RIETER

ENSURING HIGHEST QUALITY WITHOUT CONTACT – Smooth combing plant operation day and night thanks to SERVOlap E 26 • PUSHING THE BOUNDARIES AGAIN – Air-jet yarn now for woven fabric with wool effect • BOOSTING PRODUCTION THROUGH CONVERSIONS – Success story about the card C 70 • PRODUCTS AND SOLUTIONS TO MEET EVERY CHALLENGE – The Rieter After Sales product portfolio opens up new opportunities for growth

link

The customer magazine of Rieter

No. 73 / 2018 / EN

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Reduce personnel and ensure quality – this is offered by the lap transport system SERVOlap E 26.

Publisher:
Rieter

Editor-in-chief:
Anja Knick
Marketing

Design and production:
Marketing Rieter CZ s.r.o.

Volume:
Year 30

Address changes:
Please send to the following e-mail address: rieter-link@rieter.com

Ensuring Highest Quality Without Contact

Smooth combing plant operation day and night thanks to SERVOlap E 26

The new fully automated lap transport system SERVOlap E 26 (Fig. 1) does not just reduce labor cost. The flexible and efficient transport of laps also enables a combing plant to be run seamlessly and with no problems – 24 hours a day.

The Rieter SERVOlap E 26 is a fully automated lap transport system for combing plants that offers a wealth of benefits. For one, the system significantly cuts the personnel requirements as demonstrated by an example from industry. On average, five operators are working in a combing plant made up of 18 combers E 86 and three OMEGAlap E 36 machines. Thanks to the automation brought about by the SERVOlap E 26, this is reduced by one person (Fig. 2). This potential for reductions is also confirmed by Wang Shangjun, Mill Manager Esquel Changji, in China:

"To date, we needed two people per shift to operate 10 combers. By using the E 26, only one operator is now required to operate 11 combers. We now make savings in a three-shift working pattern of around three full-time positions, which equates to an annual wage bill of CNY 100 000 (approx. USD 15 800)."

> With the E 26, we make savings of three full-time positions in a three-shift pattern.

Another benefit is that uninterrupted production of the combing plant is guaranteed even if an operator is temporarily unavailable. This may take place during the night shift when there is usually fewer staff on shift in a spinning mill.

Fig. 1: The E 26 is efficient at transporting laps from the OMEGAlap E 36 to the combers, and takes up little space.

Personnel requirements in combing
Example: 76 000 spindles K 46 and 1 348 kg/h production

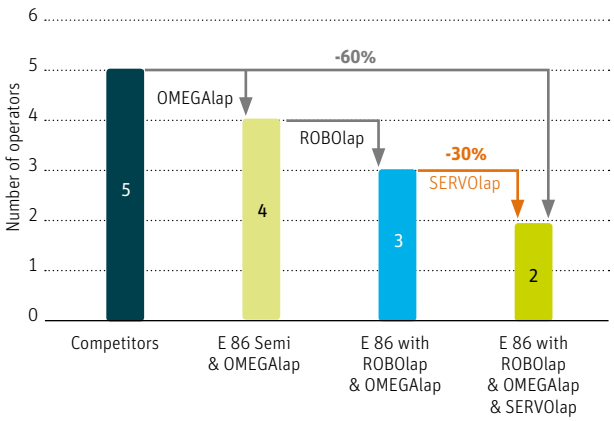

Fig. 2: One less operator per combing plant system is needed thanks to the SERVOlap E 26.

Fig. 3: Quality is ensured, since the batt remains untouched during the entire lap transport process.

Consistent quality assurance

A total of eight laps are transported from the combing preparation machine to the comber in a completely contact-free process, during which the quality of the batt is ensured at all times. External influences, such as the operator touching the lap, are prevented. During automated transport, grippers hold the laps on the inside of the tube (see Fig. 3).

Precise positioning of the laps on the comber is possible thanks to the spacing between individual combers being measured by laser. This is the ideal prerequisite for the subsequent piecing of the new batt.

Combining the SERVOlap with fully automated combers allows a combing plant with a closed material circuit to run with autonomy. The full laps are transported from the OMEGAlap to the comber. Once the laps are run empty, SERVOlap collects the empty tubes from the comber and returns them to the combing preparation. This automation makes it much more efficient to supervise and operate a combing plant.

The key to efficiency

The SERVOlap E 26 is both reliable and durable thanks to its robust components and simple design. Furthermore, the overhead construction means the system is compact and enables the combing plant to be arranged in a flexible manner. Working in combination with the automated lap change and batt piecing system ROBOlap, the E 26 is the key to optimum utilization of a combing plant – both day and night (Fig. 4).

SERVOlap E 26
Reduce labor costs and ensure quality

Scan the QR code for more information
http://l.ead.me/baqNSR
(Animation)

Fig. 4: The fully automated lap transport system SERVOlap E 26 in use

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Yvan Schwartz
Head Product Management Combing Machines & Systems
yvan.schwartz@rieter.com

The Efficient Workhorse

R 36 with improved quality and simpler operation

The semi-automated Rieter rotor spinning machine R 36 offers huge benefits. Customers value this machine generation, which combines a wealth of improvements in the applications. The machine is easy and ergonomic to operate. Thanks to the machine concept, operating personnel can handle more rotor spinning positions than with other models, which results in more efficient production.

The semi-automated rotor spinning machine R 36 is known for its robust construction. It is reliable and strong. The fiber yield has been optimized compared to predecessor models, and it also achieves a better yarn strength. The machine impresses in terms of yarn piecing and winding with excellent results. The new rotor spinning machine generation is versatile – whether working with conventional or challenging raw materials, the R 36 delivers the quality required.

On trend

Rotor spinning machines have always produced woven and knitting yarns from cotton and viscose. However, yarns produced from waste and recycled fibers are increasingly gaining in significance. These kinds of fibers can only be processed using the rotor spinning method. Some of the first R 36 customers ordered their machines precisely for this purpose.

Positive feedback

The latest improvements to the R 36 spinning stability satisfy the requirements of the above applications. The optimized yarn strength, combined with rapid yarn piecing, provides a high level of piecing quality with minimal loss of short fibers. This ensures smooth and efficient processing in downstream processes. Customers that use the rotor spinning machines R 36 with the modern piecing technology AMIspin for denim yarns are repeatedly receiving very positive feedback from weavers. R 36 yarns compete, in part, with yarns from older automated machine generations. The consistently good quality of piecers with the AMIspin or the new AMIspin-Pro on the R 36 make this possible (Fig. 1).

Fig. 1: Piecing preparation is even easier with the new AMIspin-Pro option on the R 36.

Application ranges of the semi-automated rotor spinning machine R 36						
Country	**Machine length [rotors]**	**Raw material**	**Yarn count [Ne]**	**Rotor diameter [mm]**	**Rotor speed [rpm]**	**Machine production [kg/h]**
TR	600	40% regenerate/35% CO waste/25% PES	20	36	82 000	105.1
TR	600	90% regenerate/10% PES	8	44	47 000	197.2
TR	500	90% regenerate/10% PES	7	44	45 000	146.7
TR	600	65% regenerate/35% PES	20	36	80 000	103.8
IN	500	15% CO/85% CO waste	12	33	102 000	175.2
IN	600	40% CO/60% CO waste	20	33	108 000	95.3
IN	600	40% CO/60% CO waste	5.3	41	60 000	561.1
IN	500	20% CO/80% CO waste	10	33	95 000	206.0
CN	460	CO waste	21	33	85 000	68.7
BR	600	Regenerate	8	41	55 000	205.1
BR	600	Regenerate	8	41	85 000	396.0
CN	460	CO waste	16	33	90 000	99.7

Fig. 2: The R 36 is used already today in a wide range of applications.

