



RIETER

link

Customer magazine no. 79/2023

Air-Jet Spinning at a New Level

Low yarn conversion costs with the J 70

CONTENTS

AIR-JET SPINNING

- 04 **Air-Jet Spinning at a New Level**
Low yarn conversion costs with the J 70

RECYCLING

- 07 **Increasing Recycled Content – Improving Yarn Quality**
Com4recycling system for combed ring and compact yarns

CARDING

- 10 **The C 81 Thinks for Itself**
Intelligent sensors enable the highest possible carding quality

DIGITIZATION

- 12 **Optimization Across the Entire System**
ESSENTIALoptimize brings the digital textile technologist to the spinning mill

DRAWING

- 14 **Raising the Bar**
Maximum efficiency through a new generation of draw frames

RING SPINNING

- 16 **Redefining Boundaries**
Highest speeds in ring spinning

AUTOMATION

- 18 **Automatic Piecing**
ROBOspin increases efficiency in ring and compact spinning

WINDING

- 20 **More Safety, Convenience and Flexibility**
A step ahead with the Autoconer X6 through intelligent solutions

MANAGING SPARE PARTS

- 22 **Smart and Efficient – ESSENTIALorder**
The webshop for spare parts management

Cover:

The new air-jet spinning machine J 70 with individually automated spinning positions

Publisher:

Rieter

Editor-in-chief:

Anja Knick
Marketing

Copyright:

© 2023 Rieter Machine Works Ltd.,
Klosterstrasse 20, 8406 Winterthur,
Switzerland, www.rieter.com,
rieter-link@rieter.com
Reprints permitted, subject to prior
approval; specimen copies requested.

Design and production:

Marketing Rieter CZ s.r.o.

Volume:

Year 35

The data and illustrations in this brochure and on the corresponding data carrier refer to the date of printing. Rieter reserves the right to make any necessary changes at any time and without special notice. Rieter systems and Rieter innovations are patent protected.

If you have any
questions or comments,
please contact us.



rieter-link@rieter.com



Dear readers,

The competitiveness and success of our customers are the focus of our developments. Our exhibition at ITMA 2023 in Milan, Italy, is evidence of this. As the technology leader, we are showcasing products, systems, and services that help spinning mills conquer their daily challenges in terms of costs and efficiency and remain successful, even in economically challenging times. Digital technology plays a key role in this. ESSENTIAL users can optimize the entire spinning process through fast access to the right information and a holistic view from bale to yarn. This saves raw material, increases machine efficiency, and enables economic yarn production for spinning mills.

Sustainable yarn made from recycled fibers is in high demand. However, spinning mechanically recycled cotton is extremely demanding due to the high short-fiber content. We will present our Com4recycling system at the trade fair in Milan. It enables the spinning of fine ring and compact yarns with a high content of mechanically recycled cotton fibers totaling nearly 40%.

Another highlight at ITMA is the new air-jet spinning machine J 70. It enables spinning mills to achieve an unprecedented level of production savings per kilogram of yarn, coupled with high flexibility and reliability. The unique yarn characteristics will contribute to strong growth in this segment.

In this issue, you can also find out how customers have managed spare parts extremely efficiently with the help of our ESSENTIALorder platform, or how they have made a leap in productivity with the automatic piecing robot ROBOspin.

Come and see our innovations for yourself at our booth in Hall 1, Booth C206. I am looking forward to meeting you in person and showing you how you can strengthen your competitive edge with our technologies.

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'Thomas Oetterli'. The signature is fluid and cursive, with a small dot at the end.

Thomas Oetterli
CEO

Air-Jet Spinning at a New Level

Low yarn conversion costs with the J 70

The new Rieter air-jet spinning machine J 70 with individually automated, independent spinning positions and optimized technology components enables the production of high-quality yarns with maximum efficiency. Together with the excellent raw-material yield and low energy requirements, spinning mill owners can benefit from low yarn conversion costs. With the J 70, spinning mills are ideally positioned to exploit the growth potential in standard and blended yarns.

Air jet yarn can be made from a wide range of fibers such as cotton, polyester, and viscose, making it suitable for a variety of applications. In combination with the high productivity, the unique yarn characteristics such as low hairiness and low pilling tendency will contribute to strong growth of this segment of spinning in the coming years. Decisive success factors of the J 70 (Fig. 1) for spinning mills are the production of a wide range of lot sizes thanks to efficient automation, as well as their remarkable flexibility to produce different yarns simultaneously.

Autonomous spinning units are the key

Each spinning unit is now individually automated and thus independent, enabling maximum efficiency and flexibility. Each spinning unit fixes yarn breaks independently – both natural and quality cuts. This makes waiting times for the robot obsolete. Up to 20 spinning units can repair and re-piece ends down simultaneously. This enables high production speeds, as the increased ends down rate can be easily handled, guaranteeing optimum production efficiency.

Thanks to the independent spinning units, climate conditions in spinning mills are also less relevant. The design of the machine is so robust that the ends down that occur more frequently when climate fluctuations happen, are optimally mastered by the individual automation (Fig. 2). Even with quality fluctuations in the feed sliver, and the associated increased quality cuts, the J 70 can maintain high productivity.

Maximum delivery speed and four robots

The new air-jet spinning machine is designed for a delivery speed of up to 600 m/min and exploits its full potential. New



Fig. 1: The air-jet spinning machine J 70 with individually automated spinning positions



Fig. 2: State-of-the-art individual automation for maximum flexibility and productivity

and further developed technology components enable this maximum productivity.

The robots have a simple design and are responsible for changing packages, inserting the auxiliary yarn (piecing on an empty tube), and cleaning the spinning unit. For most applications, one robot per machine side is sufficient – even for long machines. Up to two robots can operate per machine side. These are used in the production of packages with

shorter yarn lengths and for dye packages. This way, the more frequent package change is accomplished without delay.

Flexibility thanks to VARIolot

Flexibility is an important building block for the success of modern spinning mills. Smaller lot sizes, different yarns, and short delivery times are everyday requirements. With the VARIolot option, the J 70 offers the unique flexibility of spinning up to four different lots simultaneously – two per machine side (Fig. 3). All settings are freely selectable for each lot. No confusion can occur, as the tube loader assigns a different tube color to each lot. Shift reports are shown separately for each yarn, which always provides the spinning mill team with a complete production and performance overview.

Low yarn conversion costs, significant savings

Raw material costs make up the largest portion of production costs, followed by energy costs. The J 70 demonstrates excellent raw-material yield in production. Up to 50% less fiber loss compared with the competitor enables enormous savings. Energy-efficient drives, flow-optimized suction, and reduced air inlet pressure to the machine reduce consumption of energy and compressed air compared with the previous model. This facilitates significantly lower conversion costs per kilogram of yarn.

Further cost savings are achieved by producing dye packages directly on the J 70. After dyeing, the packages go directly to further processing – there's no need for cost-intensive re-winding after the dyeing or bleaching process.

