



# Rotor Spinning Machine R 40

Leading in Technologie and Economy





## RIETER SPUN YARN SYSTEMS

**Systems for your success****RIETER – YOUR SYSTEMS SUPPLIER**

Integrated installations from Rieter offer more than just spinning machines from fiber to yarn. Perfect coordination of the machines throughout the process chain ensures economical manufacturing of the required yarn quality. Rieter's expertise, developed through numerous engineering innovations, is at your disposal. In addition, customers are supported from the original business idea right up to achieving market success with innovative yarns.

**RIETER – YOUR PARTNER FOR THE FUTURE**

With Rieter as your partner you benefit from the following supplementary services:

- Complete mill planning, spinning schedule computation and cost calculation
- Automation options tailored exactly to customers' needs
- SPIDERweb data collection system for online monitoring of the entire spinning mill
- Process optimization and technical recommendations derived from broad-based technological expertise covering all spinning process stages right through to downstream processing
- Worldwide service network and intensive customer training on-site or at the Rieter Training Center
- Spare parts deliveries and a wide range of innovative and technically sound solutions in the sphere of conversions

You can have confidence in solutions from Rieter!

## STRATEGY FOR YOUR MARKET SUCCESS

**Ready for the future**

The newest R 40 is familiar to you, but it is still a new generation of rotor spinning machines. Many characteristics and numerous sub-assemblies of the R 40 have been developed further and thus the productivity, quality and reliability have been considerably enhanced again. With impressive performance data, 500 spinning positions per machine, up to 350 m/min delivery, rotor speed of up to 160 000 rpm, up to 4 robots, the R 40 offers maximum productivity.

In addition to well-proven techniques, the newest state of the art technologies have been incorporated for economic production. Energy, a steadily increasing cost factor in yarn manufacturing, has been utilized economically and efficiently. The R 40 energy consumption has been lowered significantly by investing in the most modern inverter technology, power-saving motors and innovative bearing and lubrication techniques.

The unique performance data guarantee the highest productivity and offer adequate potential for technical and technological developments in the future. The most modern techniques and technologies are implemented rigorously for the purposes of economic production: An objective which has received top priority in development at Rieter.

With the R 40 rotor spinning machine and with Rieter as your partner, you are well equipped for the future.



R 40 with SC-R spinning box

## PRODUCTIVITY

### Reliability through process safety

With this newest model, the R 40 offers up to 500 spinning positions per machine. This makes it the longest spinning machine in the world. With the maximum machine length, delivery speeds of up to 270 m/min are possible. Using fewer spinning positions, 350 m/min can be obtained. Rotor speeds of up to 160 000 rpm, independent of the machine length, enable highest production rates. The new R 40 combines maximum productivity with minimum personnel requirements and high machine efficiency.

#### COMPATIBLE MACHINE CONCEPT

The outstanding technical data of the R40 are combined into a modern machine concept. The fast robots of the R 40 with its modules, AEROpiecing, and the eXpert Piecing System XPS, form the back-bone of the R40 automation.

Large units for material supply and package removal, a fast tube loader and interfaces for a central waste disposal systems make the R 40 complete.

#### INCREASED MACHINE RUNNING TIMES

The new R 40 uses frequency controlled inverters for all the central drives. Thus a lot change can be carried out entirely from the touch-screen of the machine control center. The production loss is reduced to a bare minimum. Long maintenance intervals and easy accessibility shorten the machine down-time and increase the productivity of the R 40.

#### SC-R SPINNING BOX, UNEQUALLED IN ITS POWER

The particular power of the SC-R spinning box lies in the box geometry and the various technology parts available for all materials. Best values in yarn quality and productivity are achieved.

New rotors and nozzles have been developed through working together with leading man-made fiber manufacturers. As a result it is possible, for example, to spin viscose fibers from one manufacturer to a yarn count Ne 16 with 160 000 rpm and 350 m/min delivery speed. The core capability of the spinning box and the spinning elements are incorporated under one roof.

## ECONOMICS

**The costs under control**

The economics of a machine are defined by the accrued costs per kg of yarn produced, i.e. investment costs, the raw material supplied, energy and compressed air consumed, the climate control, along with building and personnel. With up to 500 spinning positions, the R 40 offers the best space utilization with the largest sliver cans and package sizes.

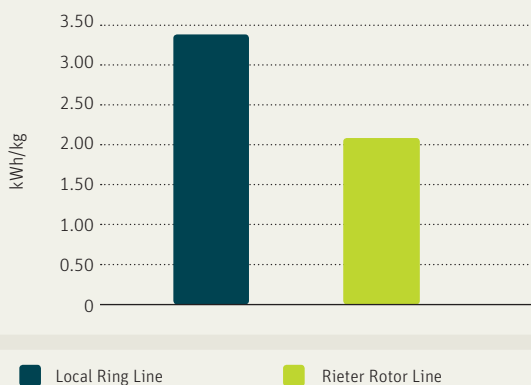
**SOLID LONG TERM INVESTMENT**

In addition to the machine productivity, its service lifetime has a major effect on the economics. High value components from leading suppliers, modern bearing and drive technology as well as a robust machine construction guarantee a long useful lifetime.

One Rieter development team is responsible exclusively for modifications of older machine generations. The newest developments and techniques can thus also be transferred to older machine models. This maintains the competitiveness of Rieter rotor spinning machines and result in attractive resale values.