Attractive processing options

Customers in a range of applications already use the semi-automated rotor spinning machine R 36 with great success (Fig. 2).

- Waste blend Ne 20: Although this blend has a high short-fiber content, the ends down rate of the R 36 is below 150 per 1 000 rotor hours. Achieving a yarn strength of 12 cN/tex is therefore easy, coupled with a consistent piecing quality. Yarn buyers really value these kinds of yarns, since they result in low stop rates during weaving.
- Yarns from cotton and waste with a count of Ne 20 can be produced at 110 000 rpm. They have excellent weaving properties.
- Coarse yarns such as Ne 8 made from recycled fibers bring about excellent productivity: machine efficiency of over 95% and a rotor speed of more than 80 000 rpm are possible.
- Ne 20 yarns from recycled fibers mixed with polyester can be spun at an ends down rate of below 200 per 1 000 rotor hours. These yarns are excellent for knitted products, such as for work gloves.
- Ne 12 yarns from a blend of various cottons with waste, spun successfully at a delivery speed higher than 170 m/min, are used as weaving yarns.

Strength, elongation
Cotton/noil/card flat waste blend, Ne 16, rotor speed 95 000 rpm, rotor diameter 33 mm, delivery speed 104 m/min

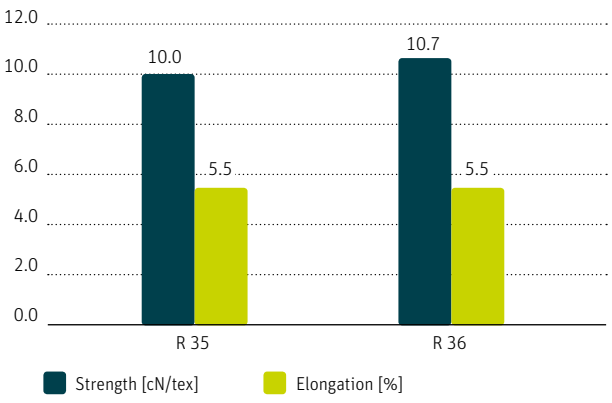

Fig. 3: The yarn produced by the R 36 is stronger. It can be used as a reference for these kinds of blends.

Imperfections
Cotton/noil blend, Ne 7, rotor speed 80 000 rpm, rotor diameter 38 mm, delivery speed 192 m/min

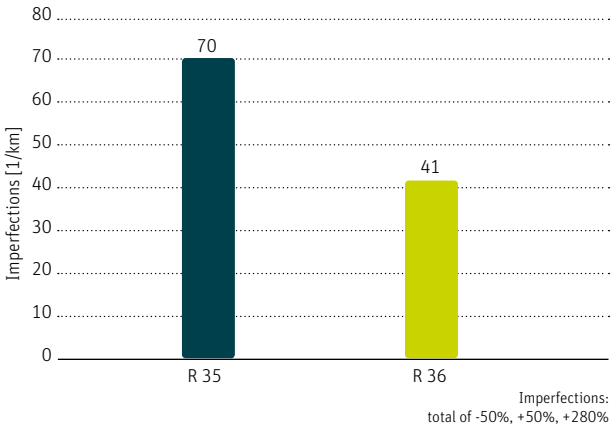

Fig. 4: The Ne 7 coarse yarn spun on the R 36 has significantly fewer imperfections.

Yarn strength
Cotton/noil blend, Ne 30, rotor speed 110 000 rpm, rotor diameter 33 mm, delivery speed 108 m/min

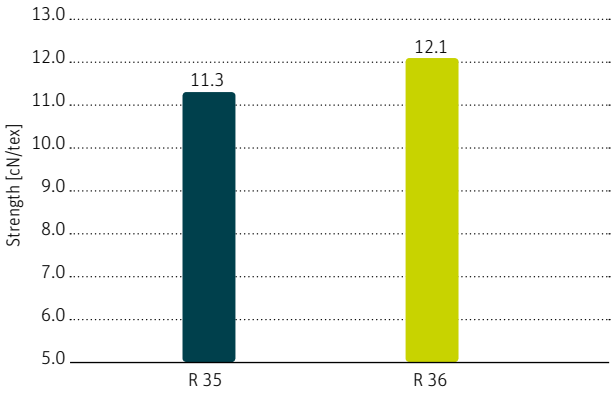

Fig. 5: This fiber blend enables discerning customers to achieve excellent strength teamed with high production rates on the R 36.

Further tests confirmed the benefits of the R 36 in terms of yarn strength and imperfections, such as when measured for yarn counts Ne 16 and Ne 30 (see Fig. 3, 5).

Fewer personnel needed to operate machinery

The number of personnel required per kilogram of yarn in a rotor spinning plant is considerably less than with other spinning processes. Despite this, rotor spinning plants are finding it increasingly difficult to employ staff who have the right level of training. As a result, machine operators tend to have a high workload.

The amount of supervision required for the semi-automated rotor spinning machine R 36 is low, making it incredibly simple to operate. One example is the spin box, which is positioned at the ideal working height, making it easy for the operator to visually inspect the rotor cleaning process. The AMIspin piecing process and the new AMIspin-Pro option are easy to learn, thereby making operation even simpler. Working processes at the machine are effective and require little physical involvement.

Numerous follow-up orders

The R 36 impresses not just with low ends down rates, but also in its efficient and ergonomic work processes. Operators can therefore operate significantly more rotors than on other machine types. A optimally designed workplace is attractive to operators. It helps spinning mills to find suitable staff and, in comparison to installations with other machine equipment, actually retain them.

The semi-automated rotor spinning machine R 36 keeps its promises – something verified by repeated orders from multiple spinning mills.

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Karel Bonek
Product Management Rotor Spinning
Machines & Systems
karel.bonek@rieter.com

Little Work, Increased Production

K 42 achieving top speeds with good yarn quality also in China

Customers in China requested for the Rieter compact -spinning machine K 42 to run at slower speeds than it does in other countries. They were worried that high spinning speeds would lead to higher ends down rates, and therefore a rise in wage costs. Rieter conducted trials at a Chinese customer to prove that the K 42 is a master at balancing high speeds and low ends down rates.

Spinning mills can successfully sell their yarn only when the quality is right and the production costs are low. With this in mind, Rieter sees its task as developing machinery that will allow spinning mills to cut their costs. Production speed plays a key role in this regard. Increasing the speed boosts overall production, which results in a reduction in yarn production costs. Using high-performance machines is therefore key to any spinning mill being profitable.

Ruling out all risks

The compact-spinning machine K 42 (Fig. 1) runs at lower speeds in China than in other countries. In India, for example, weaving yarns of pure cotton in Ne 60 and Ne 80 yarn counts are run at speeds of up to 25 000 rpm (for Ne 60) or 23 000 rpm (for Ne 80). The same yarn counts are run at a maximum speed of just 18 500 rpm in China.

