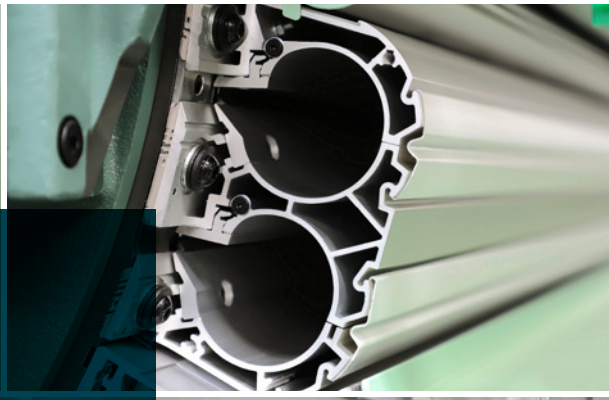
Fiber preparation
Card C 77

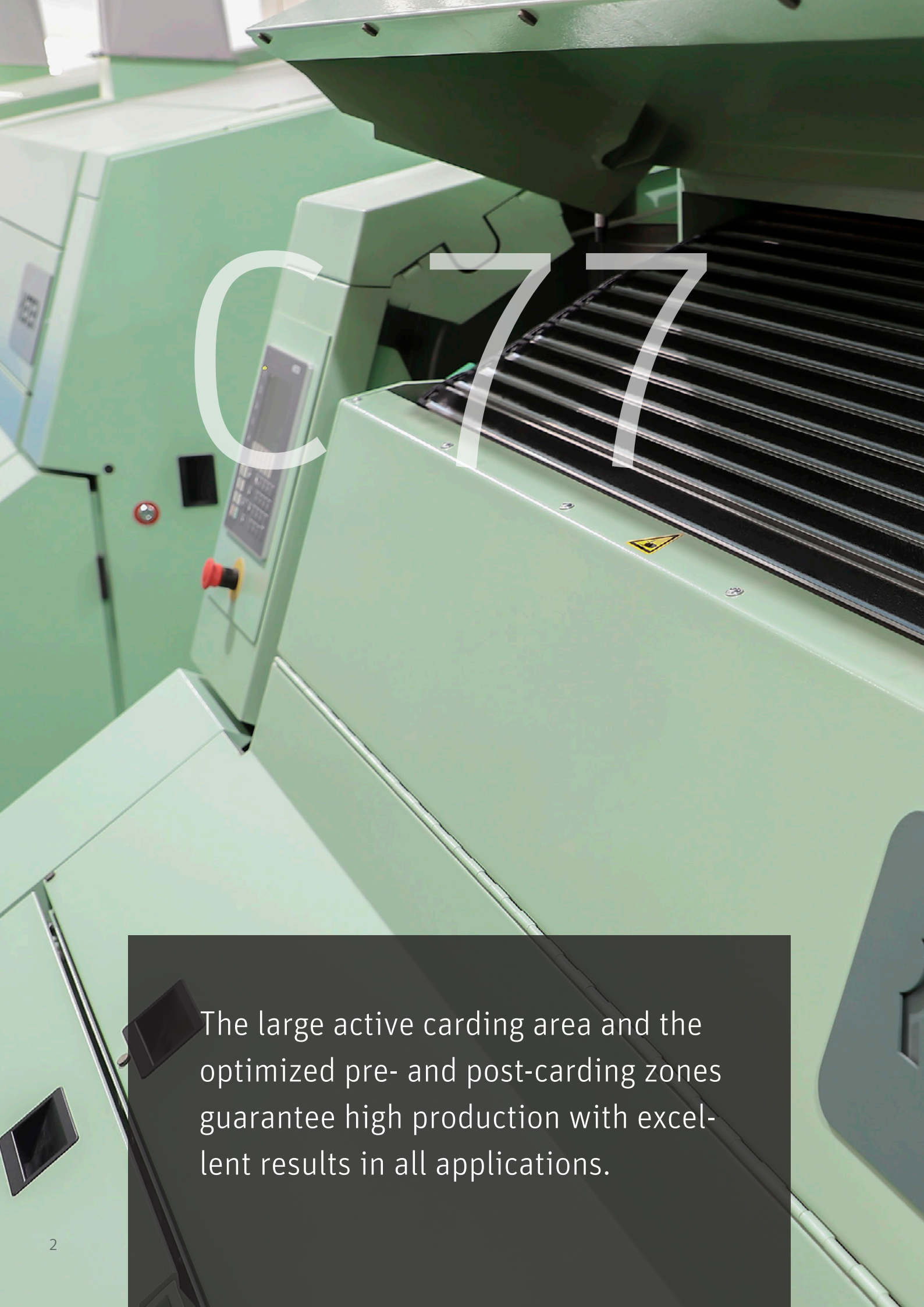
RIETER



C 77

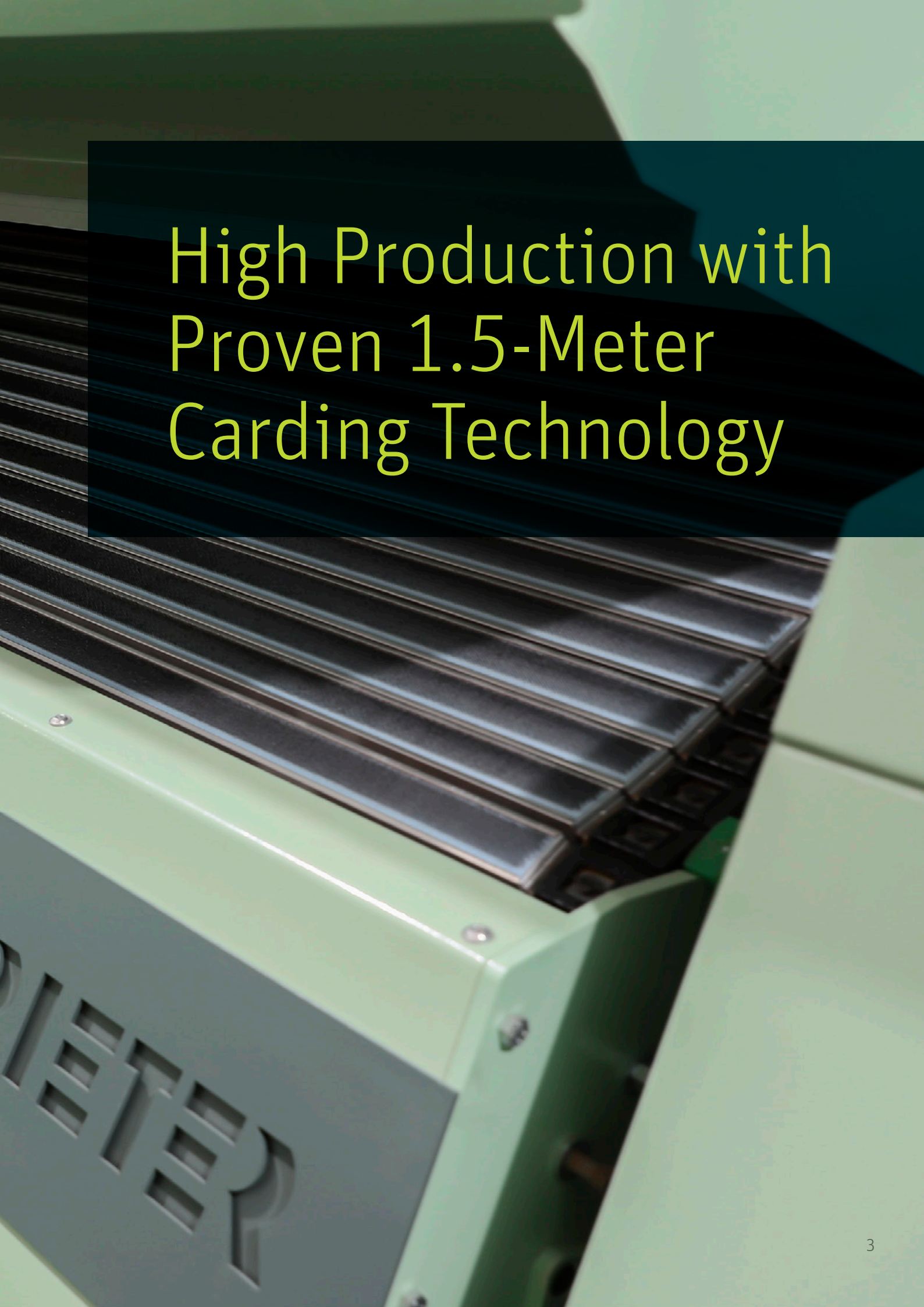
The card for every application

Proven 1.5-meter carding technology

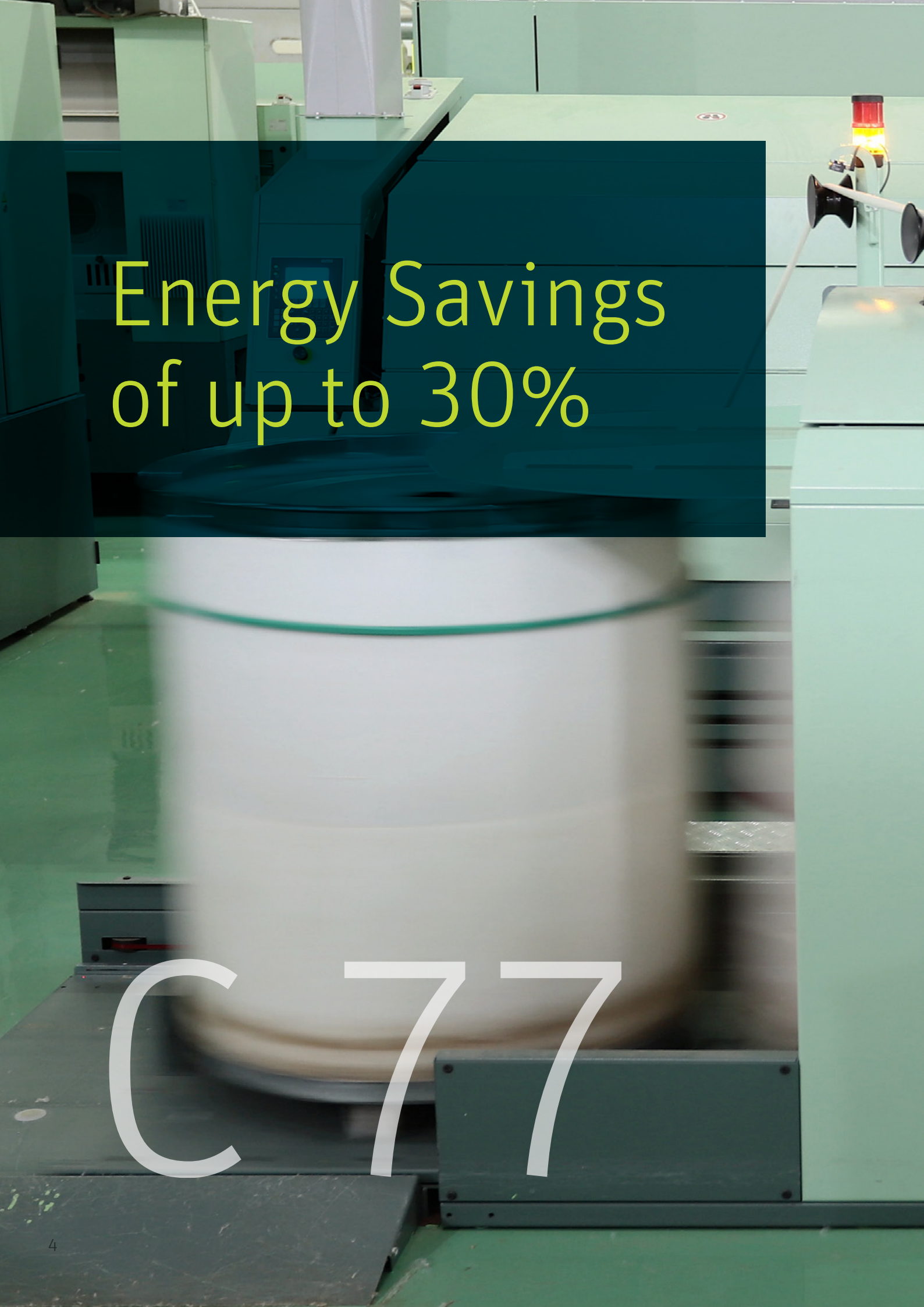


C 77

The large active carding area and the optimized pre- and post-carding zones guarantee high production with excellent results in all applications.



High Production with Proven 1.5-Meter Carding Technology


Energy Savings
of up to 30%
C 77

The C 77 has exceptionally low energy requirements thanks to a combination of its compact construction, optimized waste air evacuation system and energy-efficient drives.

32 active flats, the precise carding gap as well as the integrated Q-packages in the pre- and post-carding zone allow to meet strict quality requirements.