**MORE POWER WITH LESS ENERGY**

The new R 40 consumes less power energy thanks to the inverter-controlled drives. The improved bearing technology of the spinning box and the drives result in energy savings of more than 5% compared with other rotor spinning machines.

**ENERGY SAVING WITH A COMPLETE RIETER ROTOR SYSTEM**

100% CO – Ne 30 – T-Shirt; Yarn yarn production 940 kg/h

**LARGE QUANTITIES OF MATERIAL AT LOW COST**

The large can and package sizes reduce the costs for material handling and waste disposal. The spinning position gauge permits can sizes of up to 470 mm (18½”) in a straight two-row arrangement for processing larger quantities of sliver material. The optimized winding geometry can produce package weights of up to 6 kg (350 mm diameter) and reduces the operator requirements.

**BEST RAW MATERIAL EXPLOITATION**

The SC-R spinning box includes patented special features such as the fixed fiber support, the adjustable BYpass and the SPEED-pass. These features permit the production of high quality yarn values, even when utilizing lower raw material qualities.



## FLEXIBILITY

**Rapid reaction to market trends**

The R 40 allows quick reaction to the market needs of customers. A condition for a successful spinning mill is a high flexibility and maximum machine availability. Various applications of yarns can be spun efficiently on the R 40: regular and effect yarns, weaving and knitting yarns, using different raw materials and their blends.

**CHANGE-OVER AT THE TOUCH OF A BUTTON**

VARIODraft permits draft, rotor speed, winding draft and yarn twist to be set comfortably at the central machine display. Additional functions such as the variable opening roller speed,

winding with the VSB traverse gear box, anti patterning and winding angle can now be set simply on the touch screen. The time it takes for a lot change is reduced to a minimum using the VARIODraft functions.

**OPTIMIZATION WITH THE MACHINE RUNNING**

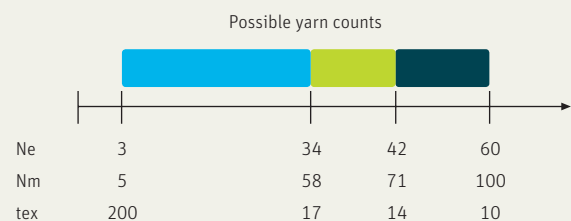
As a result of controlling all drives with frequency inverters the spinning parameters can also be optimized during production. This permits maximum productivity and flexibility.

**OPTIMAL ADJUSTMENT TO RAW MATERIALS**

The modern SC-R spinning box of the R 40 allows the manufacturing of natural and man-made fibers with high quality characteristics. A wide range of technology parts are available for the R 40. From a universal spinning elements for a broad application spectrum to special spinning elements for specific applications with highest demands.

**RETROFITTING ANTICIPATED IN THE CONCEPT**

You can react flexibly to future economic developments with the R 40. For example, the personnel costs can be significantly reduced with the optional installation of centralized supply and removal systems. The R 40 can be fitted with a slub yarn device to produce yarns for fashion trends.

**APPLICATION RANGE**

Common → Seldom



SPIDERweb mill monitoring system

## QUALITY

### R 40 sets the standards

The R 40 produces high quality yarns with the proven SC-R spinning box. Modern yarn clearers check the quality continuously within very narrow limits. Production and quality data are collected with the SPIDERweb data collection system, edited and then displayed on the central PC. This networking permits an immediate intervention for the smallest deviation from the quality standard.

#### NEWEST TECHNOLOGY FOR THE BEST RESULTS

The SC-R spinning box with the fixed fiber beard support, the BYpass, and the SPEEDpass, form the basis for the production of the best quality R 40 rotor yarns. The operation of yarn clearers assures the quality of the yarn produced. With 100% testing, including the piecings, a continuous high standard is guaranteed.

#### PIECING QUALITY EQUAL TO THE YARN

AEROpiecing, the revolutionary piecing technology in the R 40, allows the production of rotor yarns with short, invisible piecing. This continuously high yarn quality is a condition for the best running properties in subsequent processes and for high quality end products.

#### PIONEERING ROTOR CLEANING

Only a cleaned rotor can produce piecings of the same quality as the yarn. The patented rotor cleaning VARIOclean is cleaning the rotor groove and the rotor walls reliably from all trash, dust and fiber finish.

#### MORE CONSISTENT PACKAGE BUILD FOR DOWNSTREAM PROCESSING

The outstanding package build up with electronically measured exact yarn length has a very low variability from package to package. When supplemented by REDIpac to define the location of the yarn end, the customers profit from optimal package handling, best running properties and an exact yarn length.

10.6 cm

AEROpiecing

Conventional  
automated piecing

Start

End

Piecer Continues

Both yarns: Count Ne 30, Twist multiplier  $\alpha_e = 4.6$ 

Scale --- 2 mm

Yarn like piecings with AEROpiecing and XPS



## SPINNING BOX TECHNOLOGY

### Highest performance for productivity and yarn quality

Over 30 years of experience with the development teams at Süssen and Rieter are invested in the SC-R spinning box. Consistently high yarn quality from spinning box to spinning box as well as optimization with respect to raw materials are only a couple of the advantages.

