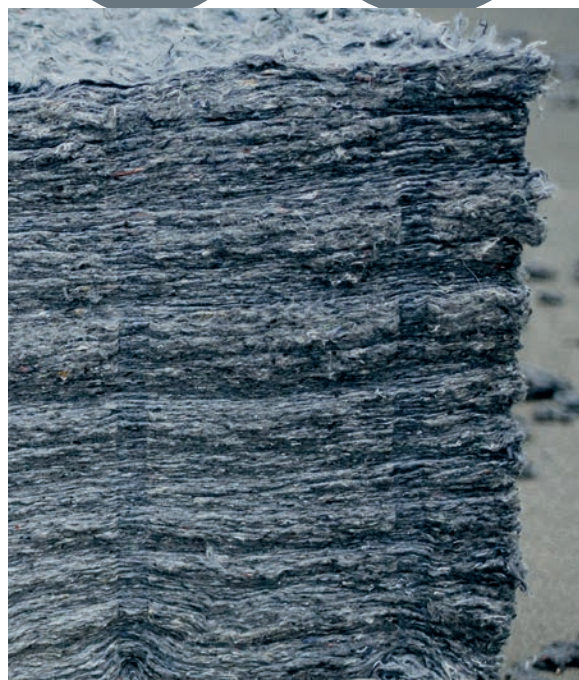


it's true



TRÜTZSCHLER

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Cover picture:
Recycling process: from textile
waste to high quality card sliver



Printed on 100 % recycled paper



Dear customers,
dear business partners,

2020 presented us with major challenges. Nevertheless, we observed a significant upturn in the market situation at the end, which continued to be reflected in an unusually high level of demand from our main markets in the first half of 2021. In particular, we see a strong trend towards the production of sustainable yarns from recycled textiles among our customers. The market for recycled fibers is growing overall at a very high rate: On the one hand, we observe here the phenomenon of "fast fashion", in the course of which consumers buy more clothes, but throw them away earlier. On the other hand, there is a heightened environmental awareness and a desire for more sustainable textile products. Trützschler has been meeting this demand for years with its developments in spinning preparation. We are therefore all the more pleased to be able to offer a decisive solution for textile recycling with the new intelligent Card TC 19i for Recycling: The card allows textile waste to be processed into high-quality yarns. In this way, our customers are meeting their sustainability goals as well as increasing market demands.

The issue of sustainability is also being systematically pursued in our other business units: With the innovative carded-pulp systems offered by Trützschler Nonwovens, our customers benefit from the ability to produce environmentally friendly, plastic-free disposable nonwovens at low cost.

In addition to the development of machines and systems for sustainable textile products, the digitalization of processes remains a top priority for Trützschler. We are continuing to expand this area, especially with a view to our services: Our webshop, which in addition to Spinning now also includes the product range of Trützschler Card Clothing, enables us to provide individual customer support based on the principle of "24/7, 365 days a year". Overall, our digital solutions such as *My Mill* are very well received by our customers and, in combination with our increasingly intelligent machine solutions, lead to significantly higher productivity, efficiency, quality as well as optimal raw material utilization.

All these successes are due to the tireless efforts of each and every employee, who is fully committed to our customer service and our products every day at all our sites around the world. I would like to thank you very much for this.

I wish you a successful 2021 and, above all, good health.

Kind regards,

A stylized, handwritten signature in blue ink, which appears to read "Christof Soest".

Dr.-Ing. Christof Soest

The new TC 19i for Recycling

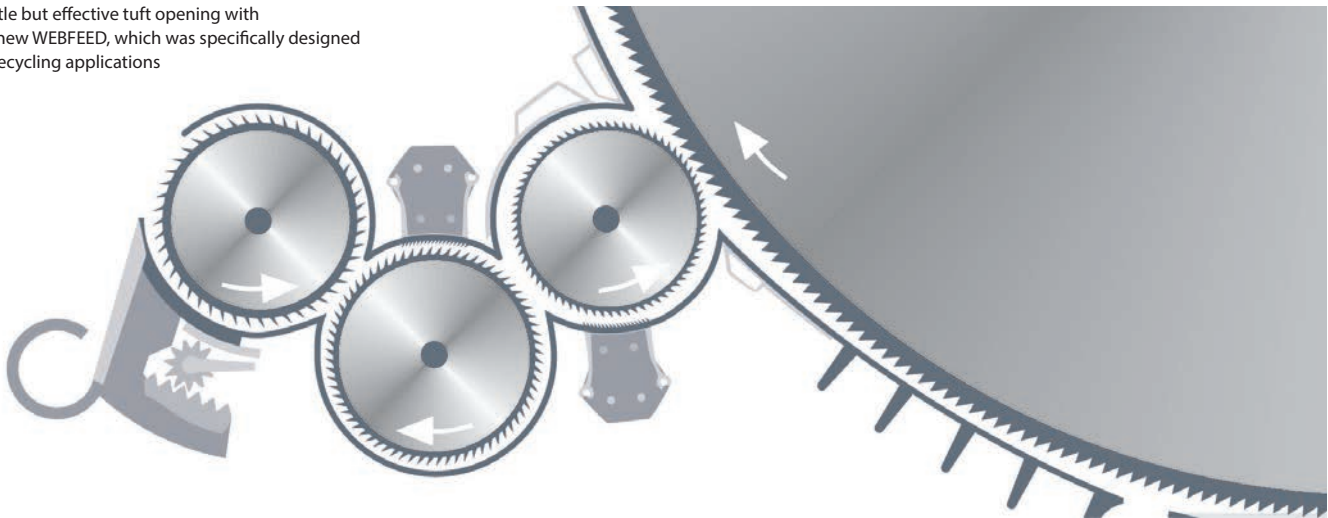
Turning textile waste into sustainable success

Author: Dr. Bettina Temath

The market for recycled textiles is growing rapidly – because fashion is faster than ever, environmental regulations are stricter than ever, and the consumer focus on sustainability is sharper than ever. That's why companies around the globe are seeking solutions to the key challenges involved in turning textile waste into high-quality yarn. Trützschler is now launching an intelligent card that is specifically designed for this application. It's called the TC 19i for Recycling.



Gentle but effective tuft opening with the new WEBFEED, which was specifically designed for recycling applications



Sustainability is transforming every aspect of the way people live and work, from renewable energy or electric vehicles through to packaging-free supermarkets. In the textile industry, the market for recycled fibers is growing at high speed because it taps into two contradictory trends:

First, consumers buy more clothes but throw the clothes away much sooner; this is known as “fast fashion”. And second, consumers are increasingly eco-conscious and want more sustainable textile products.

Due to this high demand, as well as lower raw material costs and potentially higher profit margins, many companies are now exploring ways of producing high-quality yarns from recycled fibers – but it’s a difficult task. Not only do legislation and manufacturing processes vary between countries. Waste from yarn or garment production, as well as used textiles or garments, present a wide range of challenges in spinning preparation, where the later quality of the yarn is being determined. Known as “hard waste”, secondary fibers from torn waste contain unwanted yarn or fabric particles that reduce the quality of the final output and can impair the carding performance. They also contain a high amount of short fibers, which can have a negative impact on yarn strength.

An intelligent card for high-quality recycled textiles

“At Trützschler, we are always seeking solutions to the latest market trends – and we are passionate about sustainability”, says Thomas Schmitz, Head of Development Fiber Preparation at Trützschler. “The TC 19i for Recycling empowers our customers to make the most of recycled material by optimizing opening and cleaning processes. It also offers a gentle, but effective treatment of short fibers and ensures no unnecessary waste is produced.”

Here’s how the TC 19i is able to achieve these results:

- **Gentle but effective tuft opening:** Our new WEBFEED has components such as the wired licker-in with stationary carding segments and improved profile geometries that are specifically designed for recycling applications. The recycling knife ensures the removal of disruptive particles and minimizes the loss of good fibers.
- **Robustness and reliability:** Secondary fibers from torn waste may adhere to the surfaces of material carrying parts and lead to fiber blockages. With TC 19i for Recycling, this cannot happen because all material carrying parts consist of stainless steel. Moreover, the robust design and innovative coatings of key parts guarantee reliable performance in almost any application.
- **More value from waste:** Our gap optimizer T-GO for Recycling uses sensors and algorithms to monitor and automatically adjust the ideal carding gap for the material involved, even under changing production and ambient conditions. In this way, it maximizes quality and productivity during recycling.
- **Flexibility:** Our MULTI WEBCLEAN system enables fast, flexible and customized adjustments to recycling applications. Eight elements in the pre- and post-carding zone can be configured either as carding or cleaning element or cover profile. This flexibility empowers customers to achieve the best possible configuration for their specific process.
- **Good advice and hands-on service:** The TC 19i for Recycling, as well as Trützschler installations for recycling as a whole, stand out due to their high number of possible configurations. Trützschler supports each customer with recommendations for ideal settings and makes sure that customers’ production goals are actually realized.

Staying ahead of consumer demand and regulations

“By producing high-quality sliver from recycled fibers for new yarn, our customers are able to make progress toward their targets for sustainability, while also staying ahead of rising regulatory pressure and increasing consumer demand for eco-friendly products”, says Markus Wurster, Head of Global Sales.

The TC 19i for Recycling is an intelligent card that helps companies in the textile industry to embrace sustainability and turn this megatrend into a mega opportunity.



Secondary fibers made from torn denim



Card sliver made from secondary fibers

About Trützschler recycling solutions



Trützschler offers complete solutions for the recycling of cotton waste from spinning preparation, as well as the recycling of secondary fibers from torn textile waste: From blowroom technology for ideal opening, cleaning and blending to advanced carding and draw frame solutions.

