthermore, it is more pleasant to the touch, light weight, and fast-drying.



# polyamide microfibers



Oerlikon Barmag's EvoQuench radial quenching unit is also transferable to the production of high-end polyamide 6 microfiber yarns, which – for customers – opens up a market for new competitive yarn products. The world's first systems for POY and FDY equipped with this unit were commissioned by Fujian Jinjiang Technology in China at the end of 2018. The company is one of the world's largest producers of high-quality polyamide yarns. The focus of Chinese imports has for many years been on sustainable and innovative technologies.

Chinese companies are required to invest in systems that offer technological and ecological value added – such as the Oerlikon Barmag EvoQuench radial quenching unit. “We were unable to find any convincing alternative concepts on the market”, states Ning Zuolong, Technical Director at Fujian Jinjiang, “and other radial quenching units for manufacturing polyamide yarns simply do not deliver the same high quality.” To this end, the patented Oerlikon Barmag solution is highly-efficient and creates excellent yarn quality.

# “How the filaments are cooled after exiting the spinnerets is decisive for high product quality”

Günter Schütt, Head of the Oerlikon Manmade Fibers segment's spinning plant concepts

## **Convincing arguments: quality and sustainability**

“How the filaments are cooled after exiting the spinnerets is decisive for high product quality”, explains Günter Schütt, Head of the Oerlikon Manmade Fibers segment's spinning plant concepts. This process step is all the more complicated the thinner the filaments exiting the spinnerets are. In contrast to conventional cross-flow quenching systems, the air is symmetrically guided from the exterior to the interior of the filament bundle in the case of the Oerlikon Barmag EvoQuench radial quenching unit. This is above all thanks to the two-chamber system used in the EvoQuench. The air is pre-distributed in the first chamber, while the second then generates optimally even and turbulence-free airflow, which is then guided along the filament from all sides. In this way, the yarn surface is evenly quenched along its entire length. “This radial quenching requires between 60 and 80 percent less

energy than cross-flow quenching and is therefore e-save-certified”, explains Ning Zuolong. “This was a decisive incentive for us to deploy the system.” Because there has been an increasing focus on such environmental issues for some years now in China.

## **Monomer suction has a direct impact on the yarn and process quality**

When manufacturing microfibers from polyamide, the free monomers also have to be suctioned off, as these contaminate the quenching unit and hence change the yarn quality. The patented Oerlikon Barmag monomer suction unit is currently the world's only convincing technical solution for this issue. » (bge)

# New 24-end system concept for polyamide FDY yarns

## Efficient PA6 FDY production with WINGS

WINGS FDY is now also newly available for the polyamide 6 process. The concept will be unveiled to the broader public at the ITMA 2019 in June in Barcelona.

**W**ith this development, the tried-and-tested WINGS technology – to date well-known for FDY yarns from polyester manufacturing – is now also available for the challenging polyamide 6 process. This new 24-end winding concept makes the efficient production of FDY PA6 yarns a reality.

Extending the polyamide yarn production from 12 to 24 ends with DIO and WINGS FDY pays yarn producers dividends, particularly in terms of investment expenditure (CAPEX) and operating expenditure (OPEX): significant savings with regards to energy, footprint and – due to the more ergonomic design – a rather convenient string-up are among the WINGS FDY PA concept's most convincing arguments. The enclosed draw unit ensures low spin finish emissions, offering a safe working environment.

Offering swift string-up, the optimized yarn path of the tried-and-tested WINGS FDY PET system is united with the high relaxing performance of conventional polyamide systems to create a completely new concept. The 24-end WINGS FDY PA hence profitably combines the benefits of both processes. The result: outstanding yarn proper-



ties, excellent dyeability, optimum process performance and high full package rate. A perfect package build guarantees excellent further processing properties in the downstream processes. With a 116-mm stroke, this winder makes high package weights possible, therefore delivering added-value yarns for further processing. As a consequence, yarn manufacturers can give themselves a competitive advantage in the marketplace. » (bey)



Complements the WINGS family for the FDY process: WINGS FDY PA.



