SPINNOVATION

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Sustainable Innovations as Drivers for Success

Ultimate eco-efficiency with the Thread King III

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Cover TK3:
The Thread King III improves customers' profitability while delivering outstanding quality and contributing to significant cost savings.

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Dear valued reader,

The textile industry is entering a new age of green manufacturing in which finding the right balance between profitability and sustainability can be challenging. Profits do not have to be sacrificed to environmental responsibilities. In this issue of Spinnovation, we present innovative solutions which will debunk the myth that sustainability is not profitable.

The newest finish winder from SSM, the Thread King III, pushes the limits of efficiency while reducing waste, energy and optimizing resources. The Suessen compacting device COMPACTapron reduces energy consumption for compacting by up to 60%. The GreenDisc by Temco is the first recyclable texturing discs in the market offering the same advantages than any other Temco discs, but now sustainable. HYPERTOP, the flexible flat from Graf, enhances card throughput while saving up to 0.5% good fibers. These innovative solutions will surely help our customers bridge the gap between profitability and sustainability.

Digitization is also an enabler of sustainability. With its digital suite Nema, SSM allows customers to collect data and transform them into data-driven actions to minimize downtime and waste. AMANN is one of the first customers to embrace Nema and shares its positive impact on machine efficiency.

Our solutions are developed to make a difference for both our customers and the environment. In this edition, I am glad to share stories of the ongoing success of LENA, the energy-saving spindle from Novibra. Throughout India, customers such as Divyalakshmi Textiles Private Limited, Sri Jayajothi and Company Private Limited or the Sportking Group have enjoyed considerable energy savings thanks to the famous spindle.

We are dedicated to bringing solutions which support customers' profitability, so they do not have to choose between profit and purpose. Together, let's move towards a greener future.

Enjoy your reading,

Serge Entleitner
Executive Vice President Business Group Components

Thread King III – Revisiting a Classic

The third generation of the renowned Thread King winder

Fig. 1: With unbeatable values, the Thread King III is one of the most efficient winders on the market.

The new generation of the Thread King winder is living up to expectations. It offers the perfect combination of efficiency and sustainability, with a shorter production cycle, easier thread-up of the yarn, reduced machine footprint and lower power consumption.

The reputation of the Thread King is second to none. Over the years, it has continuously been loaded with advanced technology to always stay ahead of competition. This new generation, the Thread King III (TK3), is more efficient than ever with an increased supply tube capacity, a shorter doffing cycle of up to 40% and a raw material saving of about 1%. The machine is also IoT ready and can be equipped, as an option, with Nema, SSM digital suite.

Pushing sewing thread production beyond limits

The Thread King III (Fig. 1) is all about efficiency. Thanks to a patented tuck-in system (Fig. 2), the TK3 has the shortest doffing cycle on the market, up to 40% shorter than its previous version. It is the first in its category to feature an automatic slit-drum opening (Fig. 3). This allows a quick thread-up of the yarn with one hand, easy maintenance and

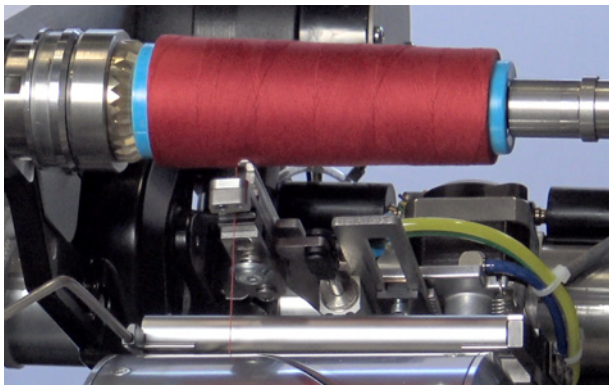

Fig. 2: The patented tuck-in system allows the doffing cycle to be reduced by up to 40% compared to the TK2.

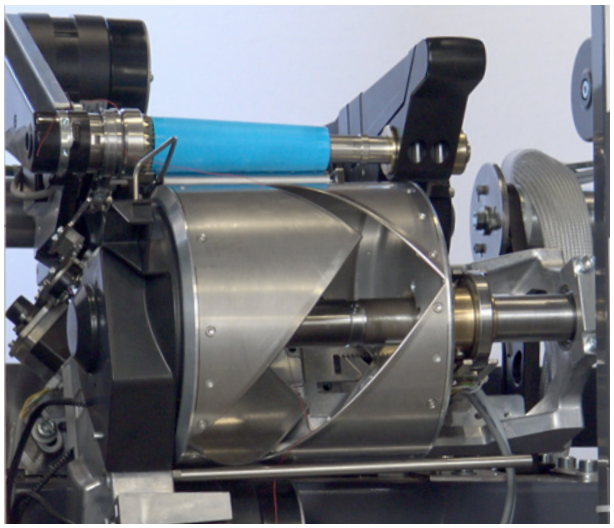

Fig. 3: The automatic slit-drum opener, a unique feature of the TK3.

clean-up – all save a considerable amount of time. The encapsulated locked winding heads provide full safety for operators.

In terms of sustainability, the TK3 certainly checks the box. The design of the TK3 has been optimized to reduce machine footprint. With speeds up to 15 000 rpm, the Thread King III offers a short production cycle: fewer machines are required for the same production capacity, resulting in less energy consumption, less waste, and thus more sustainability.

Cost saving drive

The new winder benefits from improved length measuring accuracy. This ultra-precise capability results in 50% reduction of the safety margin on wound packages, thereby saving 1% raw material. To go even further, the Thread King III is equipped with SSM innovation *preciforce*, the first system to allow regulation of the backpressure force for a precise package build-up without any density or diameter deviation.

This third generation of Thread King also comes with the new *lubetex* high precision lubrication system. *lubetex* delivers the exact right quantity of lubricant needed – not less, not more – for a positive impact on the environment and costs.

From king spools to cones

Like its predecessor, the TK3 is available in two versions: TK3-CT for cones handling and TK3-KT for king spools. Compared to the previous model, the supply tube capacity of the TK3 is doubled with the king spool version, and even quadrupled with the cone version, depending on tube size. Both machines offer the highest possible bobbin and yarn quality. Two other versions with different executions are planned.

With the Thread King III, SSM confirms its position of leader in the winding machine market. This state-of-the-art machine improves customers' profitability while delivering outstanding quality and contributing to significant cost savings.

