Compact Spinning
Compact-Spinning Machine K 48

Fully compacted yarns produced with high performance
Compacting

Energy Saving of
up to 80%
The K 48 only requires around 20% of the compacting energy needed by other comparable solutions. This is thanks to a unique compacting system and energy-efficient components.
The K 48 is very flexible. The machine is supplied with a device for producing slub yarns (VARIOspin 4) as standard. Systems for producing core yarns and twin yarns are also available on request.
Full Flexibility for the Production of Standard and Special Yarns
The integrated individual spindle monitoring, ISM premium, checks the running properties of each individual spinning position. This optimizes the operator guidance and increases the machine efficiency.
High Machine Efficiency
Wide Range of Raw Materials
New wear-resistant coating on the sieve drum

High Machine Efficiency
Integrated individual spindle monitoring (ISM premium) with LEDs at each spinning position

Economical Doffing Ensures High Efficiency
Underwinding-free doffing with SERVOgrip and self-monitoring grippers

Fully Compacted High-quality Yarn
Precise fiber guidance thanks to air-guide element Detect

Save up to 25% Energy
Unique compacting system with energy-efficient machine concept

Highest Level of Productivity; Lowest Maintenance Costs
Unique spinning geometry and optimized technology components

* Option
OUTSTANDING ADVANTAGES

Full Flexibility for Special Yarns
Integrated device VARIOspin 4 for producing slub yarns as standard

Minimal Workload
Automatic loading and tube sorting with tube loader ROBOload “wild loading”*

Maximum Production Time
Electronic drafting system FLEXIdraft
Save Energy

Energy saving of up to 25%

The compact-spinning machine K 48 can achieve an energy saving of up to 25% compared to other spinning machines with a comparable production volume. This results from combining an energy-saving basic machine, a unique compacting system, the new, efficient 110-kW motor and the LENA spindle.

Very low energy consumption for compacting

The K 48 only requires around 20% of the compacting energy in comparison to other solutions. This is thanks to a unique compacting system and energy-efficient technology components. The one-duct system for suction reduces the energy consumption needed to generate underpressure. The large cross-section of the suction duct reduces air resistance. This is just one of the measures that keeps energy consumption low.

Uniform underpressure

Machines with an intermediate drive feature a suction unit on both the head and foot of the machine. The speed of the air flow is reduced and the underpressure level along the K 48 becomes more uniform and energy-efficient.

The air-guide element Detect covers the compacting zone. As a result, the air flow is directed in a targeted manner, significantly reducing the air flow rate required for compacting. The air-guide element Detect also contributes to the reduction in energy consumption.

Targeted air routing via the air-guide element Detect and suction insert

Double-sided suction ECOrized

Up to 45% savings

Energy consumption

Number of spindles

- Energy consumption single-sided suction
- Energy consumption with double-sided suction ECOrized
Save up to 4% energy with the LENA spindle*

![Cross-section of the bottom part of a LENA spindle](image1)

The LENA spindle has been specially developed for high spindle speeds and low energy consumption. The whorl diameter is only 17.5 mm. This results in an energy saving of up to 4%.

Energy-saving 4-spindle tape drive

The Rieter 4-spindle tape drive is energy-efficient and easy to handle. The large enlacement of 90 degrees ensures that every spindle operates without fault, even with minimal contact pressure.

![Optimal power transmission due to the 90° enhancement reduces energy consumption](image2)

Efficient main motor saves up to 4% energy*

The extremely efficient 110-kW main drive motor in the K 48 was developed for machines with up to 1824 spindles and high speeds in order to save energy. It can also be used profitably on machines with fewer spindles and low speeds.

Energy-efficient cop transport

The cop transport system SERVODisc is an open system, which means less maintenance is required. The system is driven by two diagonally offset 70-Watt motors. This requires only 10% of the energy compared to a pneumatic solution.

* Option
Full Flexibility for Special Yarns

Produce slub yarns at any time

The compact-spinning machine K 48 is an all-rounder that allows the business to respond quickly to changing market requirements. The Rieter slub yarn system VARIOspin 4 is integrated into the machine as standard. The latest generation servo motors are ideal for the highly dynamic requirements of the slub yarn production industry.

A range of effect designs can easily be programmed on the operating unit or an external computer using the software provided and reliably reproduced. This allows effect yarns to be produced efficiently and profitably with outstanding Rieter quality.

With up to 1,824 spindles, the K 48 can produce a variety of slub yarns. This is also true for core yarns and twin yarns.

Simple production of twin yarns*

To produce a twin yarn, two rovings must run to one spinning position. In the drafting system, both are drafted and compacted separately. They are then twisted together in the spinning triangle. Due to their thread-yarn-like properties, twin yarns improve the quality of the yarn and end product.

