RIETER

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Key Machine for Highest Efficiency

Autoconer X6 ensures maximum customer benefits throughout the entire Rieter system

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Cover:
The integration of the winding machine Autoconer X6 into the Rieter ring and compact-spinning system opens up new potential for optimizations across all process stages.

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

rieter-link@rieter.com

Dear Customer

Early this year, we were concerned about the ongoing pandemic and the dramatic cost increases, material shortages and logistics disruptions. We expected things to improve step by step – but things got worse, as a consequence of the conflict in Ukraine.

Our thoughts and our compassion are with the Ukrainian people.

And while it is not clear yet what impact this conflict will have on the global economy and the textile business, we see that the spinning industry continues to invest in the latest technology despite long delivery times and price increases which are a consequence of cost development.

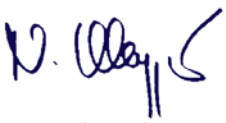
In the present edition of link, you will find two articles related to the Autoconer X6 which Rieter acquired from Saurer. The first article covers the unique features of the machine as well as Rieter's perspectives on customer benefits from the integration of the machine into the Rieter ring and compact-spinning system. The second article demonstrates Rieter's ambitions in terms of supporting the machine in the field over its lifetime.

In addition, this edition contains two articles related to sustainability in textile production. We highlight energy savings in end spinning which have a positive impact on carbon emissions and competitiveness in spinning at the same time. This is particularly important in light of the current energy cost development. And we show the unmatched performance of the Rieter card C 80 in connection with recycling applications.

I trust you will also be interested in what we report about COMPACTdrum, tuft versus draw frame blending, and the success we had with a retrofit of a mill at Ramco in India.

Stay safe and healthy!

Best regards,



Dr. Norbert Klapper
CEO

Key Machine for Highest Efficiency

Autoconer X6 ensures maximum customer benefits throughout the entire Rieter system

Rieter aims to offer the world's leading machines for a complete ring spinning and compact-spinning system. By integrating the winding machine Autoconer X6, Rieter fulfills this goal. With this integration, the spinning mill management system ESSENTIAL opens up the potential for end-to-end transparency and optimization throughout all process steps. The new Multilink systems with Multilot offer maximum flexibility: Up to four ring spinning machines are linked to one Autoconer, with each ring spinning machine able to supply a different type of yarn.

The winding machine serves as the final quality assurance in the ring spinning and compact-spinning process and is key to the performance of subsequent process steps. Yarn faults that are not detected here can result in machine downtimes during downstream processing, problems during the dyeing process, or faults in woven or knitted fabric. The Autoconer is a globally recognized winding machine at the highest performance level, putting it on a par with all other Rieter machines. It reliably detects faults and unevenness in the yarn, cuts these out, and uses the latest splice technology to optimally join together the yarn ends. Customers with a Rieter ring spinning system that includes the Autoconer X6 (Fig. 1) benefit from high levels of efficiency, quality and flexibility.

Fig. 1: The Autoconer X6 is the final quality assurance in the ring and compact-spinning process.

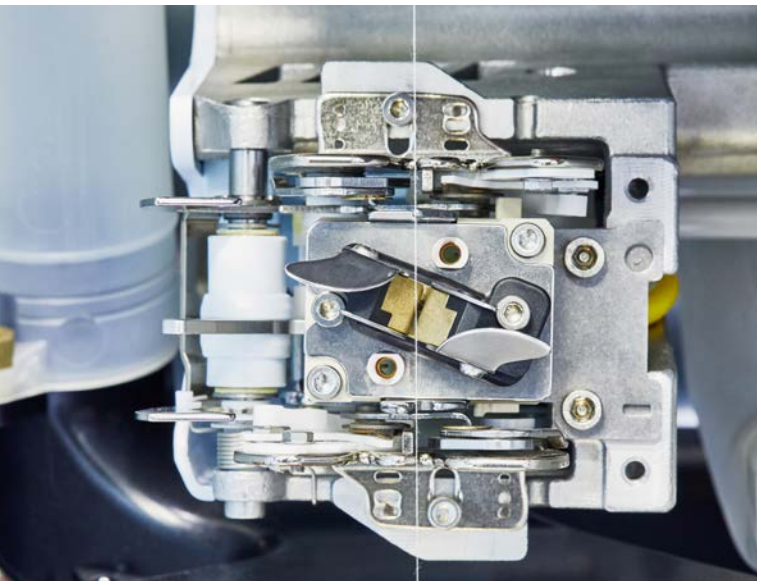


Fig. 2: Using an open prism (prism variant OZ1) results in optimum splice quality.

Indistinguishable splice joints thanks to open-prism technology

The splice quality of the Autoconer X6 is essential because splicing takes place not only when a quality cut is made, but also every time a cop is changed. The prism in the latest splicer no longer features a cover, which means that the prism is open (Fig. 2). This offers a number of benefits. For all cotton yarns (carded, combed, compact) and cotton blends, customers obtain greater and much more even average splice strength when compared to conventional, covered prisms. The splice process itself is more stable, while the fault rate and number of splice cuts are reduced. This makes the splice process more efficient, results in optimum splice quality, and ensures easy handling. Another benefit is the wide range of applications. The prism variant OZ1 covers the entire count range from Ne 20 to Ne 120 and finer. The new OZ2 variant is used for the coarser range from Ne 3 to Ne 40. When splicing cotton-based elastic core yarns, duo-core yarns and multi-core yarns, the open prisms are used in combination with the Elastosplicer; this has already been very successfully introduced in vertically integrated mills. Customers were especially positive about the elasticity of the splice zone, the appropriate strength values of dry splice, and the embedding of elastic filament ends.

End-to-end transparency from bale to package

By integrating the winding machine Autoconer X6, the entire system from bale to package is mapped in the spinning mill management system ESSENTIAL (Fig. 3). In this way, Rieter offers end-to-end transparency in the spinning mill. ESSENTIAL visualizes key indicators that are required for the successful operation and optimization of a system with the Autoconer. This includes information on the machine's production output per shift and per lot, along with data on yarn quality and energy consumption. What if the yarn quality is not as good as it should be? Using defined limit values and analyses of machine events, deviations can be visualized on the operating unit and messages generated so that corrective measures can be initiated promptly. In this way, the highest level of machine productivity can be ensured.