The First Recyclable Texturing Disc

The benchmark – now sustainable

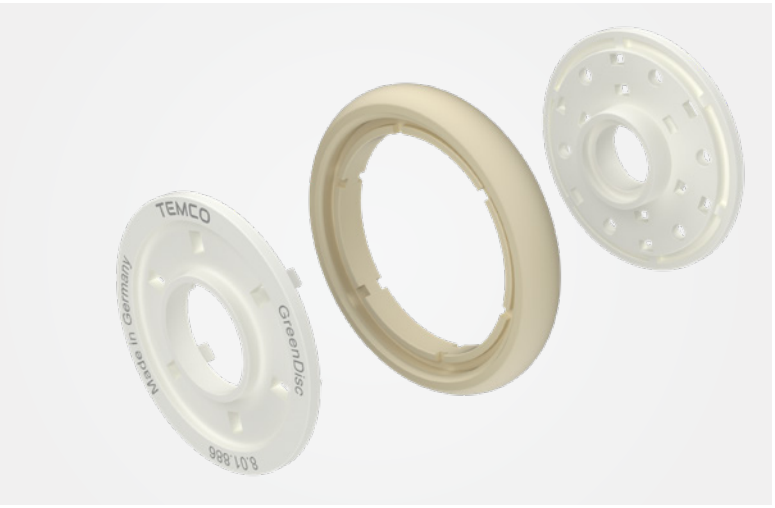

Fig. 1: The GreenDisc features a unique design which allows multiple reuses of the carriers.

The GreenDisc meets customer demands for highest quality standards in texturing in an environmentally responsible manner by featuring an innovative detachable carrier, which is fully circular and a recyclable polyurethane ring.

Temco releases the disc of the future: the GreenDisc. This new disc consists of three components: two carrier parts and a polyurethane ring and can be completely disassembled. This means that both materials can be recycled separately for the first time. With this development, Temco is supporting the man-made fiber industry to take another step towards sustainability.

Design revolution

The GreenDisc consists of a two-part, dismountable carrier and a polyurethane ring (PU ring) (Fig. 1). Thanks to a snap-in connection, the two parts of the carrier can be fastened around the PU ring and separated again after usage and recycled. This unique characteristic of the GreenDisc contributes to significant CO^2 saving and thus a greener future. The new design offers the same maximum speed and high yarn quality as any other Temco discs and will continue to set the tone in the texturing market.

Going green made easy

For customers, the GreenDisc is the real deal: it contributes to a greener future while overcoming the challenges of waste storage and disposal. Once the GreenDisc has reached its operational lifetime, Temco picks up the used discs at the customer's facility and delivers new ones on the spot. The new GreenDisc can immediately be installed, while the used ones will start their recycling journey (Fig. 2). Temco disassembles the GreenDisc and properly disposes the polyurethane ring. The carrier parts are fully recycled and equipped with a new ring. After a series of quality checks and tests, the new GreenDisc is ready for use on texturing machines.

Taking sustainability to heart, Temco succeeds in reconciling environmental and economic concerns. The GreenDisc offers a sustainable texturing solution for customers without compromising on quality, with a positive impact on the environment.

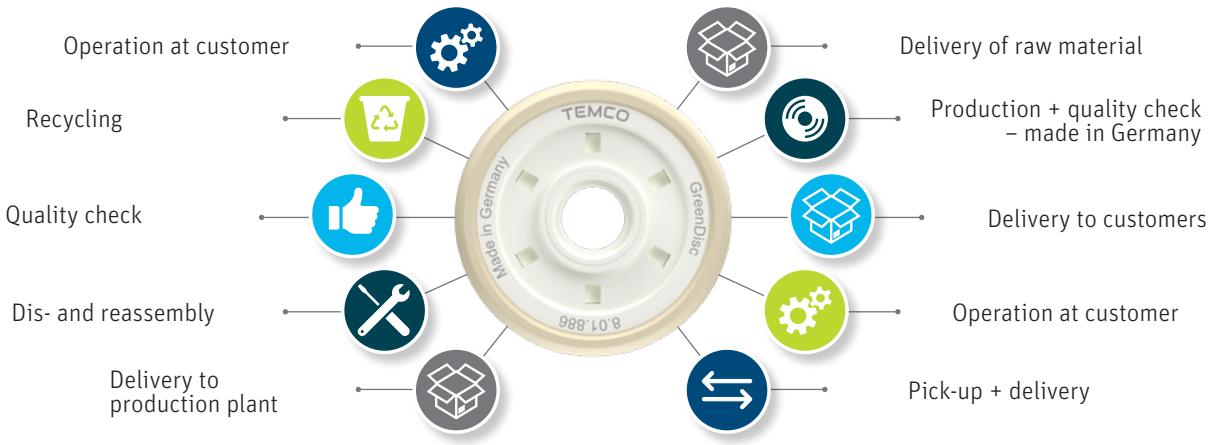

Fig. 2: The GreenDisc journey

HYPERTOP: The Future of Carding

Up to 0.5% good fiber savings

Graf is introducing HYPERTOP, a new flexible flat which will sustainably change the efficiency of carding. With its patented multi-zone setting pattern and optimized tooth geometry, HYPERTOP offers unparalleled good fiber savings of up to 0.5% while ensuring constant and optimal yarn IPI values.

Carding is often referred to as “the heart of spinning”. To optimize the efficiency of this crucial process, Graf developed a flexible flat which significantly improves good fiber savings by up to 0.5%. HYPERTOP demonstrates one of the fastest paybacks. It can be used for the processing of the whole range of short-staple fibers.

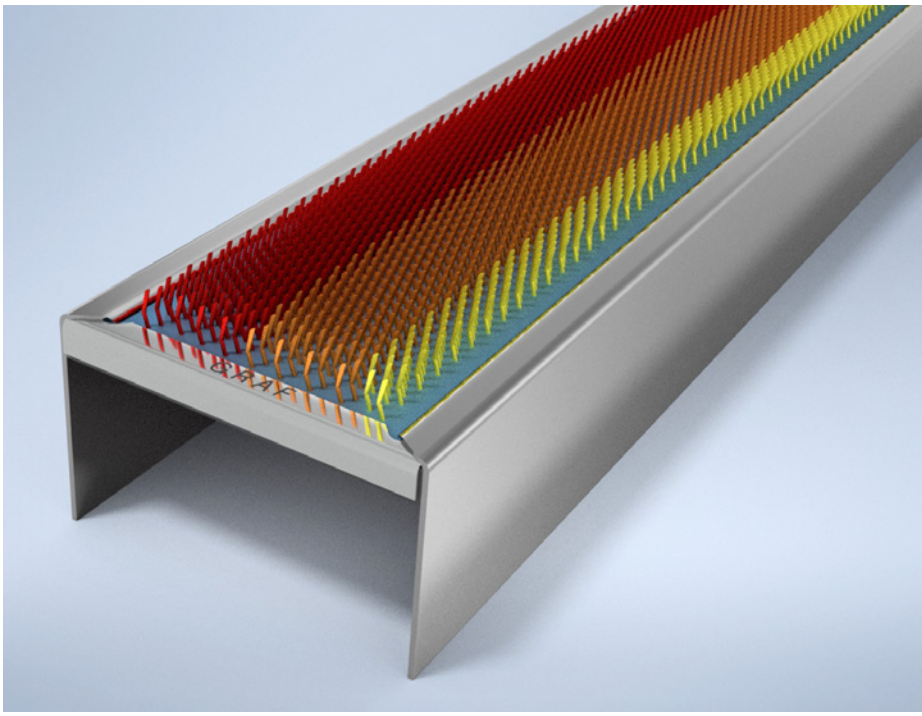

Fig. 1: Patented multi-zone setting pattern of HYPERTOP

Unique design

HYPERTOP features an innovative multi-zone setting pattern, a strong wire and optimized tooth geometry (Fig. 1). This new design offers the right balance between high force absorption and sufficient flexibility to limit fiber damages. The change from straight gaps to a gapless pattern processes the fibers with growing intensity, further optimizing the good fiber savings to reach up to 0.5%. It also ensures optimal and gentle defibering resulting in fewer imperfections and a constant quality over an extended lifetime. Another advantage of this setting pattern is its tendency to facilitate removal of short fibers, waste and elimination of neps.