Outstanding Sliver Quality through 32 Active Flats

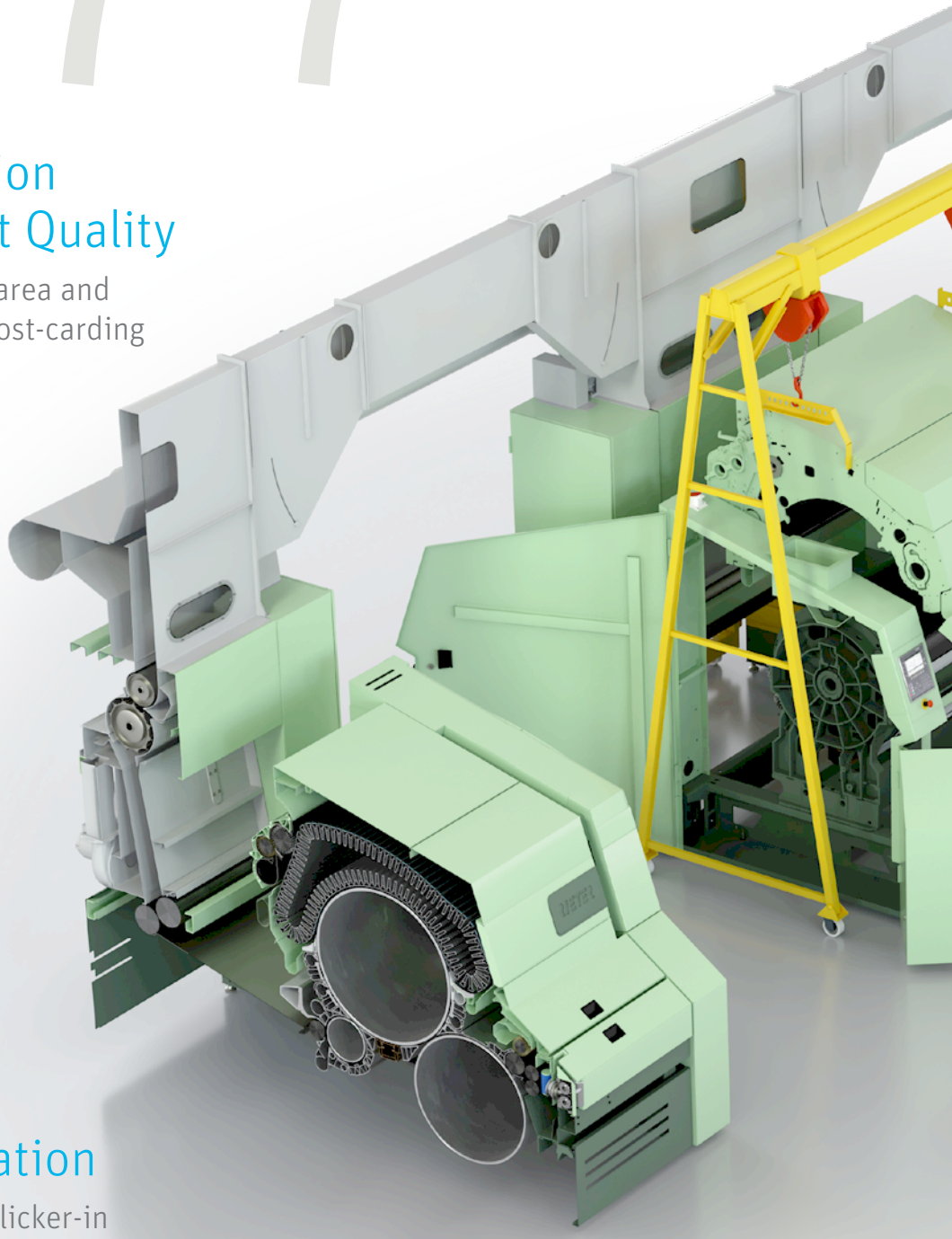
C 77

C 77

OUTSTANDING ADVANTAGES

High Production with Excellent Quality

Large active carding area and optimized pre- and post-carding zones



Excellent Raw Material Utilization

Q-Packages adjustable licker-in and adjustable flats speed and optional licker-in waste removal, flat clothing HYPERTOP

Low Energy Consumption

Compact machine design, optimized central suction system and energy-efficient drives

Excellent and Consistent Card Sliver Quality

32 active flats, premium Graf wires, Intergrated Grinding System (IGS), precise carding gap, Rieter Quality Monitor (RQM)

High Flexibility and Easy Maintenance

Fast settings with automated inverter driven licker-in and cylinder, modular design for easy exchange of components