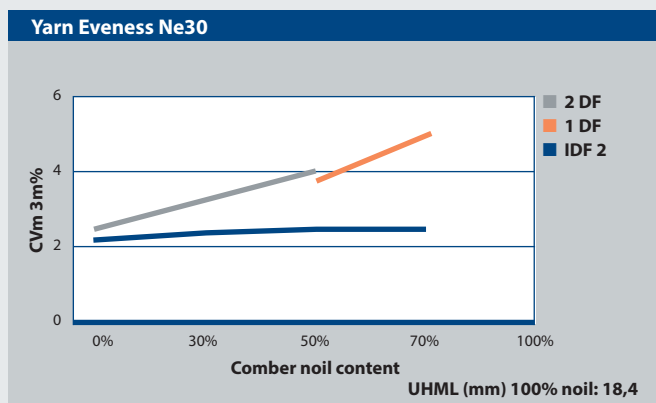
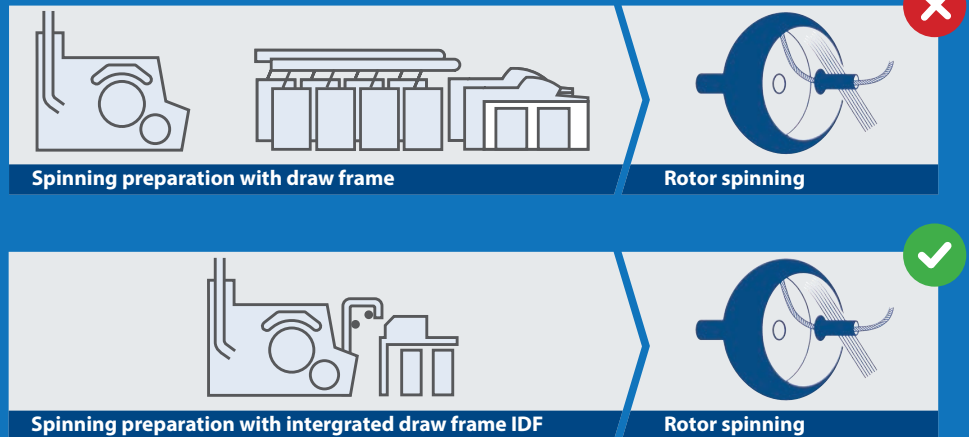
The TC 19i for Recycling and the integrated draw frame IDF 2 are benchmark in the direct spinning of rotor yarns from recycled materials.

Trützschler also provides a wide portfolio of card clothings specifically developed for recycling applications. Digital solutions and fast, reliable service complete our offer and help customers to turn waste into sustainable quality yarns.

Infobox: Integrated draw frame IDF 2

Next to advanced carding technology, the usage of an integrated draw frame is highly recommendable in the processing of secondary fibers.

A conventional draw frame passage is less capable to reliably control the high amount of short fibers; it is prone to producing a high amount of floating fibers and false drafts.



The effectiveness of Trützschler IDF 2 has been proven in numerous applications. The larger the share of short fibers that is being processed, the greater are the advantages of IDF 2.

Compared with one or two draw frame passages, the processing with IDF results in less yarn imperfections and count variations, while yarn strength remains the same.



Trützschler has pioneered the IDF technology in key textile markets more than 20 years ago. These many years of customer and application experience led to decisive design developments: For instance, the Trützschler IDF 2 has a special drafting zone geometry which reliably guides and clamps the fibers, thus reducing the amount of floating fibers to an absolute minimum. In contrast to competition, the IDF 2 has only one drafting zone which results in an overall lower draft. This minimizes the risk of false drafts and count variations.

The combination of the TC 19i for Recycling with IDF 2 enables customers all over the world to achieve the qualities they need to stay competitive.

Carded-pulp solutions for plastic-free wet wipes

Author: Jutta Stehr

The demand for high-quality single-use cleaning wipes is on the up. Given that products made of environmentally friendly material are usually significantly more expensive than conventional alternatives, consumers often go for the more affordable options – at the expense of sustainability because these wet wipes contain synthetic fibers which can be released into the environment as microplastics. This is exactly where Trützschler's solution comes in!



Against the background of a rising demand for sustainable wipes and legislative efforts to reduce single-use plastics, e.g. the EU strategy on plastics and the Chinese plastics ban policy the innovative carded-pulp plants (CP plants) from Trützschler Nonwovens and Voith could become real game changers, as they allow environmentally friendly single-use nonwovens to be produced from economical raw materials.

Trützschler Nonwovens' core areas of expertise include technologies and plants for spunlacing. We use them to provide our customers with sustainable, future-proof nonwovens. In this context, the market for baby wipes, cleansing wipes and household wipes, which has been booming for years, has tremendous potential.

Primarily, the market is currently still dominated by affordable blends, for example made of polyester and viscose fibers, in preference to nonwovens made from 100 percent cotton or purely regenerated cellulose fibers, such as viscose or lyocell.

The disposal of conventional products is as problematic as their use is convenient: Thrown away without a thought, the viscose is quickly ravaged by bacteria. As a result, the polyester fibers remain, entering the soil, the sea and even food as microplastics. Trützschler Nonwovens has now developed a solution for this problem.



Typical single-use products:
Body wipes

Carded-pulp:**Further development of wetlaid/spunlace technology**

With the carded-pulp technology we have advanced our wetlaid/spunlace concept another step:

Another NCT nonwovens card is positioned between the Voith wet web former and our AquaJet. This concept makes for as yet unseen flexibility in the product window:

- If the card is bypassed, the HydroFormer and AquaJet produce sustainable wetlaid and spunlaced nonwovens made from viscose fibers and wood pulp.
- Without the wet web former, classic carded, spunlaced materials are produced.
- The interaction of the wet web former, NCT card and the AquaJet produces two-layer CP products. The latter are composite nonwovens made of a wetlaid wood pulp layer (the "P" in "carded-pulp") and a carded web.

The water jets from the AquaJet bond both layers to form a strong, highly functional unit. The viscose fibers of the carded web provide the desired softness, while the pulp supplied the required absorption capacity and a visually appealing appearance.

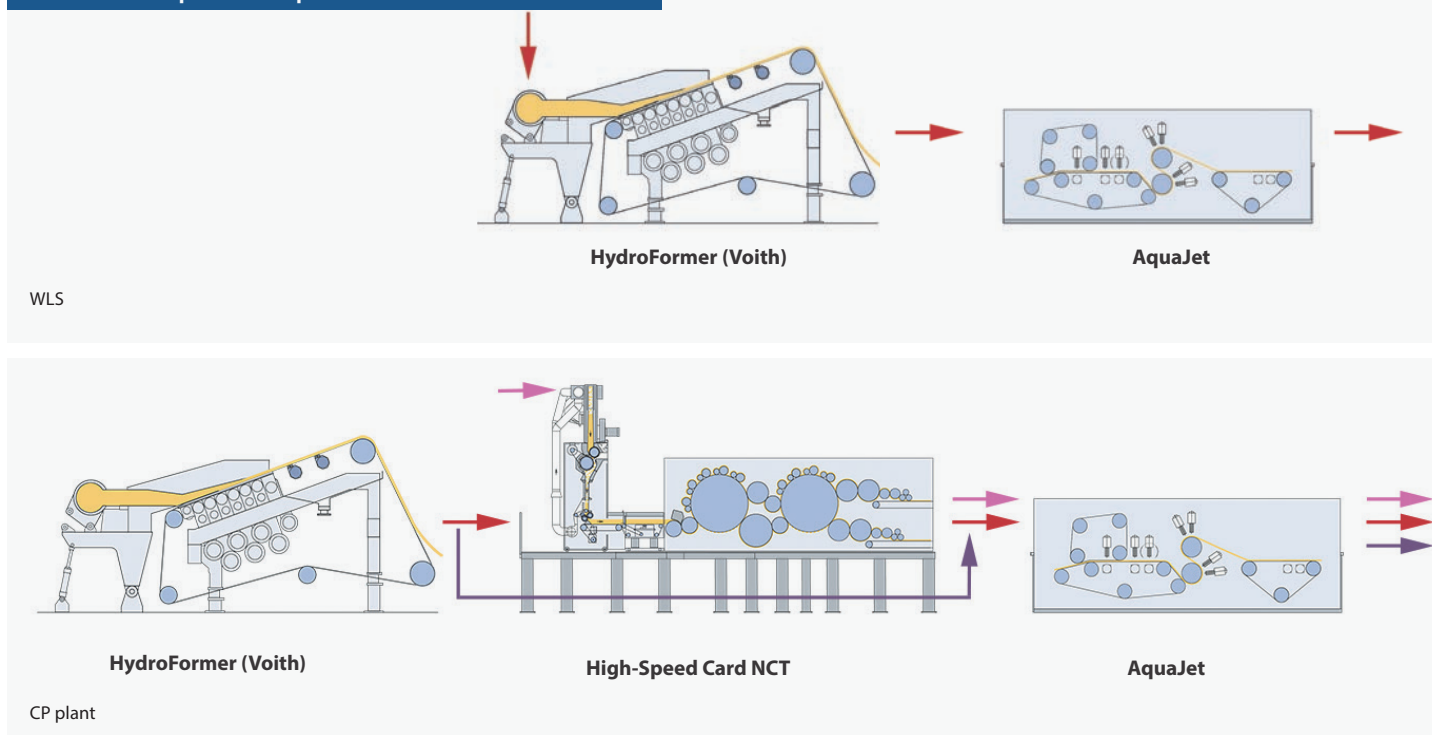
A CP nonwovens fabric with new properties and significant cost benefits, with which we can also offer our customers increased reliability of their investment, has been created.