Remarkable performance

Hamboya Tekstil in Turkey is one of the first customers to implement HYPERTOP on its carding machines. The new flat delivered on its promises and beyond: the company witnessed a clear improvement of yarn values and good fiber savings of 0.32%.

HYPERTOP opens a new era in carding technology. With a payback period of less than one month, HYPERTOP is the best way to invest money for more efficiency and profitability.

"We can confirm that the new HYPERTOP flat from Graf is a very good development for us users. In addition to the payback at the end of the lifetime, we also notice a positive result concerning yarn values. The tests we have carried out have clearly shown this result. We would like to particularly emphasize the very good result regarding the saving of good fibers by 0.32%."

Ender Dogaç,
Mill Manager, Hamboya Tesktil

Hamboya

i-Bearing, The Wireless Smart Bearing

Self-powered, intelligent, wireless bearing technology

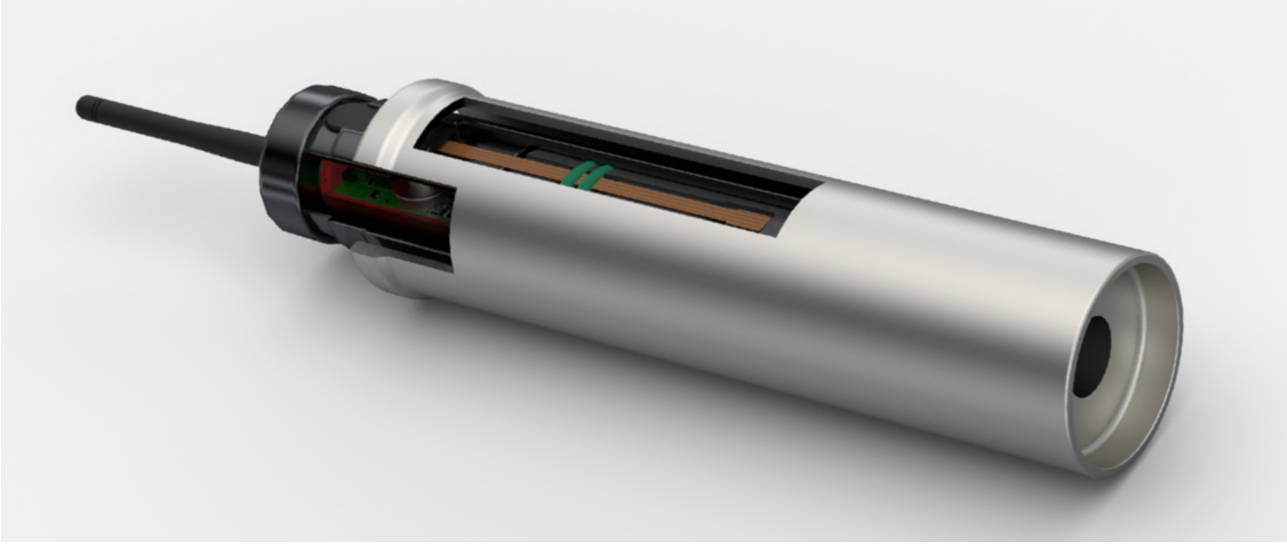

Fig. 1: The i-Bearing is now wireless and self-powered.

Temco's intelligent bearing solution is now available wireless and self-powered. i-Bearing was introduced in 2022 and is already proving to be a great success for predictive maintenance. By enabling bearings to communicate their operating conditions, near real-time, i-Bearing allows better control of the bearing life cycle, resulting in higher reliability and higher machine uptime.

The monitoring system i-Bearing tracks key performance indicators such as speed, temperature and vibration and is particularly useful for predictive maintenance. With its new characteristics, wireless and self-powered, the solution is gaining in speed and convenience. i-Bearing can be integrated into most Temco bearings.

Installation speed and simplicity

The main benefit of the i-Bearing wireless (Fig. 1) is highlighted by its name. With a wireless connection, cables are no longer required and the transfer of information is much faster. Thanks to its plug and play nature, installation and network registration of the i-Bearing is a breeze. The new version of the i-Bearing is also self-powered. Energy supply is directly integrated into the bearing so no external power supply or battery is needed. Rotating magnets in combination with stationary coil (Fig. 2) generate the necessary energy to operate the i-Bearing, and make it an energy-autonomous system.

Predictive maintenance enabled

The intelligence of the i-Bearing allows the constant condition monitoring of every single Temco bearing installed within a plant. By measuring speed, vibration acceleration and temperatures, the i-Bearing identifies critical conditions allowing bearings to be replaced before they fail. Machine maintenance is thus optimized and expensive downtime minimized. Customers also get a clear overview, 24/7, of the condition of all installed Temco bearings across their entire plant.

With this wireless and self-powered version of its i-Bearing, Temco provides more freedom to its bearing condition monitoring system.

Fig. 2: Energy harvesting via rotating magnets and stationary coil

ACC64 and ACC68 Cots Boost Lifetime

Up to 50% longer grinding intervals in compact spinning

Accotex demonstrates once again its leadership in the soft cot market with the launch of the ACC64 and ACC68. As a result of sophisticated mixing technology and high-grade raw materials, these cots benefit from an increase of up to 50% in grinding intervals for compact spinning and offers spinners full flexibility thanks to their front-delivery roller interchangeability on Rieter compact-spinning machines.

With enhanced elasticity, reduced dynamic deformation and increased mechanical stability, the ACC64 and ACC68 cots can process fine to coarse yarns from any raw material. Made of premium and innovative compounds, the ACC64 and ACC68 cots, with respectively 64 and 68 shore A hardness, offer outstanding anti-lapping properties and do not require UV treatment.

Fig. 2: The new Accotex cots ACC64 and ACC68

Up to 60 days grinding interval in compact spinning

Grooving has a major impact on the lifetime of cots. Thanks to a unique elastomeric structure due to increased mechanical stability and enhanced elasticity, the Accotex ACC64 and ACC68 display unsurpassed grooving performance which leads to up to 50% higher lifetime (Fig. 1). Of course, it goes without saying that the new ACC64 and ACC68 offer the same yarn quality and grinding ease as the other Accotex cots.