#### SC-R SPINNING BOX WITH NEWEST TECHNOLOGY

Technologically, the SC-R spinning box offers unique characteristics. With the fixed fiber-beard support in the area of the sliver feed, a homogeneous sliver opening is guaranteed and achieves a yarn quality with minimal variability. The trash extraction is adjusted over the BYpass. Optimum trash elimination, low fiber breakage and the highest productivity are the recognizable characteristics of the BYpass.

In addition to the standard version of the channel insert, there is one with SPEEDpass available for spinning man-made fibers and coarse cotton yarns. The SPEEDpass permits more air to be pulled through the fiber channel. This enhances the fiber separation at the opening rollers and the stretched transport of the fibers into the rotor. Residue is removed from the material flow over the SPEEDpass. As a result, the rotor grooves, which impact the yarn quality decisively, remain clean.



### EASILY REPLACED OPENING UNIT

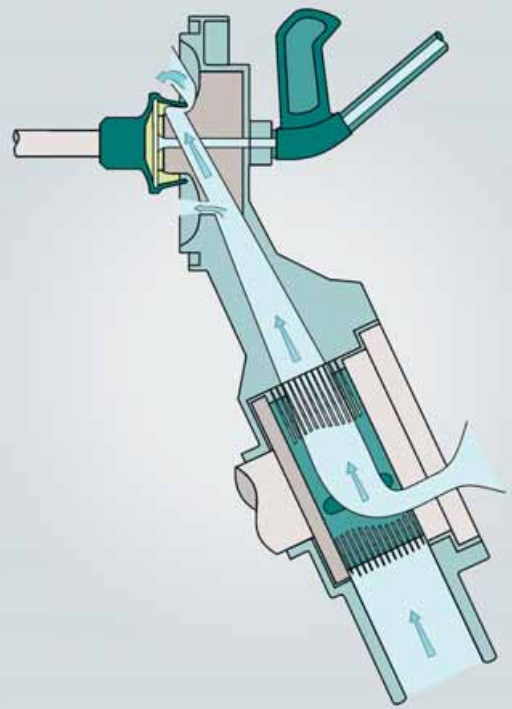
An additional opening unit is available for the SC-R spinning box. Cotton and blended yarns of the highest quality are spun with the universal opening unit. The special opening unit has vital advantages for critical applications with man-made fibers. Alterations in the region of fiber separation allow, e.g., polyester yarns for awning fabrics and abrasive base cloth to be spun to highest quality.

### OPTIMIZED SPINNING GEOMETRY

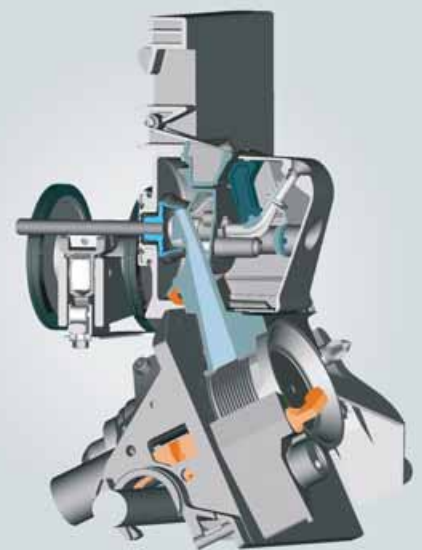
In addition to the spinning box itself, its location in the machine is important. This spinning geometry defines the spinning stability. The SC-R spinning box arrangement has been selected so, that an increased twist is applied between the TWISTstop and the rotor grooves resulting in increased yarn strength. The application of aggressive TWISTstop elements which roughen and affect the yarn surface negatively is seldom necessary. At the same ends down level, the yarn twist can be reduced for a higher productivity.

### ENERGY-SAVING CLEAN ROTOR BEARING

The R 40 AERObearing has been developed further and has secure and stable running behavior; it holds the rotor in position and avoids any mechanical contact. There is no grease or oil in the entire bearing area, i.e. no fibers can get caught in the bearing. The air stream keeps this area of the bearing clean and cool. In reality, this results in extended cleaning intervals of the R 40.



SPEEDpassfor high quality yarns made out of man made fibers



Sectional drawing SC-R spinning box

## TECHNOLOGY

**Modern spinning elements for best results**

The technology parts of the rotor spinning box define the yarn characteristics. For the R 40, rotors, opening rollers and nozzles are available either for specially defined applications or as universally applicable yarns.

**NEW SURFACES FOR DRAW-OFF NOZZLES**

Nozzles define not only the yarn properties, but also the spinning behavior through their characteristics – smooth, with notches or with spirals – and through the material used and its surface finishes.

A new development is the innovative „nano4“ nozzle. The draw-off nozzle is fabricated from a special, very fine grained ceramic. This nano4 nozzle offers productivity increases of more than 10% when processing viscose fibers, due to an optimized friction behavior.

**ENERGY-SAVING ROTOR DESIGN**

The importance of energy costs as part of the production costs is increasing. A new generation of energy-saving rotors, termed X-Rotors, has an optimized external contour and reduces measurably the energy consumption in rotor operations. They consume 2-5 watts per rotor, i.e. 1-2% less energy compared to the previous rotor generation, under comparable working conditions.