Precise production of core yarns*

The core yarn device works with a traversing guide roller for the filament. The traversing system for the filament is identical to the traversing system for the roving. This means the filament thread is precisely integrated into the yarn. Soft, hard, and duo-core yarns (super-stretch) can be produced.

* Depending on fiber length and machine configuration

*Option
High Machine Efficiency

Efficient production with ISM premium

The individual spindle monitoring, ISM premium, is built into the machine as standard. In addition to LEDs at each spinning position, it also has an LED at each section and signal lamps at the head and foot of the machine. Thanks to the three-stage display concept, operators are guided specifically to the ends down.

The first stage of the display consists of the signal lamps at the head and foot of the machine. The signal lamps light up as soon as the individually defined limit value for ends down is exceeded. The operator is guided to the relevant side of the machine and then to the affected spindle section with the ends down.

Another function is the permanent monitoring of the speed of the individual spindles. If a spindle runs outside the defined specifications, this is indicated by the LED flashing. This allows the operator to quickly and easily recognize which spindle is not running correctly. The operator can then intervene immediately, which avoids loss of raw material and quality.

As an option, the winding machine can be fitted with spinning position identification*. In the event of faulty cops, the winding machine sends a signal to the ISM, and the LED illuminates at the relevant spinning position. The operator is guided directly to the spinning position that is not operating correctly, and can intervene immediately.

ISM is required for a roving stop device*. If ends down occurs, the ISM sends a signal to the roving stop, which stops the roving feed. This saves raw material.

Helpful data analysis with SPIDERweb*

The mill monitoring system SPIDERweb analyzes all data, indicates weak points and facilitates efficient personnel deployment. This increases both plant efficiency and yarn quality.

* Option
Wide Range of Raw Materials for Fully-Compacted, High-Quality Yarn

Basis for a wide range of applications

A sieve drum with minimal maintenance is the basis for a long-term consistent yarn quality. The low-wear surface of the sieve drum ensures a good and above all uniform yarn quality over long operating periods. The improved surface coating of the sieve drum means that the K 48 is even capable of processing blends of various raw materials. The machine can therefore be used in a broader range of applications.

Controlled compacting

The compacting unit forms the heart of the compact-spinning machine. The compacting unit comprises the sieve drum, suction insert Bright, and air-guide element Detect. The optimal shape of the air guide element and suction insert ensures that the drawn-in air is guided in a targeted manner.

The fibers to be spun are neatly and continuously incorporated into the yarn body via the air flow drawn in at the sides. The targeted air routing in the compacting unit prevents dust and fiber particles from being deposited inside the machine. By doing so, the machine is always able to produce fully compacted yarn with the highest strength and low hairiness.

Simple quality monitoring

The new air-guide element Detect monitors the air flow at the individual spinning positions. If the underpressure reaches a limit value, a red marking on the air guide element indicates that the compacting unit must be checked. This feature prevents non-compacted yarn being produced. Monitoring each individual spinning position guarantees a consistently high yarn quality.

The red marking on the air guide element indicates that the compacting unit must be checked.
Intermediate drive ensures quality

For machines with an intermediate drive, the middle bottom roller is also driven in the center of the machine. This reduces the torsional forces on the bottom roller. The even running of the bottom roller ensures a consistent quality of the yarn.

Q-Package* – the quality package for cotton

The quality package Q-Package for cotton contains a nose bar, an “active” cradle (moving deflection edge) and a pressure bar (pin). Fiber guidance between the cradle and the nipping point of the delivery roller is further improved with the Q-Package. The evenness of the yarn (CVm%) is improved by up to one percentage point. At the same time, yarn imperfections are reduced by 10 to 30%.

Ideal fiber guidance in the drafting system

The drafting system Ri-Q-Draft ensures the ideal fiber guidance for most applications and very stable running behavior. The deflection bridge Ri-Q-Bridge is a key component in the spinning process. The optimal position and the form of the cradle reduce the distance to the nipping point of the delivery roller. These technology components, including the bottom aprons, are perfectly tailored to each other. This ensures ideal fiber guidance in the main draft zone, guaranteeing consistently high yarn quality.

* Option
Economical Doffing Ensures High Efficiency

Save yarn with the SERVOgrip system

The proven and unique Rieter SERVOgrip system enables doffing without underwinding. By using SERVOgrip, no yarn remnants occur that need to be removed from the whorl. This saves yarn and keeps the machine clean. Ends down caused by fiber fly and yarn remnants is also avoided, thus increasing yarn quality.