Highest flexibility

The ACC64 and ACC68 (Fig. 2) are suitable for any type of staple fiber and yarn count and can be run on both front and delivery position. Depending on the yarn count and type of fiber, the cots can be switched easily from front to delivery roller and vice versa. This gives spinners high flexibility to adjust the machines to specific yarn counts and fibers without changing the cots, thus ensuring the best possible yarn quality and lifetime.

Grinding cycles on a four-roller compact-spinning system

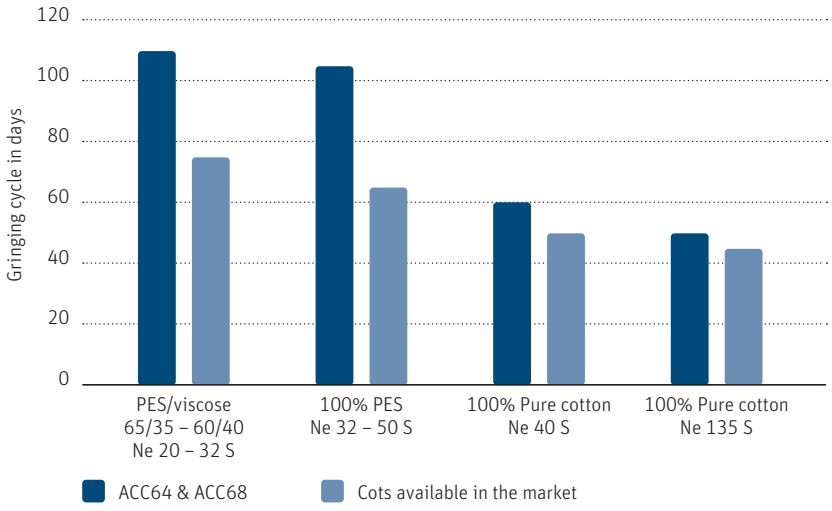

Fig. 1: Lifetime improvements of the ACC64 and ACC68 versus comparable products.

Excellent anti-lapping properties without UV treatment

To reduce lapping behavior, an anti-lapping solution like UV-treatment can be applied to cots. Thanks to new polymer technology, the ACC64 and ACC68 cots offer excellent anti-lapping properties without the need for any additional treatment. Cot maintenance is reduced and machine downtime minimized.

Aiming at New Records in Fully Automatic Grinding

Less than seven seconds for a grinding cycle

The supergrinder pro is a fully automatic, single axis grinding machine which simultaneously loads, checks, grinds, unloads and sorts cots, in less than seven seconds. The machine handles any axle geometry and cot diameters between 18 and 52 mm. With a production performance of 520 axles per hour, the supergrinder pro is a first mover and will become a must-have for mills with both large and small spindle capacity.

To stay ahead of competition, spinning mills look for the best-performing machinery that requires the least maintenance and lowest energy consumption. The supergrinder pro does not only offer very high performance on the market for single-axis grinding machines; thanks to an avant-garde design (Fig. 1), it also has fewer moving parts, resulting in less maintenance and energy costs.

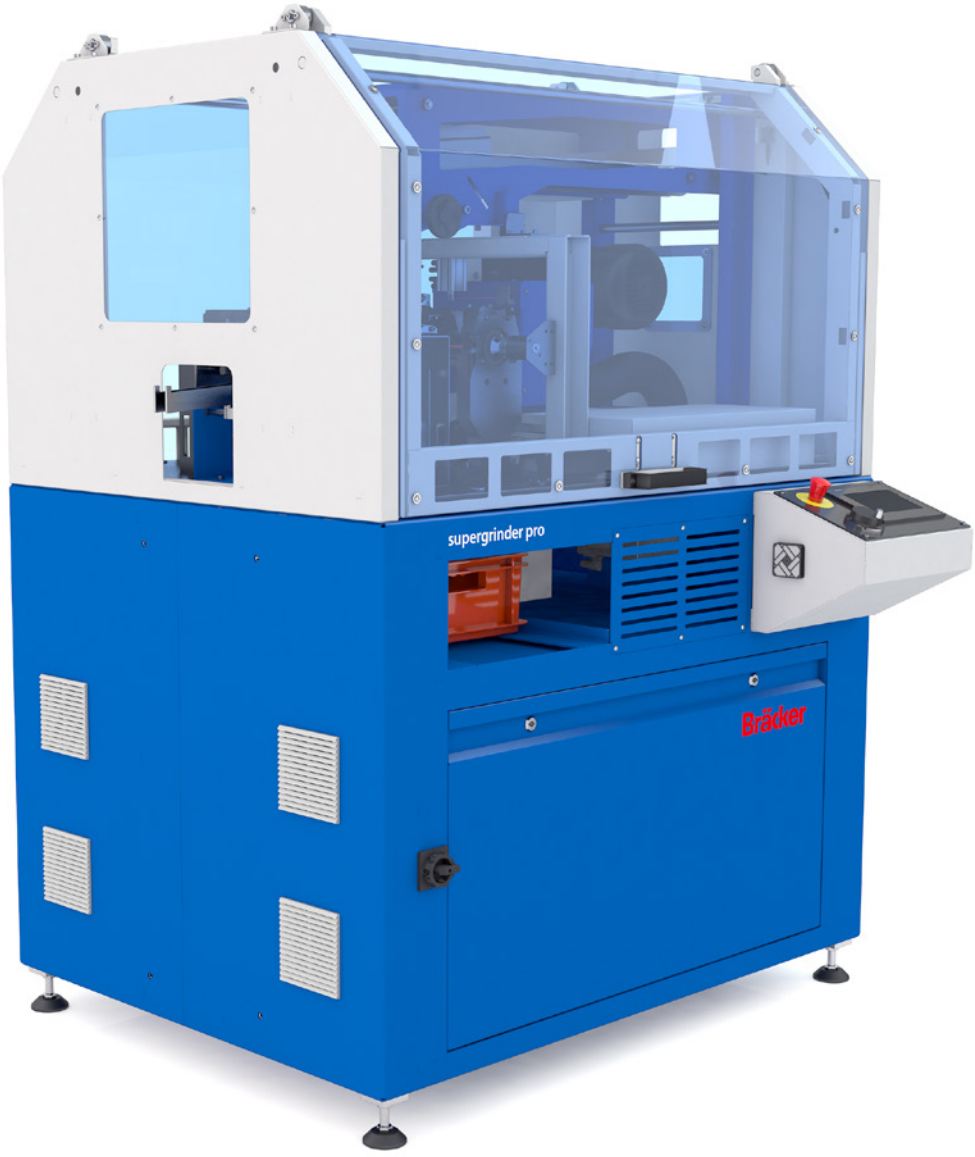

Fig. 1: The unique design of the supergrinder pro offers less energy consumption, less spare parts, less risk of failure but more output.