Standardized, intuitive operation

Each spinning unit has its own display and indicator for notification upon an operation request. At the very high speeds

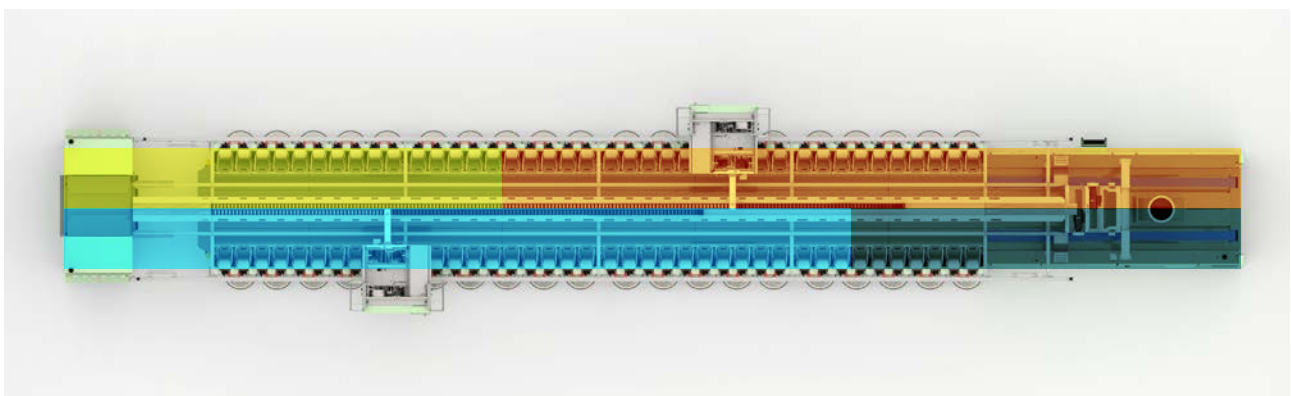


Fig. 3: Produce up to four lots at the same time on the J 70 with VARIolot

AIR-JET SPINNING

used in production, blockages in the area surrounding the spinning tip and the fiber feeding element (FFE) cannot be completely avoided. Messages appear directly on the display of the affected spinning unit (Fig. 4).

The control sequence by the operator follows a standardized procedure. The two-piece spinning nozzle housing with a wide opening makes it easier for the operator to quickly correct faults.

The fiber waste is automatically compacted and transported out of the machine according to an adjustable interval. The operator only has to change the trolley with the fiber waste two to three times per shift. It is a considerable simplification in comparison to manually opening and emptying the fiber waste chamber several times per hour.

Quality assurance with yarn clearer Q 30A

Quality monitoring on the J 70 is carried out by the latest generation of Rieter yarn clearers, the Q 30A (Fig. 5). The adjustment of the sensor has been significantly simplified. The cleaning limit is now freely adjustable. According to the quality requirements, the limit can be adjusted sensitively. A scatter plot shows the new and current settings. The operator can immediately see how the adjusted settings affect the number of quality cuts.



Fig. 4: Simplified operation – one display per spinning unit



Fig. 5: Yarn clearer Q 30A – effective quality control for air-jet spun yarns

The Q 30A's considerably larger measuring slot significantly reduces contamination in the measuring area compared with the predecessor model. This enables longer production times without requiring interruptions for cleaning.

The yarn clearer is available with the options foreign fiber detection and weak yarn detection. These can also be retrofitted via software update. No hardware replacement is necessary.

Innovative solution for the latest customer needs

The new air-jet spinning machine J 70 is designed for the future. Top raw-material yield, low energy consumption, and simple operation enable spinning mills to achieve competitive yarn conversion costs. Thanks to a state-of-the-art automation concept, the effects of climate fluctuations and variations in the upstream process can be absorbed, and impact on productivity can be minimized. High-quality, soft yarns made of polyester-cotton or polyester-viscose blends are trends and constitute growing segments in the air-jet spinning sector. These applications can be produced efficiently on the J 70. This makes the Rieter air-jet spinning system with the J 70 an economical, pioneering solution for all customer needs.

Air-jet spinning with the J 70 for minimum yarn conversion costs

Learn more about the J 70 here.
<https://l.ead.me/bdxoNN>



Increasing Recycled Content – Improving Yarn Quality

Com4recycling system for combed ring and compact yarns

The production of ring and compact yarns from blends of recycled and raw cotton places the highest demands on the spinning process. The Rieter recycling system Com4recycling was developed to meet these requirements. It enables customers to produce fine ring and compact yarns with almost 40% recycled fibers and high yarn quality from the demanding raw material.

Today, fiber blends from recycled and raw cotton are still mostly processed on rotor spinning machines. The few ring yarns are often only available in coarse counts and with a recycled cotton content of no more than 20%. This is where the industry faces a major challenge: to produce fine yarns with a higher proportion of mechanically recycled fibers. Rieter is continuously testing new processes and settings and developing technology components to achieve this goal. The result: the Rieter recycling system Com4recycling, which has been optimized from blowroom to winding machine for processing recycled cotton blends.

Collaboration with recycled fiber manufacturer Recover

Two different compact yarns of count Ne 30 were spun and compared at the Rieter spin center: a combed yarn made from 50% recycled cotton fibers and 50% raw cotton, and a carded yarn made from 25% recycled cotton fibers and 75% raw cotton. The Spanish company Recover, specialized in the production of recycled cotton, provided the material for the trial. To better distinguish the recycled fibers from the raw cotton, black recycled fibers were chosen.

Customized settings and components

The biggest challenges in spinning recycled fibers are controlling the short fibers and reducing neps and impurities. The two fiber components were mixed in the blowroom with the precision blender UNIblend A 81, as it ensures optimal mixing. Draw frame blending is unsuitable due to the formation of fiber packages in the recycled material. The card C 81 is configured and equipped to suit the specific raw material – for example, with clothing specially developed for material with a high content of short fiber and trash.

In addition, optimization for recycled material is taken into account in every new machine development, including the new autoleveler draw frame RSB-D 55 (see article on p. 14).





Fig. 1: Disturbing short fibers and neps are combed out with the comber E 90.

Removing unwanted fibers with the E 90

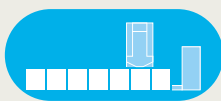
The comber E 90 is now also optionally used in the ring or compact recycling system. When combing the blend of recycled and raw cotton, unwanted short fibers and neps are removed (Fig. 1). This makes it possible to increase the recycled content in the blend.

The assumption that a large portion of the recycled fibers is removed by combing has been refuted. Several internal stud-

ies as well as spinning trials at customers' sites confirmed that the positive aspects of combing far exceed those of processing recycled cotton blends.

The fact is that only the particularly short fibers, which interfere with the process, are combed out of the blend. In the test with 50% recycled content, the noil extraction rate was 24%. At the same time, both the unevenness and imperfections were significantly improved (Fig. 2).

The compact recycling process with comber provides good yarn quality.



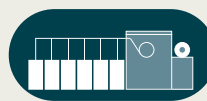
VARIOline



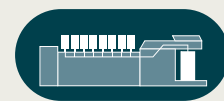
Card



Draw frame



Combing preparation



Comber



Draw frame

This quality advantage can also be used to further increase the recycled content. Visually, the combed fiber blend with the black recycled material was still significantly darker compared with the carded position with 25% recycled content, even after the combing process. The University of Leeds in England and the University of Saxion in the Netherlands are providing support in measuring the recycled content in card sliver, combed sliver, roving, yarn, and knitted fabric. In the combed compact yarn, the recycled content was 38%, significantly higher than in the carded compact yarn.