The SERVOgrip system comprises a special clamping crown. Rieter is the only manufacturer whose clamping crown is opened and closed using the ring rail. This guarantees precise and controlled fixing of the yarn. Ends down following cop changes is thus largely avoided.

Self-monitoring grippers

The doffing system is self-monitoring, including the special profile of the doffer beam and the releasable grippers. In the event of faults, the doffing process is automatically stopped by a pressure monitor, ensuring an error-free doffing process.

Reliable cop transport with SERVOdisc

The cop transport system SERVOdisc works using peg trays that are clipped into a conveyor belt, allowing the tubes and cops to be precisely positioned. After doffing, SERVOdisc reliably transfers the full cops to the tube loader ROBOload or to the winding machine.

Reliable yarn cutting for man-made fiber yarns with the SERVOgrip blade*

Rieter has developed a patented technology that can reduce yarn twisting and yarn count before doffing. When combined with the optional SERVOgrip blade, even high-strength yarns or core yarns can be cut properly when doffing.

* Option
Highest Level of Productivity at Lowest Maintenance Costs

Maximum spindle speeds

With its unique Rieter spinning geometry and the consistent use of high-quality technology components, the K 48 runs at the highest spindle speeds. These high speeds ensure maximum production with a consistently high yarn quality. For example, with a yarn count of Ne 30, up to 10% more yarn can be produced per machine each year.

Productivity is more than maximum spindle speed

Production can be increased even when the cops are in the build-up stage. The precise machine design of the K 48 and the use of high-quality components allow the machine to run at higher starting speeds. Such speeds can increase production rates, especially in the lower end of the cop size range. The maximum spindle speed is reached quicker. At a yarn count of Ne 30, for example, it is therefore possible to produce an additional 6 500 kilograms of yarn on each machine each year.

Low spinning costs

With the K 48 the labor-intensive and expensive exchange of compacting aprons is not needed. Machine downtimes are avoided. Increased efficiency can be achieved as a result, making it simpler to plan production.
Maximum Production Time

Set yarn parameters electronically

The new electronic drafting system drive FLEXIdraft for the compact-spinning machine K 48 uses frequency-controlled motors. This electronic drafting system drive means less work for operating personnel. Parameters such as yarn count, yarn twist and twist direction can easily be adjusted on the operating unit. There is no need to change gear wheels or make any other mechanical adjustments. The operator can change the Z yarn twist direction or the S yarn twist direction on the operating unit.

Mechanical adjustments to the belt tensioner for the spindle drive are now a thing of the past. The balloon control ring is designed so that it does not have to be replaced when the yarn twist direction is changed. This reduces the amount of work required by operating personnel. Machine downtime is minimized when changing material.
Economic start-up

The function FLEXIstart* allows the drafting system to be switched on and off in stages. This allows for a more efficient machine start-up. Depending on the machine length, a quarter or half of the machine is commissioned. This avoids unnecessary material waste.

No ends down in the event of a power failure

If a power failure occurs, the rotation energy of the spindles is used to supply the machine controls with electricity. At this time, the main motor switches to generator mode. If there is a power failure lasting less than two seconds, the machine automatically accelerates to the previous operating speed. The machine comes to a controlled stop in the event of extended interruptions, thus avoiding ends down.

Controls during a power failure – reduction of production loss

* Option
Minimal Workload

Flexible automation

Various automation options are available. With the SERVODisc system, the compact-spinning machine can either be directly linked with a winding machine or with the tube loader ROBOload. The interface is identical for both variants (link and ROBOload). This means the ROBOload can easily be replaced later by connecting to the winding machine.

Automatic tube sorting with ROBOload “wild loading” *

The ROBOload “wild loading” means it is no longer necessary to align tubes manually. The tubes are fed to the machine in a mobile, tiltable trolley. A device automatically aligns the tubes, significantly reducing manual effort.

* Option
Advantages for Downstream Processing

Better efficiency of the weaving machine

High strength and low hairiness are important factors for good running behavior on the weaving machine. These characteristics are provided by the Com4®compact yarns produced on the K 48. The high strength improves the load capacity of the warp threads and the low hairiness reduces the clinging tendency during shed formation. This results in high efficiency levels and low costs thanks to reduced machine downtimes.

Reduced needle wear on the knitting machine

In the knitting mill, the less hairy yarn supports the smooth running of the knitting machine. Less fiber fly is generated and the smoother yarn reduces wear on the needles. Fewer machine downtimes lead to a better utilization capacity of the knitting machine.