Oerlikon Neumag  
starts year of  
innovations with  
BCF S8



**huge step forward**



The BCF S8 production plant promises carpet yarn manufacturers greater punching power within a fiercely-contended market. Superlative spinning speeds, up to 700 filaments per yarn end, finer titers down to 2.5 dpf – the performance data and technological finesse of the new system already made an impression at its unveiling at the German DOMOTEX trade fair in January.

Visitors to the trade fair spoke of a 'game changer'. "This shows that our customers have understood that the BCF S8 has considerable potential and represents a huge step forward", comments Martin Rademacher, Head of Sales Oerlikon Neumag, thrilled by the across-the-board positive trade fair feedback in Hanover, Germany (see also P. 4). With this technology innovation, customers are able to better cater to changing market requirements and can stand out in a highly-competitive industry despite increasing pressure on costs – regardless of whether with standard or niche products. For this, the developers targeted a new level of increased productivity and even broader product diversity. The BCF S8 aims to be the most efficient Oerlikon Neumag BCF plant.

This is being already underlined and supported by the performance figures, the results of tests and the operation of two pilot lines within the market: with up to 700 potential filaments per yarn end, the BCF S8 exceeds its sister system, the BCF



The absolutely straight yarn path from the infeed to the cooling drum improves the production process.

S+ (400 filaments), considerably, guaranteeing finer titers down to 2.5 dpf at the same time. Furthermore, the process speed of the new Witras III-37 winder is – at 3,700 m/min – higher than ever before, permitting increased throughputs of up to 15 percent compared to predecessor technologies. Overall, this innovation offers a system efficiency of 99 percent as well as potential energy savings of up to 5 percent per kilogram of yarn.

### **Innovative – from straight yarn paths to large cooling drums**

Numerous innovations have enabled these advances. To this end, one key element above all has been optimized.

The yarn path from the spinning system to the new, large cooling drum has been almost completely straightened. This yarn path, unique to the BCF market to date, ensures that the individual filaments are subjected to minimum friction, hence considerably reducing yarn breaks and optimizing the overall production process. Noteworthy here are the, for the first time, straight yarn inlet in the texturing head – guaranteeing superior yarn quality.

And the considerably reduced distance between the heating godet duo and the texturing head also has a positive impact on the texturing process. It ensures a more even twist to the yarn and reduces the compressed air consumption. The texturing chambers can be removed individually, which additionally shortens servicing times. The now closed units provide the best possible protection for the textur-

ing jets and lamellar chambers.

The cooling drum now has a larger, 800-mm diameter, optimally and gently cooling the filaments – also benefiting the yarn quality. Furthermore, the cooling drum is equipped with a V-groove for all polymers (PET, PA6 and PP) as standard.

This ensures straight laying of plugs and improves crimp evenness. The standard system package now also



With the new winder Witras III-37, the process speed can be increased up to 3700 m/min.

includes the already-established RoTac<sup>3</sup> tangling unit, which again significantly reduces compressed air consumption by around 50 percent.

Last but not least, an HMI-based (Human-Machine Interface) process visualization system supports the control of the BCF S8 using intelligent functions (see adjacent text box). “With such innovations, we

want to open the door to a digital age of smart carpet yarn manufacturing – as already announced at the ITMA ASIA 2018”, emphasizes Dr. Friedrich Lennemann, Head of R&D Oerlikon Neumag. At ITMA 2019 in Barcelona in June the tricolor version of the BCF S8 will be unveiled, which was showcased as a monicolor system at the DOMOTEX. » (tho)

## HMI-based process visualization system

The new BCF S8 is the first Oerlikon Manmade Fibers segment system equipped with an innovative human-machine interface (HMI) for intelligent controlling and monitoring. In this case, the interface between man and machine has been oriented on the daily requirements of users in BCF production. With its new ‘look and feel’, it supports intuitive operation and comes with smart features that simplify everyday work. To this end, the system offers – by means of a touch screen – direct access to important information, operating statuses and actual and target values at each take-up position.