Almost 100 Rieter customers have purchased ESSENTIAL over recent months in order to utilize its end-to-end data transparency to control and optimize their spinning mills, thereby maximizing availability. Integrating the Autoconer into the system also opens up further potential for optimization. With the winding machine as the final quality assurance step, it will be possible to detect quality deviations during production and even to trace the causes back to upstream process steps and rectify them. Rieter has the required expertise across all process steps, provides all the machines needed for the system, and offers the necessary platform ESSENTIAL in order to make the corresponding functionalities available over the coming years.

Fig. 3: The mill management system ESSENTIAL ensures consistent data transparency.

Multilink and Multilot: up to four material feeds at the touch of a button

Intelligent material flow with state-of-the-art RFID technology is at the heart of the Autoconer's automated functions. The material flow configuration Multilink makes automation even more flexible and cost-effective. Up to four ring spinning machines can be linked to one Autoconer using Multilink, arranged in series or parallel. For new investments, spinning mill layouts can be optimally designed to save space. When replacing existing machines with new machines, Multilink enables automation where this was previously not possible, for example where space is limited. The allocation of up to four ring spinning machines also enables cost-effective linking with shorter spinning machines that are typically operated manually. Investment costs and operating costs are also lower compared to a single link. Thanks to its high cycle rates and flexible configuration, more ring spinning positions can be assigned to one Autoconer than to other winding machines. The longest link machine on the market is therefore an Autoconer X6 with 86 winding units, in combination with three ring spinning machines. The longest Autoconer X6 offers a maximum of 96 winding units.

With the function Multilot, Rieter is introducing an innovation to the market. In future, it will be possible to operate Multilink systems as Multilot variants that can process up to four different material feeds simultaneously. This means that each of the four ring spinning machines linked via Multilink can supply a different type of yarn. The yarns are transported within the Autoconer to the winding unit areas using intelligent material flow control.

In terms of flexibility, Multilot is unique: The feed working range can be flexibly adjusted using software, right down to the individual winding unit. There is no limitation to one section size, as with other suppliers. This ensures maximum productivity. The area can be changed centrally at the push of a button, without the need for a time-consuming mechanical changeover to be carried out by personnel. The operator guidance is simple and clear: Color-coded Smarttrays are provided for cop transport. Each material feed from up to four ring spinning machines has a different color (Fig. 4). This is also clearly indicated on the winding unit display.

Fig. 4: Multilink systems with Multilot can process up to four different material feeds.

Fig. 5: Efficiency in upper yarn search and yarn cleaning thanks to intelligent switching sequences

High-performance and resource saving

The Autoconer is the perfect final addition to the Rieter ring spinning system, which is renowned for its efficient and flexible production of top-quality yarns. Yarn wastage, energy consumption, compressed-air consumption and personnel resources are critical factors in determining efficiency during the winding process. With its software-controlled, self-optimizing control loops and units, the Autoconer sets the standard for these factors. Intelligent upper yarn pick-up including Smartcycle and an upper yarn sensor ensures that the exact length of faulty yarn is removed (Fig. 5). Yarn search and yarn pick-up cycles in the cop preparation station are short and precise. In practice, 10 to 15% lower wastage values could be observed compared to competitor installations, for example.

Energy-efficient drives, vacuum control and energy-saving cleaning reduce energy consumption to a minimum. The sensor-controlled generation of vacuum is particularly noteworthy. This enables work to be carried out at the lowest, most economical level, while still maintaining reliable upper yarn pick-up. Comparative measurements show that the Autoconer operates at a vacuum level of 25 to 30 hPa with reliable upper yarn pick-up, whereas other winders need to operate at 35 to 40 hPa in order to guarantee process reliability. This reduces energy consumption enormously.

Smartjet, a nozzle on the doffer for facilitating upper yarn pick-up and the winding unit start-up Launch Control function are other unique selling points of the Autoconer that ensure high productivity. Smartjet helps prevent winding unit downtimes, as there is no need for personnel intervention when searching for the upper yarn. This means that 60 to 80% of operator requests that would otherwise need to be resolved manually are processed automatically. Launch Control enables the winding unit to be brought from zero to production speed with maximum acceleration, while being self-optimizing, and without any slippage between the drum and the package. All of these factors add up to maximum productivity.

Explore all the advantages of the winding machine.

https://l.ead.me/bczrAA

Reducing CO_2 Footprint

End spinning machines with energy-efficient drives and suction systems

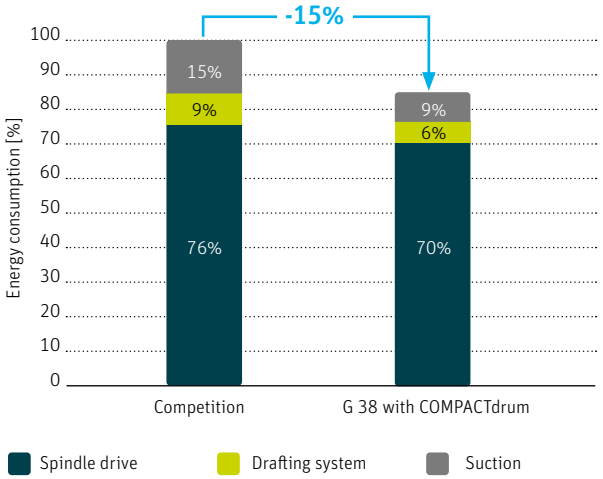
The fashion industry is responsible for a considerable proportion of global CO_2 emissions. Estimates suggest that it accounts for 4 to 7% of global greenhouse gas emissions. As part of the fashion industry, the textile industry is also in focus. Major fashion brands are increasingly demanding transparency regarding the CO_2 footprint of their goods. This requirement has increased demand for yarn produced in an environmentally friendly way. Rieter spinning systems, particularly its energy-efficient end spinning machines, make a significant contribution to reducing the carbon footprint.