Chinese customers do not operate their machines at higher speeds because this could lead to higher ends down rates. If the accepted maximum of 15 ends down per 1 000 spindle hours were to be exceeded, it would bring about an increased risk of higher wage costs. There is also an assumption that higher speeds will result in lower yarn quality, in terms of hairiness in particular. Chinese customers therefore want to ensure that their machines work soundly and deliver good quality, which is a perfectly normal requirement. However, this does mean that they are missing out on the chance of high productivity. Trials conducted at a Chinese customer are set to disprove the widespread concerns of spinning speeds being too high.

30% more yarn with the same quality

In a joint project with a Chinese customer, Rieter took the opportunity to increase the speed of the current compact -spinning machines K 42. Additional parameters such as yarn count and elongation, as well as technology components remained unchanged. For instance, the original spinning speed of 16 500 rpm was increased incrementally to 21 500 rpm for a weaving yarn of Ne 60. The result was a rise in productivity by 30.3% and a consistently good yarn quality (Fig. 2).

For one weaving yarn of count Ne 80, the speed was increased from 18 500 rpm to 20 500 rpm, resulting in a 10% rise in production. Although the yarn quality was slightly worse, it still met the customer's requirements.

Fig. 1: The compact-spinning machine K 42 can achieve better results than those currently being achieved in China.

Yarn unevenness and imperfections
100% long-staple cotton, Ne 60

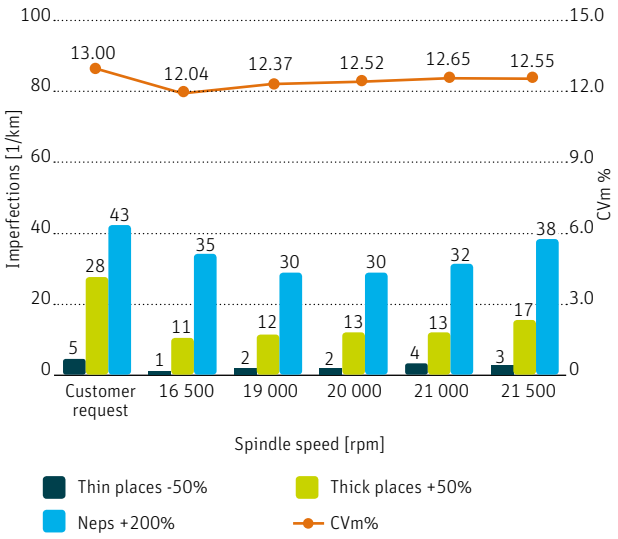

Fig. 2: With 30% higher production, the Ne 60 yarn quality is of virtually the same standard.

Ends down and hairiness
100% long-staple cotton, Ne 60 and Ne 80

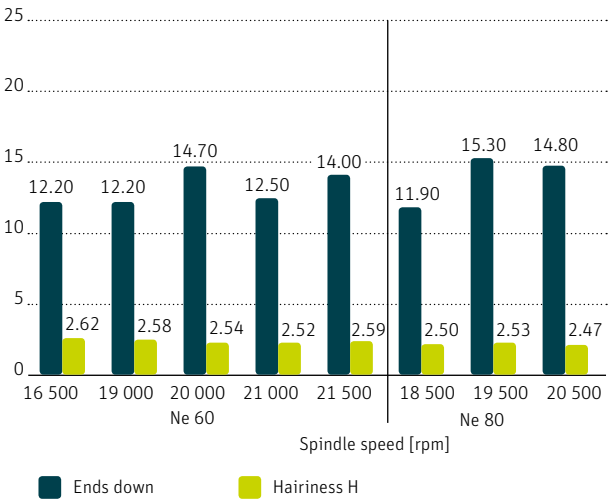

Fig. 3: The number of ends down per 1 000 spindle hours and the hairiness reached an very good level, even at high speeds.

Ends down and hairiness also at a good level

When increases are made to the spinning speed, Chinese customers focus, in particular, on the ends down and hairiness of the yarn. Both aspects were tested with every incremental increase. Even when run at higher speeds, the ends down rate fell below the maximum permitted ends down of 15 per 1 000 spindle hours, while the hairiness remained virtually unchanged (Fig. 3).

The trial results therefore clearly showed the concerns of Chinese customers regarding maximum production with the K 42 to be unfounded. Key requirements included the precise centering of components such as the yarn guide, balloon control ring and spinning ring as well as an incremental increase in speed.

Impressive figures

A 30% increase in speeds provides a 14% decrease in yarn production costs. For example, in a project involving compact-spinning machines K 42 with a total of 50 000 spindles, the customer could achieve an annual increase in profits of CHF 750 000 (based on running 350 days, 24 hours a day).

Decisive factors

Spinning mills that use Rieter compact-spinning machines can therefore run at high speeds. And with good yarn quality. This is made possible by the unique spinning geometry. A systematic approach is required to utilize the potential of the K 42 in full. In doing so, factors such as raw material and technology components must be considered, as well as machine settings and climate control. In comparison to competitor machines, the K 42 can spin affordable yarns at a good level of quality, enabling all Rieter customers to assert themselves strongly in a hard-fought market.

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Yun Wu
Product Management Ring Spinning and Combing Machines & Systems
yun.wu@rieter.com

Pushing the Boundaries Again

Air-jet yarn now also for woven fabric with wool effect

To date, air-jet yarns have been primarily used for knitted fabrics, which can be traced back to their incomparably good pilling qualities. Interest in making increased use of air-jet yarn in weaving mills is also on the rise. A new study is providing valuable findings on this matter and opening up new application ranges.

The below extract from a recent study takes a closer look at the use of air-jet yarns in weaving mills. It focuses on the search for a high-strength yarn that can be processed in both the warp and the weft to a high quality. In this context, an innovative raw material blend should also be created and tested. Polyester and lyocell fibers were used in differing blend ratios. The aim was to create a visual wool characteristic for use as suit or coat material. To provide better classification of the results, these fibers were compared with a ring yarn.

Special print:
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Yarn structure of air-jet yarn
50% polyester/50% lyocell, 1.3 dtex, 38 mm, Ne 40

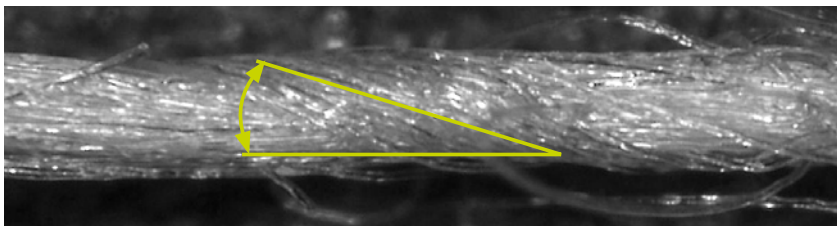
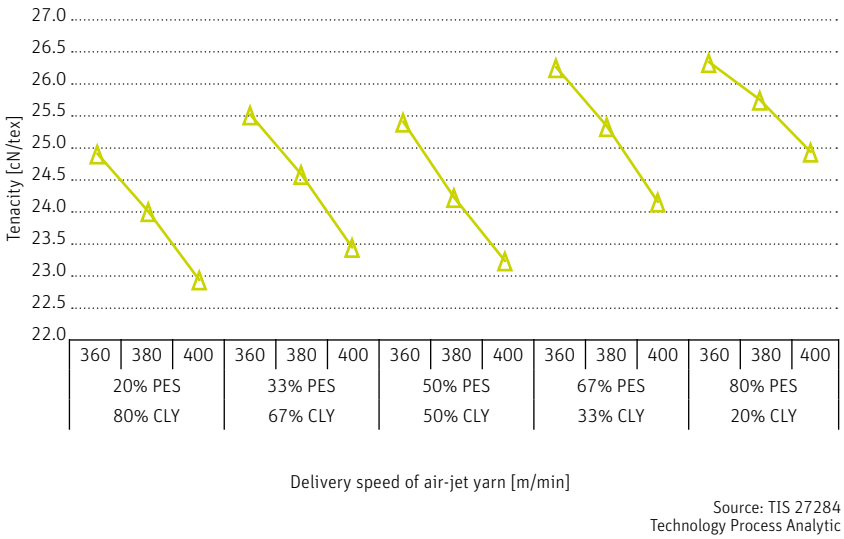


Fig. 1: The angle of the wrapping fibers has an influence on the yarn strength.