A completely new ‘alarm philosophy’ also simplifies troubleshooting and malfunction analysis. Here, certain irrelevant error messages or messages on other follow-on errors can be suppressed using sophisticated filter mechanisms and not transmitted to the HMI system. As a result, the operator is able to acquire a better overview of the current status of the system and secure the planned operation. “Experiencing these new features during presentations at our trade fair stand was a real highlight for our visitors. In the future, we are planning to connect other digital products with the new modular HMI system”, announces Stefan Kalies, Senior Project Manager R&D Project Management.



Technological quantum leap

# Texturing at

Launched to create new standards in texturing: the eAFK Evo generation of machines promises superior speeds, greater productivity and consistently high product quality, along with lower energy consumption and simpler operation vis-à-vis comparable market solutions. Oerlikon Barmag will be showcasing these wide-ranging capabilities at the ITMA 2019 trade fair in Barcelona with a high-end design from the new system platform. In particular, the numerous value-added features include two that are excelling with cool technology: the optimized EvoHeater and the EvoCooler, a completely newly-developed active cooling unit.

**T**he eAFK Evo is only 4.5 meters high – but nevertheless comes with a 4-deck winding system (for up to 384 positions). It benefits derive from a systems concept that unites a compact form with superb performance. The key foundation for this is a very short twist zone with a new cooling component. Just 300 millimeters long, the EvoCooler uses active cooling technology, with which the machine speed can be increased by 10 to 20 percent

vis-à-vis comparable systems. “These are cautiously-interpreted values from the intensive field tests conducted on the EvoCooler, which has been in operation at an initial pilot customer since October 2018”, states Dr. Philip Jungbecker, Senior Manager Technology Texturing Machines at Oerlikon Barmag.

In addition to this, there is no sudden deterioration of the yarn quality when achieving these speeds and reaching the yarn-specific ‘surging

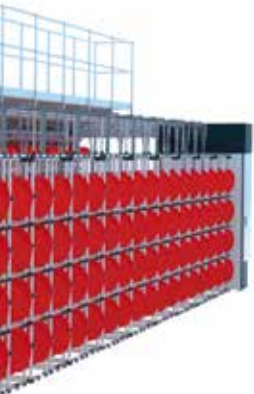


# its coolest

limit' within the texturing process. Here, the EvoCooler creates flowing transitions, while also allowing the yarn temperature to be controlled. To this end, the yarn quality can be kept at a consistently high level – for correspondingly high sales margins. Furthermore, the controllable cooling unit opens up a wide production window with titers ranging from

around 30 to 300 denier and including microfilaments (PET/PA). The EvoCooler enables extremely even yarn dyeing and consumes no additional energy despite all its benefits.

The optimized EvoHeater is also exceptionally energy-efficient. Including its connected peripherals, this second key component



ensures energy savings of up to 25 percent for the entire machine without impacting the high yarn quality. Furthermore, an innovative maintenance concept is used – as already deployed in the case of the Oerlikon Barmag HTI high-temperature heater. Here, so-called inserts can be removed from the heater and cleaned in an ultrasonic bath without any time pressure, while inserted replacement elements ensure that the system continues to operate. Finally, the EvoHeater permits simple and safe string-up.

**Superlative efficiency: from EvoTake-up to AIM<sup>4</sup>DTY**

And the new, patented automatic doffing system is also proving to be extremely robust and exceedingly low-maintenance, while nevertheless achieving efficiency of over 99 percent. Furthermore, the improved placement of components such as the suction in the take-up unit simplify operation and maintenance across the entire machine.

The AIM<sup>4</sup>DTY analysis software (see also p. 12) is a major component of the system being exhibited at the

ITMA trade fair and a further step on the digitalization journey at Oerlikon's segment Manmade Fibers. This learning artificial intelligence system filters thousands of error graphs generated every day by the UNITENS<sup>®1</sup> monitoring sensor whenever the yarn tension exceeds the prescribed tolerances. The automated analysis makes extremely time-consuming manual troubleshooting a thing of the past, while accelerating the identification of error causes and countermeasures – a further step towards manufacturing more packages of superior yarn quality for higher margins. "We will soon be delivering such eAFK Evo systems, which correspond to the trade fair exhibit, to initial pilot customers. In the future, it will also be possible – on the basis of the eAFK Evo – to create customer-specific machine solutions with various component combinations", comments Philip Jungbecker. "Initially, we are very much looking forward to presenting to the trade fair audience a technological quantum leap for texturing at its coolest." » (tho)

<sup>1</sup>UNITENS<sup>®</sup> is an internationally registered trademark exclusively owned by Saurer FibreVision Ltd., Macclesfield, UK.