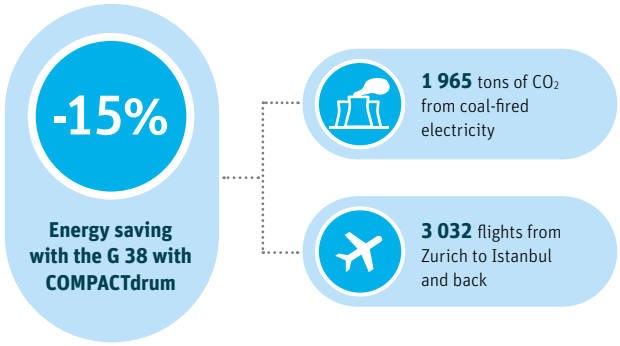
In addition to selecting sustainable fiber material and using renewable energy sources, energy-efficient machines are an important tool of the textile industry for reducing CO_2 emissions. Rieter offers an energy-efficient portfolio for all spinning systems. This applies to every single machine in the process, with the end spinning machines (ring, compact-, rotor or air-jet spinning machines) offering the greatest potential for energy savings. Depending on the procedure, the end spinning machines use 63 to 79% of the energy across the entire spinning process. The finer the yarn, the more energy required. The energy saved by the end spinning machine is therefore even more important. Rieter thus focuses on these machines and, in particular, invests in energy-saving technologies and developments. Every energy saving, however small, clearly pays off.

G 38 with COMPACTdrum uses 15% less energy

Because of their technology, ring and compact-spinning machines consume a high amount of energy per kilogram of yarn compared to rotor and air-jet spinning. Using energy-efficient machines is therefore even more important. Energy-saving motors and an innovative suction system mean that the ring spinning machine G 38 with a fully electronic drafting system meets all requirements for efficient yarn production. In combination with the compacting device COMPACTdrum, the

Energy consumption in compact spinning





Basis:
Ne 40, combed cotton, delivery speed of 20.4 m/min
2.62 MWh per ton of yarn; yarn production of 5 000 tons
Flight: 0.648 tons of CO_2 per passenger, economy class, Zurich to Istanbul, return

Fig. 1: The ring spinning machine G 38 with COMPACTdrum uses 15% less energy than other compacting solutions.

G 38 uses up to 15% less energy compared to the compact-spinning machine of a competitor (Fig. 1). With a production of 5 000 tons of yarn, this corresponds to saving 1 965 tons of CO_2 or more than 3 000 flights from Zurich to Istanbul and back.

Innovative suction system reduces air consumption
More than 80% of the energy consumed by the G 38 is used for the spindle drive. The efficient IE4 main motor works with the LENA (Low Energy Noise Absorption) spindle to deliver additional energy savings. In addition, the proven 4-spindle tape drive with only one large drive motor offers great advantages. The tape drive is energy-efficient, easy to handle, and reliable to operate.

The suction system from Rieter enables significant energy savings. This system is unique because it combines ends down suction and compacting. Having an additional suction unit on the competitor machine requires a separate channel and therefore uses considerably more energy. A precise underpressure at the compacting unit reduces the air consumption of the Rieter solution and is also important for the yarn quality. The G 38 with COMPACTdrum uses up to 42% less energy during suction and therefore considerably less energy than all other common systems.

5% lower energy consumption with the R 70
Rotor spinning is the spinning technology with the lowest energy consumption per kilogram of yarn produced. The fully automatic rotor spinning machine R 70 also has the lowest energy consumption compared to competitor machines. The efficient suction of the machine and the modern drives generate energy savings of 5% in total. This saving is equivalent to 290 tons of CO_2 when 5 000 tons of yarn are produced (Fig. 2).

Efficient use of the spinning units with individual drives
Around 50% of the energy consumed by the R 70 goes to the rotor drives. The rotor drive of the R 70, which runs on contactless bearings, is based on the latest technology. The machine is also characterized by extremely efficient suction. The automatic filter cleaning and optimal air flow reduce unnecessarily high ventilator performance levels by up to 10%.

The modern, electronically controlled individual drives at the spinning units are another reason for the low power consumption of the R 70. If a spinning unit is not in use, having individual drives means that it does not consume any energy. This feature is especially useful if specific spinning units are not in use, perhaps due to cleaning work or when restarting the machine. The low energy consumption of the R 70 ulti-

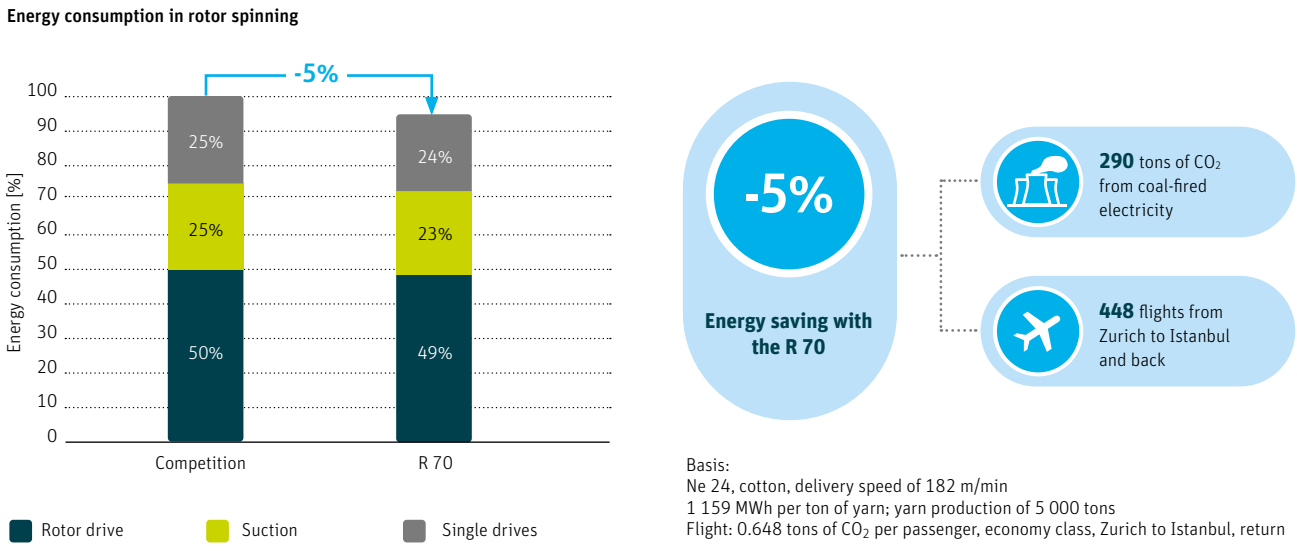


Fig. 2: The energy saving with the R 70 is equivalent to 290 tons of CO_2 when 5 000 tons of yarn are produced.