**OPTIMIZED VARIANTS FOR OPENING ROLLERS**

There is a choice for opening rollers between the well-known solid-ring and the proven wire clothing. The R 40 offers specialized clothing for cotton, polyester, viscose and their blends for an optimal opening of the feed sliver to individual fibers. In addition there are opening rollers which can be used universally. Different coatings ensure the best yarn values with a maximum clothing service life.

**SPECIAL OR UNIVERSAL CONFIGURATION**

Based on the experience of our technologists, we have compiled designer spinning elements for yarn applications such as denim or polyester yarns for the most advanced requirements. Universally applicable spinning elements are available for standard applications. Various types of yarns for weaving or knitting, e.g. viscose or cotton, can be spun nearly optimally with such a set of technology parts.



High quality products made out of Rieter rotor yarns



Sets of technology parts for all applications

## NEWEST TECHNOLOGY

**Simple to set and to operate**

Labor intensive and long lot changing times are a thing of the past with the new R 40. The inverter technology which has been introduced makes it possible to perform all settings comfortably and rapidly on the large touch-screen of the machine center. Specific requirements from the technicians, as well as large can and package sizes result in long machine running times without operator costs.

**INVERTER-CONTROLLED CENTRAL DRIVES**

Modern inverter technology has been implemented consistently into the new R 40. All drives can be set centrally and are infinitely variable. This standard sets new benchmarks for operating the R 40. The easy settings of all machine parameters bring advantages at the start of a lot and during the optimization of currently-running production.

**COMFORTABLE SETTINGS**

All machine settings are made on the touch-screen of the machine center. Opening roller speeds, winding angle, tension draft and anti patterning can be set comfortably and quickly at the machine center. The traversing stroke can be set for the VSB gear box on the machine display, and the package build adjusted to very different yarn numbers.

**SPECIFIC 3-STEP OPERATOR GUIDE**

The visualization concept of the R 40 is well-thought out and guides the operator objectively. Personnel are called precisely to the R 40 with a three colored signal lamps at both machine ends. The settings of this signaling can be selected individually for the spinning mill organization. It acts as the initial indicator, e.g. for removing packages, repairing a robot or for a machine malfunction.

A lamp at the section indicates either a malfunction at a spinning position or a missing sliver. Two colored LED's at the individual spinning position signal whether the robot could not piece up or whether a technical alarm exists.

**LARGE YARN PACKAGES FOR CONTINUOUS OPERATION**

Packages of 6 kg or up to 350 mm in diameter set the standard. Then there are 18 ½" sliver cans in two straight rows, 20" in three rows, or CUBIcans with, e.g. 30 kg capacity for longest running times.



Drawn off nozzle with best manufacturing quality



All machine settings on the large touch-screen



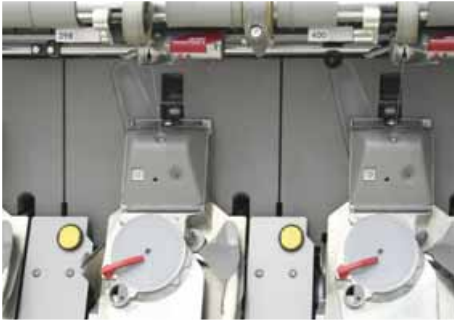
### FASTEST ROBOT

- Yarn-like piecing with AEROpiecing technology
- Extremely efficient robots with the shortest piecing time
- Simplest robot setting with XPS
- Travel of the robot is optimized using the intelligent Drive System iDS

### HIGHEST PRODUCTIVITY

- Machine lengths up to 500 rotors with rotor speeds up to 160 000 rpm
- Lower energy consumption through inverter technology and AERObearing at high productivity
- Minimal operator costs, using large can and package sizes of up to 6 kg (350 mm)
- Superb package build at delivery speeds up to 350m/min maximum





### BEST YARN QUALITY

- Best running performance resulting from the adjustable trash extraction with the BYpass
- Highest yarn quality from the fixed fiber-beard support and the SPEEDpass
- Broad spinning component palette for optimal yarn construction
- Unequalled yarn quality with man-made fibers with the special opener unit

### MAXIMUM FLEXIBILITY

- Inverter operation for rapid lot change and optimization of quality and productivity while the machine is running
- 1, 2, 3 or 4 robots with service stations for effective robot service
- Flexible through the overlapping of the robot working areas, which can be set at the machine center
- Slub yarn, Multicount and Multitwist are possible, as an additional feature, at full machine length



## ROBOT AUTOMATIZATION

**Speed and precision for productivity and quality**

Together with the spinning box, the robot is of central importance. The yarn quality in the area of a piecing, as well as the machine efficiency, and thus the productivity, are impacted by the robot.