Original parts

# Quality also worthwhile in the case of consumables

False economies are often made when it comes to consumables. And this despite the fact that deploying premium parts pays dividends. Which is why Oerlikon Barmag customers are increasingly putting their faith in original parts.

The fact that quality awareness is also the more economical option for consumables in the medium term is showcased by the pig-tail yarn guide. This typical consumable has been subject to greater wear since yarn manufacturers – for ecological reasons – have increasingly been switching production to highly-abrasive, spundyed yarns. Because this hinders productivity and maintenance, Oerlikon Barmag – in collaboration with a partner – offers yarn guides that are more wear-resistant and more durable. These premium parts ensure longer service lives for the machines – hence more than compensating for their marginal price difference.

This argument is also convincing yarn manufacturers: the new yarn guide has been available since the

beginning of 2018 and has been sold over ten-times more frequently than the standard model during the past 15 months. A trend towards sustainability in the spare parts business as well? “Absolutely,

and this is demonstrated by the rising sales of premium products – and not just in the case of this yarn guide”, states Rudi Kroisl, Strategic Purchaser in the Customer Service department at Oerlikon Barmag.

And operators of older systems that no longer fulfill the requirements of today’s yarns prefer

to deploy high-quality spare parts rather than cease production. “With this, we are actively researching and developing parts to ensure that our clients can continue to be successful market players”, comments Marcel Bornheim, Head of Customer Service at Oerlikon Manmade Fibers. » (bey)



The new pig-tail yarn guide is considerably more durable than the standard model, hence demonstrating that quality pays dividends.

Hygiene and medical nonwovens

# New point-of-contact for s

They are presenting themselves as a new partner to the nonwovens industry: Oerlikon Nonwoven and Chinese systems manufacturer Shaoyang Textile Machinery are now offering joint international systems solutions for manufacturing spunbonds for hygiene applications. Since the autumn of 2018, they have been uniting global engineering competence and technological know-how – to fulfill market-leading standards.





# spunbond manufacturers

Today, modern disposable diapers are quite literally items of high-tech, particularly thanks to the diverse properties of the primary materials – nonwovens. Correspondingly, studies have shown that the hygiene market for infant diapers, incontinence products and feminine hygiene articles has been continually growing since 2009. In addition to major customers such as the US and Europe, demand is meanwhile also increasing in densely-populated countries including China and gradually also India. As much as 82 percent of global spunbond consumption was attributed to hygiene products in 2018, according to the market consultants at Price Hanna.

Nonwoven manufacturers wanting to become players in this hugely-promising market must fulfill the high requirements and standards of such industry giants as Procter & Gamble and Kimberly-Clark – and they need the corresponding technical equipment and providers with international infrastructures and experience. And this is precisely what partners Oerlikon Nonwoven and Shaoyang Textile Machinery are offering. The Neumünster-based business brings its plant engineering know-how to the table, is responsible for both the CE certification and the product and process guarantees and assumes overall responsibility for projects and global customer service outside China. In return, Shaoyang – headquartered in the city of the same name in the Hunan Province – provides the systems spinning technologies.

The Chinese spunbond systems enable nonwovens manufacturing with various spunbond and meltblown configurations (SS, SMS, SSMMS). The diverse products to be manufactured from them comply with the high international standards for hygiene products, comments Rainer Straub, Managing Director Oerlikon Nonwoven: “Here, Shaoyang is a top Chinese systems constructor for spunbond hygiene product. Together with our many years of engineering experience, we can offer our customers international-standard production lines. Here, our mission is to fulfill the requirements and demands of both nonwoven manufacturers and their end customers.” The nonwoven expert also promises highly-competitive solutions at attractive prices with comparably low investment. Marketing will also become successful outside China in this way and on the basis of the extensive global Oerlikon segment Manmade Fibers service network. » (tho)



Oerlikon Nonwoven and Shaoyang Textile Machinery always have the right solution for hygiene and medical applications.