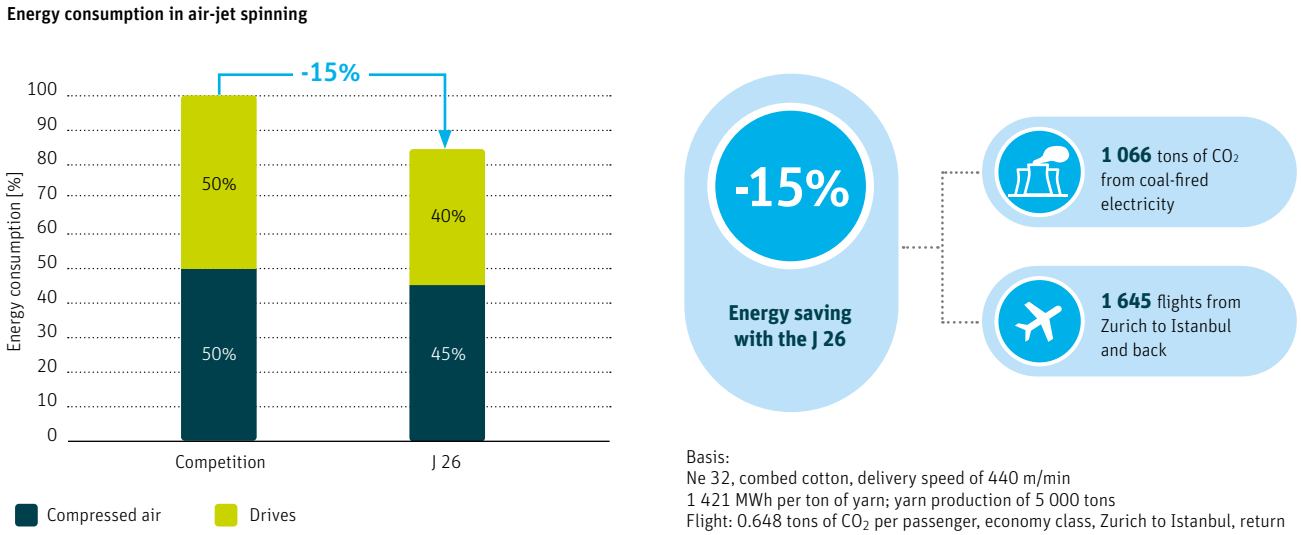


Fig. 3: The 15% energy saving with the J 26 is equivalent to 1 645 flights from Zürich to Istanbul and back.

mately leads to low electrical losses and therefore to lower heat development. If the spinning units heat up less, the spinning hall does not require as much air conditioning.

J 26 uses 15% less energy

Two different types of energy are required for air-jet spinning: electrical energy for the drives and suction system, and compressed air for fiber twisting during yarn formation. In total, the air-jet spinning machine J 26 uses around 15% less energy per spinning unit than the next-best competitor machine (Fig. 3).

The drive concept of the J 26 is based entirely on individual drives. In the case of ends down, a quality cut, or during maintenance work, the spinning unit consumes no unnecessary energy or compressed air. The energy supply for the underpressure is monitored continuously. If the economic efficiency limit is exceeded, a warning is issued. As a first step, automatic filter cleaning is initiated. If this step is not sufficient, the fiber residue must be removed. This requirement is also indicated by a warning. In addition, the intensity of the suction is automatically kept constant by increasing the fan speed. This ensures a consistent yarn quality.

Another measure for reducing the energy consumption is zone suction. Long machines are equipped with suction divided into zones. This format enables consistent suction across the entire length of the machine. All of these features reduce the electrical energy consumption by 5%. For the compressed air, 10% or even more can be saved. Due to efficient twisting of the fibers, the J 26 is considerably more economical than the next-best competitor machine. For soft yarns, such as yarns for knitting applications, the compressed-air saving increases even more significantly.

Rieter systems considerably reduce the energy consumption of yarn production. Rieter is therefore making an important contribution to reducing CO_2 emissions and strengthens the competitiveness of spinning mills, as they can meet the increasing demand for yarns produced in an environmentally friendly way.

High Productivity with a Challenging Raw Material

The card C 80 is perfectly equipped for recycling applications

Customers operate the high-performance card C 80 at up to 270 kilograms per hour with different recycled materials. The sliver quality generally exceeds customer expectations. The high sliver quality can be achieved because of the advantages of the C 80, which has the largest active carding area on the market. Another benefit are the clothings from Graf, which have been developed especially for recycling applications.

At present, only a small proportion of old clothes are recycled – but the trend is clear: Sustainability is on everyone's lips and awareness among consumers is greater than ever. As a result, major brands in the fashion industry are setting ambitious goals to make their products more sustainable, for example by increasing the proportion of recycled material in their clothes. The potential for recycling applications is huge – as are the challenges during processing. The card C 80 plays a decisive role in the spinning process by opening and cleaning the material. This machine allows good-quality yarn to be manufactured even with a high proportion of post-consumer material. Post-consumer material refers to clothes that are torn apart mechanically and separated into individual fibers. The material is very challenging to process because it can contain foreign objects such as zippers, pigment particles, and unopened material.

Production quadruples with the C 80

In a direct comparison at a customer spinning mill, the card C 80 with a production rate of 270 kilograms per hour achieved around four times the production rate of an older model of a competitor machine. 70% virgin cotton and 30% post-consumer material was used as the material blend for producing rotor yarn with a count of Ne 12. Despite the high production rate of the C 80, the yarn quality was much better than the limit value defined by the customer. The thoroughly prepared fiber material also resulted in greater efficiency of the rotor spinning machine. The number of ends down was between 118 and 156 per 1 000 rotor hours and therefore remained below the limit value of 200 defined by the customer. The finished product also convinced with its appearance and quality (Fig. 1).