A foray into wetlaid/spunlace technology

The wetlaid/spunlace technology (WLS technology) from Trützschler Nonwovens and Voith has already proved that environmental friendliness is not necessarily associated with high costs:

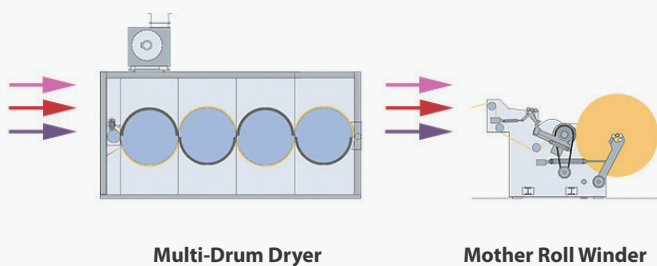
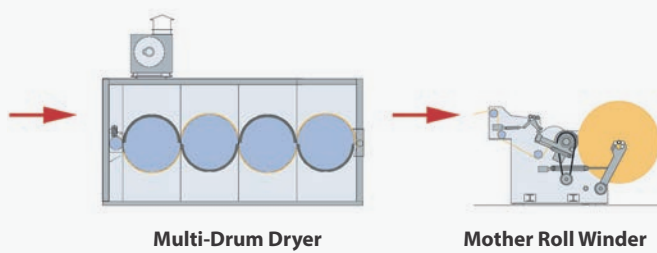
WLS plants run with material from wood pulp plantations. The wood pulp fibers are wetlaid together with short lyocell or viscose fibers, and then spunlaced. This produces environmentally friendly spunlaced, biodegradable nonwovens from renewable raw materials.

The pulp used is also a primary material for paper manufacturing. Therefore, it is available worldwide in large quantities, is not subject to quality fluctuations and, in terms of cost, is generally at least 25 percent below the price of economic polyester fibers. The production costs for WLS nonwovens are therefore hardly higher than the manufacturing costs for conventional cleaning wipes made of a polyester/viscose blend.

A WLS and a CP plant in comparison

Start

How long does it take for biodegradable CP nonwovens wipes to decompose? Just like WLS, viscose or cotton material the CP wipes decompose within a few (16) weeks.

... after 4 weeks**... after 10 weeks****... after 16 weeks**

The new Pre-Cleaner CL-X

Higher productivity and lower energy consumption

Authors: Peer Duschneit / Eike Tammen

Double the production rate, with lower energy consumption per kilogram of fiber material – that might sound like a contradiction, but the new Trützschler pre-cleaner CL-X makes it possible. Like its predecessor model, the CL-P, it gently and reliably removes coarse contaminants like leaf debris, stalks or seeds from cotton with minimum loss of good fibers. In this way, the new pre-cleaner CL-X lays the foundation for a high-quality end-product before the cotton is further processed in mixers and fine cleaners.

With its ability to clean effectively and gently, the CL-P has proven itself in countless spinning mills around the world over many years. The new CL-X expands on this by also meeting the urgent demand for lower energy consumption. Energy efficiency is not only important for environmental and regulatory reasons. Due to rising energy prices, it is becoming an increasingly decisive factor for the competitiveness of spinning mills.

„During the development process, our main focus was on optimizing the fiber air flows. This is the area where we achieved the breakthrough. By forcing the air flow over two rolls, we have found a solution that allows lower power consumption at the opening rolls,” says Robert Többen, Head of Mechanical Engineering at Trützschler. “The fact that this flow is in the form of a spiral is also reflected in the name CL-X: The ‘X’ comes from the Greek word for spiral, Helix.”

In addition to the optimized flow, an integrated air separator contributes to reducing the transport air by ensuring that only excess air has to be removed, rather than all of the air.

Less exhaust air means less energy consumption. The CL-X also provides significantly increased productivity.

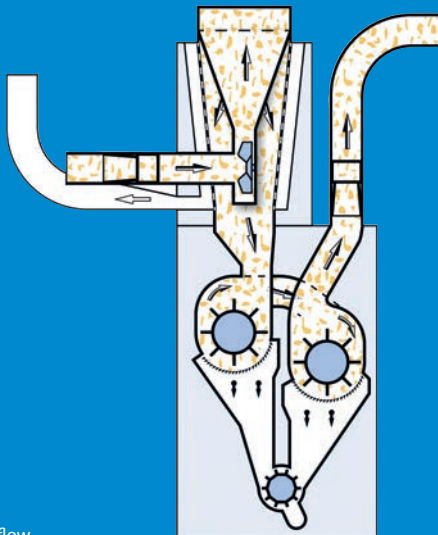
At a maximum of 1,600 kilograms per hour, the production rate from one CL-X corresponds to the rate achieved by two CL-P models. This gives customers the flexibility to operate at high or low productivity rates with one machine.

On top of this, the new CL-X is characterized by its excellent cleaning results. The improved grid geometry enables better separation and gentler tuft handling. The lot management system enables direct, automated coordination with the bale opener BO-P. The speeds of the opening rollers and the position of the grid bars – and thus the intensity of the cleaning – are automatically adjusted to the material fed. Due to the stepless and individual adjustment of grid devices for each opening roller, the machine can react to a wide variety of impurities. A 10 percent higher speed of the second opening roller causes different speeds along the grids, while different sizes of waste can also be separated.

The WASTECONTROL waste sensor is now also integrated into the CL-X and makes sure that waste is reliably separated during production, which avoids unnecessary loss of valuable good fibers. The operator automatically receives a recommendation for the ideal setting via the machine’s display and can implement it with just a few clicks.

CL-X features

- Continuous production of 1,600 kilograms per hour for present blow room configuration
- 30 percent energy saving compared to one CL-P
- Optimal cleaning and minimal fiber loss due to individual stepless grid adjustment for each opening roller by motor
- Integrated WASTECONTROL for automatic adjustment recommendation of waste excretion to avoid unnecessary fiber loss
- New and improved grid geometry for better separation and gentle tuft treatment
- Material draft due to 10 percent higher speed of second opening roller for reliable and consistent fiber transport
- Gentle tuft treatment with adjustable opening roller speed
- Synchronized lot management (automatic lot change for up to three lots)
- Connection possibility for a waste box (for waste analysis)
- Lower cost of ownership



Pre-Cleaner
CL-X material flow



The new Pre-Cleaner CL-X



Inside the CL-X

My Shop

Trützschler service never sleeps

Author: Kleo Knippertz / Harald Schliepe

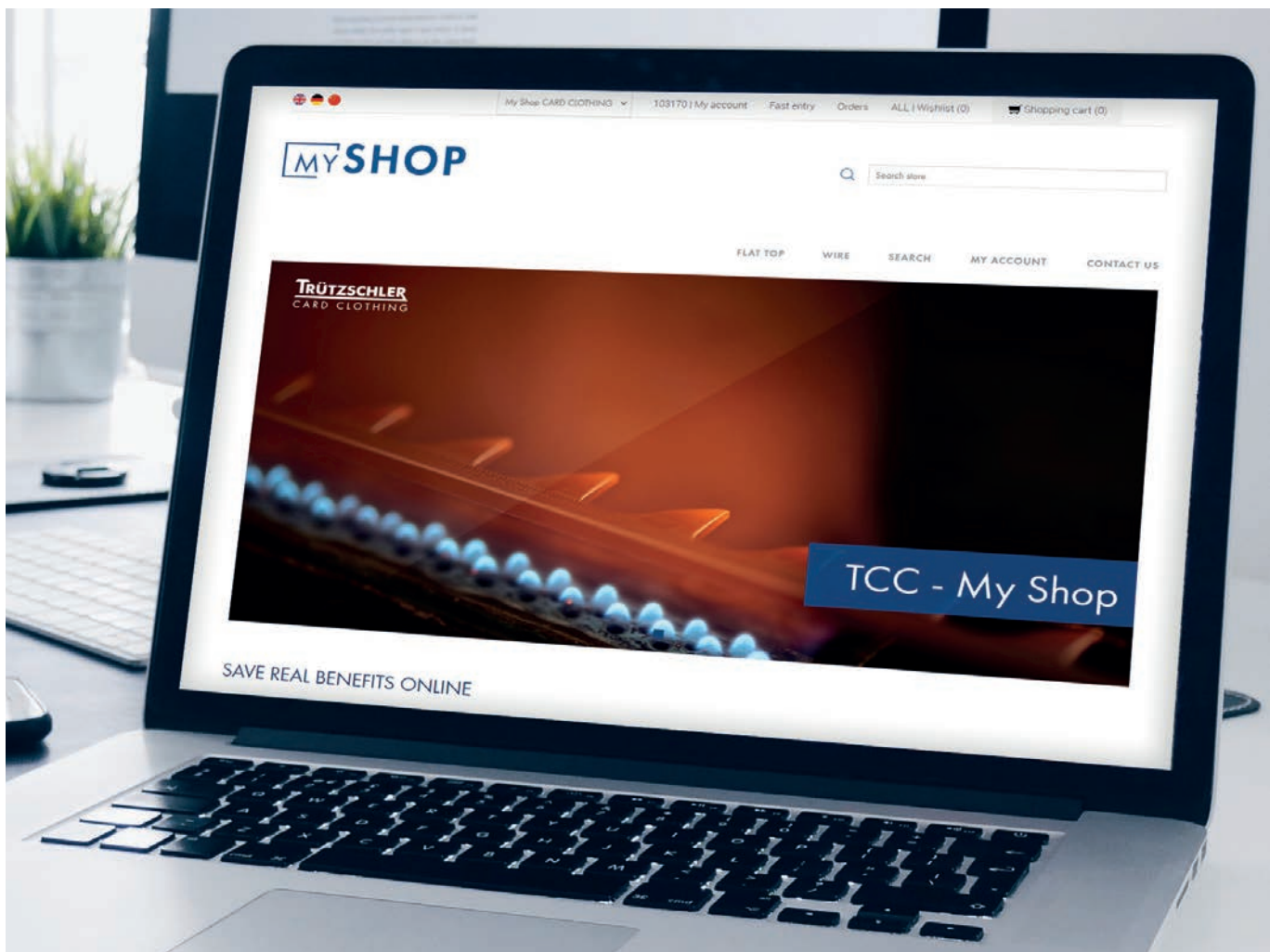
In 2019, Trützschler expanded its service range with its own online shop. Thanks to the *My Shop* platform, customers can now order spare parts for spinning preparation systems as well as card clothings for their machines – around the clock and 365 days a year.