Tenacity
Polyester/lyocell, 1.3 dtex, 38 mm, Ne 40



Source: TIS 27284
Technology Process Analytic

Fig. 2: A higher polyester content increases the yarn tenacity.

The yarn structure of the air-jet yarn is characterized by parallel fibers in the core and in fibers that wrap around the fiber core – "wrapping fibers". The greater the speed at which the yarn is spun on the air-jet spinning machine, the flatter the angle of the wrap fibers. A flat angle means less core spinning of the parallel core fibers. The fiber-to-fiber friction is reduced, resulting in lower yarn strength.

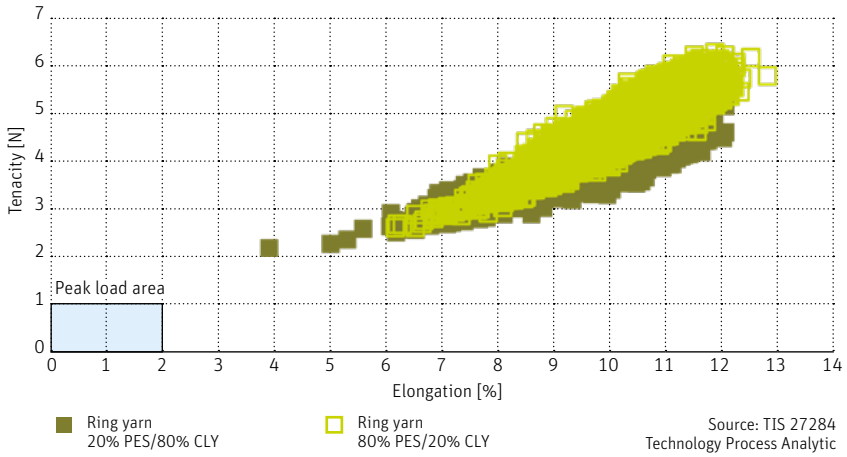
Improving yarn tenacity

Polyester has a higher fiber tenacity. The higher the polyester content in the blend with lyocell, the higher the yarn strength. An increase by up to 2 cN/tex is therefore possible (Fig. 2).

Bending rigidity is crucial

The incorporation of the fibers into the package is heavily dependent on the bending rigidity of the fibers used. The term bending rigidity comes from the elasticity module of the fibers and the area moment of inertia. This bending rigidity varies according to the type of fiber and has a direct impact on the resistance during twisting. Polyester fibers demonstrate a high degree of bending rigidity and are therefore more difficult to integrate into the yarn formation. However, this level of bending rigidity does have advantages in terms of the end product's tendency to crease.

Ring yarn working capacity
Polyester/lyocell, 1.3 dtex, 38 mm, Ne 40



Air-jet yarn working capacity
Polyester/lyocell, 1.3 dtex, 38mm, Ne 40

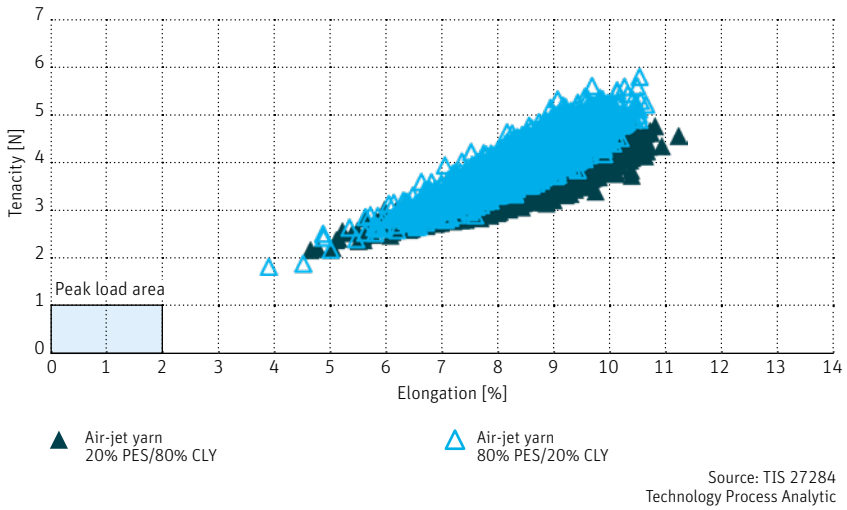
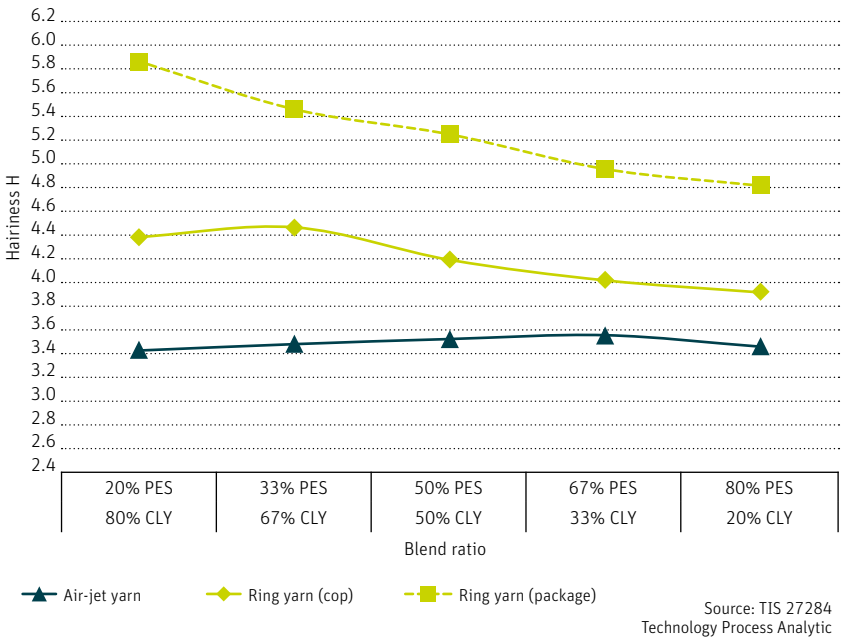


Fig. 3: The strength/elongation diagram (ring yarn in the top graph, air-jet yarn in the bottom graph): For both types of yarn, the increasing polyester content has a positive impact on the working capacity.

Strength is vital for weaving

The warp is crucial for obtaining sufficient strength in the weaving mill. It must withstand the various types of stresses in the weaving process by having sufficient strength and elongation, i.e. by having a yarn working capacity of adequate quality. A working capacity of 500 cNcm is needed for high-performance weaving machines for warp and weft yarns. The yarns in this study spun by the ring spinning and air-jet machines meet the exacting requirements in the weaving mill thanks to their excellent yarn strength and yarn elongation – even when processed as single-ply yarn. A working capacity of 900 cNcm is generated for the air-jet yarn, which means that absolutely no problems should be anticipated for high-performance weaving.