Market-leading Techtextil trade fair showcases the materials of tomorrow

# The materials that the future will be made of

In the home, at work, in the sky, on water and even in space – industrial textiles and nonwovens are performing ever-greater deeds in astonishing applications. Versatile and lightweight, but in part stronger than metal, these materials of the future acquire their superpowers from the interaction of precisely-tailored textile systems. At the Techtextil trade fair in Frankfurt – held between May 14 and 17 – manmade fibers manufactured from polyester, polypropylene etc. showcased just what they are able to do in these areas.

**T**he German Research Ministry claims that over two-thirds of all industrial innovations are directly or indirectly related to new materials. One might add: the key to a more progressive living environment and to technological products with astonishing functions, breathtaking performance with greater environmental benefits also lies in improving the properties and processing of materials. This applies first and foremost to textiles. There is probably no other material that is such a strong ‘team player’, drawing its strength from its cohesion. To this end, a single polyester filament seems insignificant. However, processed into a thigh-thick rope, high-modulus/high-tenacity fibers are able to secure floating oil platforms in deepest waters. These kilometers-long ‘mooring ropes’ can resist breaking loads of considerably more than 1,000 metric tons and fulfill their task better than steel.

## **Strong and lightweight fabrics promote mobility**

But even everyday products manufactured from textiles fulfill challenging requirements, as demonstrated in the manufacture of automotive safety belts. Its special fabric construction – manufactured from lint-free PET yarn – is both stable and stretchable, ensuring that vehicle occupants are, in the event of an impact, protected and not injured. Manmade fibers have become an integral part of the automobile world: the German Textile Advisory Board (Forschungskuratorium Textil) claims that each and every car today has around 30 kilograms of textiles.





# oerlikon

They feature in the form of airbags, car roofs, upholstery, cladding, switches and operating elements, along with drive belts and hoses.

The automobile industry also uses them to reduce costs. A great example of the efficient production of industrial textiles in the automotive sector is the manufacture of tire cord using HMLS (high-modulus low-shrinkage) yarns. These preliminary products made from polyester are extremely tear-resistant, while nevertheless remaining highly elastic and stable in terms of their dimensions and temperature. Twisted into a textile fabric, they are placed between several layers of rubber, stabilizing car tires on roads. And talking of roads: industrial yarns are also at work beneath these. Geotextiles secure and stabilize the ground in road and path construction. These flexible textile fabrics, such as those made from PET fibers, are extremely tough, creep-resistant and can survive underground for decades.

### **High-tech membranes made from the fifth construction material**

Textiles have long been used in the construction sector and are increasingly playing a role as the 'fifth construction material' – along with steel, concrete, wood and glass. The innovative solutions include high-tech membranes made from specially-coated polyester fabrics, which have already been used in the roofs of the football stadiums in Warsaw and Kiev and of Bangkok International Airport.



Nonwovens are also construction materials of the future. These textile fabrics can be given diverse properties by means of various manufacturing processes and combination technologies. Temperature- and impact-resistant, breathable and simultaneously resistant to moisture, mold and separation, they are perfect for roofing as well as for sound insulation, insulation and drainage throughout the entire construction sector. But not just there: in medicine, nonwovens are experiencing a veritable boom as inexpensive materials for surgical gowns and bandaging because they act as fluid and bacteria barriers, while nonetheless remaining vapor-permeable and absorbent and not sticking together. The applications range from filtration, diapers, wipes and napkins all the way through to geotextiles and felt carpets. Coincidentally, special textured endless yarn made from polypropylene, polyamide and polyester is above all suited to the large diversity of textile floor coverings: BCF yarn with the most diverse properties.