Suitable for All Applications

Special machine solutions for recycling and man-made fiber processing

High Production of up to 225 kg/h

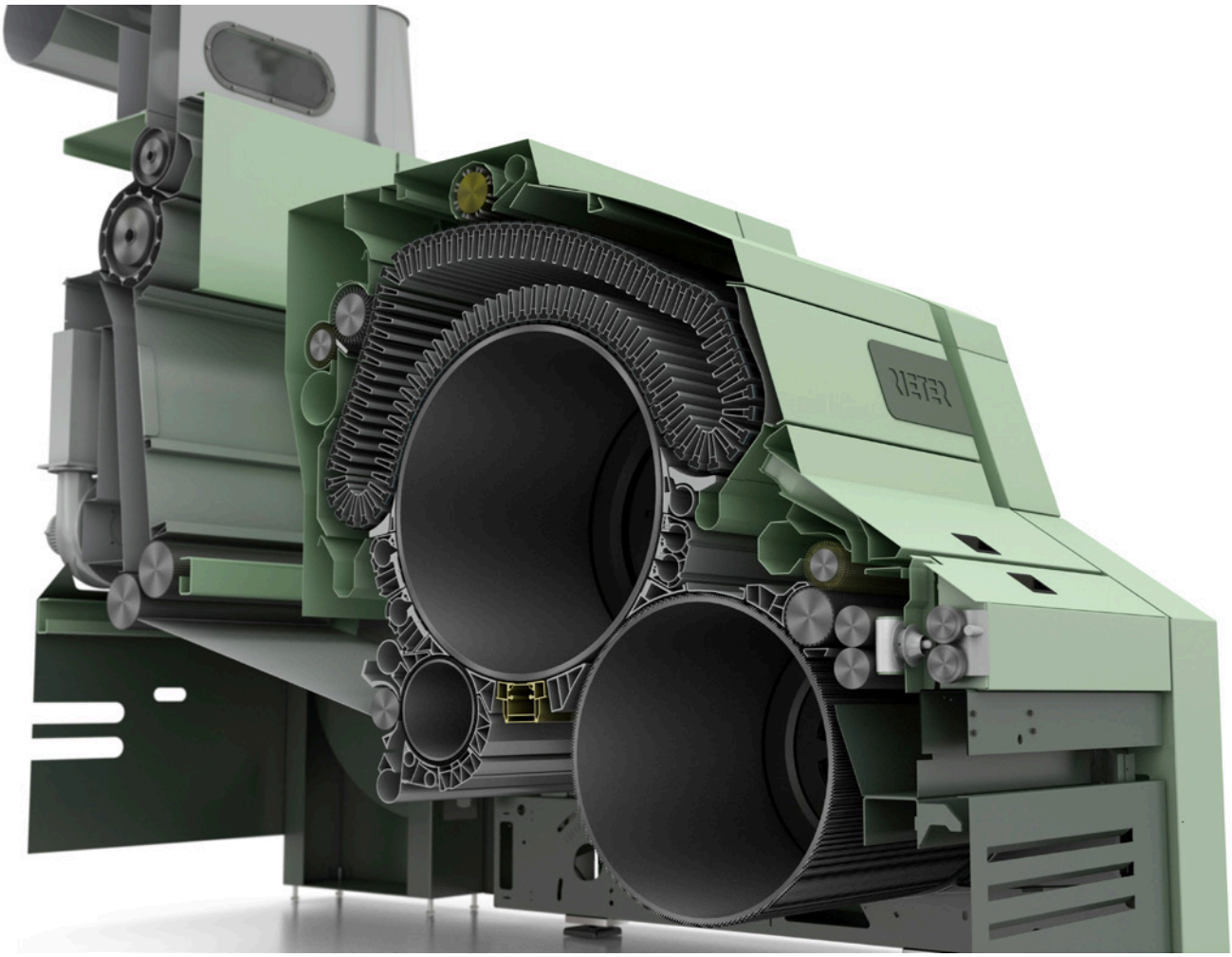
Proven 1.5-m carding technology

Innovative technology for outstanding performance

The card C 77 utilizes the proven 1.5m Rieter carding technology and offers a high production. Together with the exceptionally low energy consumption, an economical production is guaranteed.

32 active flats support an outstanding sliver quality. These flats and the working width of 1.5 m are the main reason for the high performance of up to 225 kg/h. Decisive for a high production level and excellent carding result is the permanent precise carding gap over the whole machine width.

Optimally arranged pre- and post-carding zones with Q-Packages are adapted to any raw material, thus further supporting the excellent performance of the card C 77.



The innovative cross section ensures excellent carding results.

Energy Savings of up to 30%

Lower energy consumption than any other card

Card C 77 – The ecological card

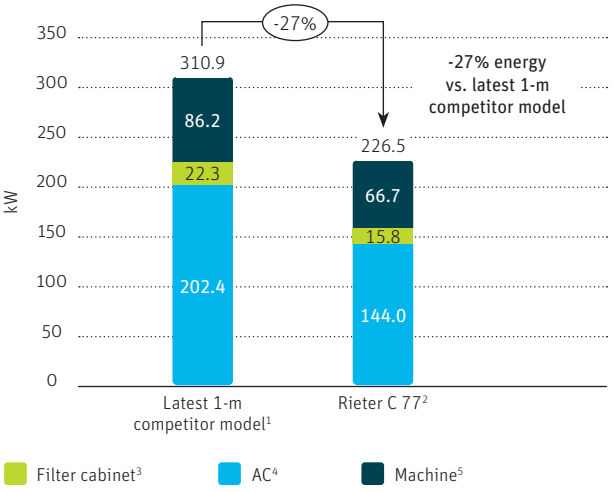
Among the features that make the card C 77 so energy-efficient are:

- the compact design with a small machine footprint
- small rotational masses
- optimal pre- and post-carding area
- 32 active flats
- energy efficient drives
- high production of up to 225 kg/h

Thanks to its high production output, fewer cards are required for to produce the same amount of card sliver compared to other card models on the market – and this saves energy.

The C 77 can be equipped with an energy monitoring package that transmits energy consumption data to the mill management system ESSENTIAL, Rieter Digital Spinning Suite. This feature makes it easy to monitor energy consumption in real time.

Comparison of energy consumption between C 77 and competitor
Example cotton ring carded/combed yarn Ne 30, 1 140 kg/h total card production



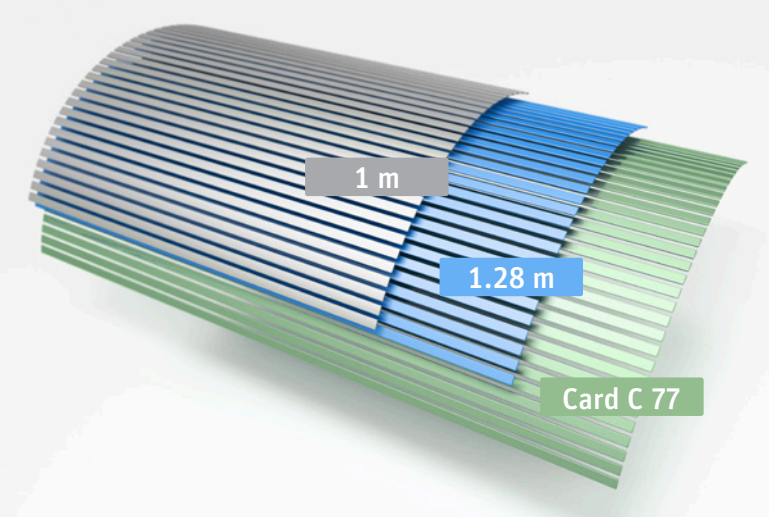
[1] 22 machines, [2] 16 machines, [3] energy consumed by the exhaust air filter, [4] energy consumed by the AC due to the heat generated by the machines, [5] energy consumption of the machines

Efficient suction system

The design of this suction system contributes to the low energy consumption of the card C 77. Easy maintainability is granted by the components which are attached with quick-release couplings. This solution allows the components to be removed and installed in a short time and without tools.