Ring spinning machine with COMPACTdrum and Q-Package

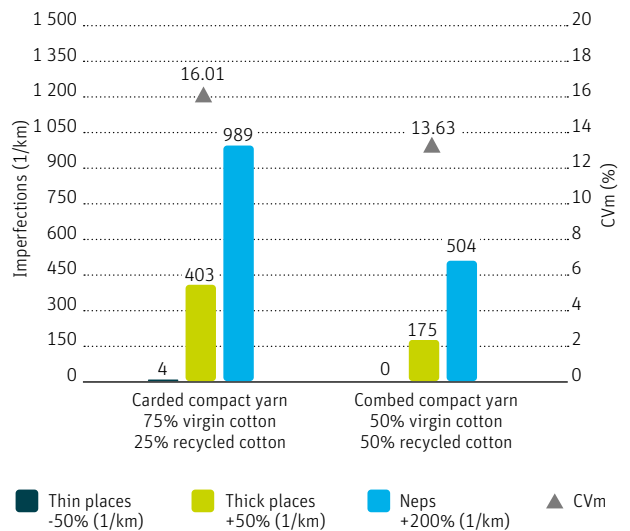
In order to optimally process recycled fibers using a ring spinning machine, a special fiber feed is required in the machine’s drafting system. The draft should generally be as controlled as possible. Trials on the ring spinning machine show advantages in using the Active Cradle with stepped nose bar. For finer yarns from Ne 20, an additional pressure bar (pin) can be used. As a result, unevenness is improved and imperfections are reduced. The compacting device COMPACTdrum significantly improves the machine’s spinning stability and running behavior.

Yarn licenses for Com4recycling

To further establish recycled yarns in the market, they will be included in the proven Rieter Com4 yarn family. Com4 is a globally registered trademark for yarns spun on Rieter end spinning machines. Com4recycling licenses are now available for recycled ring, compact, and rotor yarns. Spinning mills that produce recycled yarns with a Rieter card, draw frame, and end spinning machine and also have Global Recycling Standard (GRS) certification can apply for a Com4recycling yarn license.

Comparison of Carded and Combed Recycled Yarns

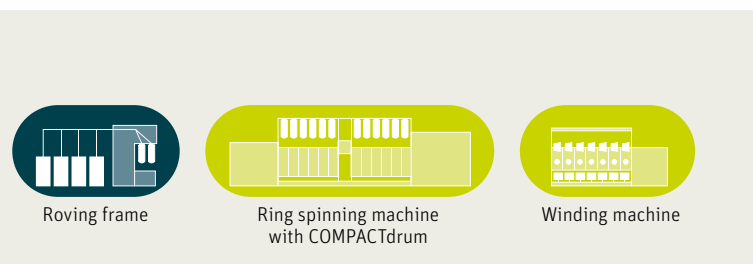
Yarn imperfections and unevenness CVm
Ne 30, cotton blend with recycled cotton



Source: TIS 29819

Fig. 2: The combed recycled yarn has fewer imperfections and better unevenness.

This enables them to differentiate their yarns from other yarns available on the market and to benefit from Rieter’s worldwide promotion of Com4 yarns. At the same time, customers can position themselves in an attractive segment, as demand for recycled yarns will continue to rise. This is also based on regulatory requirements. According to EU objectives, for example, by 2030, all textile products on the EU market should be durable, repairable, recyclable, and primarily made of recycled fibers.



Rieter Com4recycling system

How you increase the recycled content.
<https://l.ead.me/bdxoiW>

The C 81 Thinks for Itself

Intelligent sensors enable the highest possible carding quality

With high production rates and excellent sliver quality, the new card C 81 gives spinning mills a strong position in the market. The intelligent sensors are what make this possible. They set the carding gap to the ideal size and monitor the contaminant content in real time.

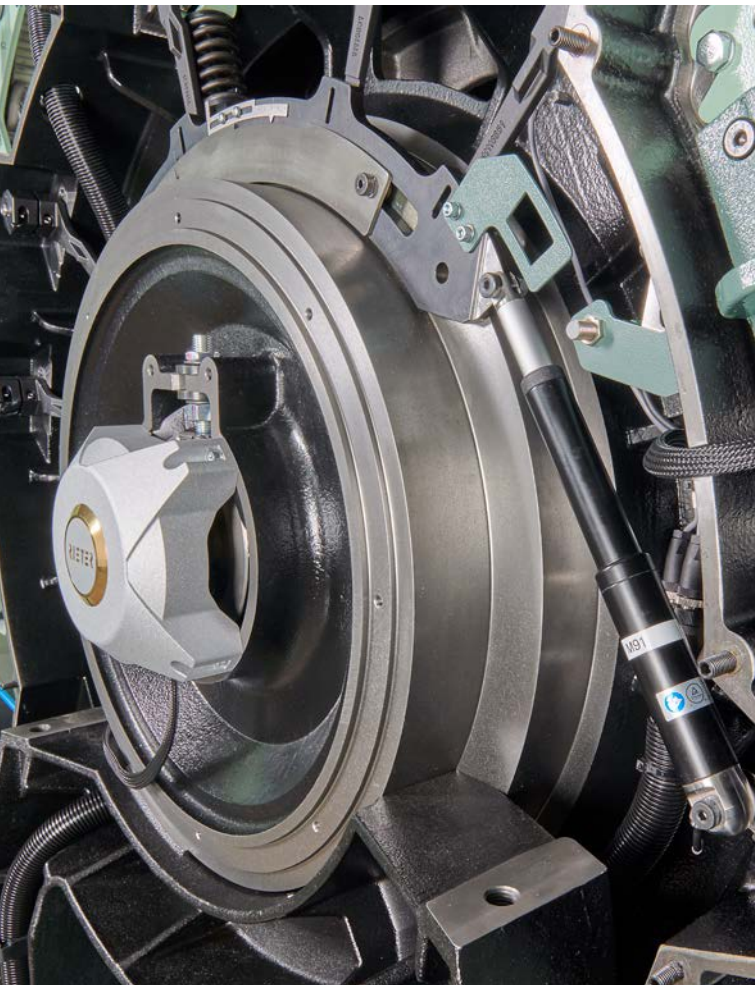


Fig. 1: Automatic adjustment of the carding gap

The high-performance card C 81 is a major innovation in carding technology and offers new, intelligent functions in addition to maximum productivity and minimum energy consumption. State-of-the-art sensor technology controls the carding gap (Fig. 1) and monitors the quality of the raw material before and after the carding process. This increases quality and production compared to the previous model C 80.

A better card produces more

The carding gap is what determines the carding quality. The more precisely the gap can be adjusted, the better the reduction of neps and the associated yarn quality. The C 81's outstanding innovation is that it can inspect the carding gap without contact. This carding gap control regulates the carding gap – the distance between the flat and the cylinder – accurate to a few hundredths of a millimeter. With this innovation, Rieter blazes a new trail that leads into the future. On each of the 116 flats in use, the system detects the distance between the needle tips and the cylinder clothing and monitors this without contact. Intelligent software calculates the ideal carding gap by factoring in further important influencing variables, such as the machine temperature. The electronic, centrally adjustable flat setting constantly keeps this gap in the ideal range. Comparisons with and without a regulated carding gap have shown an increase in production of up to 10% at the same quality. This produces a card sliver quality that is up to 10% better at the same production speed, which means fewer thin places, thick places, and neps. Carding gap control also has the advantages of higher machine availability and consistent quality, depending on the individually defined limit values. The Rieter card C 80 can be easily retrofitted with this new function.

Artificial intelligence improves raw-material yields

Another innovation of the C 81 is the trash level monitor, which continuously monitors the contaminant content of the fiber tufts in the card inlet and the card sliver produced. This is important for customers who process natural fibers, such as cotton. The spinning mill constantly monitors the dirt content to maximize its raw-material yield.

The heart of this function is optical image processing with a new neural network developed by Rieter. Sensors in the card infeed and at the sliver coiling section deliver the data for this (Fig. 2).

The trash level monitor makes yarn quality predictable within a defined range. Artificial intelligence is used to determine whether the impurities in the card inlet and in the produced card sliver lie within the defined limit value. This makes it possible to take measures to make sure that the raw material is used ideally, even at this early stage of the process.



Fig. 2: Trash level monitor at the sliver coiling section of the card

The trash level monitor is also available in a modular version and can be retrofitted into existing Rieter carding systems.