Fig. 1: The denim fabric made of 70% virgin cotton and 30% post-consumer material was of a flawless quality.

Fig. 2: Demanding material mix at the card infeed

75% lower energy consumption

The significantly higher production rate with very good sliver quality enabled the customer to use fewer cards during production and therefore to make significant savings on energy costs. With a production rate of 270 kilograms per hour, the card C 80 replaced four cards with a working width of one meter. Energy consumption at the same production volume therefore decreased by 75%, which is equivalent to USD 40 000 per year.

Raw material with 90% post-consumer material

Another customer processed a blend of 90% recycled, bleached cotton from post-consumer material and 10% polyester for their rotor yarn with a count of Ne 8 to Ne 24 (Fig. 2). With this challenging material blend and a yarn count of Ne 9, the card C 80 achieved a production rate of 120 kilograms per hour. In a direct comparison with the previous model – the C 70 that also has a working width of 1.5 meters – the C 80 can achieve double the production rate and a higher yarn quality: Yarn imperfections are reduced by around 50% with the C 80 (Fig. 3).

Tailor-made Graf clothings

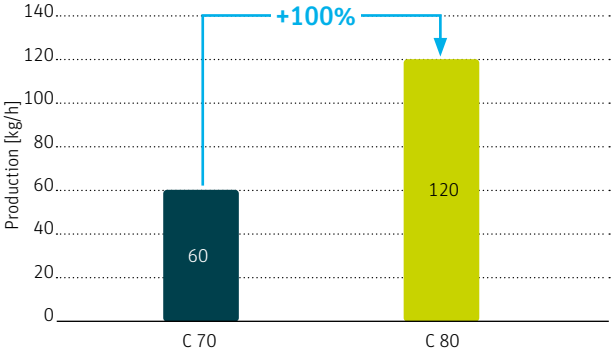
Specially developed Graf clothings are used for processing recycling material. The material is thoroughly pre-separated with a sawtooth clothing on the licker-in unit. Non-compliant materials, such as unopened pieces of fabric, are efficiently eliminated at the mote knife of the licker-in. With the freely adjustable position setting of the mote knife and the licker-in speed, the quantity of waste can be easily set on the display and therefore specifically adjusted to the requirements of the material.

Proven benefits for all raw materials

The C 80 is the card with the largest active carding area on the market (Fig. 4). Based on a working width of 1.5 meters and 40 active flats, the C 80 achieves the best possible sliver quality using any raw material. This is a key advantage, especially for recycled material with a low separation level and a high number of neps. The longest pre- and post-carding zones can be individually equipped and configured to suit the recycling material. The carding gap with 40 active flats can also be quickly and easily adapted thanks to the precise central adjustment of the flats. The reliable web guide with optimally designed guide lips provides a flawless card sliver that is compacted in three stages. This is very important due to the high short-fiber content of recycled materials and the high delivery speeds. Even finer yarns up to Ne 20 and

Doubled production rate with the card C 80

90% post-consumer material
10% polyester, 1.3 dtex, 38 mm
Rotor yarn, Ne 9, short rotor spinning process



Yarn Quality	C 70	C 80
Unevenness [CVm%]	11.6	11.28
Thin places (-50%)	0	0
Thick places (+50%)	30	15
Neps (+280%)	30	13.8

Fig. 3: The production rate of the C 80 is double that of the C 70 when processing this challenging material blend.

Fig. 4: Outstanding performance of the card C 80 with high quality card sliver

beyond can therefore be produced. Thanks to these benefits, the card sliver of the C 80 also offers the optimal condition for a ring yarn made of recycling materials. This considerably increases the range of potential recycling products.

Automatic machine stop for metal and foreign matters

When processing post-consumer material, there is a particularly high risk of encountering foreign objects, especially metal parts. If these parts work their way into the card, they can cause serious damage to the clothings. The metal and foreign matter detector on the C 80 detects these parts using a two-stage system and promptly stops the material supply. Unwanted parts can then be easily removed.

Modular design for easy maintenance

The modular design concept simplifies maintenance, which is very important for recycling applications. The high level of contamination and pigmentation of recycled textiles cause deposits on the card and disrupt the production process. Thanks to the folding-door concept, the technical components on both sides of the machine can be easily reached and cleaned. In addition, the web bridge is easy to take out of the machine from the side so that dust, fiber scuff, and particles of pigment can be removed. From the entire machine concept to detailed solutions, the card C 80 is therefore the optimal choice for recycling applications.

Hidden Treasures in an Existing Spinning Mill

Ramco benefits from improved productivity and yarn quality at low costs

The Ramco Group Textile Division and Rieter look back on a long and successful partnership. The latest highlight is a Performance Optimization Services solution. Once the Rieter After Sales Team implemented the solution, productivity increased by 10% and yarn quality improved by up to 25%, which reduced the costs per kilogram of yarn in an existing mill.

Founded in 1936, the Ramco Group Textile Division (Ramco) is located in the town of Rajapalayam in the province of Tamilnadu, India. The textile industry is the heartbeat of the town's economy. Ramco exports yarns around the world – to the USA, to China, and even to the high-end market of Japan – making a turnover of around USD 175 million each year.

Fig. 1: N. Mohana Rengan, President of Ramco Group Textile Division, is very pleased with the results.

Successful pilot project

Ramco purchased its first fully equipped blowroom and cards from Rieter in 1956. Today, the installed base spans five spinning mills with complete Rieter systems from 2008, consisting of a blowroom, cards, combers, draw frames and compact-spinning machines with a total of 84 000 spindles.