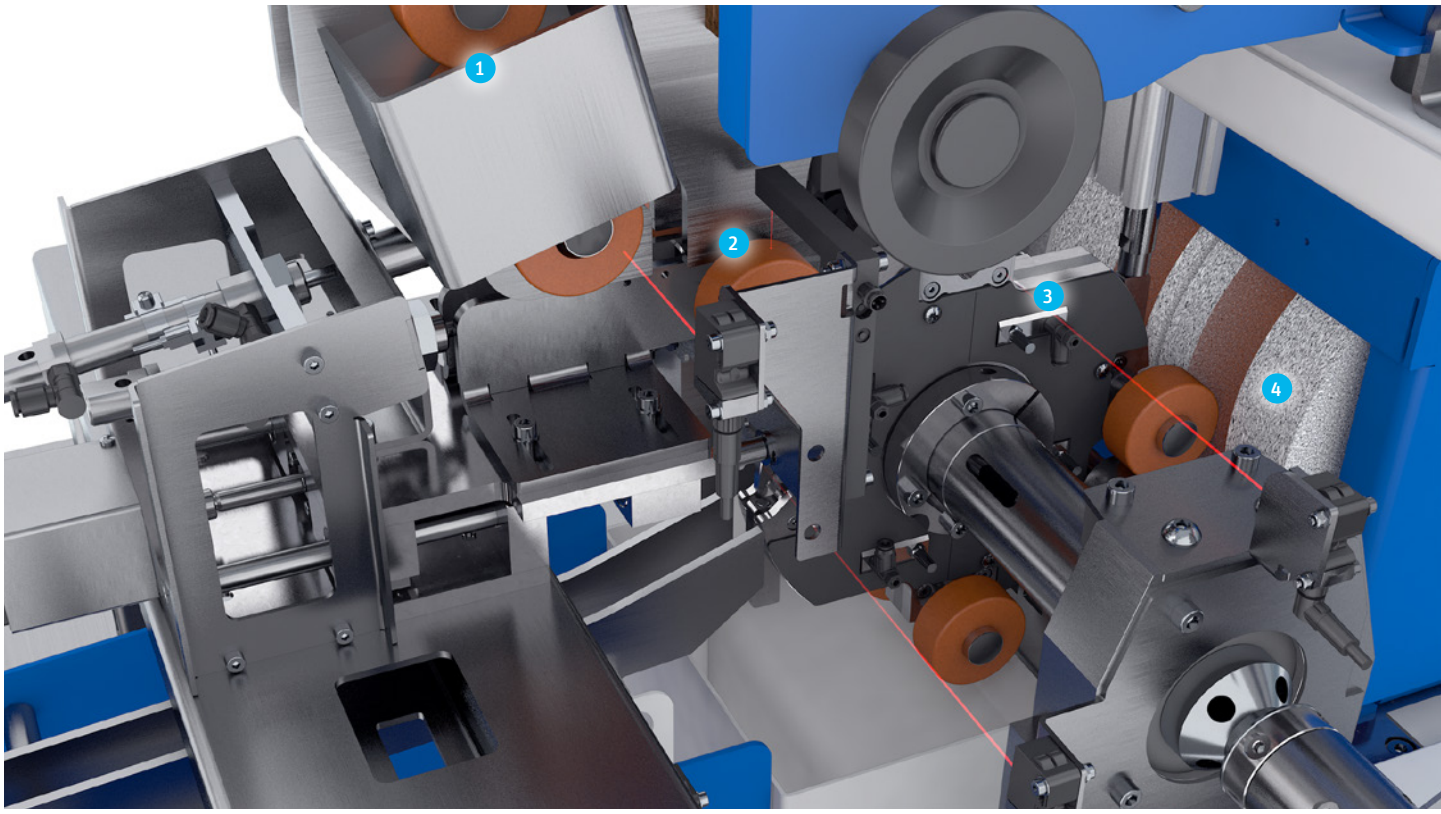

Fig. 2: 1 Inlet from magazine suitable for all kind of axle geometries and cot diameters between 18 and 52 mm 2 Axle pickup and cot diameter measurement 3 Automatic turret tool performing the complete grinding cycle in less than seven seconds 4 Berkol grinding wheel with hollow corundum microspheres

The machine is less bulky than others in its category so it can meet smaller space requirements.

Grinding cycle of less than seven seconds

The supergrinder pro has been developed with performance, energy usage and maintenance costs in mind. An automatic turret tool (Fig. 2) is at the center of this innovative design. It allows the supergrinder pro to perform the complete grinding cycle in less than seven seconds only. The machine can process any axle geometry which eliminates the need for manual adjustment.

Grinding to perfection

The supergrinder pro features the renowned Berkol grinding wheel, made of hollow corundum microspheres (HCM) to ensure the best grinding results with minimum energy input. The dressing of the grinding stone is automatically performed according to preset cycles. A large window gives access to the stone, for easy and fast maintenance.

The machine is equipped with sensors to precisely detect each position of the cot on the turret tool. In case of a variation, the position is adjusted according to the set parameters, thus ensuring 100% reproducibility.

Up to 50 grinding programs can be defined and stored via the intuitive touch screen.

Whether for its performance, reduced maintenance costs or energy savings, the supergrinder pro will soon be essential for any spinning mill.

Better Yarn. Higher Performance. Less Energy.