ESSENTIAL helps make decisions

ESSENTIAL is Rieter's system for managing the entire spinning mill. It seamlessly records the data from the trash level monitor and uses the ESSENTIALmonitor module to evaluate and prepare the data. In addition, the data can be clearly displayed on the operating unit of the C 81. These data provide a basis for making decisions in order to initiate targeted measures for optimizing yarn quality, raw-material yield, and productivity. By using sensors and artificial intelligence, the C 81 achieves a new dimension in terms of economy and quality.

The new C 81
thinks for itself.

Discover it for yourself..
<https://l.ead.me/bdpx9y>

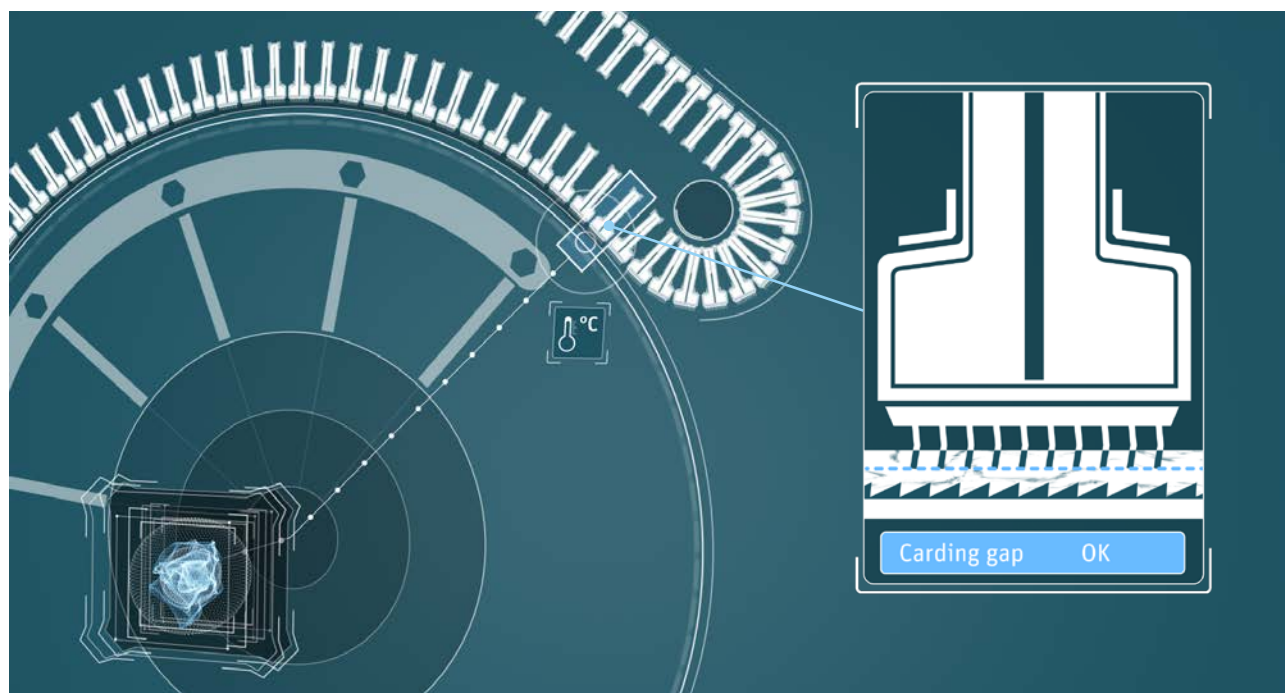


Fig. 3: Contactless control of the flat gap improves the carding and increases production.

Optimization Across the Entire System

ESSENTIALoptimize brings the digital textile technologist to the spinning mill

Digitization is opening up new avenues for ring yarn production. Every millimeter of yarn is monitored during the winding process. In case of quality deviations, conclusions regarding the individual spinning position of the ring spinning machine or even about the fiber preparation can be drawn directly. This significantly optimizes the spinning process. As a result, spinning mills benefit from maximum raw-material yield and more economical yarn production.

With the ESSENTIALmonitor module of the Rieter Digital Spinning Suite, customers already have the ability to monitor their spinning mill from fiber preparation to the package. The new ESSENTIALoptimize module goes one step further and brings the digital technologist into the spinning mill. Here, the data generated in the spinning and winding processes are available to optimize the entire spinning process. Specific textile technology expertise is used to determine the exact reason for the faults and to take the right measures.



Fig. 1: ESSENTIALoptimize increases efficiency in the spinning mill

Efficiency across the entire system

Too many yarn clearer cuts on the winding machine indicate that poor quality is being produced at earlier stages of the process. These deficiencies must be detected quickly to avoid wasting valuable raw material. One example of this is the thick place monitoring with ESSENTIALoptimize. The Rieter Quality Monitor simultaneously supplies data related to thick places on the card, the comber, and the draw frame. ESSENTIALoptimize compares the data in a quality dashboard. The system detects deviations and generates an error message based on rules, threshold values, and evaluation of machine events throughout the process. This way, faults can be detected in the early stages of the spinning process and rectified by personnel before they lead to quality problems in the yarn. This increases efficiency throughout the system and supports the spinning mill in economical yarn production.

Real-time optimization with the Ring-Winder-Connect module

By integrating the winding machine into the Rieter portfolio, the process between the ring spinning machine G 38 and the Autoconer X6 can be optimized in real time. The necessary systems for the exchange of information are the individual spindle monitoring system ISM premium on the G 38 and the quality monitoring system Spindle Identification System (SPID) on the Autoconer. Both are proven technologies that can be combined via ESSENTIALoptimize.

The new external Ring-Winder-Connect module is used to compare and analyze data from the ISM premium and SPID. In addition, information from the ring spinning machine is taken into account, such as manual repair of ends down or piecing using the piecing robot ROBOspin. A signal is only sent from the Ring-Winder-Connect module to the ring spinning machine if the evaluation shows that a spinning position of the ring spinning machine produces a cop with faulty quality and the associated fault has not yet been rectified. In doing so, the module detects if there is a systematic error that occurred in multiple doffs. The fact that alarm cops and off-standard cops are also detected is unique in the market and distinguishes the Rieter link system. Alarm cops have faulty yarn; therefore, the spinning position should be stopped immediately. Off-standard cops come from spinning units that produce "tolerable quality yarn" but still have a relatively low quality level.