Excellent and Consistent Card Sliver Quality

Precise carding cap with 32 active flats and a large carding area



Card	C 77	1-m card	1.28-m card
Total flats	99	84	84
Working flats	32	28	28
Width (m)	1.5	1.0	1.28
Active Carding Index (ACI)	48	28	35.8
C 77 advantage	–	**71%**	**34%**

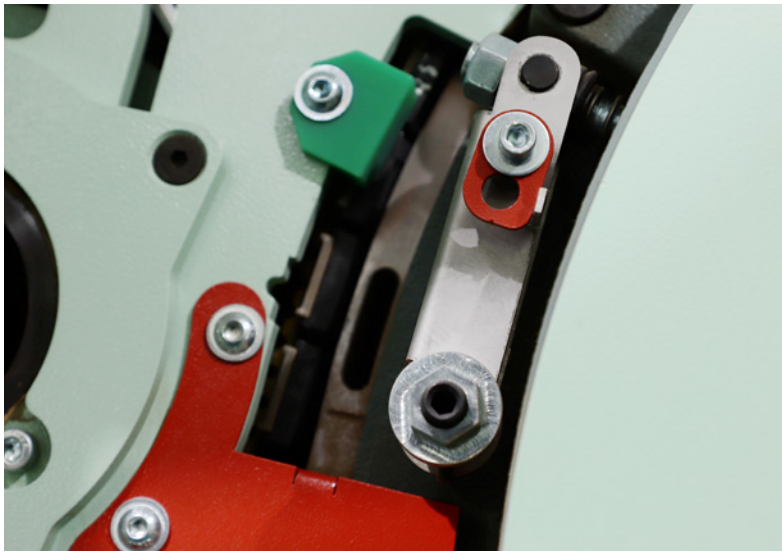
The power of the ACI

The basis for the high production and simultaneous good quality of the carded sliver is the number of flats in working position. In addition, the working width of the card is included in the calculation. The working width, in meters, is multiplied by the active flats: the result is the Active Carding Index (ACI). The higher the ACI figure, the better the carding action. Hence, the productivity of the card and the quality of the card sliver are increased.

This is the main reason why the C 77 performs better than any conventional card on the market. Typically, the C 77 has a 71% larger active carding area than a 1-m wide card.

Reliable and precise carding gap

The precision of the carding gap over the entire machine width is decisive in terms of the carding result. A carding gap of 0.1 mm can be set, depending on application. Due to precise flats guidance, tight manufacturing tolerances and the material combination of a cast-iron plate with a cast-iron cylinder, the carding gap also adheres exactly to the predefined settings during operation. Five evenly distributed adjusting positions around the flex bow enable precise guiding of the flats in action.



The precise carding gap ensures excellent output.

Intergrated Grinding System (IGS)

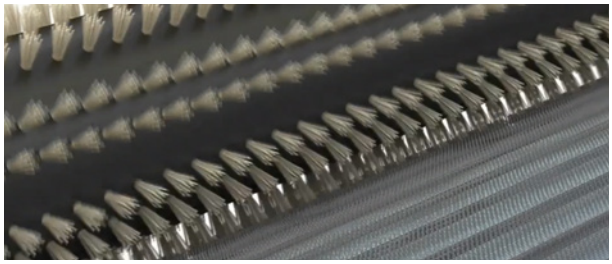
The continuous wear of the card clothing becomes more important for highly productive cards. The Integrated Grinding System (IGS) – exclusive to Rieter – solves this problem right from the start by keeping the clothing permanently sharp.

IGS-classic

With IGS-classic, a grinding stone is automatically moved across the cylinder clothing during production. This operation is performed 400 times over the expected service life of the clothing. Spread over the service life of the cylinder clothing, the programming of the grinding schedule calculates the optimal distribution of the grinding cycles.

IGS-top

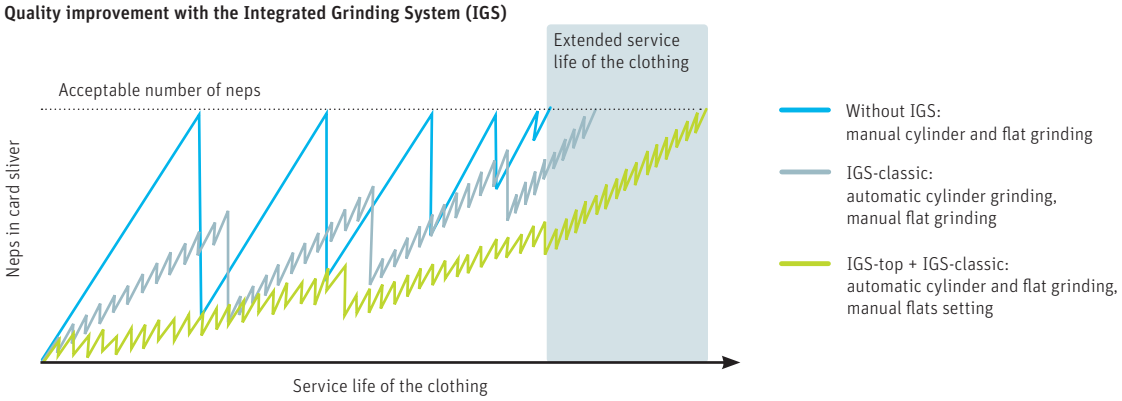
The optional IGS-top module sharpens the card flat clothing fully automatically. The control unit calculates the grinding cycles over the pre-selected service life of the card flat clothing. Numerous small grinding operations ensure that the quality is more consistent than in a flat grinding roller, with fewer, aggressive, manual grinding operations.



Benefits of IGS:

- Service life of cylinder clothing is extended by 10 – 20%
- Consistent quality level over time
- Lower maintenance requirements
- Machine downtimes for manual grinding are reduced

Quality improvement with the Integrated Grinding System (IGS)



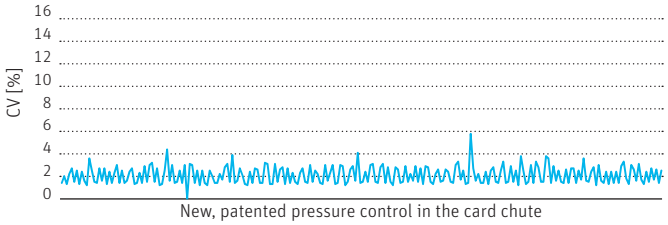
Card sliver formation

The card sliver formation takes place over a dynamically controlled web transport that consists of two cross aprons and a pair of disk rollers. It is therefore possible to reliably produce fine slivers [4 ktex] at a high delivery speed.

Patented pressure control

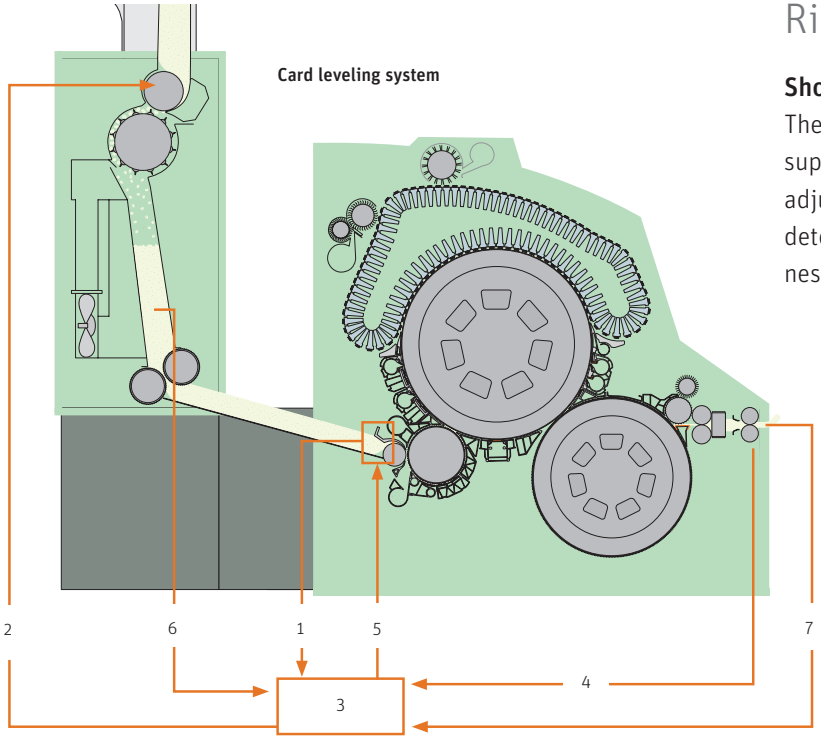
The patented pressure control in the card chute enables a precise batt weight at the card feed, considering the raw materials and their characteristics. The result is a minimal variation [CV%] of the batt weight.

Course of the batt weight over 24 hours



Low variation in batt weight with patented pressure control

Card leveling system



1 Input signal: batt thickness
2 Delivery signal: chute feeding speed
3 Control unit for signal processing
4 Input signal: Delivery speed
5 Delivery signal: feed roller speed
6 Input signal: card chute filling level
7 Input signal: card sliver count

Rieter Quality Monitor (RQM)

Short-term leveling

The card infeed measures the thickness of the supplied batt. The speed of the card feed roller adjusts automatically according to the values determined, so that a uniform card sliver fineness is achieved.

Long-term leveling

The card sliver fineness is measured by a disk roller pair at the sliver delivery. The measured signals are processed and used to control the feeding system.

On the graphical operator interface quality data of the card sliver are displayed in real time.