**SHORT STOP AT THE SPINNING POSITION**

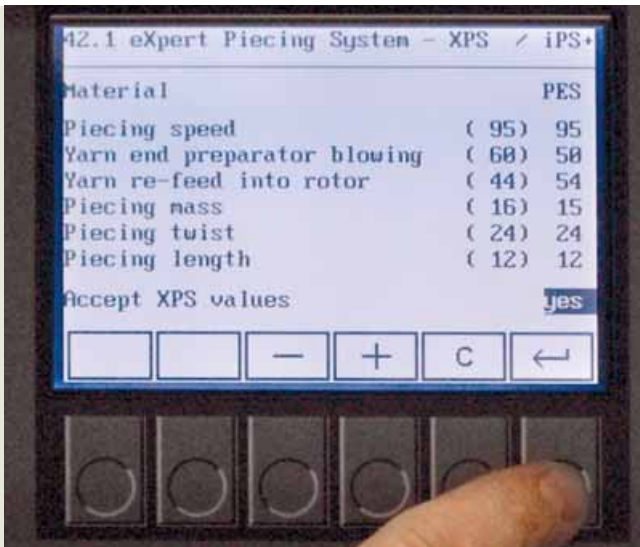
The R 40 robot conducts many individual tasks at the spinning position, e.g., changing full packages, placing empty tubes, cleaning the rotor, and feeding the yarn into the rotor. The stop at the spinning position only lasts 25 seconds. Modern robot control permits parallel module operation at maximum speed. The short cycle time makes it possible for the same number of robots to service more spinning positions without any reduction in machine efficiency.

**LASER GUIDED POSITIONING**

Centering on the spinning position with millimeter precision cannot be guaranteed using mechanical methods over extended periods. Using the new, high precision, laser-controlled centering on the new R 40, this is both reliable and possible without any wear occurring. The robot stops precisely at each spinning position. Reliably and accurately, the robots carry out the piecing operations.

**EFFICIENT ROTOR CLEANING**

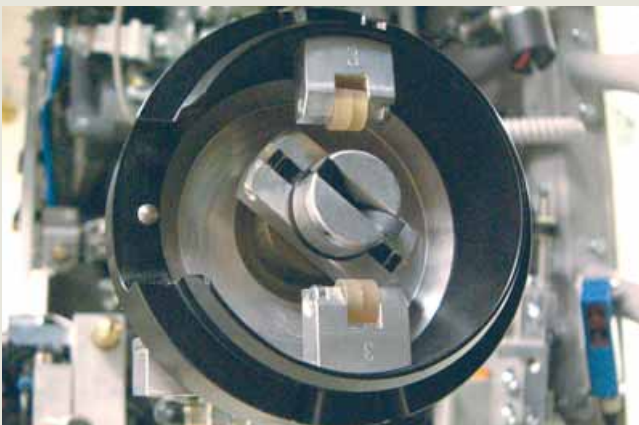
An efficient rotor cleaning is a precondition for optimum piecing quality. Potential sources of problems, such as, e.g. trash particles in the rotor grooves must be removed efficiently. Rieter follows a new path with the patented VARIOclean rotor cleaning. A rotating cleaning head with two scrapers and three compressed air jets nozzles is brought into the rotor. The rotor groove is cleaned out with the scrapers and, in addition, the rotor groove and the entire rotor wall is cleaned by compressed air. Clean rotors guarantee quality piecings and yarn quality.



Easy robot setting with the eXpert Piecing System XPS



Precise centering of the robot on the spinning position



Effective rotor cleaning VARIOclean with scrapers and air jet nozzles

### SIMPLE SETTINGS WITH XPS

The conditions for an optimal piecing quality are set with VARIOclean and AEROpiecing.

Using XPS, the eXpert Piecing System, the robot is set up in an instant. The data for a lot change are transmitted from the machine center to the robot. Only the fiber material to be spun must be selected at the robot. For the remaining 6 parameters in the expert system, the robot refers back to the data base of thousands of stored robot settings. The XPS suggest settings for the 6 parameters and these can be accepted by pressing a button. The robot then operates at high efficiency and with yarn-like piecing quality. A possible fine tuning, such as the adjustment of the twist or the mass, is carried out by simply adjusting some of these 6 parameters.

### PIECING QUALITY REMAINS THE SAME

The robot controls and monitors the piecing procedure and thus assures that the procedure remains the same. The innovative AEROpiecing concept which feeds the yarn tail of defined length into the rotor from pneumatic storage is the key to a consistently good piecing quality.

### PROBLEM-FREE MAINTENANCE

The modular construction of the robot allows easy maintenance. Each module can be moved independently, manually or by using the robot control system. Making mechanical settings for the robot, and the removal of any malfunctions is extremely simple, and this success motivates the technicians to give their best performance. With simple malfunctions, the robot cycle is simply stopped; the robot goes back to its initial position independently and moves on to the next spinning position. The feedback from the R 40 technicians is overwhelmingly positive; based upon more than 1 500 R 40 robots which are running in the field. Rapid coordination and simple maintenance, successful removal of malfunctions are only a few of the advantages quoted.

### LARGE GRAPHIC DISPLAY

All piecing parameters are shown clearly on the robot display. Robot efficiency and further information can be called up quickly.



Robot service station at the headstock



Special service station at the end stock

MACHINE CONCEPT



The successful R 40 machine concept is designed for high productivity with a maximum machine length.

**MORE FLEXIBILITY WITH 4 ROBOTS**

The R 40, with a length of up to 500 rotors can be equipped with up to 4 robots. Each robot is assigned to a certain position from the maintenance concept. All spinning positions are served by the remaining robots while one robot is in maintenance. There is no loss of efficiency. The working area of the robots are assigned at the machine center and can overlap. The intelligent Drive System iDS offers a further optimization. The machine center coordinates the robot travel area and thus optimizes the efficiency of the entire machine.