COMPACTapron: a compacting device with no equal

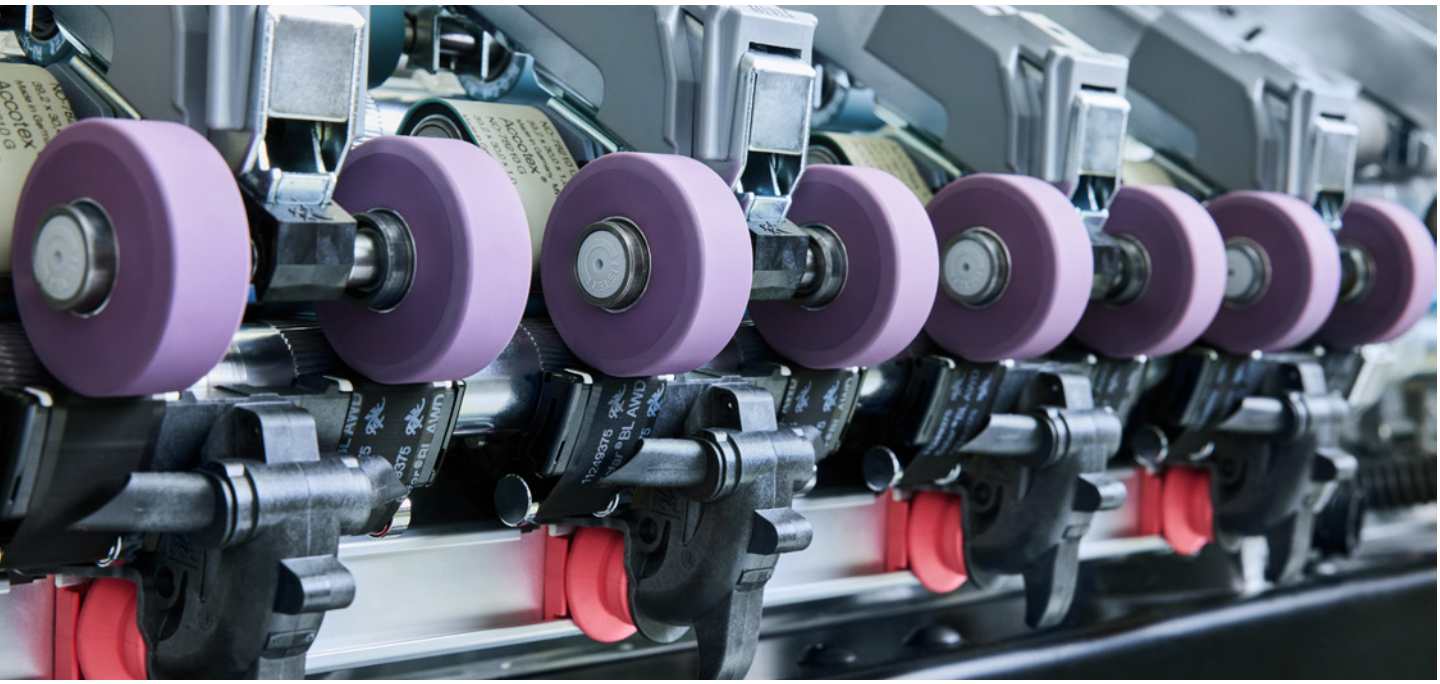

Fig. 1: COMPACTapron achieves higher tenacity values with an additional 0.5 to 1 cN/tex.

In times of increasing demand for sustainability, the need to achieve better results more efficiently is huge. With unbeatable tenacity values, low conversion cost and energy requirements, COMPACTapron is sure to give mill owners a competitive edge.

COMPACTapron (Fig. 1) is the latest compacting device by Suessen. It offers outstanding yarn tenacity values with an additional 0.5 to 1 cN/tex compared to other compacting systems. COMPACTapron reduces conversion cost by 10%, contributes to 60% energy saving for compacting and enables longer cleaning and grinding cycles.

Tried-and-true favorite product to be

In November 2022, Mahima Fibres equipped some of its machines with Suessen COMPACTapron, with the ambition to produce better yarn. The compacting device delivered results beyond expectations and the order was quickly extended to cover a total of 57 spinning machines. Rohit Doshi, one of the owners of Mahima Fibres (Fig. 2), referred to the new system as “revolutionary” for its higher output of an additional 1.2 m/min while achieving better yarn values. COMPACTapron proved to be a great solution for both woven and knitted fabrics.

Fig. 2: Wolfgang Hiller, Sales Engineer at Suessen and Rohit Doshi, Director at Mahima Fibres Private Limited

The 3D benefit

Unlike other compacting systems, COMPACTapron features 3D technology (Fig. 3) so that all fibers are freely guided through the compacting air flow. Coupled with innovative lattice aprons, the 3D compacting device leads to unprecedented yarn values with high tenacity and low IPIs.

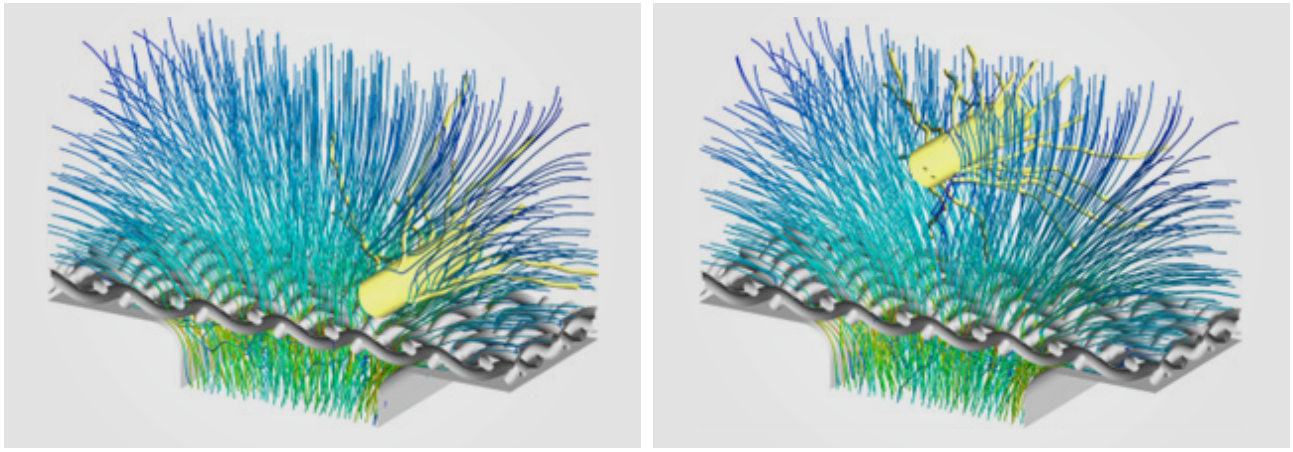

Fig. 3: While other compacting systems only allow 2D, COMPACTapron uses 3D technology to transport fibers in the condensing zone over the suction slot in a distinctive distance to the lattice apron so that all fibers are entirely compacted.

Mahima Fibres confirms that COMPACTapron helped the company reach unmatched yarn tenacity with low IPIs. The tenacity could be raised by 1 cN/tex while the IPIs were reduced by 30%. The company also noticed longer cleaning and grinding cycles and reduced yarn breaks compared to their own existing compact devices. A 15-day field test showed an improvement of 38% of the running end breaks level.

Less is more

Developed to give customers a competitive edge, COMPACTapron benefits from a slimmer design significantly reducing spare parts costs: only the lattice aprons and cots must be changed. The lifetime of both cots and lattice aprons depends on the raw material, the climate, soilings and the application. Theoretically, lifetime similar to the lattice aprons used with EliTe can be expected.