Excellent Raw Material Utilization

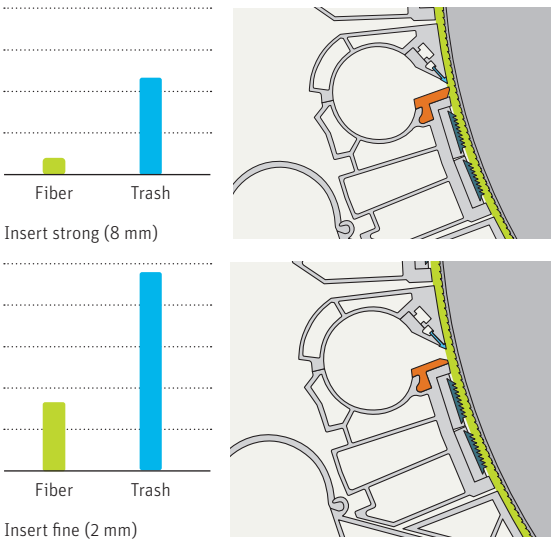
Basis for economic success

Q-Packages in pre- and post-carding zones

Inserts can be changed more quickly and easily for variable trash extraction.

The optimal raw material utilization resulting from the low wear mote knife with differing extraction width in the pre- and post-carding zones is extremely profitable. Inserts can be replaced in the shortest possible time, without using tools. Four designs are available for the different degrees of contamination – open, fine, medium, and strong.

Influencing the waste composition by the strength of the inserts



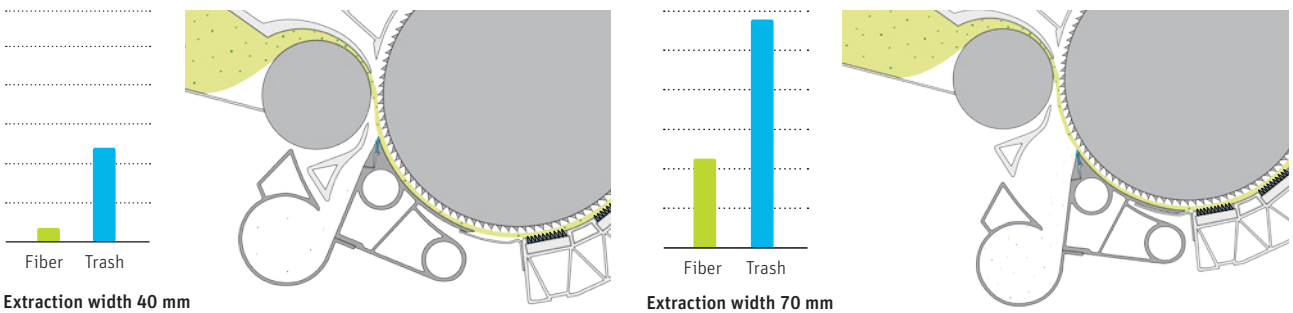
Inserts are used to adjust the optimal ratio of good fibers to waste.

Variable extraction distance at the licker-in

The mote knife on the licker-in can be quickly adjusted for optimal raw material utilization as well as flexible adaptation to various raw materials. The C 77 offers optimal configuration possibilities for every requirement.

An easy and automated adjustment of machine settings is made possible with the inverter for the cylinder or the licker-in knife.

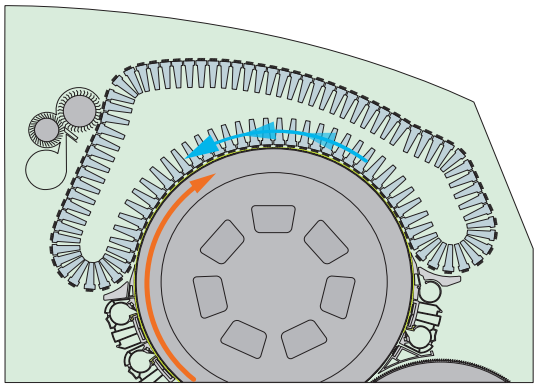
Waste extraction

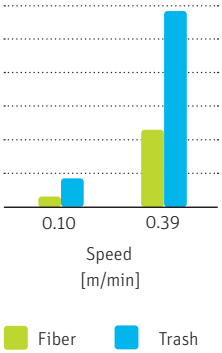


With the licker-in, the extraction width can be variably set according to the trash content of the cotton and the required waste amount.

Variable flat speed

Waste extraction with variable flat speed





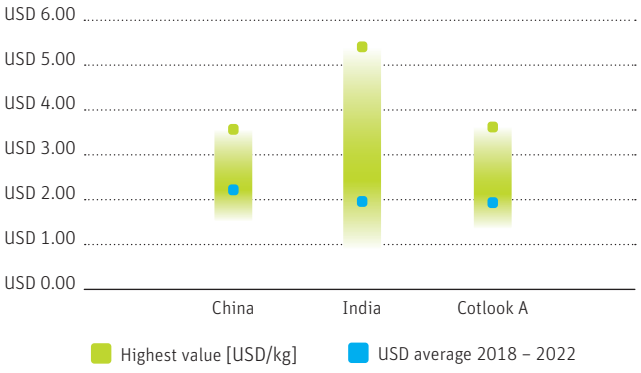
The continuously adjustable flat speed is set to the most economical level.

The speed of the flats can be continuously adjusted to match the production and quality via a frequency converter – independent of the cylinder speed. This means that the card is perfectly suited to the raw material being used.

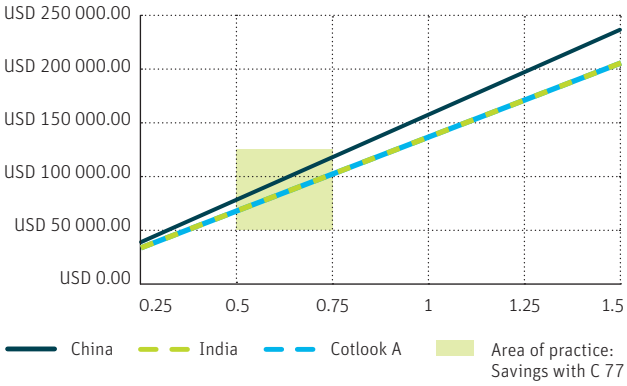
Savings with selective trash extraction

Adjustable licker-in knives, variable Q-Packages in the pre- and post-carding zones, and an electronically adjustable flat speed enable selective trash extraction. The raw material is utilized to optimum effect. Hence, the economic success is determined based on intelligent utilization of the raw material and targeted quality of the product. The potential for savings is considerable.

Range of cotton prices



Savings potential with the C 77 depending on the price of cotton and percentage of waste (based on an 800-kg/h card line production)

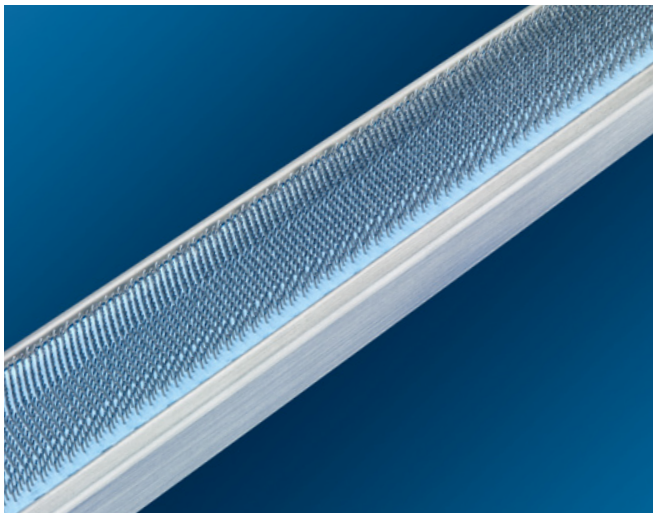


HYPERTOP from Graf

The card clothing HYPERTOP from premium wire supplier Graf is available for the new generation of Rieter cards. Investigations show that HYPERTOP wires contribute to an improvement in fiber yield by up to 0.5%.

A strong wire and optimal teeth shape result in a constant high quality over an extended lifetime. The multi-zone setting pattern ensures optimal and gentle defibering. The progression from straight gaps to a gapless pattern processes the fibers with growing intensity, delivering the yield improvement.

The new setting pattern favors the removal of short fibers and waste as well as the elimination of neps. The savings resulting from HYPERTOP create a unprecedented return on investment.



Production with more profit: Optional separate licker-in waste removal

The C 77 has an additional option for separate licker-in waste removal. This means that cleaner, more valuable flat waste is separated from the dirtier licker-in waste. This waste is either resold as valuable raw material or is fed into the spinning mill by means of a recycling line to produce yarn.