The company produces rotor, ring and compact yarns made of cotton with a count of Ne 20 to Ne 350. Maintaining this high yarn quality requires investing in advanced technology and skills, which has always been part of the strategy at Ramco. This is what prompted the Rieter After Sales Team to pitch the benefits of a performance optimization project to Ramco President, Mr. N. Mohana Rengan. The President replied: “Why should we invest in old machines?” Machine performance declines after a few years in operation and customers often consider new investments. Depending on the condition of the machines, however, performance optimization can extend machine lifetime and improve performance. The Rieter team decided to start a pilot project. The team analyzed the installed base of a ring spinning line and identified clear potential for improvement in terms of quality, productivity and energy savings. Mr. Mohana Rengan was convinced not only by the pilot project’s fast payback but also by the analysis of the installed base. He told the Rieter team to start implementing the solution as quickly as possible (Fig. 1).

An investment plan in two phases

First, the Rieter team made a roadmap for the entire investment, including a mill assessment and in-mill training for the technical team. This made it possible to derive the detailed investment costs and a complete installation plan that also clearly showed the benefits for the customer.

The aim was to increase raw-material utilization and productivity, reduce energy consumption and improve yarn quality in order to recoup the necessary investments as quickly as possible. Ramco and Rieter therefore decided to concentrate on the fiber preparation machines first before shifting their focus to the compact-spinning machines (Fig. 2).

Fig. 2: Very satisfied with the collaboration (from left to right): Manickakumar Petchimuthu Rieter Area Sales Manager, Prakashpeter JK General Manager – Customer Services, Murugan T M Assistant General Manager – Maintenance, both at Ramco Group Textile Division

Visible improvements from fiber preparation to end spinning

Economical yarn production is heavily dependent on the cost of the raw materials. Every mill owner therefore wants to save raw material across the entire production line. For this reason, Ramco decided to invest in optimizing the fiber preparation machines as suggested by the Rieter team. This resulted in both waste reduction and visible improvements in terms of quality – from the bale opener to the card, through to the draw frame and comber – as the final summary shows.

Producing high-quality yarns with high efficiency while keeping energy consumption and costs to a minimum is another key success factor for spinning mills. Specific upgrades to the end spinning machines make this possible. The Rieter team identified various technology components of the compact-spinning machine that could be upgraded. They focused on the quality package, suction insert Bright, suction tubes K-ECOrized (Fig. 3) and the auto doffer kit, as well as fully refurbishing the guiding arm and overhauling wear parts.

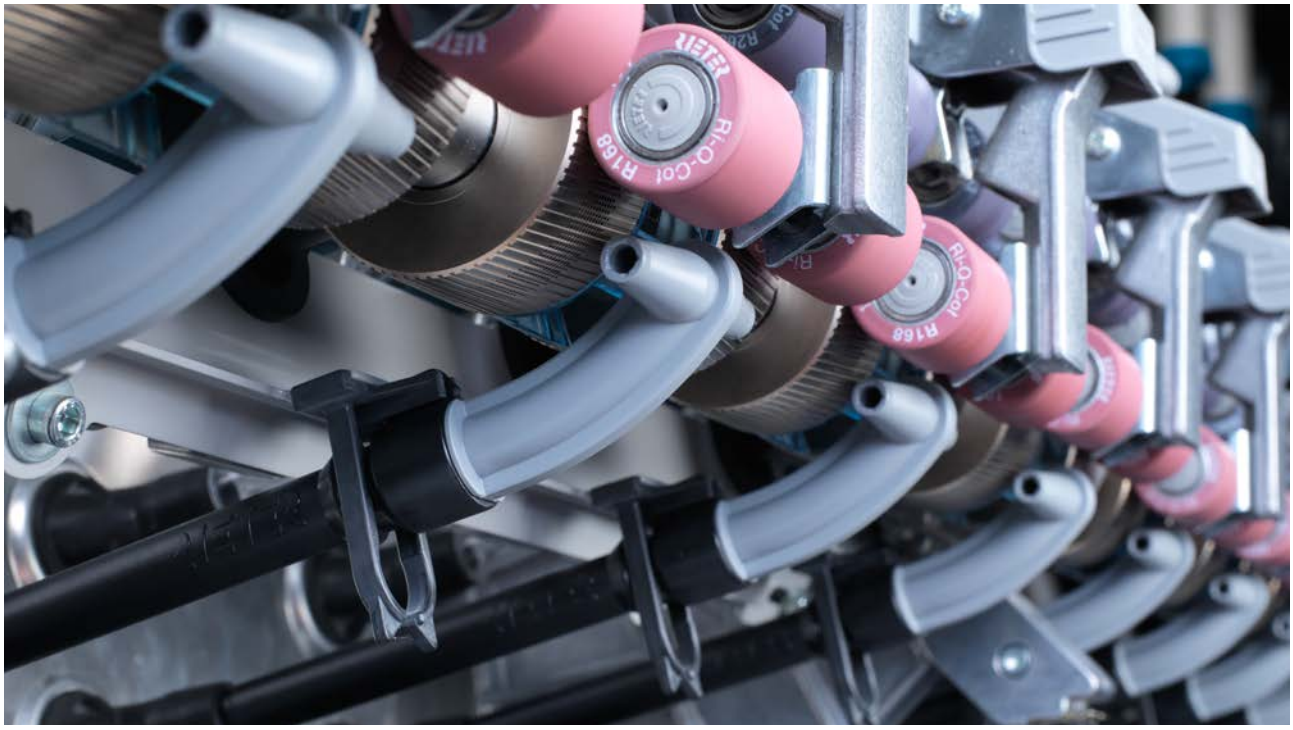


Fig. 3: The existing compact-spinning machines consume considerably less energy after being upgraded with the suction tubes K-ECOrized.