#### **Diverse nonwovens and smart textiles**

Functional apparel textiles are a real playground for innovative industrial yarn applications. Here, the bandwidth of new developments ranges from breathable tracksuits with living microbial cells that react to moisture fluctuations to smart apparel that can carry out, to date unknown, functions using electronics and sensors. Smart textiles can generate heat, light and electricity, measure temperatures and vital functions, heal wounds and reduce pain, modernize industries and make cars and construction safer and more comfortable.

Against the backdrop of this future scenario, it comes as no surprise that industrial textiles are on the rise globally as future materials. Analysts, including the London-based Future Market Insights market researchers, estimate that the world market volume for industrial textiles will rise from US\$ 166 billion in 2016 to more than US\$ 260 billion in 2027. This boom will undoubtedly further promote the market for polyester fibers, which has been continually expanding for many years now.

The intelligent processing of such manmade fibers as base materials is an important foundation for future textile innovations. This is the mantra of such market leaders as the Oerlikon Manmade Fibers segment and its Oerlikon Barmag, Oerlikon Neumag and Oerlikon Nonwoven brands. Its innovative 'From Melt to Yarn' technologies have laid the foundation stone for many of the applications mentioned here – and for ever greater performance, efficiency and quality in the quest for the materials of tomorrow. » (tho)

The bandwidth of new developments ranges from breathable tracksuits with living microbial cells that react to moisture fluctuations to smart apparel that can carry out, to date unknown, functions using electronics and sensors.



# Using original parts offers numerous advantages

Akinal Tekstil nailed its flag to the mast at this year's Domotex trade fair in Hanover, Germany: the Turkish BCF yarn manufacturer signed a contract covering the delivery of customized spinnerets. Because quality is key when it comes to replacing parts.

Delivering the highest quality yarns within our special product portfolio is only possible by using Oerlikon Neumag spinneret technology, which has proven itself over many years," reasoned General Manager Ali Tümer, talking about the company's decision. Akinal Tekstil has been producing BCF yarn for the local and global markets since 2004 and has been an Oerlikon Neumag customer for just as long. The spinnerets deployed in the systems of the German, Neumünster-based machine manufacturer have a huge influence on the required high yarn quality. "Although there are other spinneret suppliers within the market, these are not true alternatives. In comparison, the customized Oerlikon Neumag original parts provide superlative process stability and ensure extremely lower waste rates", according to Ali Tümer's experience. "This makes the difference for us as a BCF yarn producer when it comes to gaining a competitive advantage within the market."

For its spinneret design, Oerlikon Neumag exploits the know-how and expertise from the entire BCF manufacturing process chain as well as decades of experience in developing BCF technologies. And this is not the only benefit, believes Ali Tümer: "Oerlikon Neumag also provides process warranties for many products, giving me a sense of security and ensuring worry-free production." » (tho)



Oerlikon Neumag Customer Service also offers tailor-made training courses based on customers' needs. These services transfer a lot of knowledge and lead to increased efficiency, reduced waste rates and minimized down-times – all of which optimize operating costs.

## 60 years Extruder

# Endless – just like filam

**T**he first spinning extruder celebrated its premiere at Barmag AG back in 1959, 60 years ago. After signing a license agreement with the Midland-Ross Corporation – the at the

time leading extruder manufacturer in the US – the Remscheid company was permitted to produce and distribute extruders and extrusion systems based on the US maker Hartig's designs.