**RELIABLE AND SERVICE-FRIENDLY ELECTRONICS**

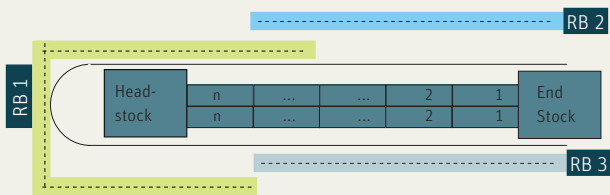
The running speeds are monitored by the inverter and additionally by sensors mounted on the drive shafts. Any deviations are recognized immediately by this double monitoring system arrangement and the machine is stopped. Thus the production of inferior yarn quality is avoided.

**EXTENDED CLEANING INTERVALS**

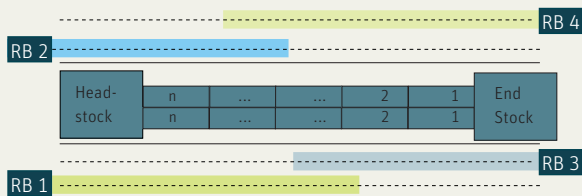
Many improvements have been made to extend the cleaning intervals of the new R 40. These improvements save 1 to 2 cleaning intervals annually and thus increase the productivity time significantly.

- AERObearing, grease and oil free
- SC-R spinning box with the best self-cleaning
- Robots with the VARIOclean rotor cleaning
- Central lubrication feature

WORKING AREAS ASSIGNED AT THE MACHINE CENTER  
3 ROBOTS



4 ROBOTS





ENERGY CONSUMPTION

**Maximum output with efficient energy utilization**

The increasing energy requirements world-wide are leading to steadily increasing costs. For many years Rieter has placed the topic of energy savings in the foreground of new developments. The R 40 energy requirements have been reduced steadily over previous machine generations with a parallel increase in productivity.

**INVERTER AND ENERGY-SAVING MOTORS**

The integration of inverters combined with the central drive of the R 40 has permitted the elimination of gear boxes. This way, power is transmitted directly without loss. The energy consumption has been reduced further by using modern, energy-saving motors. The energy requirements of the new R 40 have been reduced by 7%.

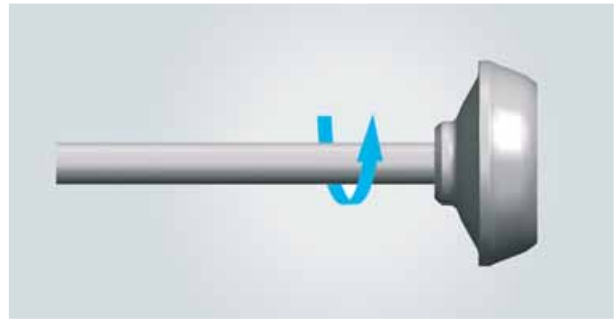
**ENERGY-SAVING BEARINGS AND LUBRICATION**

A further area for saving energy is in the bearing technology and the use of lubrication. Rieter took advantage of the expertise of innovative partners for the R 40. These bearings have the best running properties and are energy-economical. Modern bearing technology, combined with high efficiency lubricants is an important module for reducing energy consumption.

**NEW ROTOR GENERATION**

The performance of the new x-rotors have been enhanced considerably compared with conventional rotors: Up to 12% higher speeds and up to 5 watts lower energy consumption, and with better acceleration and braking performance.

The key to these developments is extensive computer simulations and an ISO certified fabrication process.

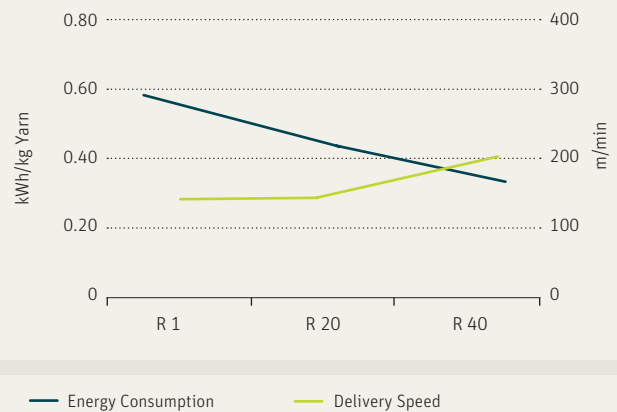


Air-current optimized X-rotors

**ENERGY EFFICIENT VACUUM SYSTEM**

The fan, used to generate the vacuum in a rotor spinning machine, is the second largest energy consumer. The vacuum level is influenced by the build up of the filter mat. With the R 40, Rieter is the sole manufacturer to follow the route of combating the problem at the source. When the filter gets clogged, the vacuum falls. The machine control system starts an effective filter cleaning process automatically as a function of the vacuum level. The set vacuum level is again operative after this cleaning cycle. The vacuum remains constant with unchanged low energy consumption by its highly efficient main fan. As an option, the waste in the filter boxes can be removed centrally and automatically.

**LOW ENERGY CONSUMPTION WITH HIGH PRODUCTIVITY**



## MODULE FOR HIGH FLEXIBILITY

**Cooperation with specialists**

The R 40 rotor spinning machine combines large numbers of functions and systems. Yarn clearers and slub yarn devices are examples of advanced technology sub-systems. Rieter takes advantage of the knowledge of specialized suppliers for these options.