High flexibility in finishing

The finishing of woven and knitted fabrics places high demands on the yarns used. The popular iron-free finishing of shirts and blouses, for instance, reduces the strength of the yarns used by up to 50%. The high strength of the Com4®compact yarn provides the necessary reliability and flexibility for customer-friendly and high-quality fabric finishing.
**Machine Data**

**Compact-spinning machine K 48**

**Machine length L [mm]:**

\[ L = \text{no. spindles} \times \text{gauge} + \text{intermediate drive} + \text{constant (C)} \]

**Maximum number of spindles**

- Up to 1,824 spindles per machine with 70 mm gauge
- Up to 1,632 spindles per machine with 75 mm gauge

**Intermediate drive length [600 mm]**

Specifications without intermediate drive
- Up to 1,248 spindles: all raw materials, 70 and 75 mm gauge
- Up to 1,440 spindles: 100% cotton, 70 mm gauge

**Constant C dependent on machine specification [mm]**

<table>
<thead>
<tr>
<th>Suction</th>
<th>Single-sided*</th>
<th>Double-sided*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection to Murata, Savio, Schlafhorst</td>
<td>4,180</td>
<td>5,636</td>
</tr>
<tr>
<td>ROBOload without trolley</td>
<td>5,185</td>
<td>6,641</td>
</tr>
<tr>
<td>ROBOload, “wild loading” without trolley</td>
<td>6,305</td>
<td>7,761</td>
</tr>
</tbody>
</table>

*Single-sided suction is available for up to 1,440 spindles. Double-sided suction always has an intermediate drive and is available from 1,296 spindles.

**Sample calculation for machine length L [mm]**

1,824 spindles, 70 mm gauge, intermediate drive, double-sided suction, link

\[ L = ((1,824/2) \times 70) + 600 + 5,636 = 70,076 \text{ mm} \]
### Technological data

<table>
<thead>
<tr>
<th>Material</th>
<th>Cotton ≥ 27 mm (1 1/16”); Man-made fibers and blends up to 51 mm (2”)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yarn count</td>
<td></td>
</tr>
<tr>
<td>Standard</td>
<td>Cotton</td>
</tr>
<tr>
<td></td>
<td>29.6 – 3.7 tex</td>
</tr>
<tr>
<td></td>
<td>Nm 34 – 270</td>
</tr>
<tr>
<td></td>
<td>Ne 20 – 160</td>
</tr>
<tr>
<td>Optional</td>
<td>Cotton</td>
</tr>
<tr>
<td></td>
<td>59 – 2.4 tex</td>
</tr>
<tr>
<td></td>
<td>Nm 17 – 423</td>
</tr>
<tr>
<td></td>
<td>Ne 10 – 250</td>
</tr>
<tr>
<td>Twist range</td>
<td>200 – 3 000 T/m (5.1 – 76.1 T/in)</td>
</tr>
<tr>
<td>Draft</td>
<td>6 – 250-fold (mechanical)</td>
</tr>
<tr>
<td></td>
<td>10 – 80-fold (technological)</td>
</tr>
</tbody>
</table>