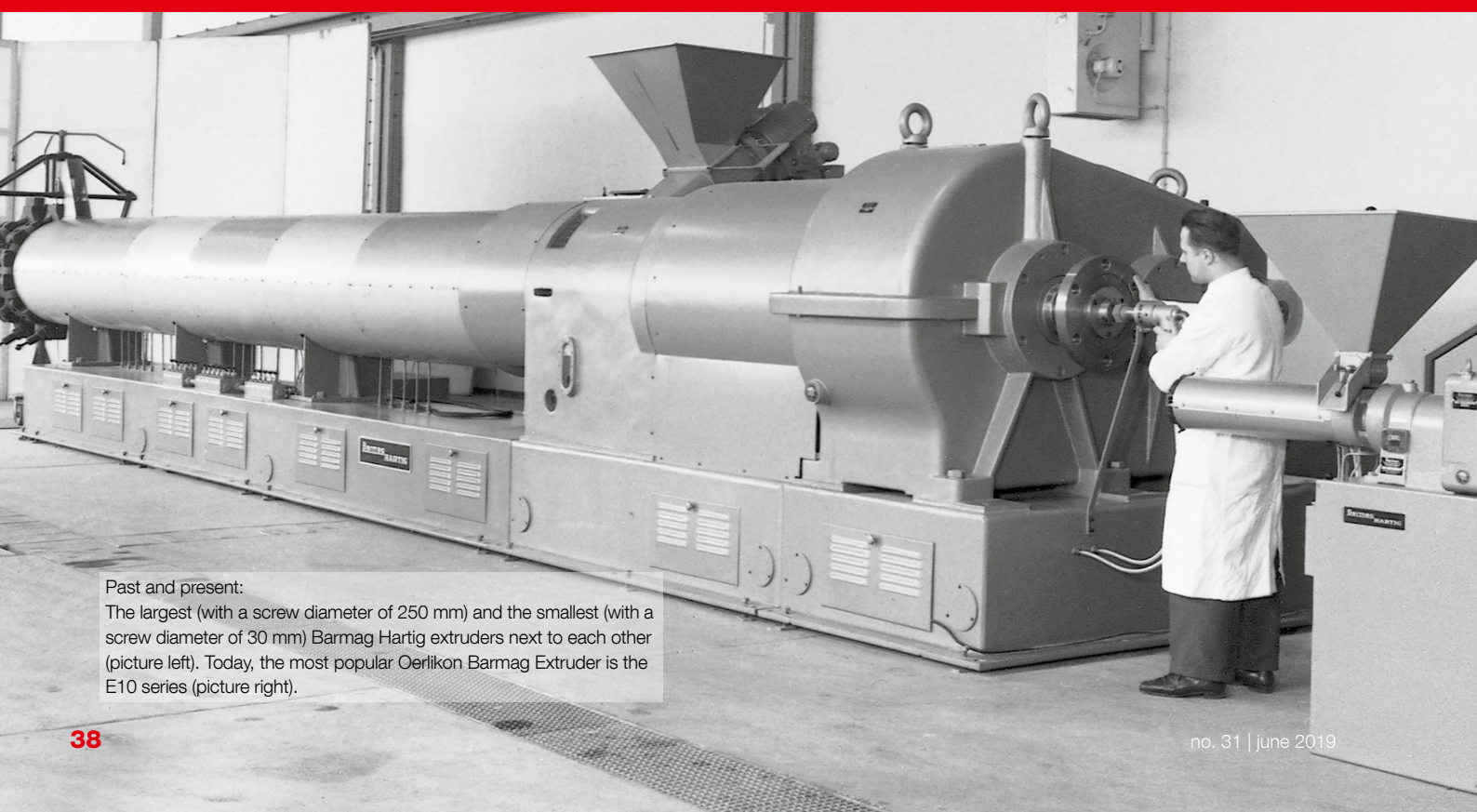
This was simultaneously the starting signal for a new era in manmade fiber production – and for a success story whose length meanwhile competes with that of the endless products manufactured by means of extrusion. Because extrusion technology can be used for melt preparation in the production of synthetic filaments and films. Such spinning extruders quickly

revealed their advantages in terms of pressure build-up, melt homogeneity and temperature control compared to the conventional spinning grate processes available up to that point.

There is no end to our extruder manufacturing success story in sight, even after 60 years. What began at Oerlikon Barmag in Remscheid, is meanwhile being continued by the subsidiary BB Engineering.

With this new technology, Oerlikon Barmag succeeded in entering the growth market of plastics processing. Over the following decades, spinning extruders were delivered throughout the world in large numbers, having a pivotal influence on the expansion of manmade fiber manufacturing. Oerlikon Barmag became one of the decisive initiators of this techni-

cal progress. Even at the beginning of the 1960s, the company established a large-scale R&D Center with seven production-design extrusion systems for the development and further development of the systems.