Example	
Production (12 C 77 at 95 kg/h)	1 140 kg/h
Yearly working hours	8 400 h
Total card waste	5.5%
Licker-in waste	1.5%
Mixed waste without separate licker-in waste disposal	USD/kg 0.72
Licker-in waste with separate licker-in waste disposal	USD/kg 0.43
Flat and carding waste with separate licker-in waste disposal	USD/kg 0.97
Annual savings	**USD 54 104**

Benefits of the separate licker-in waste removal:

- Optimizing the reselling price of the waste
- Separation of licker-in waste from more valueable waste from the flats and pre- and post-carding zones
- Low energy consumption thanks to intermittent waste removal
- Possibility to connect to the blowroom waste system

Easy to Operate and Short Downtimes

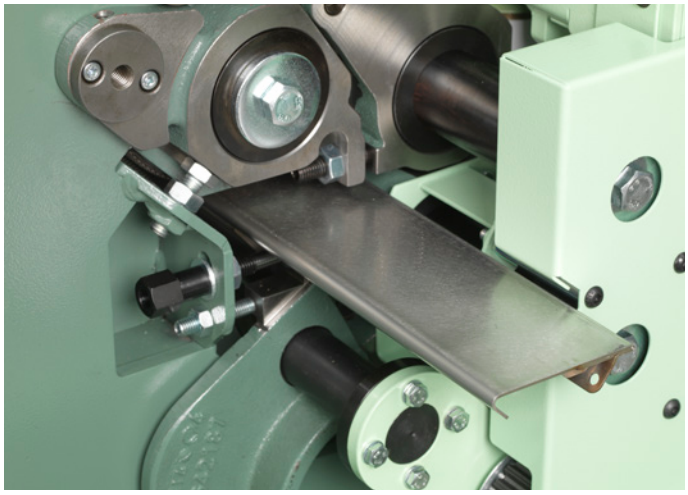
Modular design – supported by smart solutions

Simple maintenance

Comprehensive ergonomic improvements are integrated into the card C 77. Operator friendliness and minimal machine downtimes are the result. Exchanging the licker-in, flat and doffer clothing with conventional cards is a time-consuming maintenance task. The modular design of the C 77 reduces these downtimes to unprecedented minimal values. The replacement of the three modules requires only a minimum number of maintenance personnel. For instance, the entire licker-in module can be replaced in less than 90 minutes.

Removable web bridge

Fiber finish or cotton with honeydew tend to contaminate fiber-guiding elements. In order to keep the quality level of the card sliver high, frequent cleaning of the web bridge is required. The patented web bridge from Rieter can be removed, cleaned, and reinstalled in a short time and without tools. The web bridge enables a perfect, uniform web and ensures continuous operation of the card. The quality of the card sliver remains high because the number of thick places is substantially reduced.

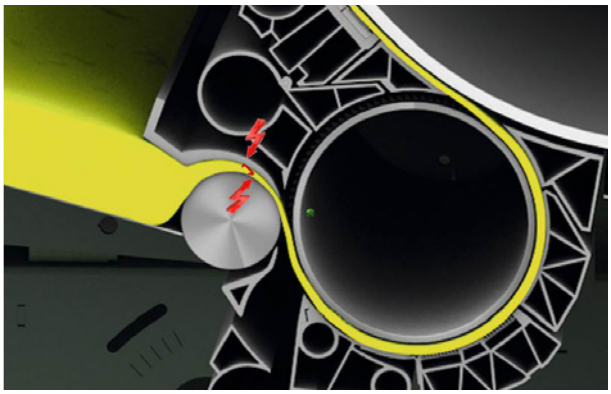


Beneficial Solutions

Innovative features for smooth processes

Metal detection at the infeed*

To ensure that the blowroom operates safely, various extraction modules are installed upstream of the card. The optional metal detector at the card infeed detects even the smallest metal parts and stops the machine in time. Unwanted metal parts can be easily removed. This ensures reliable production.



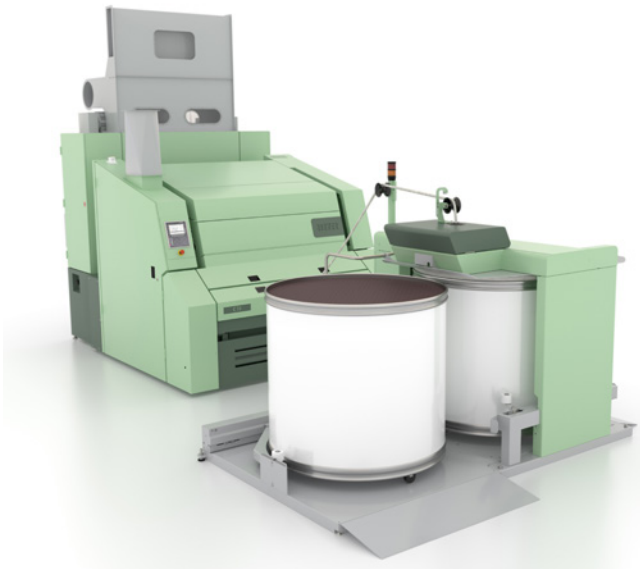
Can change without loss of production and quality

Rieter's standard card sliver filling device uses linear can changing technology. This saves a lot of space and is optimally adapted to the card C 77. A compact card sliver cutting system integrated in the calander unit operates reliably at full production output. The sliver weight remains the same from start to finish during can filling.

Efficient processes with 1 200-mm cans

As an option, can diameters of 1 200 mm can be used with the card sliver coiler D1 200. The capacity of the cans is 43% higher than for cans with a diameter of 1 000 mm. This minimizes the number of can transports and sliver piecings in downstream processes.

Costs and processes are therefore optimized in the spinning mill. Two different layout variations of the can coiler are available to ensure optimal placement in the building.

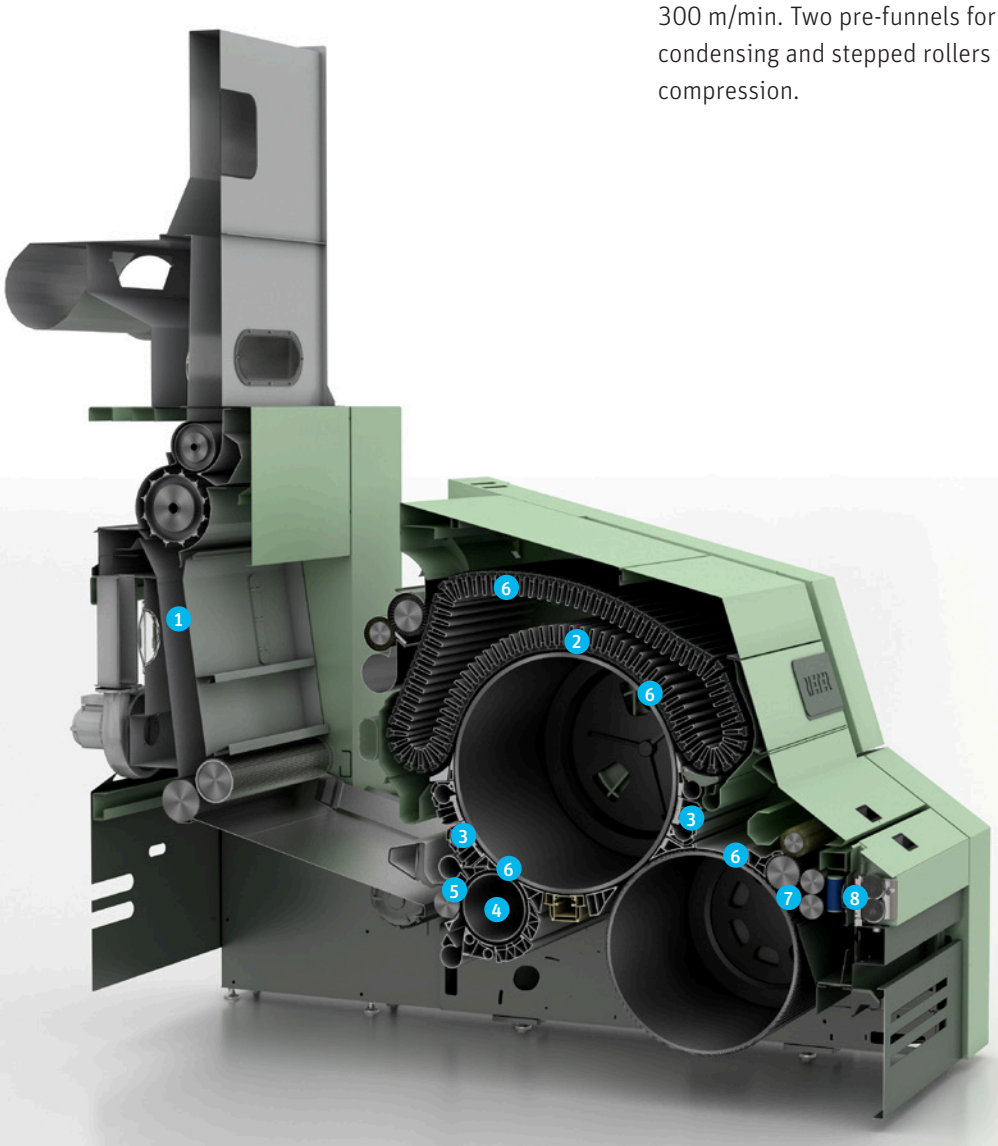


*option

C 77 – Solutions for Recycling Applications

Various features support ideal processing of recycled material

1. **Basic equipment for recycled material**
   The fiber guiding components are made from stainless steel
2. **Large active carding area**
   The basis for up to 225 kg/h production
3. **Pre- and post-carding zone**
   Special arrangement for processing recycled material
4. **Intensive tuft opening with single licker-in**
   Sawtooth clothing is recommended for removal of non-conforming material
5. **Metal detection for safe machine operation**
   Protects the main carding area against wire damage. Constant resistance measurement monitors the card infeed and stops the material feeding if needed.
6. **Premium Graf clothing**
   Special card clothing sets for all recycling applications
7. **Easy cleanable web bridge**
   Debris from colored recycled material can be quickly removed, thus ensuring a perfect web.
8. **Reliable sliver guidance**
   Good sliver quality at high delivery speed up to 300 m/min. Two pre-funnels for gradual sliver condensing and stepped rollers for proper sliver compression.