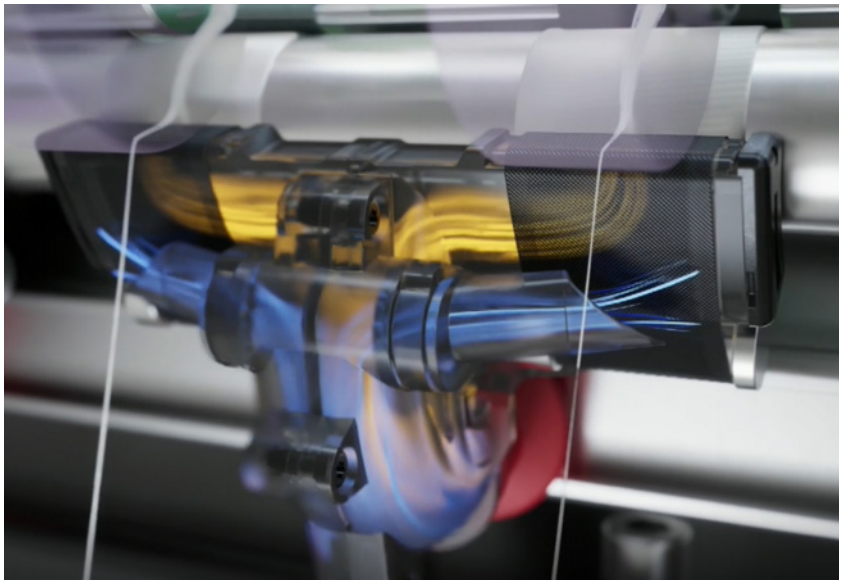

Fig. 4: The air barrier flow (blue) buffering the compacting air (yellow)

COMPACTapron only has one large cot with extended grinding cycles which contributes to almost no lapping. Stripped-down to the essentials, the device is very clean – there is not much room where fluff can accumulate. Even the suction tubes are integrated in the units where they provide an air flow (Fig. 4) for the compacting air and soils coming with it.

As EliTe before, COMPACTapron is going to shake up the compacting landscape and is predicted to be spinning mills' number one and most compelling compacting system.

Digitization to Unlock Performance and Growth Potential

From data collection to performance boost

To support customers on their digital journey and maximize the value of their digital transformation, SSM presents Nema, a digital suite allowing near real-time monitoring of connected machines, anytime, anywhere. With a clear overview of key performance indicators, Nema supports customers in taking data-driven actions in a timely manner and thus helps minimize downtime and waste.

Textile manufacturing is becoming more and more data-driven. Key players in the industry are embracing the digital transformation to enable a more profitable and sustainable growth. Nema, SSM digital suite, gathers information leading to data-based decisions, less downtime, higher productivity and better quality. It also helps customers to quickly and easily duplicate success to any connected machines, anywhere.

Early detection, quick action, lower downtime

Timely detection of any fault during the production process is difficult and often comes at too late a stage. Nema tracks machine health-related data (Fig. 1) such as machine and position errors, warnings, etc. in near real-time, and transmits these data to a dashboard, thus providing a global overview. The system alerts about any deviation for an early detection of abnormalities. Data-based decisions can be made in a timely matter, thus limiting expensive downtime, costs, and loss of revenue.

Quickly duplicating success to other plants

Tracking key performance indicators, Nema enables customers to identify the conditions of the best performing machines. These conditions can then easily be replicated to ensure a high production level, throughout the entire machine fleet.

5% higher efficiency at AMANN

AMANN is one of the leading international manufacturers of high-quality sewing threads, embroidery threads and smart yarns for technical textiles. Being innovators in its field, the company is one of the first to use Nema to oversee the performance of its eight production sites. After only three months, AMANN optimized its manufacturing workflows, resulting in more than 5% higher efficiency on average.

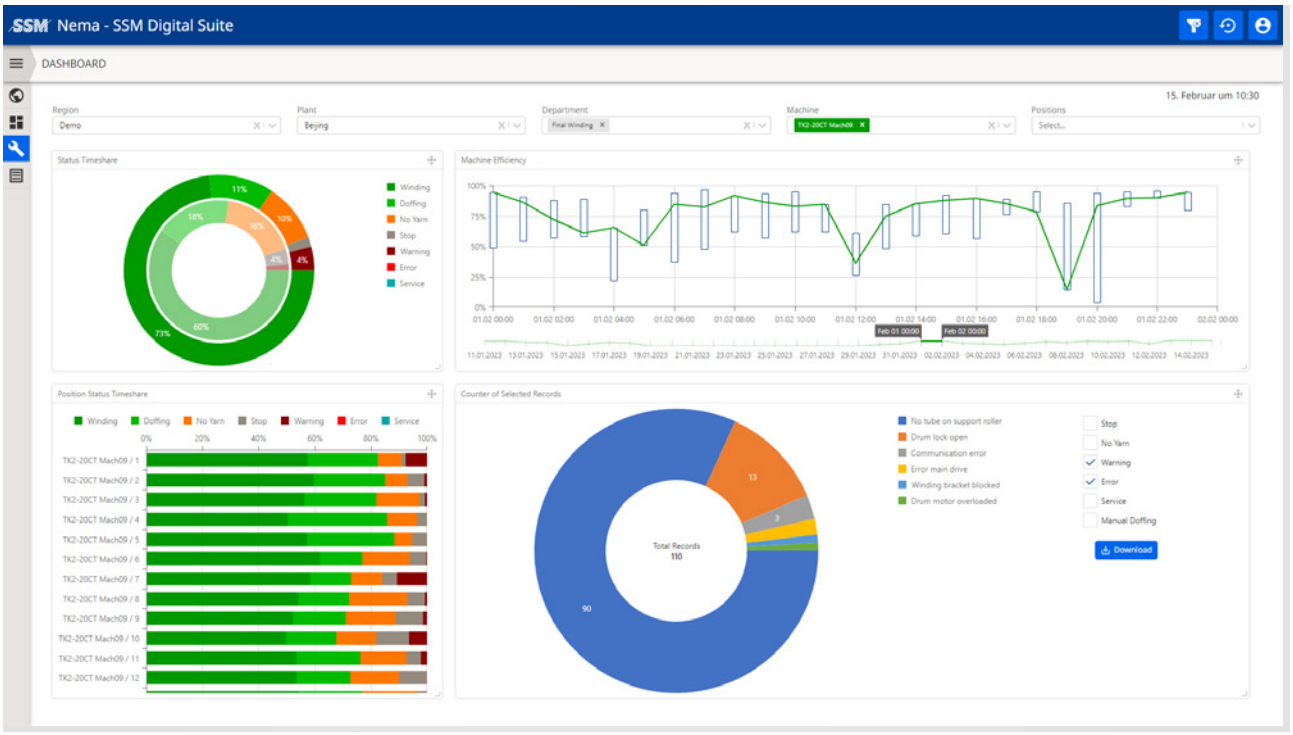

Fig. 1: Machine health view

Real-time data is becoming a standard in the textile industry. Through near real-time monitoring and a smart utilization of production data, Nema gives the right insights, at the right time to unlock the full potential of the entire winding machine fleet.

Did you know?

Nema is the Greek word for yarn or thread and has a symbolic role in Greek mythology. In the myth of Ariadne's thread, Ariadne, a Cretan princess falls in love with Theseus, an Athenian hero and helps him, with a golden thread, escape the Minotaur, half man, half beast. Nema is thus the thread that unites, leads, and can give meaning to what at first seems fragmented and disconnected.