Customers can simply select between *My Shop Spinning* and *My Shop Card Clothing*



My Shop along with *My Mill*, *My Production* and *My Wires*, is one of the digital solutions that are brought together under the *My Trützschler* umbrella platform. The global identity service *My Identity* provides the key to the entire digital Trützschler world. Once you have registered, you can access all available Trützschler online applications simply. The *My Shop* application promises customers of Trützschler Spinning and Trützschler Card Clothing a varied product range and a straightforward, practical process.

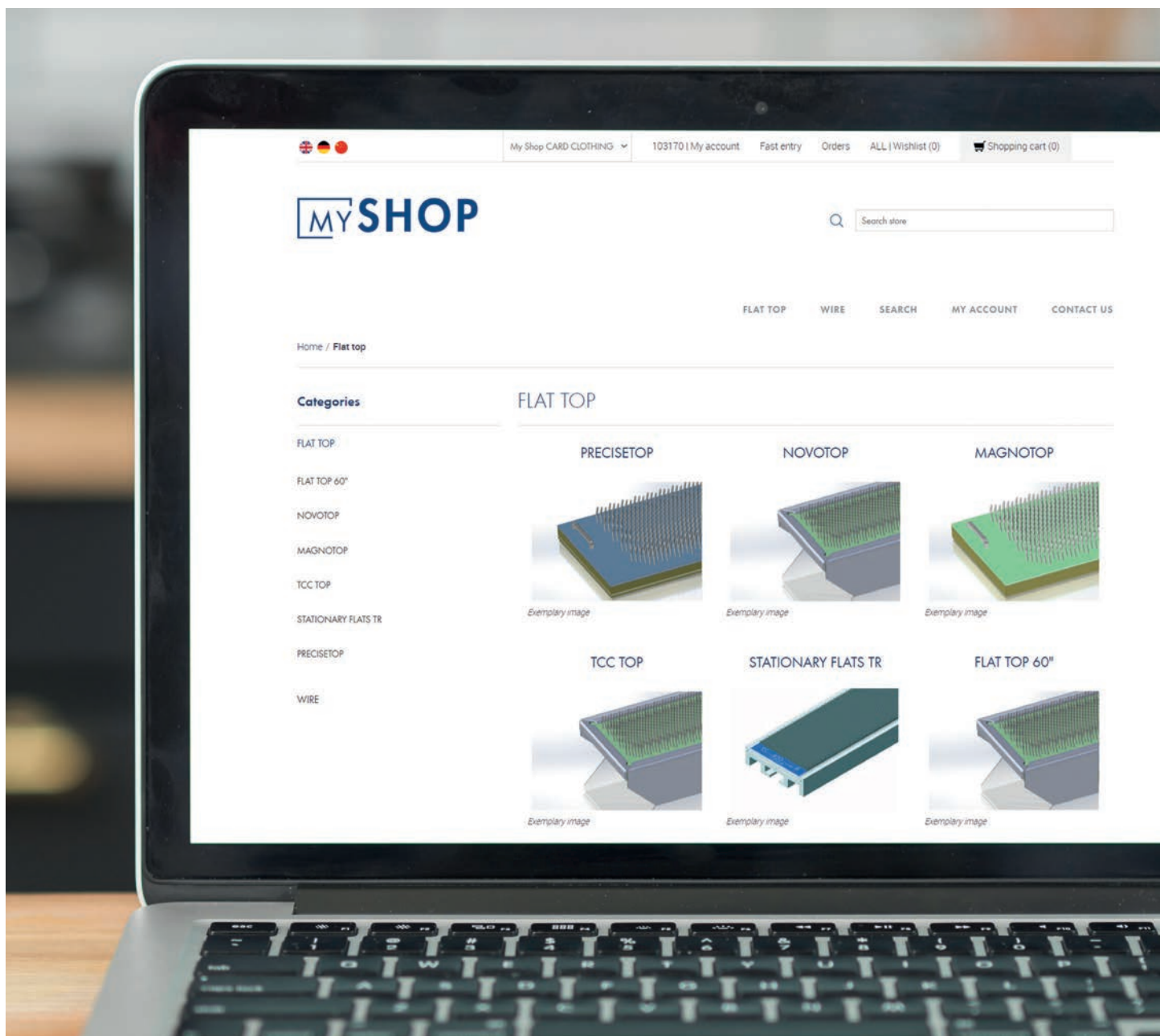
When accessing the online shop, the customer or customer representative is directed to the relevant page of the Spinning or Card Clothing shop because the system automatically assesses requirements based on the user's identity. If the user is matched to both areas, they can simply select between *My Shop Spinning* and *My Shop Card Clothing*.



My Shop for Card Clothing customers

Card Clothing assessable 24/7: The newly implemented TCC online shop allows customers to make clothing orders at any time or from any location. Various search and filter functions are available to help select the right articles. In this way, individual product areas can be selected, for example. In turn, this allows a selection based on further attributes like sales units, working width etc.

By narrowing down the product range, this filter makes selection much easier because only articles that are relevant to the customer are shown. The standard search box provides an alternative that allows users to search for terms or product characteristics. If the customer already knows the exact article number, we recommend using the „Fast Entry“ tab. In addition, the online shop also indicates which items are available in stock, or whether they still have to be produced, as soon as the customer selects the articles. In this way, the user immediately gets an idea of the delivery time.



My Shop promises a varied product range and a practical process

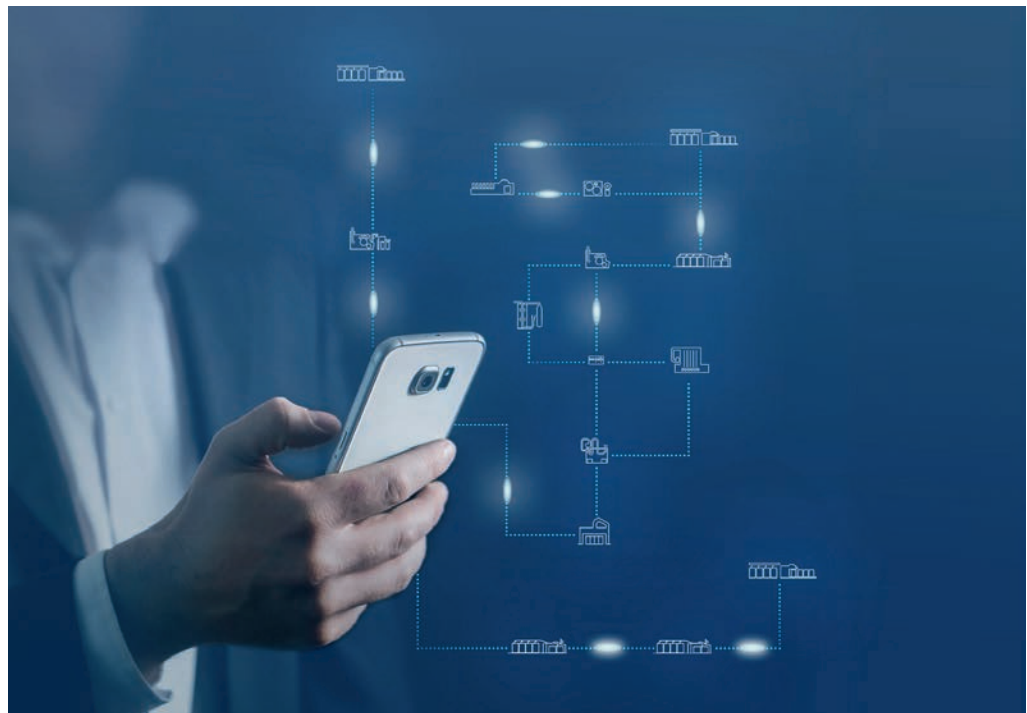
My Shop for Spinning customers

Since 2019, Spinning customers have been able to enjoy the practical and easy-to-use online shop. Just like the Card Clothing area, the Spinning online shop offers „Fast Entry“ where spare parts can be ordered directly. Users simply enter the article number, machine name and year of manufacture, together with the required quantity of components.

Users can also make a note of spare parts at any time. If the customer knows roughly when the next machine maintenance is scheduled, for example, they can simply add the required products to their own personal wish list and then reorder them on time when required.

Individualization is another major benefit of the Spinning online shop. The online spare parts catalogue, for example, is tailored perfectly to the customer when signing in.

This means the customer only sees products that are relevant to their own personal machine configuration. A table list of all of the objects used, including product drawings and further detailed information like the dimensions and costs of machine components, rounds off the catalogue function. This enables users to find the required spare parts and the respective article numbers simply, quickly and precisely.



The benefits of *My Shop* at a glance:

- Quick and easy order placement
- Quick delivery
- Access from anywhere
- Simple administration
- Maximum reliability
- Parts and wire service



Parts and wire service

With the *My Shop* platform, Trützschler provides its customers with a round-the-clock service for the Spinning and Card Clothing divisions. Its customer representatives are happy to take care of the coordination and handling of the order for the customer, while the parts and wire service is available as a contact at all times and checks incoming orders individually to make sure that they are correct and complete.

This empowers Trützschler to meet its quality demands for tailor-made customer service. The company is constantly working on further digital applications to expand its service range further in the future.

A breakthrough for break drafts

Author: René Kehrbusch

Modern draw frame machines offer a fantastic range of settings that can be adjusted to meet each spinners' unique needs. But adjusting the break draft is still difficult, unpredictable and very slow. The AUTO DRAFT function from Trützschler, which is part of our successful autoleveller draw frame TD 10, uses an innovative measuring method to automatically optimize the break draft in production conditions. And it takes less than two minutes.

For many decades, spinners have been wrestling with the awkward problem of how to adjust the break draft on the draw frame. This is partly because adjusting the break draft involves changing a wide range of settings on the draw frame – and each setting needs to be adapted in line with every other setting. As a result, many spinners simply leave their break draft settings untouched because they don't have time to interrupt their busy production schedule.