Past and present:  
The largest (with a screw diameter of 250 mm) and the smallest (with a screw diameter of 30 mm) Barmag Hartig extruders next to each other (picture left). Today, the most popular Oerlikon Barmag Extruder is the E10 series (picture right).

# ent products

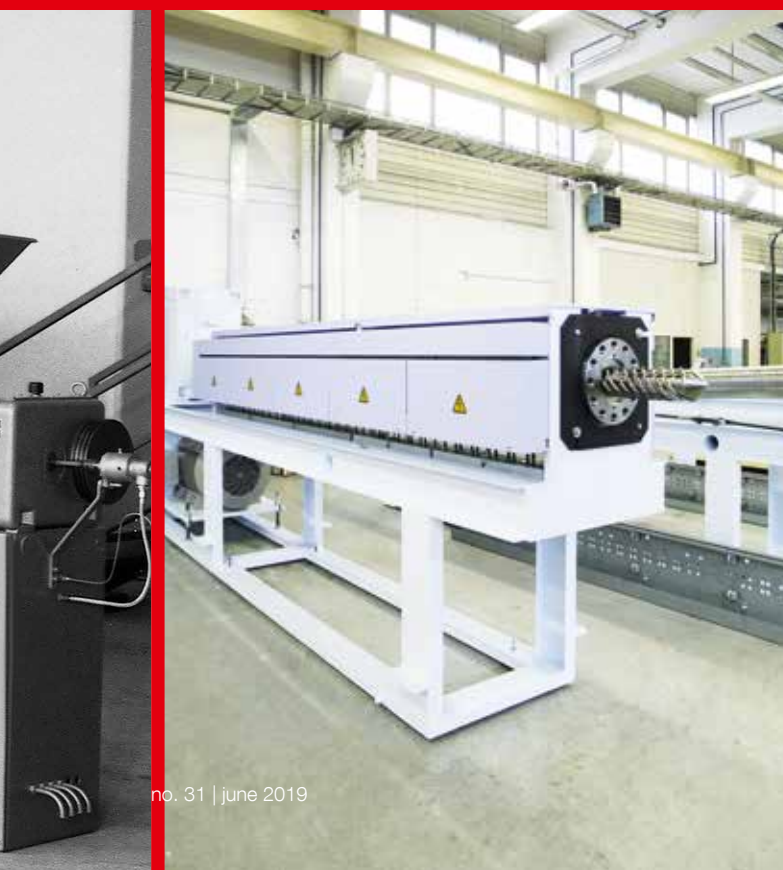
In addition to its extrusion competence, the development of special screws, melt filters, dynamic mixers and gear metering pumps has been driven forward.

Today, BB Engineering – as the successor to the Oerlikon Barmag extrusion division – offers a broad range of single-screw extruders, polymer mixers and polymer filters. The business's two parent companies, Oerlikon's segment Manmade Fibers and the Brückner Group, are home to R&D divisions for further development and trials. Development work is also taking place in collaboration with universities and scientific institutes.

This shows that progress never stands still. To this end, the specific extrusion performance and the quality of the polymer melts were consistently increased. In polypropylene extrusion, for example, the specific output performance has increased more than eight-fold over the past few decades. Throughputs of up to 800 kilograms per hour can today be achieved with high-speed 65-millimeter extruders. 'Universal extruders', which excel as a result of their broad processing windows, are a further trend. Because even it – this success story – should not end after 60 years. » (tho)



The core of any extruder: the screw.



## Extruders are real 'work horses'

### Did you know ...

... that the largest Oerlikon Barmag extrusion systems achieve outputs of more than 6,000 kg of melt per hour?

... that extruders today need to be available virtually 365 days a year, fulfilling the highest demands in terms of throughput and melt homogeneity? For this reason, BB Engineering ensures extreme reliability and durability by using high-end components and materials.

... that more than 20,000 Oerlikon Barmag extruders of the most varied types have to date been delivered to customers worldwide? A high percentage of these is also still operating today after many years of deployment.

... that Oerlikon Barmag extruders are available with screw lengths from 30 to 300 cm?

**oerlikon**  
barmag

**oerlikon**  
neumag

**oerlikon**  
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