### Technical data

<table>
<thead>
<tr>
<th>Spindle speed</th>
<th>Mechanical up to 25 000 rpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installed power</td>
<td></td>
</tr>
<tr>
<td>Main drive motor</td>
<td>55, 80, 110 kW depending on number of spindles and yarn count</td>
</tr>
<tr>
<td>Drafting system drive</td>
<td></td>
</tr>
<tr>
<td>Without intermediate drive</td>
<td>4.4 – 8.8 kW</td>
</tr>
<tr>
<td>With intermediate drive</td>
<td>10.6 – 13.2 kW</td>
</tr>
<tr>
<td>Ring rail drive</td>
<td>1.75 kW</td>
</tr>
<tr>
<td>Single-sided suction (50/60 Hz)</td>
<td></td>
</tr>
<tr>
<td>Up to 720 spindles</td>
<td>6.5 kW/6.5 kW</td>
</tr>
<tr>
<td>768 – 1 440 spindles</td>
<td>12.6 kW/12.6 kW</td>
</tr>
<tr>
<td>Double-sided suction</td>
<td></td>
</tr>
<tr>
<td>1 296 – 1 824 spindles</td>
<td>2 x 6.5 kW</td>
</tr>
<tr>
<td>Power supply</td>
<td></td>
</tr>
<tr>
<td>Standard</td>
<td>400 – 420 V, 50/60 Hz</td>
</tr>
<tr>
<td>Option (with transformer)</td>
<td>380/440 V, 50/60 Hz</td>
</tr>
<tr>
<td>Compressed air</td>
<td></td>
</tr>
<tr>
<td>Min. supply pressure</td>
<td>7 bar</td>
</tr>
<tr>
<td>Consumption</td>
<td>approx. 1.5 Nm³/h (up to 1 440 spindles)</td>
</tr>
<tr>
<td></td>
<td>approx. 1.75 Nm³/h (up to 1 632 spindles)</td>
</tr>
<tr>
<td></td>
<td>approx. 2 Nm³/h (up to 1 824 spindles)</td>
</tr>
<tr>
<td>Exhaust air</td>
<td></td>
</tr>
<tr>
<td>Air volume during double-sided suction (even split of air volume in the head and foot of the machine)</td>
<td>12 420 m³/h with 1 632 spindles</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Required underpressure at transition point</td>
<td></td>
</tr>
<tr>
<td></td>
<td>50 – 200 Pa</td>
</tr>
<tr>
<td>Options</td>
<td></td>
</tr>
<tr>
<td>Power monitoring</td>
<td></td>
</tr>
<tr>
<td>SPIDERweb</td>
<td></td>
</tr>
<tr>
<td>DOFFlock</td>
<td></td>
</tr>
<tr>
<td>Core yarn devices</td>
<td></td>
</tr>
<tr>
<td>Twin yarn (Com6®compact-twin)</td>
<td></td>
</tr>
<tr>
<td>FLEXiStart</td>
<td></td>
</tr>
<tr>
<td>110 kW main motor</td>
<td></td>
</tr>
<tr>
<td>LENA spindle</td>
<td></td>
</tr>
<tr>
<td>ROBOload “wild loading”</td>
<td></td>
</tr>
<tr>
<td>Q-Package</td>
<td></td>
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<tr>
<td>SERVOgrip blade</td>
<td></td>
</tr>
<tr>
<td>Roving stop device</td>
<td></td>
</tr>
</tbody>
</table>
Com4® compact
Yarn of Choice
The unique character of the Com4® compact yarn spun on the Rieter compact-spinning machine lies in the almost perfect yarn structure. All fibers lie parallel and are completely integrated in the yarn bundle. Compared to standard compact yarns, it exhibits the highest compacting efficiency. This leads to excellent strength properties. The very low hairiness and the compact structure give both the yarn and the fabrics a high-quality, distinctive appearance. First-rate processing characteristics, high wearing comfort and a luxurious look are the advantages.

Yarn Characteristics
- Highest strength
- Uniform yarn structure
- Low hairiness
- High yarn density

Advantages for Downstream Processing
- High processing speed
- Low ends down during weaving
- High strength after finishing

Fabric Properties
- High fabric tenacity
- Absolutely clear, defined contours
- Finest luster

Typical Applications
- Business shirts
- High-quality knitwear
- Fine bed linen
- Fine hosiery
The Comfort of Competence

Put your confidence in Rieter’s competence and enjoy the comfort of partnership!

Rieter is the leading supplier of installations for manufacturing yarns from short staple fibers. As a competent partner, Rieter makes customers’ lives easier. It provides advice and support from the initial investment discussions to the successful operation of their spinning mills. Rieter’s comprehensive know-how from fiber through yarn to the finished textile is the basis for innovative machines and consistent yarn quality.

Settle back and relax thanks to Rieter.
Valuable Systems

Rieter is the only textile machine manufacturer to offer four spinning technologies and to advise customers competently, independently and with tailor-made solutions. Investments in Rieter machines are exceptionally attractive due to the outstanding price/performance ratio, the low conversion costs and the longevity of the products, which remain competitive by means of retrofits. Since the company was established in Switzerland in 1795, Rieter has developed high quality standards. All manufacturing facilities are ISO 9001 certified.

Convincing Technology

Rieter possesses comprehensive textile and technology expertise and covers the four spinning processes through to the textile end product. Alongside the most sophisticated machines and plants, Rieter offers extensive services in the field of textile technology. Customers profit from examinations and tests in Rieter’s spinning centers and laboratories and thus ensure the excellent quality of their yarns at high production capacity.

Supportive Partnership

Numerous sales and service centers support customers throughout the world. For decades, customers have enjoyed the advantages of a single responsible contact partner for the entire spinning operation.

Rieter’s Services

- Investment planning
- Plant planning
- Project planning and realization
- Installation and maintenance
- Preventive inspection
- Wide range of wear, technology and spare parts

Rieter's Services

- Spinning trials based on the four spinning systems
- Spinning mill analysis to optimize quality and productivity
- Textile laboratory services
- Professional textile technological publications

Rieter’s Services

- Training for management and operating personnel
- Com4® yarn marketing (yarn licenses)
- Marketing support of reference customers
- Rieter Award recognizing the best students in the textile industry
- Support for universities
- Symposia and roadshows close to customers
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