On top of this, there is currently no laboratory test or measured variable that provides clear information about the optimal break draft settings. Even fiber and draw frame manufacturers are only able to provide rough guidelines, which means spinners can only tell if their break draft settings are suitable when they inspect the finished yarn.

Many spinners try to adjust the break draft using the Coefficient of Variation (CV) value. But while low break drafts often improve sliver evenness, this approach can open up additional problems as shown in the graphic. Setting the break draft too low can reduce yarn strength and elongation. And it can also increase the number of imperfections and have a negative effect on the running behavior and efficiency of the machines operating at later stages in the spinning process. This means optimization is only possible in the very long term, if at all.

A massive range of attractive benefits

Our customers across the textile industry around the world are already benefitting from AUTO DRAFT, a feature in our autoleveller draw frame TD 10.

- Optimal adjustment of the break draft – including selecting the best possible settings for new materials at the first attempt
- Correct drafting distribution in the drafting system
- Less adjustment and shorter process times
- Better basic settings for the machine – which reduces the negative effects of sub-optimal machine setting and provides a better, more uniform sliver quality
- Reduction of costs related to quality control
- Easy monitoring and adjustment of the machine settings when the quality of the raw material changes
- And improvements at later stages in the production process

An unbeatable combination:
The TD 10 with AUTO DRAFT

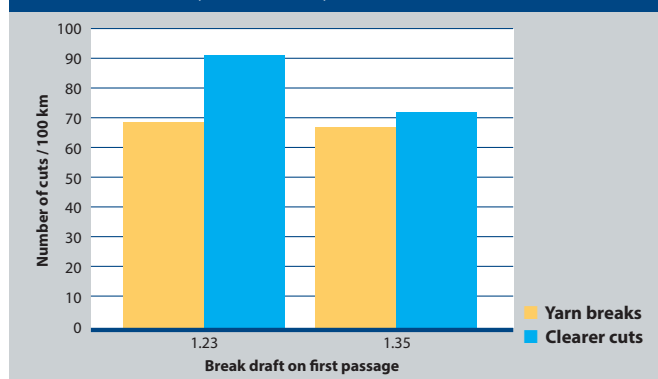


Faster and better than anything else on the market

Our innovative AUTO DRAFT function provides a high-impact solution to this awkward problem in the production of carded ring yarns, including polyester. It uses a state-of-the-art measuring method to calculate the best possible break draft setting automatically – within real production conditions. The method considers all fiber and sliver parameters, as well as the settings on the specific model of draw frame and the relevant external boundary conditions. The user can then choose whether to apply the recommended setting in the software of their machine. AUTO DRAFT is able to identify the optimal break draft setting in less than two minutes. This accelerates the process of adjusting the break draft and creates meaningful clarity about how to optimize those adjustments. Put very simply: It is faster and better than everything else that is currently available on the market.

Influence of the break draft at the clearer

Material: OE-Yarn, 100% Cotton, Nm 34



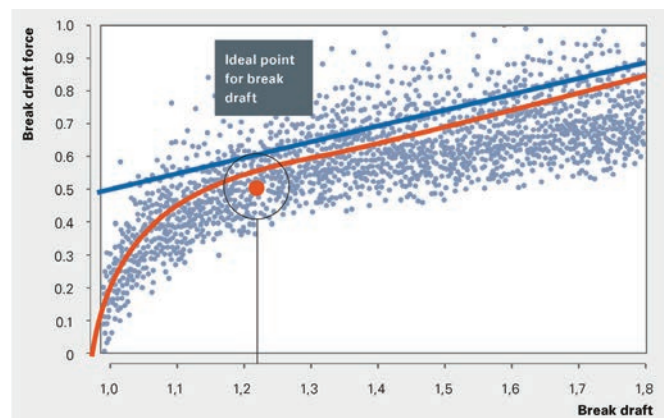
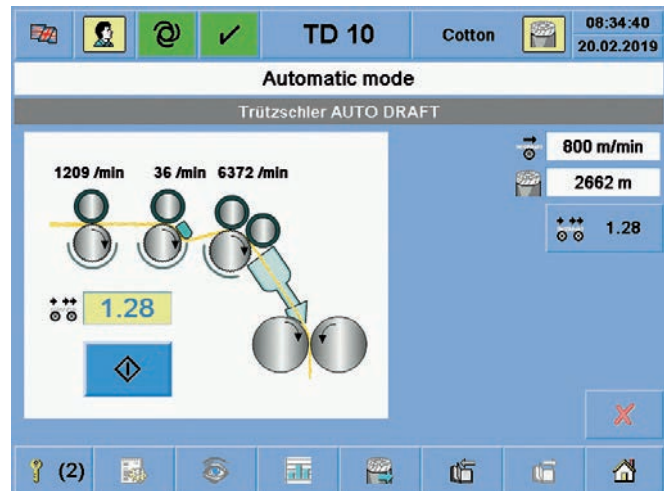
Conclusion

The AUTO DRAFT function is a truly game-changing technology for break draft optimization. It makes it possible to adjust the break draft quickly and easily, using an innovative and automatic method that operates within real production conditions – and that takes all relevant factors into consideration. In this way, it is enabling spinners to save time and money, while improving quality and making their processes more efficient. It's a major breakthrough for the break draft. And it's empowering Trützschler's customers worldwide to grab a valuable competitive advantage.

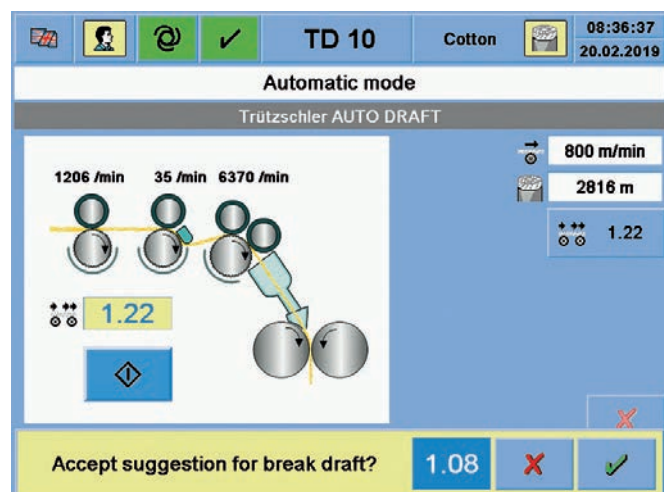
How it works

When activated, the AUTO DRAFT function continuously changes the break draft from 1.00 to 1.95, and then measures the draft forces within the drafting system.

AUTO DRAFT begins calculating the break draft



AUTO DRAFT measures the break draft force over the entire draft zone



And it displays the results of the automatic break draft calculation process.

Nonwovens technology in China: During COVID-19 pandemic and beyond

Author: Yu Zhenzhen, Jutta Stehr

The production of nonwovens in China has outperformed every other region in the world throughout the last two decades – and Trützschler is proud to be part of this incredible success story. In 2019, we founded Trützschler Textile Machinery Co., Ltd. for Nonwovens, based in Jiaxing, as our second subsidiary in China.

After the outbreak of COVID-19, this subsidiary proved its agility and capacities when the demand for spunlaced products like disinfectant wipes soared. Within a very short time, Trützschler enabled customers to produce high amounts of the quality spunlaced nonwovens that were needed.



Trützschler Textile Machinery Co., Ltd. (Jiaxing)

Soon after the outbreak of COVID-19, many Chinese nonwoven producers recognized a big opportunity for business growth. There was a strong demand for spunlaced wet and dry wipes like disinfectant wipes. These wipes are mostly hydroentangled and ideally consist of blended polyester and viscose fibers: Whereas the polyester fiber does not adsorb the disinfectant and secures antimicrobial efficacy, the viscose fiber is able to soak the liquid. This combination leads to perfect strength, volume and softness at the same time while the spunlace process makes the wipes lintfree. Trützschler Nonwovens in China demonstrated the flexibility and expertise needed to immediately focus on this need.

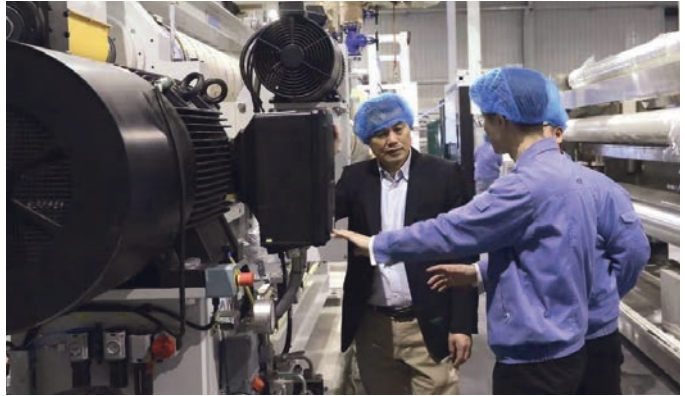
After the boom

The demand for protective equipment flattened at the beginning of 2021 and the market normalized back to the very good growth that it has seen in the past. In general, the huge popularity of the technology mainly comes from rising household incomes.

The majority of spunlaced nonwovens is used for single-use convenience products like baby, body and household wipes, as well as cotton pads, beauty masks and femcare products. Reliable and efficient spunlacing equipment is also encouraging producers to explore durable end uses such as coating substrates for artificial leather or hot gas filtration media.



Mr. Yan Huarong, Chairman of the Kingsafe Group



The latest Trützschler spunlacing line at Kingsafe

Accordingly, investments in spunlaced nonwovens are still important and customers like Sateri, Kingsafe, Zhongtai, and Wangjin, who belong to the main producers in China, are confident that spunlaced nonwovens will continue to be a key driver in the double-digit growth of nonwovens in China. Trützschler is the partner of choice to be equipped for the expected long-term growth in this area.