"To compete with the pace on textile markets, where contributions like fastest customer service and higher customer flexibility are redefined every day, we have to get all the time current KPIs to monitor efficiency and push for the best possible capacity. Nema is a great tool to understand the efficiency per machine and each position. With further details like stop reasons, it gives us clear information where to look for possible improvements at the GEMBA."*

Christian Scholz,
Director Global Industrial Engineering,
AMANN Group

*GEMBA is a Japanese term meaning "The real place" and refers to the factory floor here.

The Most Sold Energy-Saving Spindle in the Market

Spreading success among spinning mills

Modern spindles are expected to deliver faster speeds and higher productivity while consuming as little energy as possible. Novibra offers the right spindle to support these needs: LENA – the Low-Energy and Noise-Absorbing spindle. With energy savings up to 6%, LENA helps to tackle the ongoing energy crisis.

Energy savings and production increase are crucial factors for spinning mills to remain competitive. With speeds up to 30 000 rpm, the smallest wharve diameter on the market and a second damping system for noise reduction, LENA has become a real game-changer for many spinners around the world, including India.

Saving energy through technological optimizations

LENA achieves the highest possible speeds in the industry while saving on average 4 to 6% energy. The neck bearing diameter was reduced to 5.8 mm and consequently the wharve diameter could be reduced to only 17.5 mm, a premiere in the market (Fig. 1). The smaller wharve diameter allows the machine to operate at a lower speed while keeping the same spindle speed and thus, the desired yarn count and twist.

Reduced noise and extended lifetime

For efficient noise reduction, LENA features a second damping system. This unique and well proven Noise Absorbing System Assembly – known from Novibra NASA spindles – provides additional protection to the spindle bearings, ensuring minimum neck bearing load. Thanks to lifetime grease in the damping chamber, micro vibrations are absorbed. At the highest speeds, the damping system plays a decisive role as it significantly increases the service life.

A game-changer for Indian customers

Customers in India have been enjoying the benefits of LENA such as Divyalakshmi Textile Private Limited, Sri Jayajothi and Company Private Limited or Sportking Group.

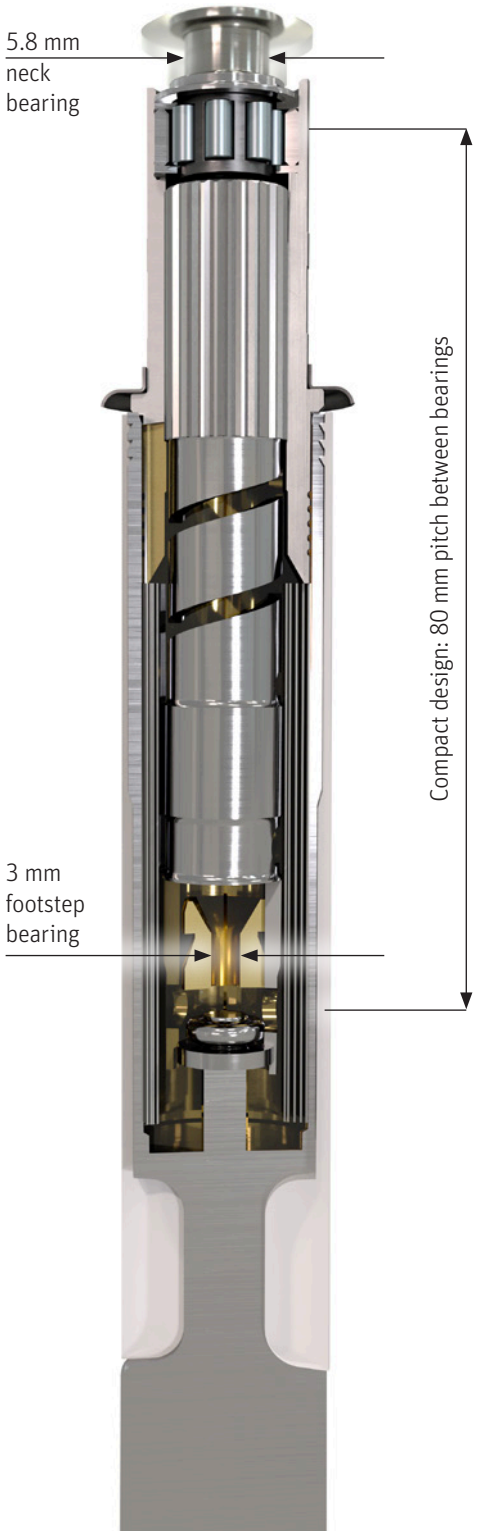

Fig. 1: The innovative design of LENA results in significant energy-saving while allowing speeds up to 30 000 rpm.

Divyalakshmi Textiles Private Limited

With a total count of 12 000 LENA spindles, Divyalakshmi Textiles Private Limited has been successfully spinning various yarn counts for its domestic customers. The company successfully managed to increase speed of its 15 years old machines, without changing any motors or drives, to 24 000 rpm for yarn count Ne 80 combed cotton compact yarn. Besides the production increase, Divyalakshmi was able to reduce energy consumption by up to 12%.

DIVYALAKSHMI
TEXTILES

"Thanks to Novibra's spindles LENA with CROCOdoff, we were able to achieve our goal of increasing the speed of the ring frame while reducing the power consumption by one unit per kg of yarn produced in Ne 80 counts. CROCOdoff helped us significantly reduce the restarting yarn breaks after doffing while simultaneously reducing the underwinding waste."

Velmurugan Shanmugam, General Manager, Divyalakshmi Textiles Private Limited (Fig. 2)

Fig. 2: Velmurugan Shanmugam, General Manager, Divyalakshmi Textiles Private Limited

Sri Jayajothi and Company Private Limited
Member of the prestigious Sri Jayavilas Group, Sri Jayajothi is a manufacturer and exporter of world-class quality products. The company has been running its LENA spindles at 26 400 rpm for four years already. As a result, it increased its productivity of Ne 60 100% combed compact yarn while saving 7% energy consumption.

"Our positive experience with LENA spindles on existing spinning machines with respect to speed increase and energy saving made LENA a must for our future spindle acquisitions."

Venkadesan Duriasamy, General Manager,
Sri Jayajothi and Company Private Limited
(Fig. 3)

Fig. 3: Venkadesan Duriasamy, General Manager, Sri Jayajothi and Company Private Limited

Fig. 4: Shiv Kumar Sharma, President, Sportking Group

Sportking Group

As a leading vertically integrated textile conglomerate of India, Sportking Group owns several state-of-the-art manufacturing facilities in India. The company runs almost 30 000 LENA spindles and managed to increase the spindle speed by 5% in its two main production lines – 100% combed cotton Ne 40 and polyester/cotton blends Ne 40.

Significantly contributing to energy savings, LENA is the spindle of choice to tackle the ongoing energy challenge and remain ahead of competition with unbeatable productivity levels.

"We were able to achieve about 8% reduction in power consumption, reduce restarting breaks after doffing, eliminate the issue of low twists per inch in polyester cotton processing and lower the noise level of ring frame."

Shiv Kumar Sharma, President, Sportking Group (Fig. 4)

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