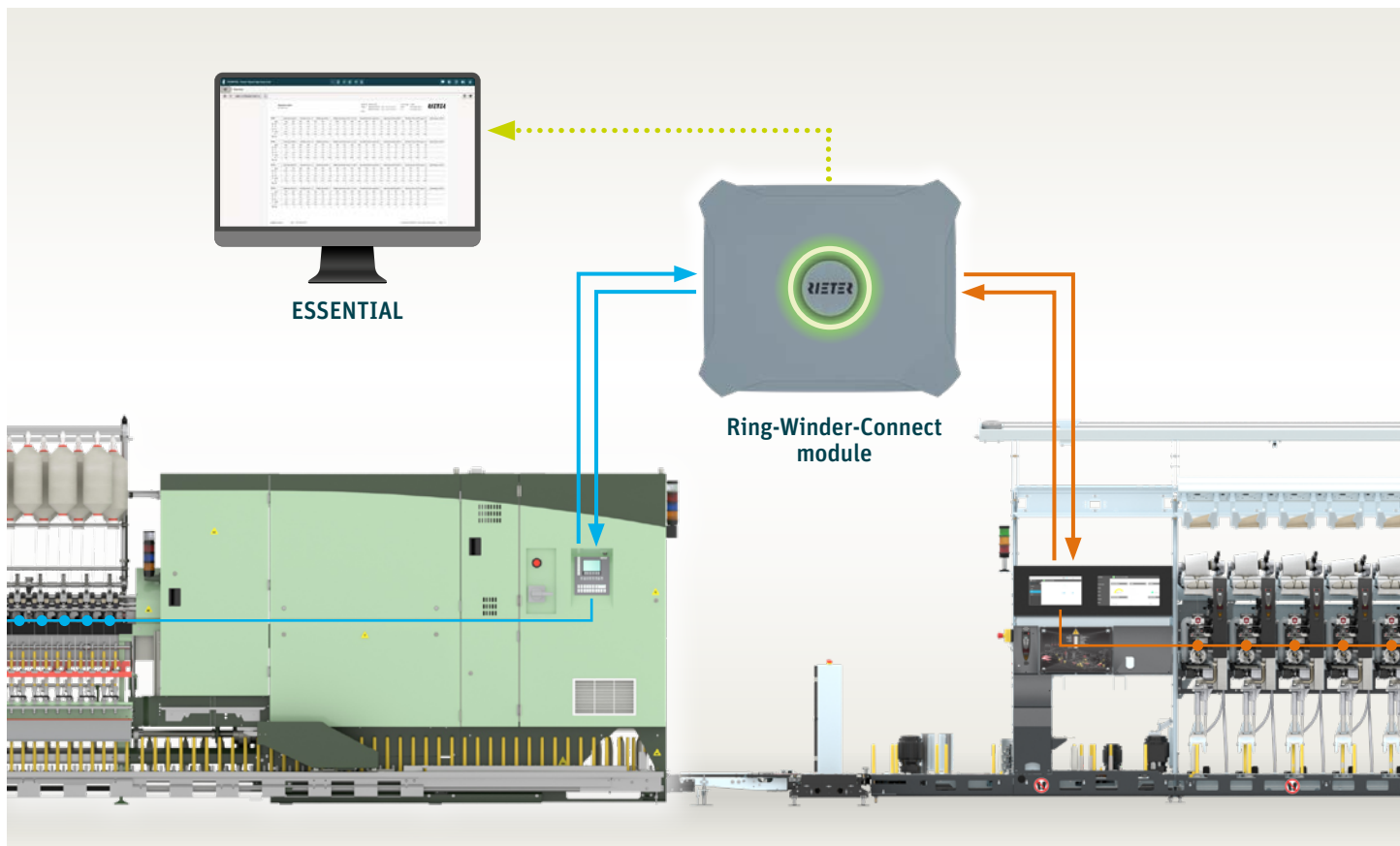


Fig. 2: Real-time optimization between the ring spinning and winding machines with the Ring-Winder-Connect module

Reduced operator workload improves efficiency

Until now, faulty spinning positions detected in the ring spinning machine were only indicated on the central display of the Autoconer. The success of the system depended on the reliability and attention of the operating personnel. Thanks to the analysis of the quality data in the Ring-Winder-Connect module, the operator is newly notified of the affected spinning position on the ring spinning machine via illuminated LED of the ISM premium.

Using different LED light frequencies, the operator can recognize which error it relates to. However, the LED at the spinning position only lights up if the fault detected in the Autoconer has not already been rectified by an operator at the ring spinning machine. This avoids error messages for spinning positions that the operator has already handled.

Winding unit stops the faulty spinning position

If the ring spinning machine is additionally equipped with a roving stop, not only is the LED indication provided, but also the roving feed is stopped automatically. This is also only executed if the comparison in the Ring-Winder-Connect module has shown that the error message has not already been corrected by an operator. The roving stop saves valuable raw material, as the amount of defective or low-quality yarn quickly adds up to several tons per year.

Raising the Bar

Maximum efficiency through a new generation of draw frames

Rieter is introducing a new generation of draw frames to the market. The machines enable spinning mills to achieve the highest quality, productivity, and efficiency, even when processing recycled fibers. Innovations ensure stable running behavior for all raw materials and production speeds. The high sliver quality is an ideal prerequisite for the production of high-quality yarns.

Rieter is launching a completely new generation of draw frames: the non-autoleveled and autoleveled single-head draw frames SB-D 55 and RSB-D 55 (Fig. 1) and the new non-autoleveled and autoleveled double-head draw frames SB-D 27 and RSB-D 27. With this, Rieter once again sets the standard for draw frames and offers optimum solutions for a wide range of spinning mill needs.

Optimized for recycled fibers

Processing recycled fibers presents significant challenges such as increased dust generation and a high short-fiber content. The new Rieter draw frames offer expanded suction for the greatest possible cleanliness, even in the calendar area. This results in longer cleaning cycles and fewer thick places. When recycled fibers are processed, 4-fold doubling can be supportive. Here, an additional web nozzle improves web guiding and guarantees fault-free operation with a high short-fiber content. These optimizations bring advantages in the production of ring yarns with a high recycled fiber content. Recycled fibers can now be selected as an application in the SLIVERprofessional expert system. Once the raw material data has been entered, the system offers recommended settings for the entire machine.



Fig. 1: The new draw frame generation enables spinning mills to achieve the highest quality, productivity, and efficiency.

User-friendliness at a new level

Thanks to the convenient and large 10-inch machine display with improved menu navigation, Rieter draw frames are even easier to operate. The SLIVERprofessional expert system now also makes suggestions for key setting parameters such as coiler and can plate speed, as well as for sliver spread before the drafting system. This enables rapid material changeover and ensures excellent sliver and yarn quality.

Quality monitoring now also on the SB-D 55

The Rieter Quality Monitor RQM, which is standard on RSB autoleveler draw frames, can optionally also be used on the non-autoleveled draw frame SB-D 55. It detects, for example, periodic mass fluctuations due to an out-of-round drafting system top roller. This avoids mechanical damage in the drafting system and the associated machine downtime. It enables end-to-end online quality monitoring for the entire Rieter preparation line from the card to the combing section to the autoleveler draw frame. The data from RQM can be used in the new ESSENTIALoptimize module to optimize processes throughout the spinning system (see article on p. 12).

Constant sliver strength during stopping and starting

Another innovative solution prevents the creation of a short length of sliver with around 50% lower sliver strength when stopping and starting. This was previously unavoidable and occurred on all draw frames. When processing combed cotton on the roving frame, this can lead to undesirable incorrect drafts for slivers with a long distance from the can to the spinning position. The resulting thin place in the roving continues into the yarn. The unique, optional solution on the RSB-D 55/27 keeps the sliver strength constant while stopping or starting the draw frame and prevents such errors.

Fewer sliver breaks – higher roving frame efficiency

The new generation of draw frames offers a solution to avoid blockages in the coiler tube. These effects can occur, for example, in the event of fluctuations in ambient temperature or during the processing of bulky materials, and can lead to production interruptions. Previous measures, such as a larger coiler tube or a higher coiler speed, lead to a decline in sliver quality and thus yarn quality.



Fig. 2: Reinforced power creel for enhanced robustness

The unique solution for the new autoleveler draw frame RSB-D 55/27 uses the single-motor-driven coiler to eliminate possible sliver jams without interruption. This reduces the operating effort and avoids sliver breaks in the draw frame, thus keeping the efficiency high at the autoleveler draw frame and in the downstream process. The last point is becoming increasingly important, especially for roving frames with more and more spinning positions, as every roving frame stop avoided means fewer thick places in roving and yarn.

New level of durability

The high sliver production of the draw frames demands highest reliability. Rieter has significantly improved the robustness of the draw frame (Fig. 2), ensuring stable operation at the highest quality and productivity.