"We bought two spunlacing lines from Trützschler in 2020, which means we've now installed five of their spunlacing lines since 2015," says Mr. Yan Huarong, Chairman of Zhejiang Kingsafe Group Co., Ltd, one of the 10 biggest producers of nonwovens in China and the largest producer of spunlaced (hydroentangled) nonwovens in Asia. "I'm impressed by the high productivity and speed of our Trützschler machines."

Trützschler as first choice for every market situation

Why have customers been choosing Trützschler as a partner before, during and after the pandemic situation in China? The answer is: Trützschler has the agility to support them under any market condition. True technologies and true innovations lead to higher efficiency, a better product quality and lower maintenance requirements.

Trützschler Nonwovens attaches great importance to sustainable customer relations as well as the long-term development of the entire industry. In China, we observe interesting developments in the field of spunlacing but also thermobonding and needling. We will continue to monitor this closely in order to offer our customers the best and most sustainable solutions for every market situation.



Typical products made from spunlaced nonwovens

A small but powerful nonwovens line for the Hof University in Bavaria

Author: Jutta Stehr

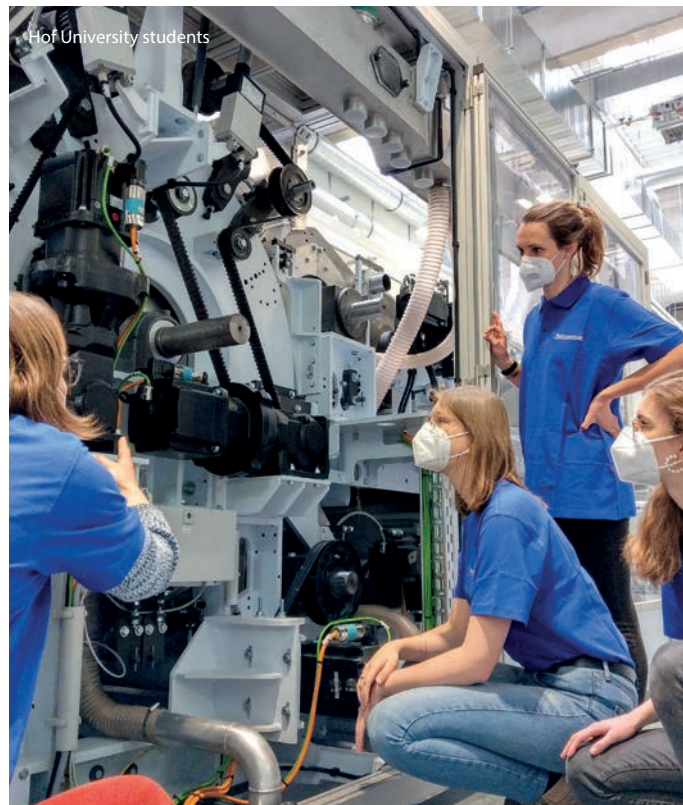
High production speeds, large working widths, the highest throughput levels: In general, investors are looking for big numbers when it comes to nonwovens production. Many machine suppliers cater for these needs. However, the demand for highly individual solutions is more and more common – for instance, for regional niche markets, the production of a small range of special products or for testing systems, the processes of which are used to carry out research in industrial conditions.

Web formation in Münchberg:
A look at the roller card

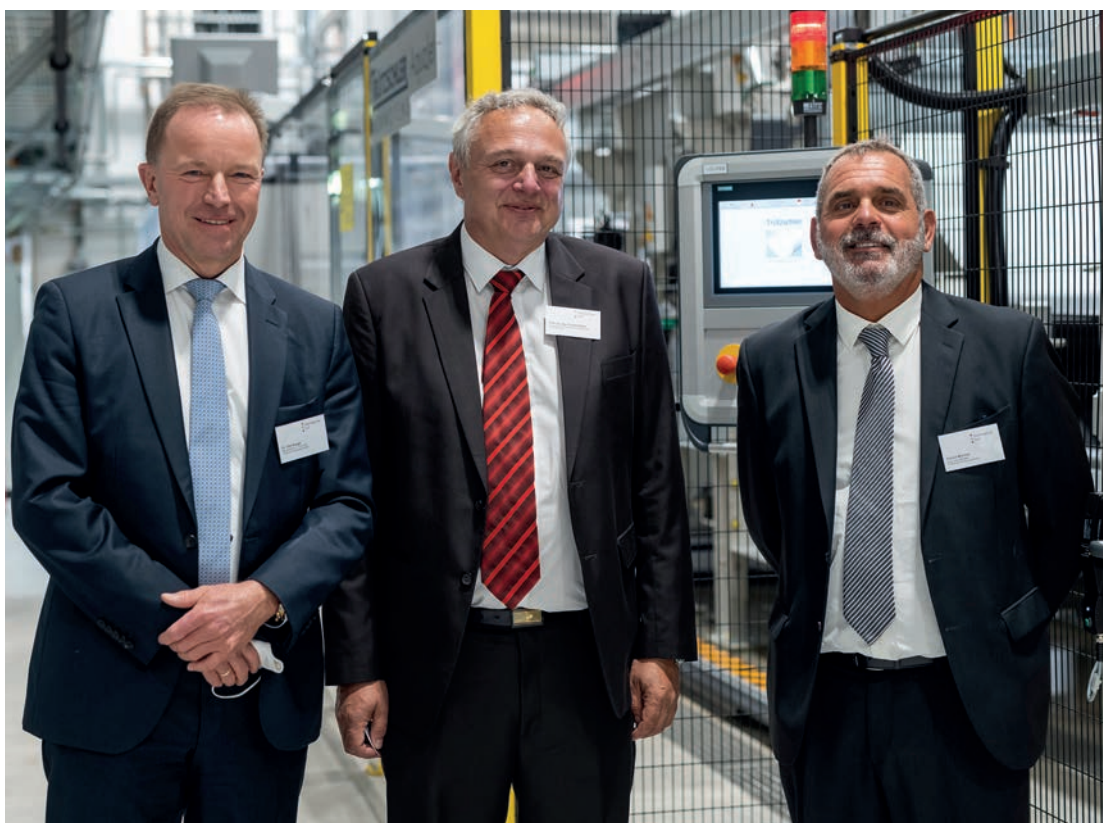


The project for a new trial line at the Nonwovens Development Center (VEZ) at the Münchberg Hof University campus is a good example of how Trützschler Nonwovens also develops just these types of tailor-made solutions. The task proved to be both appealing and challenging given that it was very different to the usual industrial projects. In particular, functional planning and space utilization presented a challenge in this regard.

The university team built around professors Ficker, Lottes and Koukal and Mr. Smith required a high level of flexibility for the production of small sample runs. The goal was to produce both spunlaced nonwovens and rolls of thermally bonded material. One thing is for certain: Implementation would have been much simpler in a large production hall than at the new technical center in Münchberg. Nevertheless, the team built around sales expert Enrico Murroni and project manager Leonhard Fleischberger spent hours and hours playing “machine Tetris” in order to cater for the demands of the project in the best possible manner.



Professor C. Koukal and Professor O. Lottes



Dr. Dirk Burger, CEO/CSO of Trützschler Group (left), Prof. Dr. Frank Ficker of Hof University (middle) and Enrico Murrioni, Area Sales Manager of Trützschler Nonwovens (right) at the inauguration of the university's new technical center



Web strengthening is possible with the AquaJet or with the thermobonder

Conceptual design, installation and commissioning

After five years of preparation, the conceptual design and layout of the primary machines, the implementation of the secondary installation and the control cabinet setup had been established. The construction phase and commissioning took place with the restrictions of the corona pandemic in place.

Nevertheless, the new nonwovens and carbon fiber technical center was inaugurated on September 25 of last year with the participation of scientists, politicians and economists.

Professors Oliver Lottes and Claus-Ekkehard Koukal agree: "With this research factory, the Hof university at the Münchberg campus has a real flagship project for international textiles engineering education and user research. The full-fledged line supplied by our strategical partner Trützschler Nonwovens provides industry with the unique opportunity of running series of trials which are close to the production standard."

Short profile of the Hof University

The roots of the university go back as far as 1854 when in Hof, in what today is the outermost north east of Bavaria, the cooperative "Hand Weaving School" was founded. In 1994, the Hof University was newly founded and in the year 2000 the Münchberg faculty of Textiles Engineering and Design was integrated. Since 2007, it has been known as the "Hof University for Applied Sciences".

The institutions stand for roots in the local and regional economy but are also active globally with a focus on India. Since 2005, the university has offered the option of combining studies with a vocational qualification. Almost all study programs can be studied as a dual curriculum and culminate in a vocational qualification together with a degree after four and a half years.

Short profile of the Institute for Material Sciences (ifm)

The Institute for Material Sciences is located on the campus in Münchberg. The ifm is the only "textiles" university location in Bavaria with study programs such as "Innovative Textiles", "Textiles Design" and "Sustainable Textiles". The institute forms a bridge between basic research and industrial application, working together with industry. Sandler AG, one of the largest nonwovens manufacturers worldwide, for example, supports the university.

The nonwovens line at the VEZ on the Münchberg campus

The lightweight nonwovens line is used for teaching, research services and in the practical part of academic work. It includes all components for everything from fiber opening to winding.

Fiber material

Synthetic fibers, such as polyester, polyamide; polypropylene; bicomponent fibers and as cellulose-based fibers, such as viscose or lyocell. In exceptional cases, even fiber blends with high-quality cotton can be processed.

Nonwoven weights

between 15 and 80 grams/square meter

Production speed

up to 100 m/min (mechanical)

Working width

1,000 mm

Success in the spinning industry:

Sagar shares its secrets

Author: Rajesh Balkrishna Padalkar



In a modern building in Bhopal, India, a man is about to enter his office. It looks almost like he is entering a temple – he takes off his shoes and bends down to touch the ground. This gesture is clear proof that a traditional Indian culture and value system is lived in this company.

The man is Mr. Sudhir Kumar Agrawal, Chairman of Sagar Group, the fastest growing company conglomerate in Madhya Pradesh, India. "I've always had a firm belief in our strong value system at Sagar Group", he says. "Our people are our biggest strength and most valuable asset."