**YARN CLEARER SYSTEMS FOR ALL REQUIREMENTS**

Yarn clearers are an absolute necessity for modern rotor spinning machines. These monitor the yarn in terms of its quality within predefined limits. The Quantum Clearer 2 from Uster with optical or capacitive sensor or the Barco yarn clearer with optical sensor are available for the R 40. Both can be equipped with the foreign fiber detection option. The R 40 replaces the recognized yarn faults with yarn-like AEROpiecing piecings of the highest quality.

**SLUB YARN DEVICES FROM WELL-KNOWN MANUFACTURERS**

Current fashions define which yarns can be offered successfully on the market. The demand for slub yarn remains high. The simplest way to create an effect in the yarn is by using a special opening roller. These generate effects which are smaller than the rotor diameter, and which are random and not programmable.

Working with Amsler and Caipo as partners, Rieter offers a selection of two effect yarn devices for the R 40. Soft and hardware interfaces are defined. Fitting can be carried out easily and secure. The R 40 can be supplied from the factory with a Caipo device for slub yarn, multi-count and multi-twist.

**AUTOMATION POTENTIAL FOR PACKAGE REMOVAL**

The removal of the produced yarn packages has a steadily increasing importance as deliveries increase. The R 40 offers a universal interface to adapt the central package removal or palletizing systems. These systems support productivity and guarantee independence from operator availability.



Yarn quality monitoring at the R 40



Denim with slubs

### CENTRAL TRASH DISPOSAL

The R 40 now has a very generously dimensioned filter box for the disposal of trash from the spinning process, and separately from the robot. Both filter boxes are prepared for connecting up to a central trash disposal system. Specialized suppliers can connect their systems and control the trash disposal centrally. Operating personnel are relieved of this task, enhancing the productivity of the machine.

### BEARING AND DRIVE TECHNOLOGY

Drive technology becomes more significant as the spinning machines get longer. The drives must operate reliably, consume little energy and permit a secure control by the machine control system. Energy saving motors, quality bearings and lubricants lower the energy consumption on the R 40. On these topics, Rieter also guarantees its customers the know-how of international specialists through close collaboration.

### AUTOMATED SPINNING MILLS

CUBIcan cans contain large quantities of sliver. Transportation units without a driver -AGV's- can move these to the R 40 automatically. The transportation units exchange full CUBIcans for empty ones. The R 40 robots are equipped with an additional module, the ROBOfeed. Using this, the robot takes the sliver from the can, brings it into the spinning position and starts the spinning process.

Automatic set-ups are frequently encountered in package removal. Systems collect the packages from the machines for a centralized or decentralized palletizing. Such systems have already been installed in many R 40 spinning mills.

### LATER RETROFITTING POSSIBLE

The technical and technological development of rotor spinning strides forward. The needs and requirements of the market change and our customers must be able to react to these. New developments are constructed in such a way that they can be retro-fitted to older versions if at all possible. These upgrades offer advantages to the customer in terms of productivity, yarn quality and machine service life.



Automatic package removal system



ComfoRo®

## Quality has a name

Rieter has established a name for the rotor yarns from the R 40: the trademark ComfoRo®. Rieter has built partnerships with leading suppliers of the textile chain. Together, experience and know-how have been gathered, covering the entire downstream processing. This know-how is made available to our customers. Yarns are produced and designed for the final product, and thus offer a decisive market advantage. ComfoRo® yarns are conquering the new markets in Asia. Articles which until now have only been produced exclusively locally with ring-spun yarn can now be replaced with more economically produced ComfoRo® yarns.

### UNIQUE YARN QUALITY

ComfoRo® is based on the unique yarn quality of the SC-R spinning box and the yarn-like piecings with AEROpiecing technology. Thanks to XPS this high piecing quality can be achieved easily and safely. ComfoRo® yarn is characterized by the best properties in the downstream processing.

### PRE-SET YARN CHARACTERISTICS

The yarn must already be produced with the defined required profile for an optimum result to be achieved in the end product. Here not only the know-how from Rieter is necessary, but this must flow together with that from the partner in the downstream processing. Yarn properties and yarn characteristics are optimized by the selection of spinning elements suitable for the application. The ComfoRo® rotor yarn is optimized for the following process and thus delivers the best results in the final product.

### ECONOMICAL ComfoRo® PROCESS

The production costs per kg of yarn play an important role. Significantly fewer machines with maximum productivity, reduced power consumption and space requirements, less operating and maintenance personnel are characteristics of the Rieter rotor spinning mill.

### ECONOMICS FOR THE DOWNSTREAM PROCESSING

ComfoRo® weaving yarns are characterized by good unwinding behavior, low sizing pick up, and cause low fluff on high performance weaving machines. ComfoRo® knitting yarns are characterized by a defined hairiness and low twist. A multiplicity of short fibers guarantees a good unwinding behavior for waxed yarns, and a pleasant soft hand. The hand, the softness can be improved further by using finishing technologies. ComfoRo® yarns, and high value products made from them, are enjoying a steadily increasing appreciation in the marketplace. Further information on ComfoRo® can be found under [www.comforo.com](http://www.comforo.com)



High quality ComfoRo business shirt



ENERGY CONSUMPTION

**Production units with low energy consumption**

Compact production units such as the Rieter Rotor System offer the best opportunity for the best productivity with low energy requirements. Highly productive machines from the blow room through the rotor spinning machine R 40 require fewer machines, use less space, and lower the costs of air conditioning and illumination.