Hairiness vs. blend ratio for air-jet yarn and ring yarn
Polyester/lyocell, 1.3 dtex, 38 mm, Ne 40



Source: TIS 27284 Technology Process Analytic

Fig. 4: Owing to its typical yarn structure, the air-jet yarn has considerably lower hairiness than ring yarn.

Principle of twisting

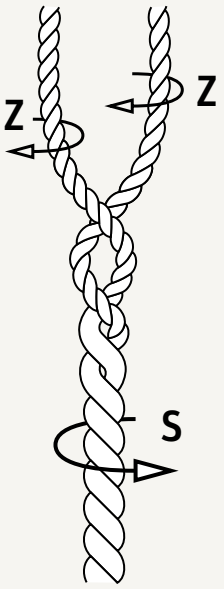


Fig. 5: Example of a thread: An S-twisted thread is produced from two Z-twisted yarns.

The yarn weak points and the variation of the yarn tenacity also play a vital role for weaving. The yarn weak points should not be below 100 cN and 2.5% elongation. For a yarn count of Ne 40 made of 80% lyocell and 20% polyester, there is still a break force of approx. 240 cN for 0.1% of the values declared as weak spots. The risk of an ends down is therefore low. Even at 0.05% of the measured values, the break force is still 220 cN. The scatter diagram of the tenacity elongation shows (as the polyester content increases) a leaner and longer area for the values of the ring yarn and a thicker area pushed upward for the values of the air-jet yarn (Fig. 3).

The variation in yarn tenacity and the average yarn tenacity show that the blend ratio has only a very minor impact on the weak points in the yarn.

Yarn structure determines hairiness

With the air-jet yarn, the two raw material components do not influence the hairiness, which is influenced only by the yarn structure. As expected in this case, the air-jet yarn has a significantly lower hairiness than the ring yarn from a cop (approx. 13 to 28%) and also than the ring yarn from a package (approx. 30 to 40%). This is shown in Figure 4.

As with the hairiness total, with the ring yarn the hairs longer than three millimeters decrease slightly with an increasing polyester content. The rewinding process from the cop to package has a significant, negative impact on the hairiness of the ring yarns. With the air-jet yarn, there is no discernible increase in the hairs longer than three millimeters as the polyester content rises.

Visually very similar after twisting

As with yarn, the twist direction of ply yarn is also described by the letters S and Z (Fig. 5). The ply yarn twist direction is usually in the opposite direction to the yarn twist direction. The twist is defined as loose, normal or hard, depending on the number of twists per length unit.

Images taken by a microscope show the structure of the single ply yarn and threads based on the ring spinning and air-jet spinning technology (Fig. 6).

The typically low hairiness and special structure of the fiber loops of the air-jet yarn are clear to see compared to the ring yarn. After twisting, the visual differences between the two types of yarn are identifiable only upon close examination.

Twisting adds strength

The twist contraction and therefore the fiber stress in the yarn is considerably higher with the Z twist direction than with the S twist direction. If the yarn and the thread are twisted in the same direction (in this case Z), torsion forces are generated and are noticeable in the ply yarn with a high curling tendency. To counteract this effect, the ply yarn direction must be selected to go against the spinning direction, even with air-jet yarns. The Z spinning direction combined with the S ply yarn direction unambiguously created the best tenacity values and therefore lower fiber stress.

The smaller the twist coefficient of the ply yarn, the lower the impact of the ply yarn twist direction on the tenacity. It was clearly evident that even a relatively small ply yarn twist resulted in the largest increase in tenacity compared to the

Yarn structure
67% polyester/33% lyocell, 1.3 dtex, 38 mm

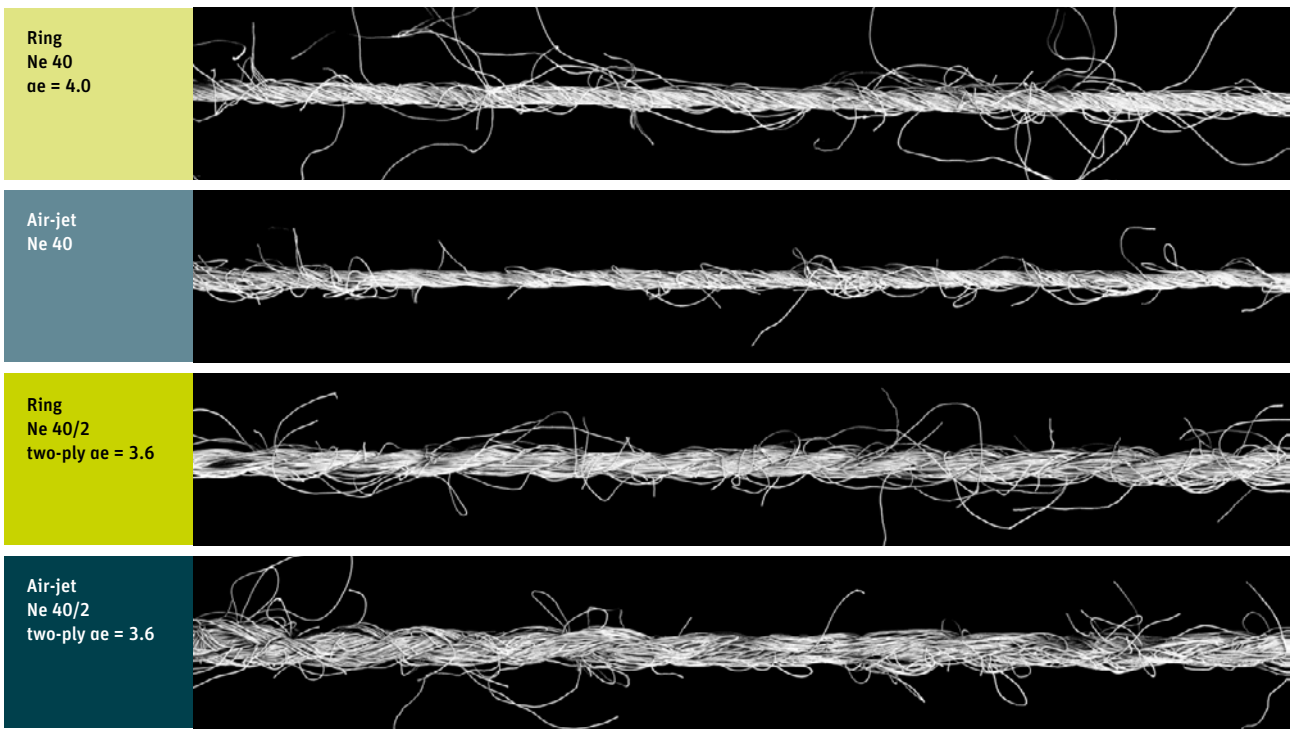


Fig. 6: The ply yarn of ring yarn and air-jet yarn have a high visual similarity.

single ply yarn (Fig. 7). The ply yarn twist should therefore be selected to go against the spinning direction and should be kept relatively low. The optimum approach for an increase in tenacity and therefore the smallest fiber stress can be anticipated at a twist coefficient of ae 3.3.