A shared journey for Trützschler and Sagar Manufacturers

Throughout its journey across more than three decades, Sagar Group has achieved success in many different sectors, including education, real estate, production and manufacturing. This success has been taken to new heights by Mr. Sudhir Kumar Agrawal. When Sagar Group entered the textile market in 2012 by setting up a spinning mill with the name Sagar Manufacturers Pvt Ltd. (SMPL), Mr. Agrawal was closely assisted by his son, Siddharth Agrawal, Managing Director of Sagar Group. At that point, SMPL began a shared journey with Trützschler. "When we started the spinning mill, we required the best technology available," explains Mr. Sudhir Kumar Agrawal. "Trützschler was a perfect match."

From top to bottom:

Sudhir Kumar Agrawal, Chairman, Sagar Group
Siddharth Agrawal, Managing Director, Sagar Group
Vinod Kumar Jain, Executive Director, SMPL

Another person who was involved in the spinning mill project right from the beginning is Mr. Vinod Kumar Jain, Executive Director at SMPL. He is a well-known technology expert in India and places a laser-sharp focus on quality. "At Sagar Group, we strive for the best possible utilization of technology and resources, and we aim for high-quality production that exceeds our customers' expectations," says Mr. Vinod Kumar Jain. "Our workers are very familiar with the Trützschler technology, so we use Trützschler blow-room and cards in all of our four units – which includes 150,000 spindles. We now have more than 115 Trützschler cards running."

Modern technology and great employee management are the keys to success

SMPL believes in long-lasting, world-class technology and automation solutions, with an excellent price-to-performance ratio that enables them to remain competitive in the market. Training and development are also key factors in optimizing the use of technology and controls. It is part of SMPL's philosophy to take good care of employees and to offer training, accommodation and useful facilities for more than 1,200 people at its sites.

Currently, SMPL produces about 85 tons of high-quality yarn per day, of which 65 percent is intended for export. The count varies between Ne 20s and 40s, which includes 100-percent cotton-combed fancy slub yarns, quality-labeled yarns (e.g. by the Better Cotton Initiative), as well as combed compact yarn for weaving and knitting such as grey knitted fabrics, normal cotton and lycra blends.

Looking to the future, Mr. Vinod Kumar Jain says that SMPL plans to expand its mill by 42,000 spindles and 22 of the latest Trützschler cards – the 1.28-meter card, TC 15.

Sagar carding department



The company building in Bhopal

A country with a long textile tradition: TCC in Peru

Author: Pietro Cusenza

Since the implementation of a full-service concept back in 2014, Trützschler Card Clothing (TCC) has been able to establish itself as a leading provider of card clothing and mounting services in the Peruvian textile industry. TCC products like Novotop 58, Magnotop 58 and Precisetop 58 that are dedicated to combed cotton applications and used in the intelligent card TC 19i, have achieved big steps toward success. As the following examples show, TCC is continuously striving for improvement together with its customers.

Pima Cotton has particularly long fibers. It is usually harvested by hand in a gentle and environmentally friendly manner.



The Peruvian textile history

Going back almost 10,000 years, Peru has one of the longest histories of textile production in the world. When humans first started using agriculture, Peruvian fiber manipulation began with spun fibers that were used to make cords and nets. This was followed by using looms to spin animal-based fibers like alpaca and llama wool, as well as cotton fibers. The Peruvian civilization has been producing cotton for more than 4,500 years. In this context, the pre-Incan process of spinning and fabric production can still be considered valid today.

Processing cotton in the Peruvian textile industry

Peru uses traditional hand-picking methods for cotton, which allows a more brilliant white and softness in the fiber because machine-picked cotton tends to get scratched and yellowed during mechanical treatment processes. The primary varieties found in Peru are Pima, an extra-long staple fiber (ELS) and Tanguis, a long stable cotton (LS). Pima is harvested in the northern region of Piura, while Tanguis is primarily grown in the central coastal region of Peru. Overall, Peruvian cotton blends are widely recognized as high-quality, fine, soft and durable fibers.

The Peruvian apparel industry is specialized in knitted cotton garments, and its main competitive advantage is its level of integration. The production chain is fully integrated, from the fiber through to yarn production, fabric manufacturing and production of the final garment. This integration is strengthened by the constant technological modernization of factories and the high level of specialization achieved by entrepreneurs and workers. About 4,000 tons of yarn – out of the total of 7,000 tons of yarn that is produced each month – goes into the spinning of locally grown cotton like Pima or Tanguis. The following Trützschler customers have dedicated themselves to this.

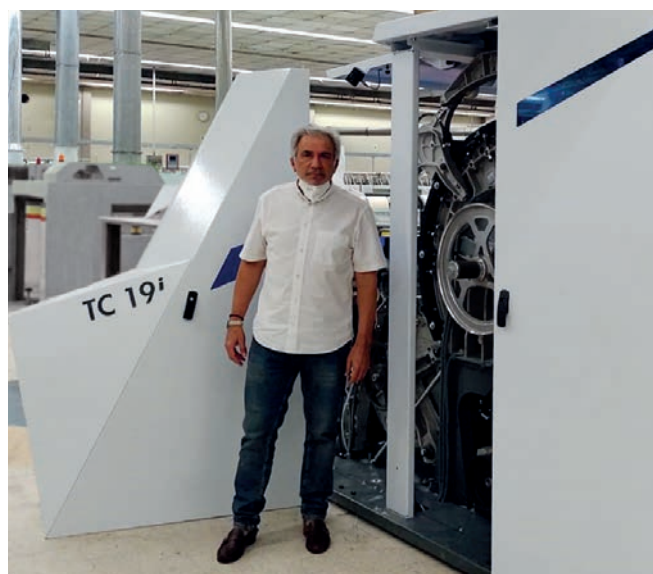
Trützschler customers in Peru – Empresa Algodonera S.A.

Empresa Algodonera S. A. is a company committed to spinning 100-percent cotton yarn. About 150 employees, 17 cards and 16,320 ring spindles produce an average of 200 tons of yarn per month. Its product range includes Pima combed-cotton yarn from Ne 20 to Ne 60, and Tanguis cotton-carded and combed from Ne 16 to Ne 40. It also spins imported US upland cotton from Ne 16 to Ne 40. Empresa Algodonera S. A. exports to the US and Europe, so its top priority is to achieve the best possible quality for its customers. The company has made continuous investments into quality control, fiber analysis, and automatic humidity and temperature control in recent times. Furthermore, it places a sharp focus on the maintenance and quality of the wires used in carding to ensure the quality of its yarn.

“We have been using Trützschler card clothings for many years,” says Ernesto Rodriguez, Plant Manager at Empresa Algodonera S. A. “They have helped us to improve our overall quality standards, as monitored by our AFIS equipment, and we are truly very satisfied.”

Trützschler customers in Peru – Algodonera Peruana

Algodonera Peruana is specialized in the export of high-quality, 100-percent cotton yarn. A total of 22,224 ring spindles and 20 Trützschler cards produce an average of 240 tons per month. The production focus lies on Pima combed-cotton yarn in the range of 20 to 50 Ne (Number English: The number of times the length of one pound of yarn can be divided by 840). This approach has achieved success, with well-known ready-to-wear companies like Polo and Lacoste trusting Algodonera Peruana's yarn quality. According to CEO Javier Piqueras, the company's strategy focuses on maintaining and improving quality levels within its operations to constantly increase productivity. In this context, the company has steadily invested in its entire production chain, including two new Trützschler intelligent TC 19i cards that it recently added to its facility.



Javier Piqueras, CEO of Algodonera Peruana



Ernesto Rodriguez, Plant Manager at Empresa Algodonera S. A.

Sustainable wet wipes at Papel Aralar

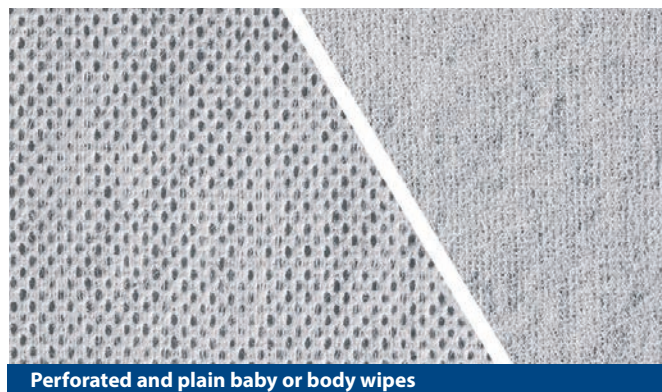
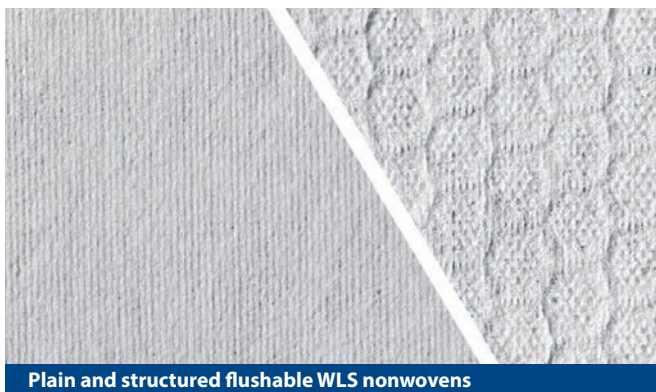
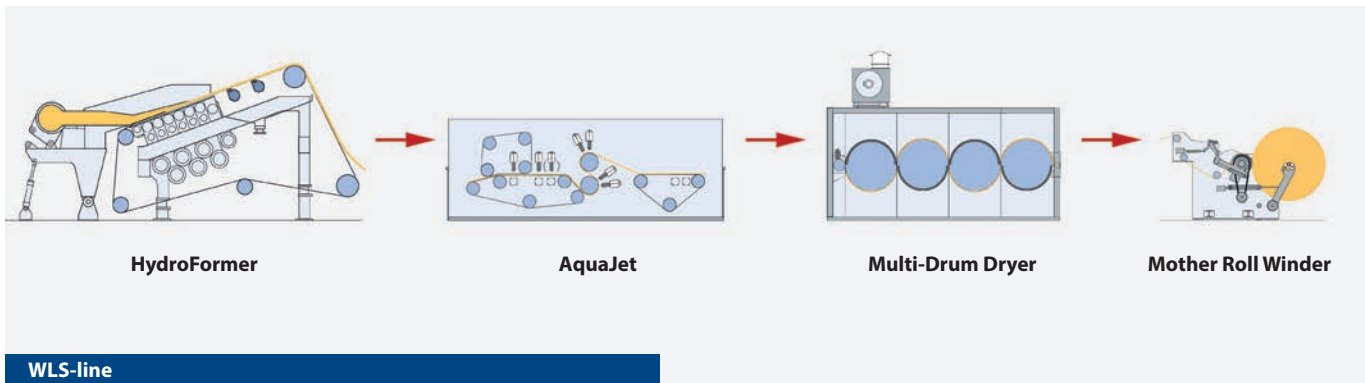
Second wetlaid/spunlace plant successfully commissioned