C 77 – Solutions for Man-Made Fiber Applications

Perfectly adapted features support ideal processing of man-made fibers

1. Reliable basic equipment
The fiber guiding components are made from stainless steel

2. Large active carding area
32 active flats and 1.5-m machine width are the basis for high production

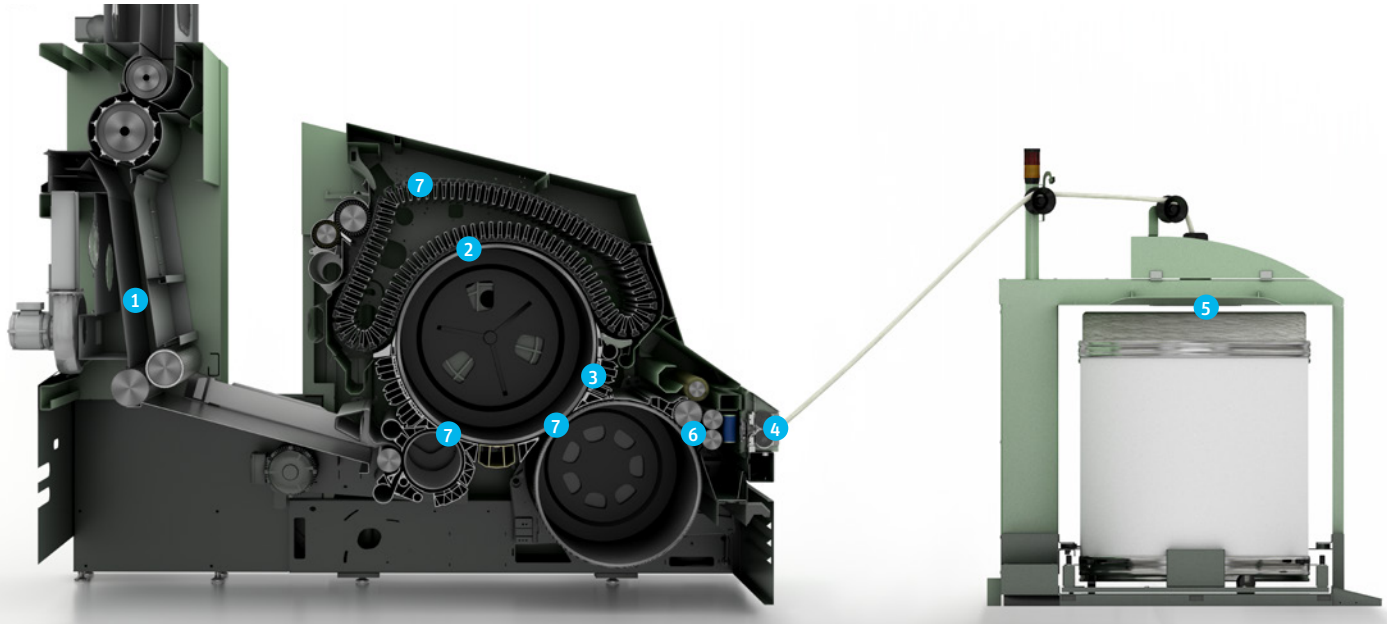
3. Pre- and post-carding zones
Special man-made fiber carding elements for gentle fiber opening

4. Sliver compression
Up to 20% more can filling with step rollers

5. Coilers CLEANcoil - PES
Less cleaning, more constant quality, good downstream performance

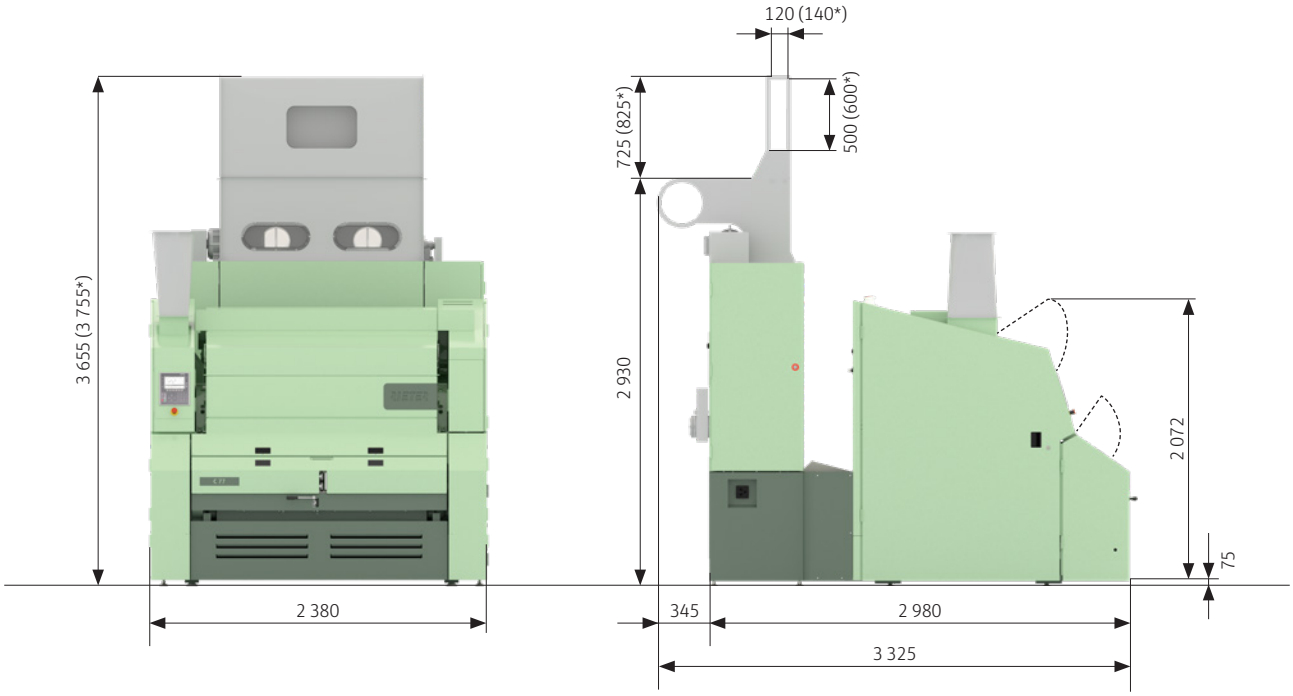
6. Easy cleanable elements
Quick and easy removal of the web bridge for cleaning

7. Premium Graf clothing
Long lasting card clothing designed for man-made fibers which are produced from natural or synthetic polymers



Machine Data

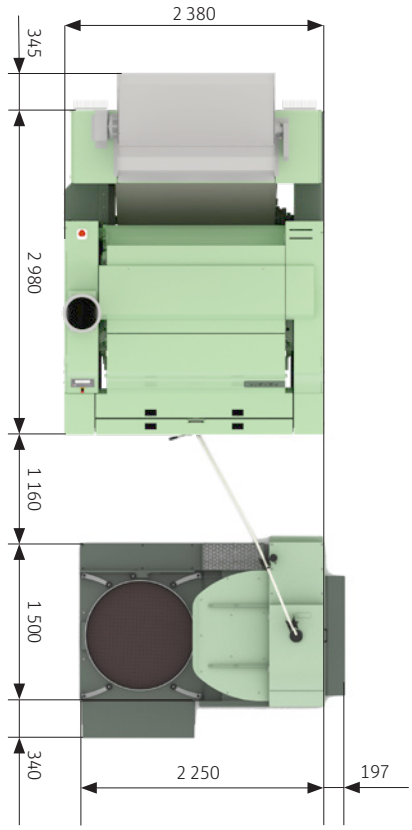
Card C 77



Technological data	
Raw material	Cotton and man-made fibers up to 65 mm
Production	up to 225 kg/h
card sliver count	4 – 20 ktex
Batt weight	350 – 900 g/m
Technical data	
Installed power**	23.4 – 30.7
Delivery speed	up to 330 m/min
Compressed air	0.7 Nm^3/h
Exhaust air	1.20 m^3/s
Waste removal	Central suction, separate licker-in waste disposal
Cylinder speed	500 – 930 rpm
Machine data	
Machine length (with standard chute)	3 325 mm
Machine width	2 380 mm
Machine weight (with standard chute)	5 430 kg
Working width	1 500 mm