Using twist coefficients much smaller than ae 3.3 in combination with the same ply yarn and spinning direction may offer the potential of making the twisting process more productive. In this case, the tenacity of the air-jet ply yarn must be designed to optimal effect. Continued clarifications using a blend of 50% polyester and 50%

Tenacity vs. twist coefficient in air-jet yarns
67/33% polyester/lyocell, 1.3 dtex, 38 mm, Ne 40/2

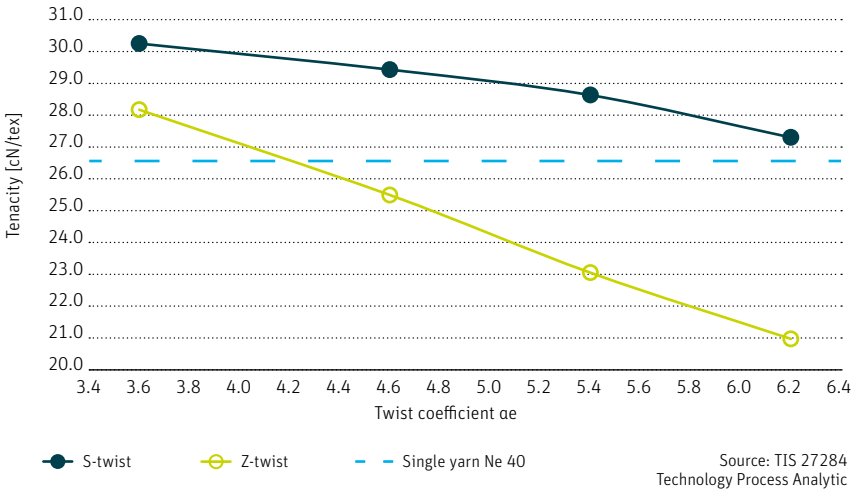


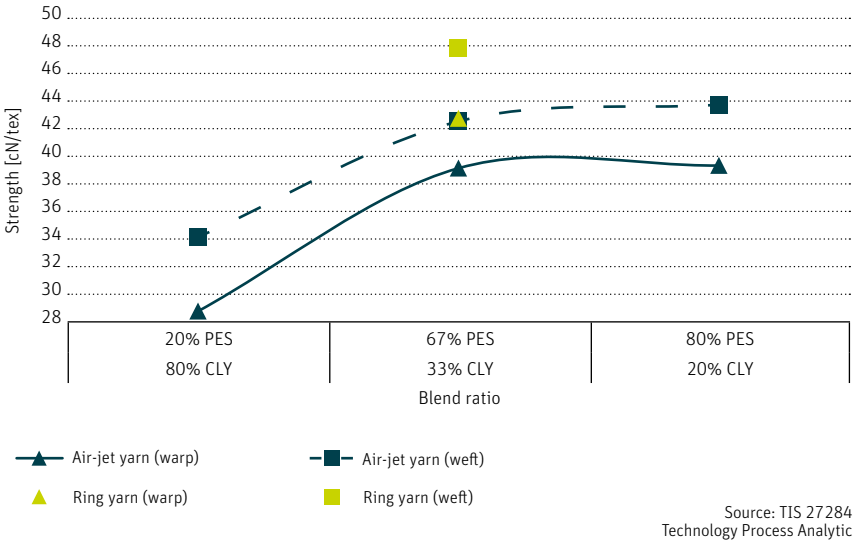
Fig. 7: The ply yarn direction and twist coefficient have a significant impact on the tenacity of the ply yarn.

Fig. 8: The woven fabrics produced from various polyester/lyocell blends demonstrate the desired wool effect.

lyocell resulted in a twist coefficient of ae 2.2.

With an S-twist direction on the thread, the weakest areas of strength may be improved up to a twist coefficient of ae 4.6, although at the cost of the average tenacity. Twisting with a twist coefficient higher than ae 3.3 is therefore not recommended in this respect.

Tenacity vs. blend ratio for air-jet yarn and ring yarn
Polyester/lyocell, 1.3 dtex, 38 mm, Ne 40/2, woven fabric 2/1 twill, finished



Source: TIS 27284
Technology Process Analytic

Fig. 9: The woven fabric with a high polyester content easily withstands the chemical finish.

Success in the weaving mill

Warp sizes were not used in the weaving mill. The running properties of the ply yarn were perfect both in weaving preparation and in the weaving. All requirements demanded by the weaving mill were met. Spinning-related faults in the woven fabrics were not detected in the scope of the trial. It can therefore be assumed that first-rate quality will be achieved during subsequent goods inspection. As a reference value, a total of 10 faults per 100 m of woven fabric are accepted in the inspection. The faults can usually be assigned to spinning, weaving and finishing in equal measure.

Characteristic wool effect

The look of the wool characteristics was achieved using the polyester/lyocell blend, regardless of the blend ratios (Fig. 8). It corresponds to the characteristic look of suit fabrics or classic jackets. However, the feel of the fabric depends largely on the raw material and yarn structure. The feel is unique for this raw material blend and can be used as a basis for new applications.

Chemical finish

The finish of the textile fabric impacts properties such as the touch, drape and optics of the material. However, the raw material can have a negative impact on the breaking load or tenacity of the fabric. For a woven fabric with 80% lyocell, the finishing process may reduce the tenacity of the fabric by around 10%. An increasing polyester content stops the finishing process impacting the tenacity of the woven fabric (Fig. 9). The chemical finish must always be checked and changed as necessary following developments in the woven fabric that involve new yarn structures (and in accordance with the raw material).

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Harald Schwippl
Head of Technology and Process Analytics
Machines & Systems
harald.schwippl@rieter.com

Boosting Production Through Conversions

A success story about the card C 70

Honghai Hangzhou Textile Co., Ltd., a Rieter customer, has seen huge success on the market with its viscose yarns. Increased demand called for the company to look for ways to boost production. New technology components helped it to achieve this aim.

Honghai Hangzhou Textile Co., Ltd. is a subsidiary of the Hongfeng Textile Group and is located in Hangzhou, China. The company invested in an entire Rieter plant with semi-automated rotor spinning machines and produces 50 000 tons of viscose yarns in Ne 10 and Ne 30 qualities every year. These yarns are well-known on the market and demand for them is high. The yarns are sold in the Zhejiang, Fujian and Guangdong regions in China, but are also exported to international markets such as Brazil and Turkey.

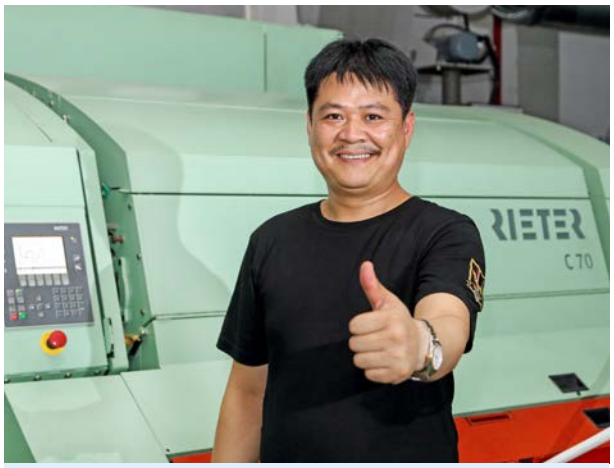
The challenge: rising demand

In 2016, Honghai recorded incredibly high demand for viscose yarn. The already high-performing cards C 70, which produce 80 to 115 kg sliver per hour, were unable to meet this demand. Rieter recommended enhancing the card production with new technology components. It was crucial to the customer that the quality level of the sliver was retained, even at higher production speeds.