Author: Jutta Stehr

Nonwovens expert Trützschler Nonwovens and paper machine manufacturer Voith have delivered a further plant for the manufacture of wetlaid and spunlaced nonwovens to the Spanish paper factory Papel Aralar. The new production line for flushable wipes was put into operation in December, and is now consistently producing toilet tissue wipes and baby wipes.



WLS AquaJet at Aralar



The Aralar site in Amezketa, Spain



Trützschler Nonwovens contributes the core components for web bonding with the tried-and-tested AquaJet System. However, the interlacing of the fiber material – short pulp fibers and content of longer regenerated cellulose fibers – requires an adapted configuration. This ensures that the high-pressure water jets interlace the fibers to the desired strength without flushing out the short cellulose fibers. The energy-efficient multi-drum dryer from Trützschler Nonwovens is then used for subsequent gentle drying of the nonwovens fabric. The company's years of expertise and experience are the basis for the demanding web bonding and drying processes for wetlaid nonwovens.

Voith supplies the BlueLine stock preparation equipment, the main components of the XcelLine paper machine and a comprehensive automation and control package. The HydroFormer is responsible for the formation of the homogeneous wetlaid nonwovens fabric which is spunlaced by the AquaJet. It is built on Voith's extensive experience in the paper and pulp industry. Thanks to the very high dilution of the slurry, this technology can now be used to produce nonwovens completely from the renewable raw pulp material.



Author: Jutta Stehr

Trützschler Man-Made Fibers introduced a new member of the “Optima” carpet yarn machine platform family at the trade fair in Shanghai: the MO40-E for high-count yarns. Now customers can choose between the compact MO40-C extrusion system for standard yarn and the flexible “E” variant for standard and specialty Bulk Continuous Filament (BCF) yarn production.

On the one hand, the extrusion system for BCF carpet yarns, which forms the basis for the machine, is tailored to meet the increasing demand for high-count carpet yarns for silky soft, velvety carpets and, at the same time, the design is ready to meet the needs of the large market for standard carpet yarns. The production of high-count yarns is challenging as only wafer-thin individual fibres with the smallest diameter achieve the desired effect. The MO40-E puts efficient and convenient production of such fibres within reach. The maximum number of individual filaments increases by 50 percent in comparison with the MO40-C – up to 500 to 750.

More individual filaments in a BCF yarn require more nozzles in the spinning package and as a result a wider spinning beam. High-quality yarns are only produced if the hot, formable filaments are cooled evenly after spinning.

In order to achieve the appropriate circulation of process air, more space is also required in the quenching system. The partition of the MO40-E increases to 2,500 mm. Given that high-count yarns are a niche product, the MO40-E is also engineered for the production of standard yarns with 3 dpf or more. In these cases, an MO40-C standard spinning package is used in the spinning beams with the help of adapters (see graphic on the next page).

The increased flexibility – the operating window ranges from 500 to 7,000 dtex yarns – has its price when it comes to space requirement: Whilst the compact version MO40-C occupies a space of 2,000 x 2,000 mm, the space requirement of the MO40-E increases to 2,500 x 2,000 mm. Despite the constructional adjustments the dwell time of the melt remains very short, guaranteeing a consistently high product quality.



The 4-filament BCF extrusion system MO40



Domotex Asia

Flexible MO40-E

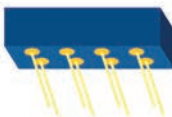


With adapter: 4 ends with up to 500 single filaments each



4 ends with up to 750 single filaments each

Compact MO40-C



4 ends with up to 500 single filaments each



Trützschler at ITMA ASIA 2021

Author: Yu Zhenzhen

At this year's ITMA Asia, which takes place from June 12 to June 16 in Shanghai the Trützschler Group presents a selection of exciting innovations from its business units Spinning, Card Clothing, Man-Made Fibers and Nonwovens.

City view Shanghai



Always innovating for spinning

Building on the success of the industry benchmark TC 10 card, Trützschler introduces its TC 15 card for the Chinese market. This 1.28-meter-wide card offers 30 to 50 percent higher output than the 1-meter-wide TC 10 card, depending on the specific spinning process and material involved.

In 2011, Trützschler introduced the 1.28-meter ideal width carding machine to the global market for the first time. The TC 15 was created based on vast experience accumulated by Trützschler in wide carding machine technologies, and offers significantly improved production capacity, quality and equipment handling. For these reasons, the company is confident that the TC 15 will become the benchmark for high-performance carding in China.

A range of improved features for blow room equipment

Since it was launched in 2019, the Trützschler portal bale opener BO-P has received a great response from the market. To expand this positive development in the blow room section, Trützschler has developed a new pre-cleaning machine called the CL-X – with its introduction at the exhibition in June. Compared to its predecessor model CL-P, it cuts energy consumption by up to 30 percent, offers up to 100 percent capacity improvement and even better cleaning capabilities.

A proven draw frame solution

Since the TD 10 was launched at the ITMA Asia in 2018, it has been embraced by the market. The company's presence at the ITMA Asia in 2021 marks another opportunity for potential customers to find out more about this proven machine.

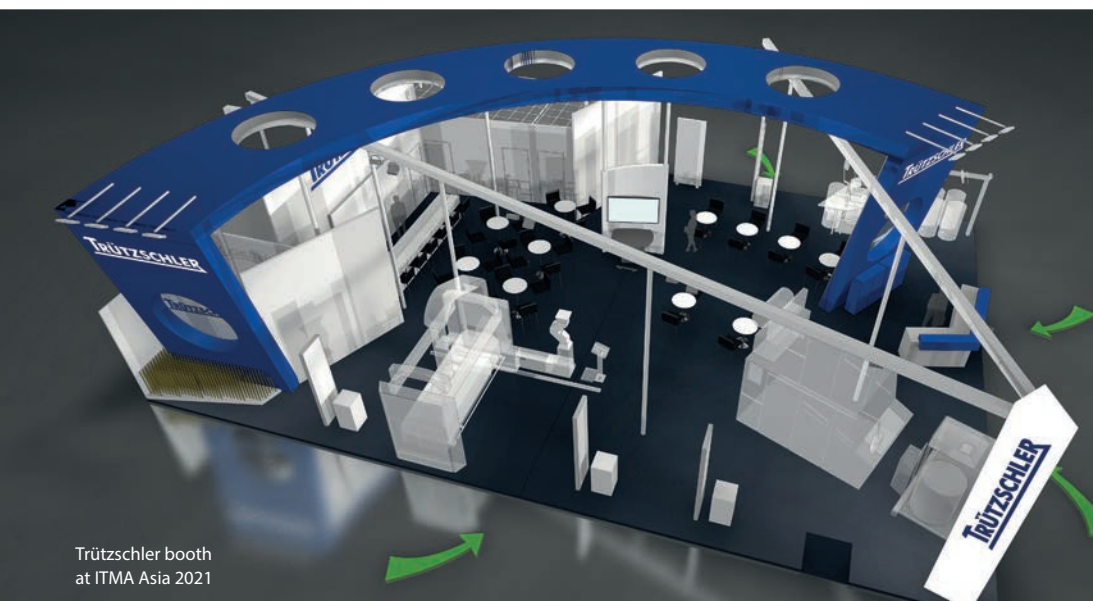
Equipment for nonwovens and man-made fibers that meet a variety of needs

With environmental protection becoming an increasingly important topic, Trützschler Nonwovens' focus is on technologies for producing biodegradable, lightweight webs from renewable raw materials. In collaboration with Voith Trützschler Nonwovens developed alternative technologies, such as wetlaid/spunlace (WLS) processes and carded-pulp (CP) processes. Both solutions already have been successfully applied at customer sites. Another focus is on high-speed spunlacing lines for disinfectant wipe materials. With two or even three cards in line, highest production capacities can be achieved that answer the unbroken demand in the hygienic wipes segment.

The Man-Made Fibers division offers a new four-end BCF process for spinning tri-color carpet yarns. The TO-40 system is based on the successful OPTIMA platform. Other four-end OPTIMA solutions are the MO40-C extrusion system for standard BCF yarns and the flexible MO40-E system for both standard and high-count qualities. In addition to highlights from its Spinning, Nonwovens and Man-Made Fibers business units, the Trützschler Group also presents its comprehensive services and high-performance clothings for cards, as well as digital solutions and parts for machines.



TD 10 – This year's ITMA Asia gives customers the opportunity to find out more about this proven machine



Trützschler booth at ITMA Asia 2021

FROM WASTE TO VALUE



TC 19ⁱ for Recycling

Spinning straw into gold? That's only possible in fairy tales. However, using textile waste to create new values is now reality: The intelligent card TC 19ⁱ for Recycling converts shoddy waste from textile surfaces into high-quality fiber slivers for new yarns.



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