The new RSB-D 55 draw frame raises the bar.

Find out more here.
<https://l.ead.me/bdexpG8>



Redefining Boundaries

Highest speeds in ring spinning

The further development of the proven ring spinning machine G 38 with High-Speed Package yields enormous benefits to the customer in terms of productivity, flexibility, and energy savings. Maximum spindle speeds are achieved based on optimized spindles, tubes, and spinning rings. This results in up to 15% higher yarn production.

Rieter specialists, in close collaboration with customers, have re-explored the limits of ring spinning. With a delivery speed of up to 40 m/min, the ring spinning machine G 38 with the High-Speed Package produces up to 15% more yarn (Fig. 1). Selecting the right components is crucial for higher productivity with consistently good yarn quality.

HPS 28 LENA spindle – fast and energy-efficient

The latest developments are raising the bar in production to a considerable extent. The high-precision spindle HPS 28 LENA (Fig. 2) achieves up to 28 000 revolutions per minute. A smaller wharve diameter enables this high spindle speed with minimal energy consumption. HPS 28 LENA also features a second damping system that significantly reduces

bearing loads and noise levels. Low vibration, reduced maintenance, and a long service life characterize these spindles.

Smaller spinning ring diameter and new tube dimensions

The High-Speed Package with HPS 28 LENA also includes a smaller spinning ring with a diameter of just 34 mm. The traveler needs less distance and less time for one revolution on the smaller ring. With a smaller spinning ring diameter, the traveler speed is reduced, opening up potential for an increase in spindle rotation.

However, a smaller spinning ring diameter means less space for yarn on the tube. This would lead to more doffing processes and reduce profitability. To prevent this, a tube with a smaller bottom inner diameter (DUI) was designed, and the HPS 28 LENA was adapted accordingly. The tube with the smaller DUI dimension can thereby take almost the same yarn weight as a conventional tube. Thus, despite the smaller spinning ring diameter of 34 mm, the number of doffing processes on the ring spinning machine and number of cop changes on the winding machine remain the same. This allows the increase in spindle speed to be translated into an increase in productivity.



Fig. 1: The proven ring spinning machine G 38 achieves up to 15% higher yarn production with the High-Speed Package.

Maximum speed achieved in production

Maximizing the productivity of ring spinning machines is a step-by-step process. A quality spinner in southern India is also exploiting this potential. With conventional spindles and rings, they have achieved an average spindle speed of 26 000 rpm by using the compacting device COMPACTdrum for a cotton yarn with count Ne 60. The use of the piecing robot ROBOSpin and the High-Speed Package offers further possibilities.

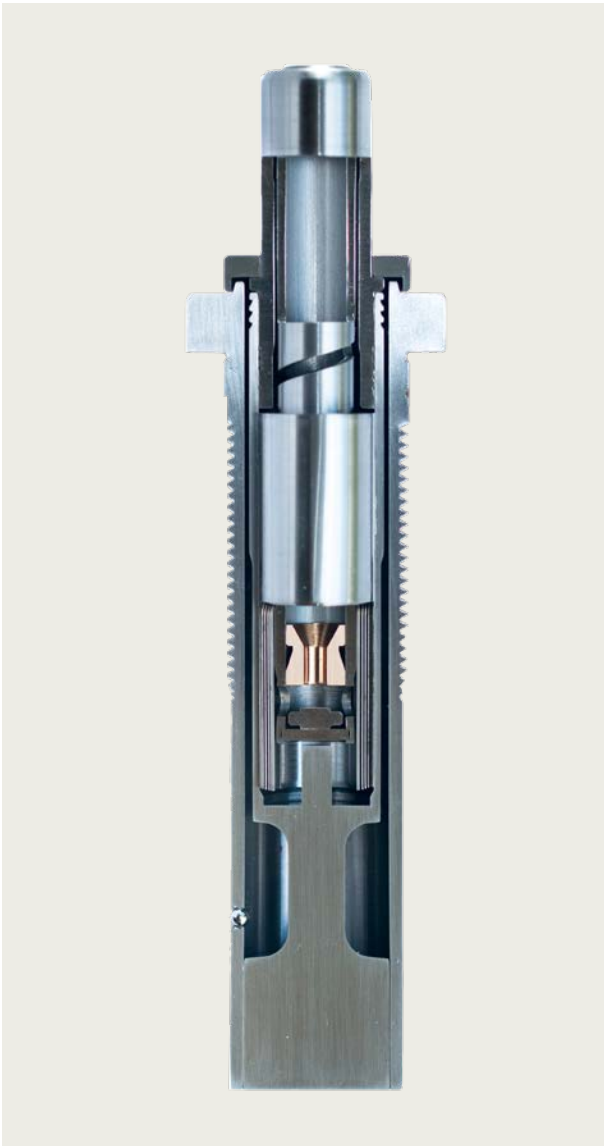


Fig. 2: The high-precision spindle HPS 28 LENA can reach up to 28 000 revolutions per minute.



Fig. 3: The spinning ring ORBIT is suitable for high speeds with polyester-cotton blends.

Up to 24 500 rpm with the ORBIT ring

When spinning polyester fibers, the traveler temperature cannot exceed a certain level, otherwise the polyester fibers may melt. This makes the results with a Chinese customer all the more impressive. After joint trials with Rieter, the customer is producing a ring yarn with count Ne 32 out of 65% polyester and 35% cotton at a maximum speed of 24 500 rpm on their ring spinning machine G 37. This is a speed increase of more than 29% above the competitor's machine, which produces at a maximum speed of 19 000 rpm. This high speed is only possible with the spinning ring ORBIT (Fig. 3). This ring helps create a large contact area between the ring and the traveler and prevents the traveler from overheating, making it ideal for polyester-cotton blends. All of the customer's yarns exhibit good yarn quality even with increased spindle speeds. The customer is very satisfied. The increased productivity, high yarn quality, and good running behavior of the ring spinning machine far exceeded their expectations.

Automatic Piecing

ROBOspin increases efficiency in ring and compact spinning

Two factors that have a particularly strong impact on spinning mill output are efficiency and productivity. The fully automated piecing robot ROBOspin for ring and compact-spinning machines offers a rise in productivity as well as consistent quality during piecing. Spinning mills around the world reduce their manpower requirements by 50% and benefit from a piecing efficiency of over 80%.

ROBOspin is the first fully automated piecing robot (Fig. 1) in the industry. On the market since 2019, it is proving its worth in a variety of countries such as the US, Turkey, and India. The piecing robot is a response to the constant challenges of spinning mills to find dedicated operating personnel to quickly repair ends down and thus ensure full machine performance. Working in the ring spinning department is challenging due to long walking distances, high noise lev-

els, and the dusty environment. “ROBOspin is the perfect automation solution to efficiently schedule the workforce. Our technical team is very happy with the operation and maintenance of the ROBOspin,” says Durai Arun, Managing Director of Poomex Clothing Company in Tiruppur, India.



Fig. 1: ROBOspin on a Rieter ring spinning machine G 38



Fig. 2: The Managing Director of Poomex, Durai Arun, and his team are very satisfied with the ROBOspin.

ROBOspin was installed at Poomex Clothing Company in 2020 on an existing ring spinning machine G 32 (Fig 2): “The compact design and consistency in piecing quality are the standout features of this robot,” adds Durai Arun.

The key to high efficiency

ROBOspin shortens the time for ends down detection and its repair as much as possible – this is the key to higher machine efficiency. The downtime of spinning positions while waiting for operating personnel to repair the ends down is reduced significantly. This increases production and minimizes raw material waste. With ROBOspin, the spindle speed can thus be increased, which boosts productivity while the efficiency remains the same.