The solution: new technology components for the card C 70

At Rieter's recommendation, Honghai decided to test various technology components. One of these parts was an aerodynamically optimized profile, or "tongue," that influences the transition of the fibers from the card cylinder to the doffer. During the trial phases, two cards were used in the compa-

Fig. 1: The card C 70 produces card sliver with excellent quality values.



What our customer says

"The technological innovations made with the card C 70 make us more profitable. We have seen a substantial rise in production coupled with very low costs associated with the changeover. As a result, we have bought more sets of parts and upgraded all our cards. We can maximize our profits with Rieter's innovations and technology."

Xinfeng Cui

Mill Manager, Honghai Hangzhou Textile Co., Ltd.

ny with great success, producing 160 kg per hour. The sliver quality remained at the same high level. Based on these positive results, Honghai decided to upgrade its remaining 68 cards with the recommended parts (Fig. 2).

The benefits for Honghai: increased production

Production at the spinning mill rose by 40% to 100%. The investment in the new technology parts for all cards paid off in a short period of time. The company was able to adapt quickly to meet the market demands for viscose yarn and expand its position on the market.

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Fig. 2: Boosting production by 100%: The card C 70 operates at a rate of 160 kg/h.

Irene Muggler
Marketing Manager
Machines & Systems
irene.muggler@rieter.com

Ready to Spin in 100 Days

A success story about the compact-spinning machine K 42

Nitin Spinners Ltd., a Rieter customer, wanted to service a niche market as quickly as possible. This ambitious project was successful thanks to the close collaboration between the customer and Rieter. A total of 72 960 compact spindles were installed within 100 days.

Nitin Spinners Ltd. is based in Bhilwara Rajasthan, in the north west of India, and produces yarns and fabrics from pure cotton for the domestic and international markets. The company produces 50 000 tons of yarn and 9 000 tons of fabric every year. Nitin Spinners boasts a capacity of 223 000 spindles and 3 000 rotors.

The challenge: getting production started as quickly as possible

Using the most advanced compact-spinning machines, Nitin Spinners wanted to start producing compact yarns to allow it to offer a wider array of yarns. The management team's stated aim was to start production as soon as possible in order to achieve the sought-after targets. In addition, Nitin Spinners attached importance to having high levels of production and quality and keeping power consumption low from the beginning.

The solution: the compact-spinning machine K 42

Following extensive consultation, Nitin Spinners decided on the Rieter compact spinning machine K 42. The project included 72 960 spindles. To ensure smooth and quick installation and commissioning, Rieter assembled a project team of specialists from the Sales, Products, Operation and Service & Technology departments. The combined expertise from all specialist areas resulted in perfect teamwork. Coordination with auxiliary suppliers such as the providers of humidifying and filter systems, compressed air and power, ran very smoothly. The project was realized in close cooperation with the customer. Coordination meetings were held on a regular basis to ensure that the right piece of equipment was always ready at the right time during the installation phase.

Fig. 1: High yarn quality thanks to the compact spinning machine K 42

Fig. 2: Rieter machines for fiber and spinning preparation: perfectly technology aligned

What our customer says

"We are very thankful to Rieter for the prompt delivery of the machines and for providing the best technical team to handle installation and commissioning. Each and every member of the team went above and beyond to ensure that the machines were installed within 100 days."

Sandeep Garg
President – Operations, Nitin Spinners Ltd.

Nitin Spinners benefited by being up and running within 100 days

Rieter achieved all agreed values for productivity, yarn quality and power consumption within the specified timeframe. The combination of best-in-class machines coupled with a systematic approach played a vital role in the project being completed within 100 days. The fact that commissioning ran to schedule enabled Nitin Spinners to fulfill customer orders as agreed. Optimal utilization of the raw material led to an increase in yarn quality and a high quality standard for the compact yarn Com4®compact.

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Irene Muggler
Marketing Manager
Machines & Systems
irene.muggler@rieter.com

Products and Solutions for Every Challenge

Rieter After Sales' customer-oriented product portfolio helps mills to grow

Since its foundation in 2015, the Business Group After Sales has been shaping its product portfolio, with one goal in mind: boost customers' competitiveness. Rieter is offering and further expanding a comprehensive range of products to support customers, from installation throughout the entire life cycle of their spinning mill.

Optimizing mill performance

In today's demanding textile industry, mill owners are pressured to produce more cost-effectively and to respond quickly to market dynamics. With Mill Assessments and After Sales Solutions, Rieter addresses specific customer challenges, e.g. productivity and yarn quality, turning them into business opportunities. Through detailed on-site investigation and analysis of the spinning mill, Rieter identifies potential performance improvements. The implementation of recommended solutions enables customers to achieve their specific requirements.

Through continuous innovation and development, Rieter is able to offer retrofit and upgrade packages to restore or even enhance the original machine performance. These packages enable customers to improve lifetime, productivity and quality. While the existing retrofits and upgrades cover a majority of customers' needs, a customization to specifically address a certain situation is sometimes required. Therefore, Customer-Specific Engineering serves with tailor-made solutions.

Overcoming skilled laborshortage

The current lack of skilled manpower can be a hurdle for mill managers, which is why Rieter launched On-Site Project Management (OPM): Dedicated Rieter experts provide the right support at the right time for a variety of projects. This includes commissioning, management, mill relocation, or moving and erecting second-hand spinning machines.

Rieter After Sales Product Portfolio

Parts Products

- **Parts**
  - Spare Parts
  - Wear and Tear Parts
  - Technology Parts
- **Modernization**
  - Retrofits
  - Upgrades
  - Conversions
- **Preventive Maintenance**
  - Preventive Maintenance Packages
- **Customer-Specific Engineering**

Service Products

- **Field Service**
  - Installation Services
  - Warranty Services
  - On-Site Project Management
- **Customer Training**
  - INclass Training
  - INmill Training
- **Textile Technology Services**
  - Customer Technology Services
  - Spin Center Trials
  - Laboratory Services
- **Repair Services**
  - Mechanical Repairs
  - Electronic Repairs
  - Preventive Services
- **Performance Optimization Services**
  - Mill Assessment
  - After Sales Solutions

Digital Solutions

- **Production Monitoring Upgrade**
  - SPIDERweb
  - ISM
  - Alert and Cockpit Module
- **Digital Maintenance**
  - UPtime

Fig. 1: The extensive product portfolio from Rieter's Business Group After Sales boosts its customers' competitiveness.

Implementing the right maintenance strategy
Having the correct maintenance strategy is the key to operating efficiently. From spare parts, wear and tear parts to preventive maintenance packages, Rieter covers all maintenance needs of the customer, be it reactive or preventive, for all stages of the spinning process.

Taking care along the entire product life cycle
Rieter supports its customers through the entire life cycle of their equipment. Rieter's experienced Field Service technicians help customers to install their machines for a smooth start-up.

In the event of electrical or mechanical malfunctions, Rieter offers high-quality repairs. This includes a careful examination of the machine's condition and following measures to prevent failure of parts.

Sharing expertise and know-how
A company's success is not only determined by its equipment but also by its employees. Rieter therefore places an emphasis on ongoing training. This allows employees to improve their skills and motivates them to achieve a company's goals.

Rieter possesses extensive expertise in the field of short-staple spinning. The company passes on this knowledge to its customers, either at one of Rieter's worldwide training centers or directly at the customer's mill.

