

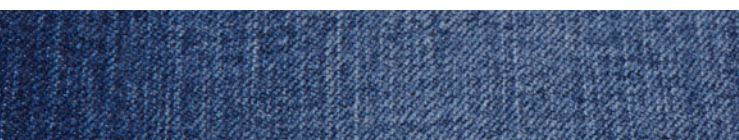
Rotor Spinning Technology Kits and Components



The latest generation of spinning components
and technology kits for every application

Application Specific Spinning Components

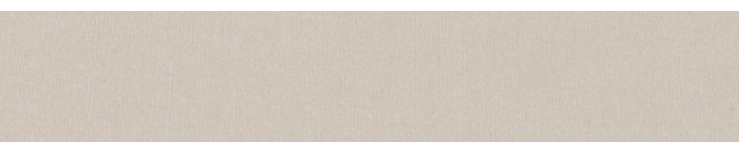
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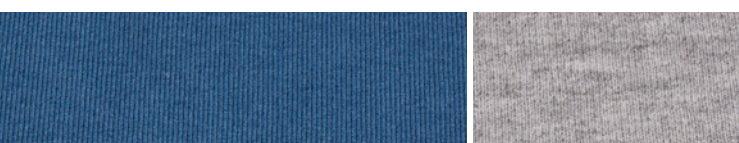
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Yarn production with a predefined technology kit for the most common applications

Dear Customer, Rieter is constantly striving to support you with solutions that provide best-quality yarn at highest production rates. With that purpose, Rieter offers spinning components for multiple generations of automated rotor spinning machines. The key components of those machines are the opening rollers, the rotors and the nozzles.

All those elements have a significant influence on the yarn quality and therefore must be matched to the respective application. Furthermore, they have a high impact on the machine efficiency and energy consumption. In this brochure, we provide you with examples of application areas and the respective components including their technical information and their effect on relevant yarn parameters, in order to maximize the performance of your rotor machines.

Should you have further question, we are happy to support you.

Spin Box Overview

Improved spinning thanks to state-of-the-art technology

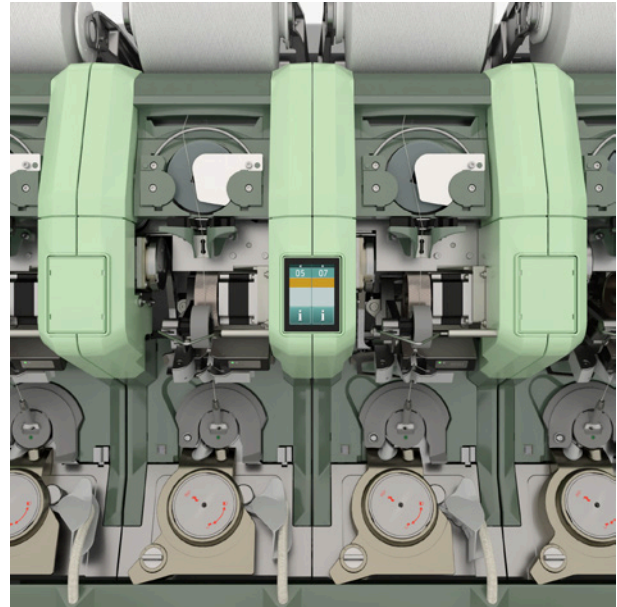
The main tasks of a rotor spinning machine include cleaning, drafting, forming a yarn and winding it onto a bobbin. The core of a rotor spinning machine is the spin box. It separates the sliver into fibers and then forms them into a spun yarn.

The spin box consists of the following key components:

- Opening roller SOLIDRING
- Rotor
- Take-off nozzle

After opening, the fibers must be transported to the rotor. For this purpose, a closed fiber channel in the shape of a flow passage serves as guidance. The size of the channel insert is chosen to match the rotor diameter. Channel inserts with speed pass enhance the fiber flow, which is needed in case of man-made fibers, coarse fibers and high fiber mass.

The nozzle is securing the twist and influencing the yarn hairiness. The TWISTstop assists applying the correct false twist for a higher spinning stability.



R 70 spin box



R 70 spin box detail

Cotton Weaving Kit



Producing Yarn for Denim

Spinning yarns for denim applications requires the consideration of fundamentally different yarn properties for filling yarns, beam dying and rope dying. While filling yarns are always processed ecru, warp yarns always get dyed before they get processed in the weaving operation.

The denim kit includes:

- SOLIDRING B 174 N opening roller
- 33-XT-BD rotors
- KS or KS-NX nozzles

Due to the high fiber throughput and its correlated higher wear, a diamond-coated opening roller such as the SOLIDRING B 174 DN is recommended to fulfill the lifetime requirements.

The 33-XT-BD rotor enables a rotor speed of up to 125 000 rpm and therefore provides delivery speeds of up to 200 m/min.

The KS nozzles provide low hairiness, good yarn values as well as good yarn strength. Low dust generation and low shedding during production are also ensured.

Machine settings	Denim weft
Raw material	70% cotton 1 3/32", 30% noil micronaire 4.4 – 4.8
Sliver	kTex 6.0, RSB quality
Draft	160 fold
Yarn count	Ne 16
Opening roller speed	8 700 rpm
Opening roller type	B 174 DN
Twist	680
Alpha e	4,3
Rotor speed	125 000 rpm
Rotor type	33-XT-BD
Channel insert	Channel insert 31
Nozzle type	KS or KS-NX
TWISTstop	TWISTstop W3 or G0/white A or green S
Delivery speed	178 m/min

Kit for Terry Cloth



Producing Yarn for Terry Cloth

The production of yarns for terry cloth requires a basic separation into yarns for the ground warp and yarns for the pile warp. The distinction is necessary for both the yarn count as well as the technology elements. The base fabric requires a high yarn strength, while the yarn for the pile warp must have a high volume and a soft handle.