Ramco improves performance and quality with a Rieter after-sales solution

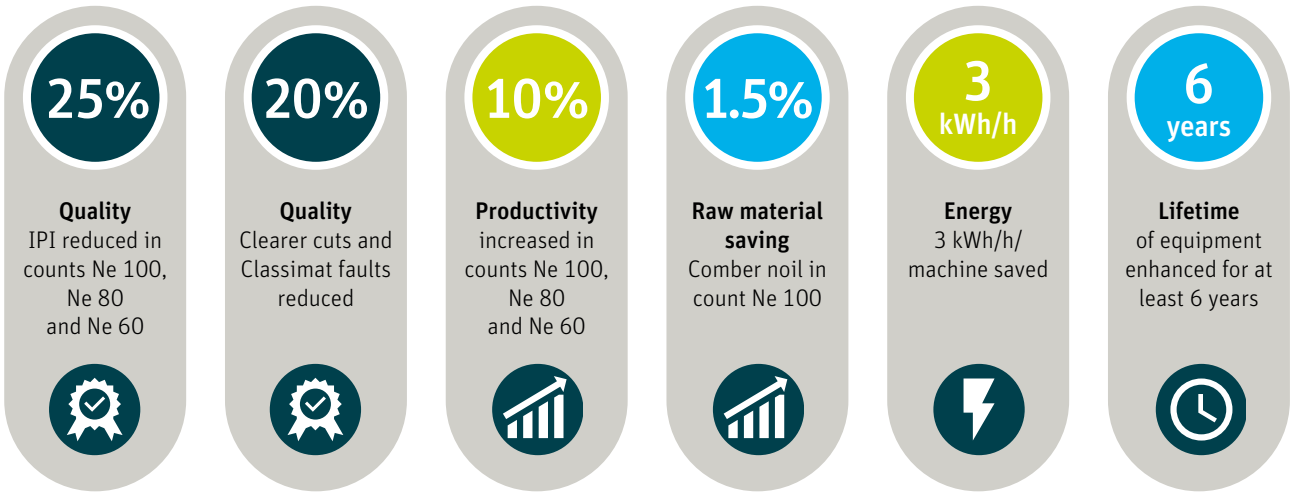


Fig. 4: Ramco benefits from considerable improvements in its spinning mill.

The project delivered considerable improvements for both the preparation machines and the compact-spinning machines (Fig. 4):

- 25% better yarn quality (imperfections) with a significant reduction in cleaning cuts and Classimat faults,
- 10% higher productivity for yarn counts Ne 60, Ne 80 and Ne 100,
- 1.5% raw-material savings for yarn count Ne 100, mainly with noil,
- energy savings of 3 kWh/h per compact-spinning machine and
- at least six years lifetime increase across entire equipment.

The return on investment of the entire Performance Optimization Services solution, resulting from productivity increases and energy- and raw-material savings, was about two years. After the Rieter team handed over the final report, the President said:

"By anticipating the customer demand and market trend in the future, we decided to invest in this solution project in two phases in the years 2019 and 2020. It really worked out well and we felt that we made the right decision at the right time. The results are encouraging, and the investment also started to return back in today's market scenario. I appreciate the initiative and the approach of the Rieter team for delivering such a tailor-made solution concept for our installed machines and for the end-to-end preparation based on the mill assessment to finish the project on time. The Service and Repair Service Team also did well in terms of fine tuning and smooth installation."

Do you want to make your business more competitive and optimize the performance of your spinning mill?

Find information and contact details here:

https://l.ead.me/bclbIA

Winding Machine Now in the After-Sales Portfolio

Retrofits increase the competitiveness of the spinning mill

Through the acquisition of the automatic winding machine, Rieter has also expanded its after-sales portfolio. Customers benefit from new products in terms of spare parts, upgrades and conversions, alongside customer and digital services. The aim is to increase the competitiveness of the spinning mills.

Rieter is the only company in the industry that covers all process steps in ring spinning and compact spinning, from fiber preparation to winding. Original spare parts are always the best choice, because they enable the machines to be used to their fullest potential. In addition, a wide range of conversions, retrofits, and software updates enable the productivity of the spinning mill to be increased.

Conversions and upgrades increase competitiveness

The open prism OZ1 is an innovation in the area of splice technology, and is now also offered for retrofitting. It significantly increases splice quality, improves the splice process, and simplifies handling. The nozzle Smartjet increases efficiency when searching for the upper yarn. This reduces downtimes, the operator workload is lower and at the same time process reliability is increased. In addition, the suction arm tube ensures highly efficient air routing, which guarantees total reliability for the upper yarn pick-up (Fig. 1).

Fig. 1: The optimized suction arm tube enables reliable yarn pick-up when searching for the upper yarn.

Converting the waxing unit enables perfect plying of S- and Z-twisted yarns. Sensors monitor the waxing roller, reducing waste by up to 30% (Fig. 2).

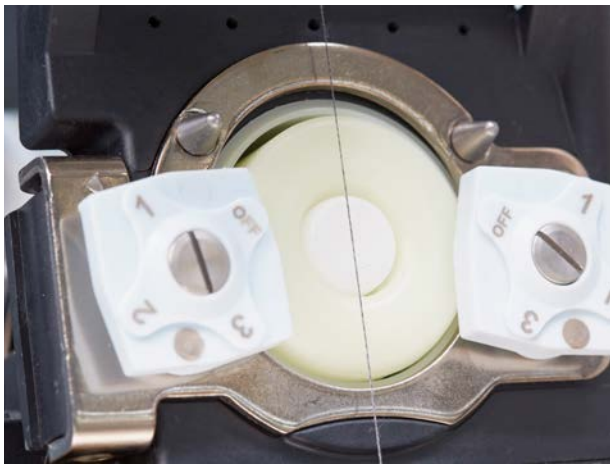


Fig. 2: The waxing unit reduces waste by up to 30%.

There are four different options for the splicer, depending on yarn type. They provide ease of handling and short, reliable splice cycles. The function Propack FX enables packages without anti-patterning, that means with excellent dyeing and unwinding behavior. Elastic yarns are delicate and require special attention when winding. Here, the function Variopack FX ensures straight flanks for faultless downstream processing.

Leveraging a global presence

Rieter leverages its global presence by offering winding-machine-related services worldwide, including repair and after-sales services and textile technology support. In this way, Rieter ensures competitive production for Autoconer customers and a long service life for their winding machines.

Discover more by scanning the QR Code.

https://l.ead.me/bdOgGj

Tuft or Draw Frame Blending – A Guideline

Ring yarn and rotor yarn made from cotton-polyester blends

Estimates suggest that 45% of short-staple fibers are processed in their pure state, while 55% are spun into blended yarns. Cotton and polyester blends are the most popular type of blended yarn. Due to the increasing consumption of man-made fibers and the important role of blends, Rieter has conducted research into the influence of different blending systems on intermediate and end products.