Fully automated from A to Z

The fully automated piecing robot ROBOspin repairs ends down that occur during production or doffing. This improves the efficiency of the spinning positions and ensures higher productivity and a reduction in labor costs.



Fig. 3: The individual spindle monitoring system ISM detects the affected spinning position.

Each machine has one robot per machine side. Ends down are detected by the individual spindle monitoring system ISM (Fig. 3). ROBOspin travels directly to the affected spinning position and repairs the ends down in the shortest possible time. The entire piecing cycle runs fully automatically, from searching for the yarn end on the cop to threading into the traveler and placing the yarn behind the delivery roller.

Consistent performance with minimal personnel deployment

ROBOspin runs with consistently high performance in various spinning mills around the world. Piecing efficiency reaches more than 80%, and the robot reduces personnel requirements in the ring spinning department by 50%. With Rieter's unique yarn end search device, piecing is carried out without affecting the yarn layers on the cop. In addition, the automated piecing process ensures consistent piecer quality. The operator does not have to handle the cop during the cycle, and top-quality yarn is produced.

Automatic piecing with ROBOspin

How to increase efficiency.
<https://l.ead.me/bd xpWg>



More Safety, Convenience and Flexibility

A step ahead with the Autoconer X6 through intelligent solutions

The automatic winding machine Autoconer X6 offers several innovations. The Comfort Splicer now enables further splicing parameters to be set and optimized from one central location at the operating unit. This reduces the time required for adjustments enormously. The new option Color Check guarantees that only correctly assigned cops are fed into the winding machine or the defined work areas. This intelligent material flow control offers customers maximum process reliability.

Open-prism splicing technology opens up new possibilities for further development of the splicing process on the Autoconer X6. The following innovations simplify operation and enable further optimization of splicing results.

Simplified handling and optimal results

One new feature is the Comfort Splicer, which makes it much easier to adjust the splicer and optimize the splicing process. The operator can now easily enter the parameters for the cut length of the yarn ends at the central operating unit (Fig. 1). This considerably reduces the time necessary for adjustments, eliminating the time-consuming setup of each individual winding position. The setting is now infinitely variable, this is possible in a significantly larger range than before. The limit of three predefined cut lengths has also been removed. Customers can adapt their splicing results even more specifically to the demands of further processing. This increases flexibility.



Innovations of the Autoconer X6 simplify operation and optimize splicing results.

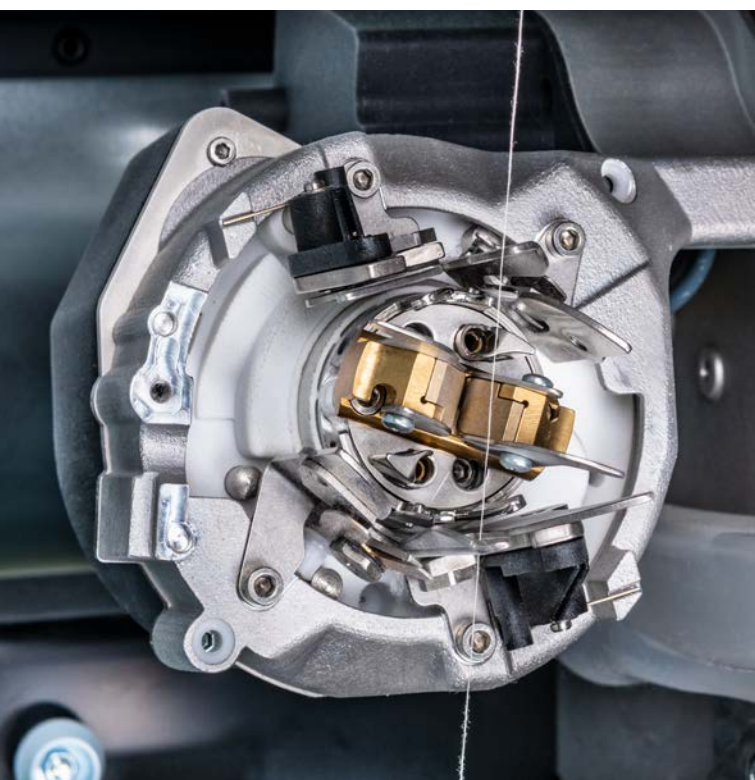


Fig. 1: The Comfort Splicer enables setting of key parameters from one central location.

Optimal layout and maximum process reliability through automation

Optimal process flow in the spinning mill starts with the ideal design of the spinning mill layout. Rieter is setting the benchmark here with Multilink and Multilot, enabling cutting-edge and highly flexible machine settings – a prerequisite for highly automated spinning mills. The automation includes: intelligent material flow control, reliable software-controlled assignment of the cops to be processed to the winding units, flexible definition of the number of winding units by yarn type, and adjustment of these work areas at the push of a button. All of these functions have already proven themselves in the market. Compared with a single link installation, individualized design of the spinning layout saves on resources and costs, as the space is utilized optimally.

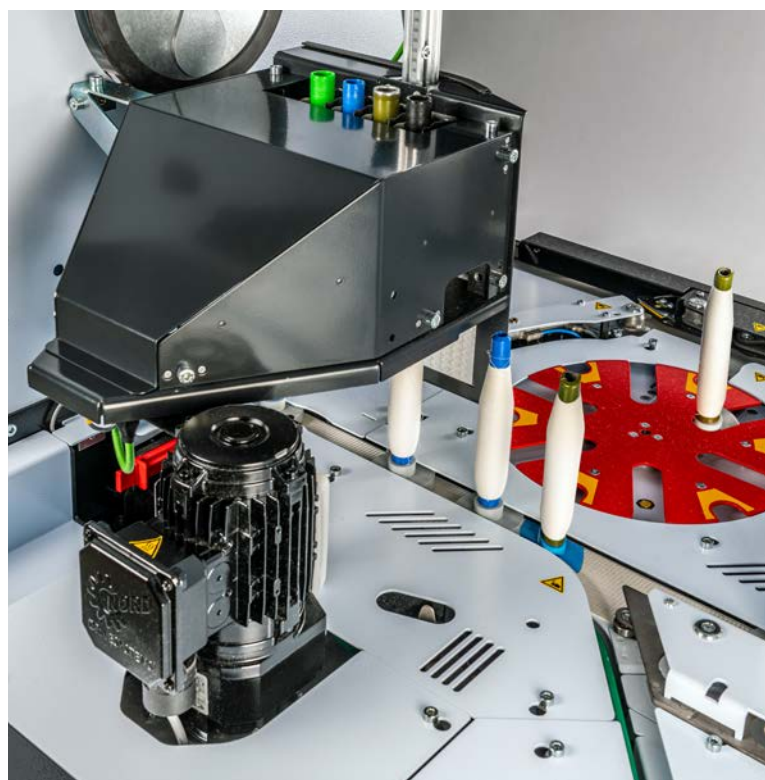


Fig. 2: Color Check guarantees that only the cops of the defined lot are processed.

Automation with the Autoconer X6 is not only effective and economical, it also ensures maximum process reliability. For this purpose, Rieter has developed the new Color Check (Fig. 2). This is an optional aggregate for monitoring tube color and the correct assignment of the cops/tubes to the associated Smarttray. Manual interventions that create incorrect combinations – for instance, incorrect assignment to the work areas defined in Multilot – are impossible. The Color Check option also makes sense for duo-lot or single-lot processing with Type D stand-alone machines. Here, the cops are transported manually to the Autoconer, which is a possible cause of assignment mistakes. Color Check ensures that only the cops of the defined lot are processed. Incorrect cops are safely ejected beforehand, guaranteeing maximum process reliability and flexibility and preventing operator error.