**HIGH PRODUCTIVITY, MINIMAL SPACE REQUIREMENTS**

The Rieter Rotor System stands for an appropriate maximum productivity with low space requirements. From the direct process, i.e. card C 60 with an integrated RSB module, or through the classical process with 2 drawing passages for fine yarn of the highest quality, the Rieter Rotor System offers all options. Rieter machines have low energy and space requirements for maximized productivity. The production costs per kilogram of yarn are at a significantly low level.

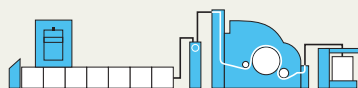
**AIR CONDITIONING**

The high production machines in a Rieter spinning mill need less space. Energy saving machines emit less heat into the surroundings. With fewer machines in combination with a compact building, the costs for air conditioning are significantly lower than for conventional systems. Savings of more than 10% can be achieved.

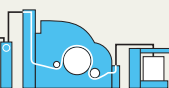
**LONGTERM POWER BRIDGING**

Our customers rely increasingly on the system for uninterrupted power supply UPS. These units avoid power interruptions in the spinning mill reliably and maintain high quality. An R 40 system fitted with UPS, continues to operate without any quality or production variations. Maximum productivity without additional piecings on the package is guaranteed. The UPS units become amortized within a year and prevail rapidly in critical markets.

100% CO – Ne 30 – T-Shirt; yarn production 940 kg/h



1 x  
Blowroom



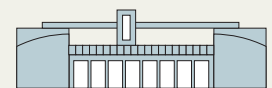
11 x  
Card  
95 kg/h  
C 60



5 x  
Drawframe  
850 m/min  
SB 20



5 x  
Drawframe  
850 m/min  
RSB-D 40



12 x  
R 40 - 440  
125 000 rpm

5 250 qm Less space than the local ring line

Rieter Rotor System with highest productivity and lowest required space

## ROTOR SPINNING

### Young process with potential for the future

The first commercial rotor spinning machine was exhibited at the ITMA in Basel only 40 years ago. One can rightly speak of a young spinning process. The developments during this period were fast-paced: rotor speeds and delivery speeds were increased considerably, yarn counts up to Ne 60 are possible, and all types of raw materials can be processed.

#### CREATIVITY AND EXPERTISE

The R 40 machine control system with the Can-Bus system is more powerful than the first spacecraft. Mechanical components are made from novel materials, stronger and more durable than ever before. The standards set for all these advances in development remain the reliability and controllability. With the R 40, Rieter demonstrates a balanced combination of practical technology conversion and controlled processing.

#### YESTERDAY'S VISION, TODAY'S REALITY

Even just a few years ago it would have been unthinkable to produce viscose at speeds of over 300 m/min on a rotor spinning machine. With the R 40, Rieter demonstrates impressively just how development can break down such boundaries. Today a yarn Ne 16 is running viably at 350 m/min with a rotor speed of 160 000 rpm. Viscose yarns are being spun commercially and successfully on the R 40 up to Ne 60. Novel fibers such as bamboo are a regular part of the production program on the R 40.

#### COOPERATION WITH FIBER MANUFACTURERS

Rieter is working on future-oriented developments together with leading fiber manufacturers. Fiber, avivage and spinning component developments are being pursued together. As new fibers become available on the market, Rieter already knows which spinning components and settings are required on the R 40.

#### TECHNOLOGY PARTS FROM THE LABORATORY TO THE CUSTOMER

The development of new technology parts begins with an idea or a requirement from the marketplace. Small series are tested at Rieter's spin center in extensive spinning tests. Working with interested customers, Rieter carries out further spinning trials and supports the development of new products. The tests are, if at all possible, pursued through the various steps in the downstream processing.



### ROOM FOR VISION

Ideas for the next generation begin to mature even during the work involved in implementing a new machine. In close collaboration with Institutes and Universities new visions are born, discussed, rejected or confirmed. Basic testing is carried out, redefined and refined. As a machine manufacturer, Rieter is interested in offering special solutions to its customers, which cannot be obtained from other manufacturers.

### TRAINING AND EDUCATION OF PROFESSIONAL STAFF

The productivity of new machines and equipment, and finally the quality of the product, depends on the personnel. Operators who are well educated and trained on the machines can use the Rieter rotor equipment more efficiently. Therefore Rieter puts high value on education and training. Specialists instruct personnel in Europe or directly on-site at the customer with in-mill training. All aspects are taught intensively, from operation through maintenance and problem-solving.

### MODERNIZING AND VALUE CONSERVATION

The possibility of adapting new developments to existing Rieter rotor spinning machines provides for reliability, increasing productivity and enhanced yarn quality in existing equipment also.

### OPEN TO IDEAS

Suggestions and wishes from our customers are trend setters for each new development at Rieter. They operate the machines, are in the market, see and recognize trends, and must be able to assert themselves in the marketplace with innovations. All Rieter staff involved, such as sales personnel, product managers, service technicians, technologists, encourage contact with our customers. In discussions, suggestions and needs are formulated for further development activities. Networking with our customers and their clients, and with major partners from fiber manufacturing and downstream processing, Rieter has built an innovative team with the common objective of achieving the optimum for all those involved.





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