Blended yarns are so appealing because the yarn properties can be specifically influenced through the combination of fibers made of different raw materials or of varying length or fineness. A business shirt has different requirements in terms of yarn than a pair of hiking pants or a sports shirt. Blending can take place at different process steps in the spinning process – during fiber preparation or on the draw frame. How does this affect the sliver, the yarn, and the textile surface? To answer this, Rieter has developed a guideline that analyses when each blending system is most suitable, taking into account the end spinning process and varying polyester content.

Tuft or draw frame blending?

Two common blending systems are used in spinning mills. Firstly, there is tuft blending: This involves raw material being continuously fed in during fiber preparation via the precision blender UNIblend. Secondly, there is draw frame blending, which involves card sliver from each of the raw-material components being blended on the draw frame. Rieter research shows the homogeneity of intermediate products, the yarn, and the textile surface when different blending systems, blend ratios, and final spinning processes (ring spinning and rotor spinning) are used. Based on various quality criteria, a guideline was developed from this research that specifies when the use of each blending system is recommended. A medium-quality cotton and a spun-dyed polyester (black) were selected as raw materials for the research. Using the color difference between the fibers, it is possible to assess the blending behavior even at the beginning of the process steps.

The entire system influences the blend

In the case of tuft blending, the blending begins earlier in the spinning process, whereas with draw frame blending this takes place later. However, the research has shown that the entire system, not just a single process step, has an influence on the blend. The card, the draw frame passages, and the end spinning machine perform part of the blending process and therefore have an impact on homogeneity.

Tuft blending creates improved homogeneity for ring yarn

In comparison to the rotor spinning machine, marginal fiber blending occurs on the ring spinning machine. It is therefore important that the blending of the fibers begins as early as possible in the process and that the ring spinning machine is fed roving that is as homogeneous as possible. For this reason, tuft blending is the more suitable choice for ring yarns

Comparison of blending systems: roving with 67% polyester content

Fig. 1: Tuft blending provides a more homogeneous roving.

Blend consistency for ring yarn
Polyester 1.7 dtex, 38 mm, cotton 1 1/8 in, Mic. 4.65, Ne 30

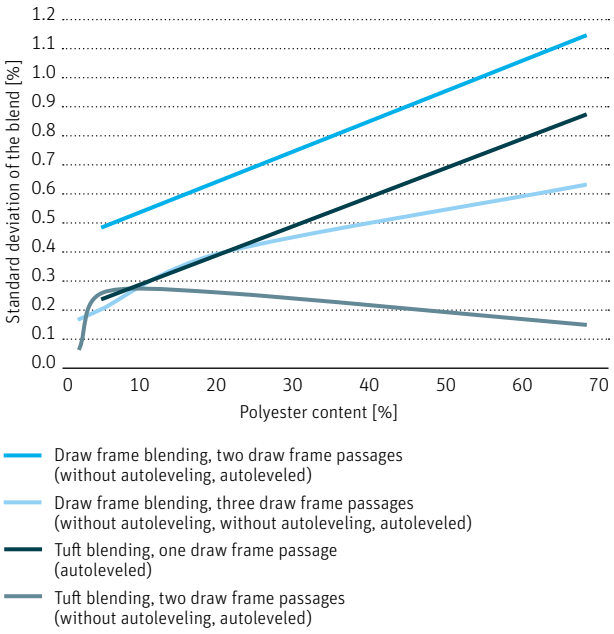


Fig. 2: Tuft blending with two draw frame passages generates the best results for ring yarn.

Blend consistency for rotor yarn
Polyester 1.7 dtex, 38 mm, cotton 1 1/8 in, Mic. 4.65, Ne 30

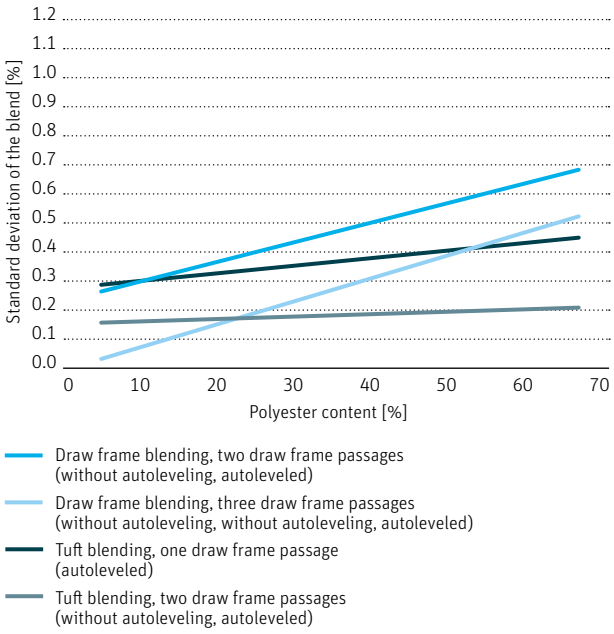


Fig. 3: In rotor spinning, the blending system and the polyester content play a less important role.

compared to draw frame blending. Here, the continuous fiber feed provided by the UNIblend ensures better homogeneity (Fig. 1). A very good indicator of the consistency of the blend is the standard deviation, which is the average deviation of all measured values from their mean value. By far the best blend consistency is achieved by means of tuft blending with two draw frame passages (Fig. 2).

Additional blending effect in rotor spinning

On a rotor spinning machine, the sliver being fed in is broken down into individual fibers and combined to form a new fiber mesh (rotor yarn). This additional effect of fiber blending means that the blending method has a significantly lower impact on rotor yarn (Fig. 3). The results are very similar for the different blends. From a technological point of view, draw frame blending is therefore often enough. Generally, even two draw frame passages are sufficient to achieve an adequate degree of evenness and a consistent blend.

Influence of the blending ratio

Polyester has a significantly higher tenacity than cotton. This is one reason why this fiber blend is so popular. The percentage of polyester has a greater influence on the yarn properties of ring yarn than on rotor yarn. This is due to the different yarn structure. As the polyester content increases, so too does both the yarn tenacity and evenness; the consistency of the blend, however, decreases.

Read more in the detailed guideline.

https://l.ead.me/bbi405

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