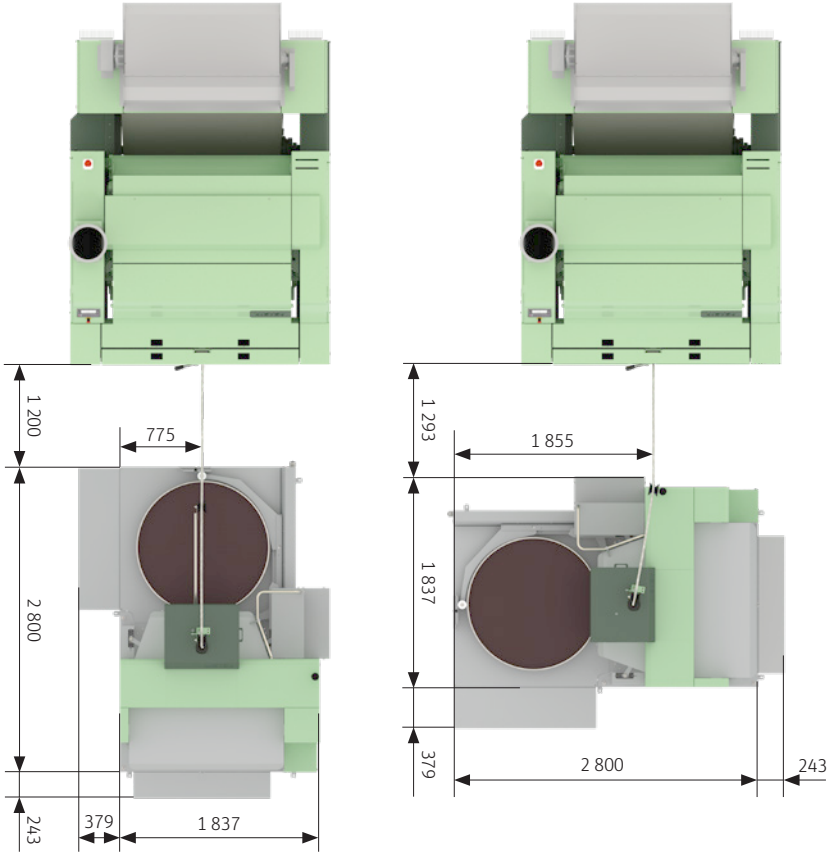
* JUMBOfeed
** with card sliver deposit (1000 mm cans) and chute

Card C 77 with card sliver deposit



Card sliver deposit mounted on the floor, insertion from the side

Card C 77 with card sliver deposit for 1 200-mm can diameter



Card sliver deposit mounted on the ground

	C 77 CBA	C 77 D1 200
Can dimensions		
Cans Ø [mm] 1 000	X	
Cans Ø [mm] 1 200		X
Can height [mm] 1 200	X	X
Can height [mm] 1 300	X	X
Can height [mm] 1 500	X	

	C 77 CBA	C 77 D1 200
Technical data sliver coiler		
Installed power [kW]	1.40	2.40
Compressed air [Nm3/h]	0.05	0.05
Exhaust air [m3/s]	0.10	0.10

Card C 77		Impact on Economy	Quality	Flexibility
Basic machine equipment				
large active carding area (1.5m working width and 32 working flats)	standard	•••	•••	
Modular licker-in unit	standard	•••		•••
Modular flat unit	standard	•••		•••
Modular doffer unit	standard	•••		•••
Card production support package for up to 120 kg/h	standard	•••	•••	
Card production enhancing package from 120 to 160 kg/h	option	•••	•••	
Card production enhancing package up to 225 kg/h	option	•••	•••	
Graf premium card clothing	standard	•••	•••	
Man-made fiber performance package	option	•••	•••	
Standard AEROfeed (for up to 8 cards in one line)	standard	••	•••	••
Jumbo AEROfeed (for up to 10 cards in one line)	option	•••	•••	••
Pressure control in chute	standard	••	•••	
In-feed system 1 licker-in	standard	•••	•••	
In-feed system 1 licker-in with needle roller	option	•••	•••	
In-feed system with 3-licker-in roller arrangement	option	•••	•••	
Manual licker-in knife adjusting system	standard		•••	
Electric licker-in knife adjusting system	option		•••	•••
Separate licker-in intermittent waste extraction	option	•••		
Separate licker-in contiuous waste extraction	option	•••		
Energy-efficient central suction system	standard	•••		
Monitored continuos central suction upwards	standard	••		
Monitored continuos central suction downwards	option			
Stepless variable speed control for flats	standard		•••	
Precise manual carding gap setting up to 0.1 mm for reliable operation	standard		•••	
Cylinder speed control by inverter	standard	•		•
Stepless variable licker-in speed control	option	•		•••
Dynamic variable tension draft for web handling	standard	••	•••	

Card C 77		Impact on Economy	Quality	Flexibility
Basic machine equipment				
Automatic linear can changer for 1 000 mm cans	standard	••	••	
Automatic linear can changer for 1 200 mm cans	option	•••	•••	
Automatic linear can changer for 600 mm cans	option	•	••	
Automatic linear can changer for 750 – 800 mm cans	option	•	••	
Can changer placed on floor	standard	••		•
Can changer recessed into floor	option	••		
Easy interpretable signal column	standard	••	•	•
Connection to UNIcontrol	standard	•	•	•••
Connection to ESSENTIAL, the all-in-one mill management system	option	••	••	•••
Smart Solutions				
Solid matter detection at infeed	standard	•	••	
Metal detection at infeed	option	•••	••	
Integrated cylinder grinding system IGS-classic	option	•••	•••	••
Intergrated flat grinding system IGS-top	option	•••	•••	••
Power monitoring	option	••		
Easy removable web bridge	standard	••	•••	
Semi-automated sliver instertion	standard	••		••
Machine control				
Control panel with numerical keyboard	standard			•••
Superimposing short, midle and long term leveling system	standard	•••	•••	
Thin, thick place monitoring	standard		•••	
Real-time spectrogram	standard		•••	
Technology support				
Q-Packages with variable inserts	standard	•••	•••	•••
UNIcollect fiber/trash analyzing device	option	•••	•••	
Prepared for easy fiber/trash analyzing	standard			•••
Card wire maintenance set	option	•••	•••	

Legend:
- • low impact
- ••• high impact

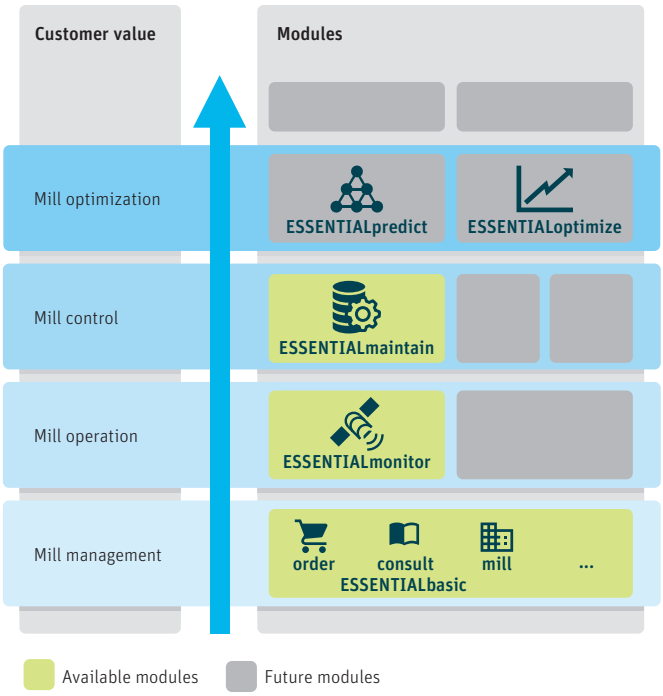
ESSENTIAL – Rieter Digital Spinning Suite

Rieter's all-in-one mill management system

ESSENTIAL leverages digital technology for the textile value creation. The Rieter Digital Spinning Suite analyzes data of the entire spinning mill in real-time and provides meaningful key performance indicators based on this.

With comprehensive and clearly arranged digital analysis, the system supports management in strengthening the expertise of mill staff, eliminating inefficiencies and optimizing processes across the entire system. Through its holistic approach, ESSENTIAL connects the dots in the spinning mill.

ESSENTIAL is a modular system, so the spinning mill can be gradually digitized.



Modular set up of ESSENTIAL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