Knowledge from fiber to yarn and beyond
Staying competitive in a fast-paced environment such as the textile industry requires the product portfolio to be constantly monitored and adapted. With its textile technology services and thanks to technological advances, Rieter is able to equip its customers to develop innovative and optimized products. Rieter's Application and Research Centers for spinning technology feature the latest machines from fiber to yarn covering all four end-spinning processes, as well as laboratories, training rooms and showrooms.

Responding Quickly to Market Dynamics
In the face of fierce competition and a fast-changing fashion market, flexibility is becoming an increasingly important competitive advantage. Spinning mills need to respond quickly to market dynamics and opportunities with limited investments. Rieter's conversion packages allow customers to modify the use, function or purpose of equipment, e.g. to convert from cotton to man-made fibers in the shortest and most cost-efficient manner.

Digitalizing spinning mills
As the world's leading supplier of systems for short-staple fiber spinning, Rieter combines its many years of expertise with digital experience, using data collection, automation and remote monitoring to swiftly create intelligent spinning mills, helping customers increase their company's value.

Rieter has developed SPIDERweb, a user-oriented system that collects data regarding processes, quality and production efficiency so that deviations can be detected at an early stage. Thanks to Rieter's Alert and Cockpit Module, customers have remote access to monitor their machinery. It allows customers to proactively make decisions anywhere, anytime. The module significantly simplifies mill management and maximizes mill efficiency.

With its latest innovation, UPtime, Rieter is digitalizing spinning mills and bringing artificial intelligence into maintenance. UPtime examines performance-critical data such as temperature, air pressure or vibration, identifies abnormalities and offers a prescribed solution.

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Arne Brand
Senior Vice President Sales
After Sales
arne.brand@rieter.com

Simplifying the Life of a Mill Manager

The Alert and Cockpit Module enables you to monitor your mill anywhere, anytime

Rieter has moved another step towards Industry 4.0 by releasing the Alert and Cockpit Module. This smartphone application grants the company's mill managers remote access to monitor their equipment. It allows customers to proactively make decisions around-the-clock no matter where they are.

In spinning mills, monitoring machine performance 24/7 is essential to shorten response times, reach maximum efficiency and minimize machine downtime. To enable the mill management to take decisions in a more independent and flexible way, Rieter provides a state-of-the-art solution for smartphones with the Alert and Cockpit Module.

Free Demo Version
The application is compatible with iOS and Android smartphones. It is part of the SPIDERweb mill control system (version 7.4.x or higher) which collects, displays and analyzes production data from a spinning mill. Experience the Alert and Cockpit Module by registering now for a free demo version: *q-r.to/cockpit*.

Alert and Cockpit Module
Stay informed around-the-clock

Scan the QR code for more information
http://q-r.to/cockpit
(App)

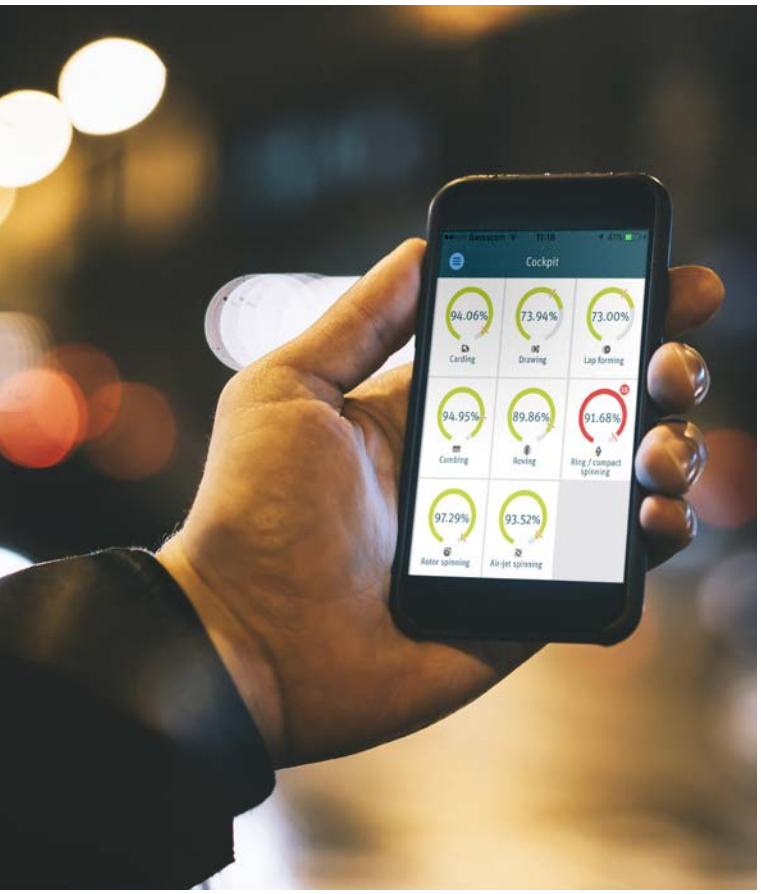

Fig. 1: The cockpit function provides a production overview of spinning machines from anywhere at any time. This allows a quick response and prevents costly downtimes.

Remote monitoring

The smartphone application enables users to remotely control important data in real-time around-the-clock. The possibility to set individual preferences and the user-friendly design of the application facilitate the daily workload of a mill manager. The alert function allows the configuration of limits concerning production, quality and energy data. If the desired performance levels are not reached, an alert is triggered and the mill managers are immediately notified. They can forward the information to the responsible person at the mill who can immediately take appropriate action.

Fact-based decision making

The cockpit function (Fig. 1) displays all relevant data of a spinning mill, from fiber preparation to end spinning. Production data for the last five shifts is also stored. This comprehensive overview of the performance of individual shifts helps users to take fact-based decisions.

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Selwyn von Grünigen
Vice President Digital Solutions
After Sales
selwyn.vongruenigen@rieter.com

A Different Point of View

What do Rieter customers say about Com4® yarn?

"We are satisfied with the Rieter rotor spinning machine R 66. Our high-quality rotor-spun yarn has been unanimously recognized by the markets."

Liqiang Kang
General Manager

Shijiazhuang Xinhe Fiber Technology Co., Ltd.
No. 1, Central Avenue
Shijiazhuang Comprehensive Bonded Zone
China
T +86 311 88763526
F +86 311 88763536
xhxwkj2015@163.com

石家庄新合纤维科技股份有限公司
Shijiazhuang Xinhe Fiber Technology Co.,Ltd.

"With the fully automated rotor spinning machine R 66, all our expectations regarding productivity and yarn quality have been fully fulfilled."

Mingxin Li
General Manager

Xinjiang Kangruixin Textile Co., Ltd.
South Shenzhen Road
Aksu Textile Industry City (Development Zone)
Aksu Xinjiang
China
T +86 997 2657166
www.xjkrx.cn

KRX
康瑞欣®

Rieter Machine Works Ltd.
Klosterstrasse 20
CH-8406 Winterthur
T +41 52 208 7171
F +41 52 208 8320
sales.sys@rieter.com
parts.sys@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.
Shanghai Branch
Unit B-1, 6F, Building A,
Synnex International Park
1068 West Tianshan Road
CN-Shanghai 200335
T +86 21 6037 3333
F +86 21 6037 3399

link

Personnel value the simple and ergonomic operation of the semi-automated rotor spinning machine R 36.

www.rieter.com