Smart and Efficient – ESSENTIALorder

The webshop for spare parts management

Order management is a challenging task for spinning mills, as machines are made of thousands of parts and supply chains are more complex than ever. In addition, it is important to manage stock levels efficiently. Vardhman Group's 10 spinning mills count on Rieter's webshop to order OEM spare parts around the clock in just a few clicks. ESSENTIALorder offers more than 14.5 million spare parts online. The platform simplifies ordering and enables optimization of stock levels.

Vardhman is India's largest vertically integrated textile manufacturer, with 10 spinning mills across the country. Vardhman's central purchasing team uses a monitoring system and bases its purchasing decisions on real-time data. Rieter machines are running in all 10 spinning mills and thus are dis-

tributed over various locations. The purchasing team set a goal of optimizing their process for procuring Rieter OEM spare parts. Vardhman therefore turned to Rieter for an on-line solution that simplifies ordering and checks the availability of spare parts in real time, with lead time included.

The one-stop solution for spare parts ordering

Rieter's customer service team introduced the webshop ESSENTIALorder (Fig. 1) to two of Vardhman's units in Northern India back in 2019. After the successful launch of the webshop in these two spinning mills, ESSENTIALorder was introduced to the remaining Group units. The simple, easy-to-use ordering process impressed the purchasing team. Today, all 10 of Vardhman's spinning mills have been using the ESSENTIALorder webshop for more than three years.

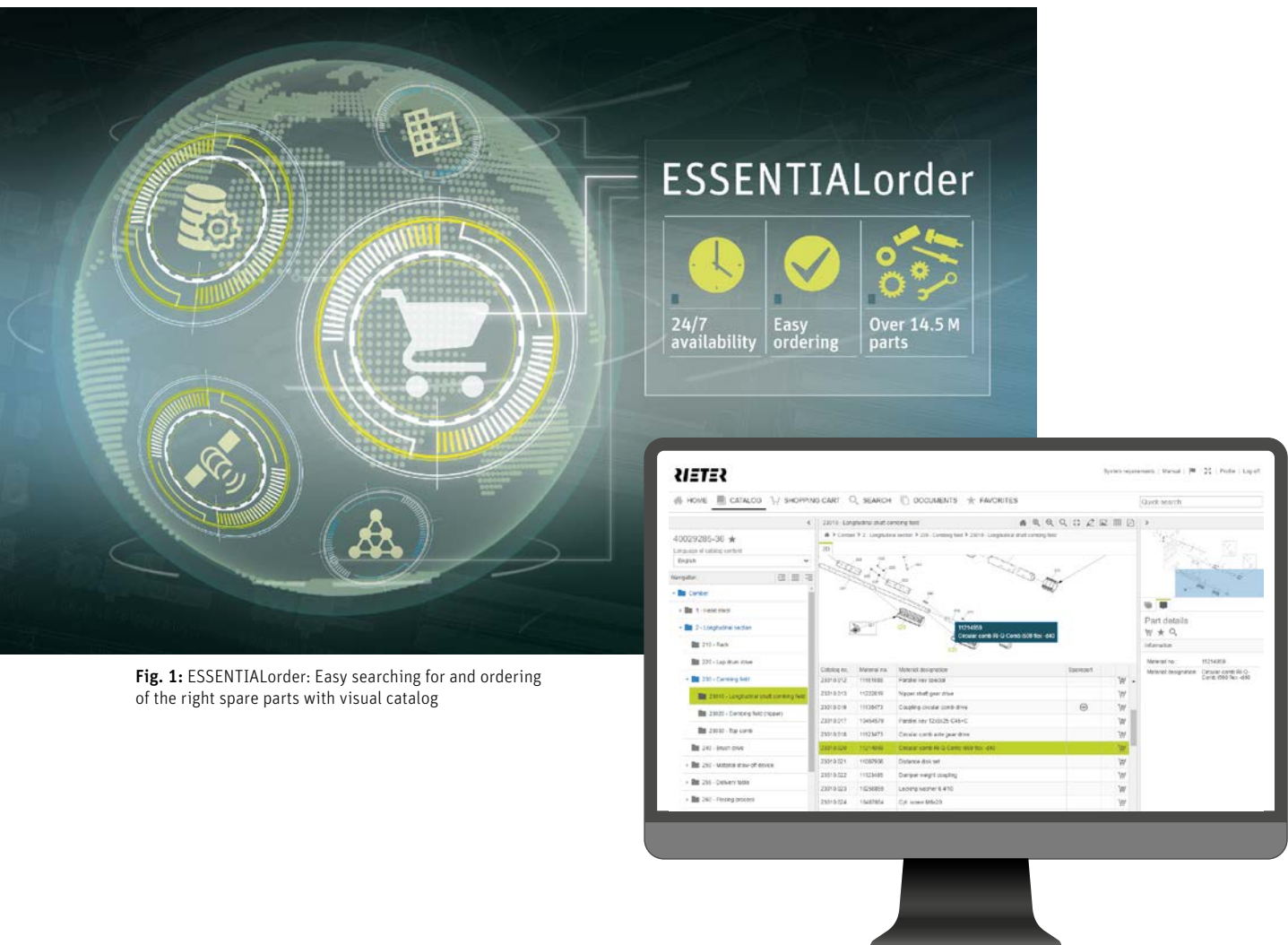


Fig. 1: ESSENTIALorder: Easy searching for and ordering of the right spare parts with visual catalog



Fig. 2: The Vardhman team was recognized at India ITME 2022 for the most orders placed through ESSENTIALorder.

Simple and efficient

ESSENTIALorder has more than 14.5 million spare parts online and is available 24 hours a day, seven days a week. The webshop accesses the machine configurations available in the system to provide a personalized shopping experience. It facilitates order management, enabling spinning mills to optimize their internal stock levels. ESSENTIALorder enables customers to check the price, availability, and lead time before ordering. Customers can download quotes, order confirmations, and invoices on demand. Order and shipping status are available for customers to check the real-time status of their orders. The built-in customized visual catalog (Fig. 1) enables the user to select the correct parts for the respective machine. Additional key benefits include the ability to:

- ensure compatibility of spare parts with equipment design,
- simplify recurring orders via the order history,
- assign roles allowing different functionalities to different users,

- choose who can access and create orders, set quantity limits and track orders, and
- easily order multiple spare parts by uploading a CSV file.

More and more spinning mills are ordering through the webshop. Vardhman has placed the most orders to date (Fig. 2).

The spinning mill team headed by Neeraj Jain, Joint Managing Director, appreciated the efforts taken by Rieter:

“As a user of ESSENTIALorder, our order management process has become much easier and our different spinning mills are optimizing stock levels effectively. ESSENTIALorder is a user-friendly and reliable platform, as spare parts for Rieter spinning machines can be ordered around the clock in just a few clicks.”



Discover our virtual booth. You can tune in to live broadcasts of ITMA in Milan and learn how you can produce even more economically with our products.



virtualworld.rieter.com

Rieter Machine Works Ltd.

Klosterstrasse 20
CH-8406 Winterthur
T +41 52 208 7171
F +41 52 208 8320
machines@rieter.com
aftersales@rieter.com

Rieter India Private Ltd.

Gat No. 768/2, Village Wing
Shindewadi-Bhor Road
Taluka Khandala, District Satara
IN-Maharashtra 412 801
T +91 2169 304 141
F +91 2169 304 226

**Rieter (China) Textile
Instruments Co., Ltd.**

390 West Hehai Road
Changzhou 213022, Jiangsu
P.R. China
T +86 519 8511 0675
F +86 519 8511 0673

www.rieter.com