The terry cloth kit includes:

- SOLIDRING B 174 N opening roller
- 33-XT-BD rotors
- KS or KS-NX nozzles

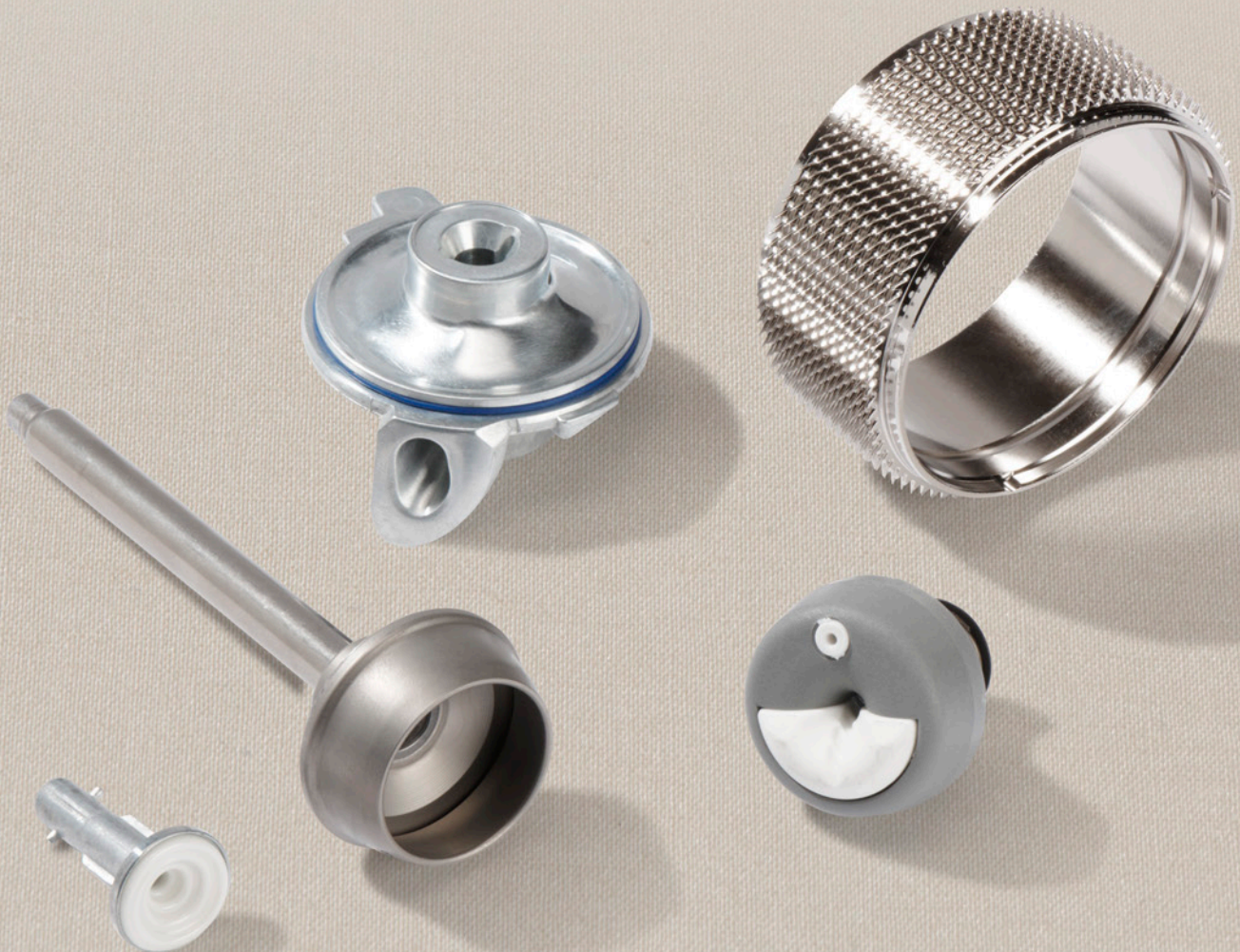
The SOLIDRING B 174 N guarantees perfect and gentle opening of the sliver to ensure excellent yarn evenness.

A rotor with a T-groove is used for the basic fabric. It combines the requirements for a lean yarn with high yarn strength.

By adding the KS nozzle, the lean yarn and high yarn strength can even be achieved at delivery speeds of more than 200 m/min.

Machine settings	Terry-cloth ground warp
Raw material	100% cotton 1 3/32" micronaire 4.4 – 4.6
Sliver	kTex 6.0, RSB quality
Draft	170 Fold
Yarn count	Ne 17
Opening roller speed	8 200 rpm
Opening roller type	B 174 (N or DN)
Twist	714
Alpha e	4,45
Rotor speed	125 000 rpm
Rotor type	33-XT-BD
Channel insert	Channel insert 28
Nozzle type	KS-NX or KS
TWISTstop	TWISTstop W3 or G0/white A or green S
Delivery speed	175 m/min

Kit for Business Shirts



Producing Yarn for Business Shirts

The yarn count for business shirts is usually Ne 40 (CO/PES 70/30). Yarns for shirts require an excellent evenness and a very low level of faults. The surface of the fabric made from these yarns must be very clear, which is achieved by a very lean yarn with a minimum of hairiness.

The kit for business shirts includes:

- SOLIDRING B 174 DN opening roller
- T-groove rotors
- nano6 nozzles

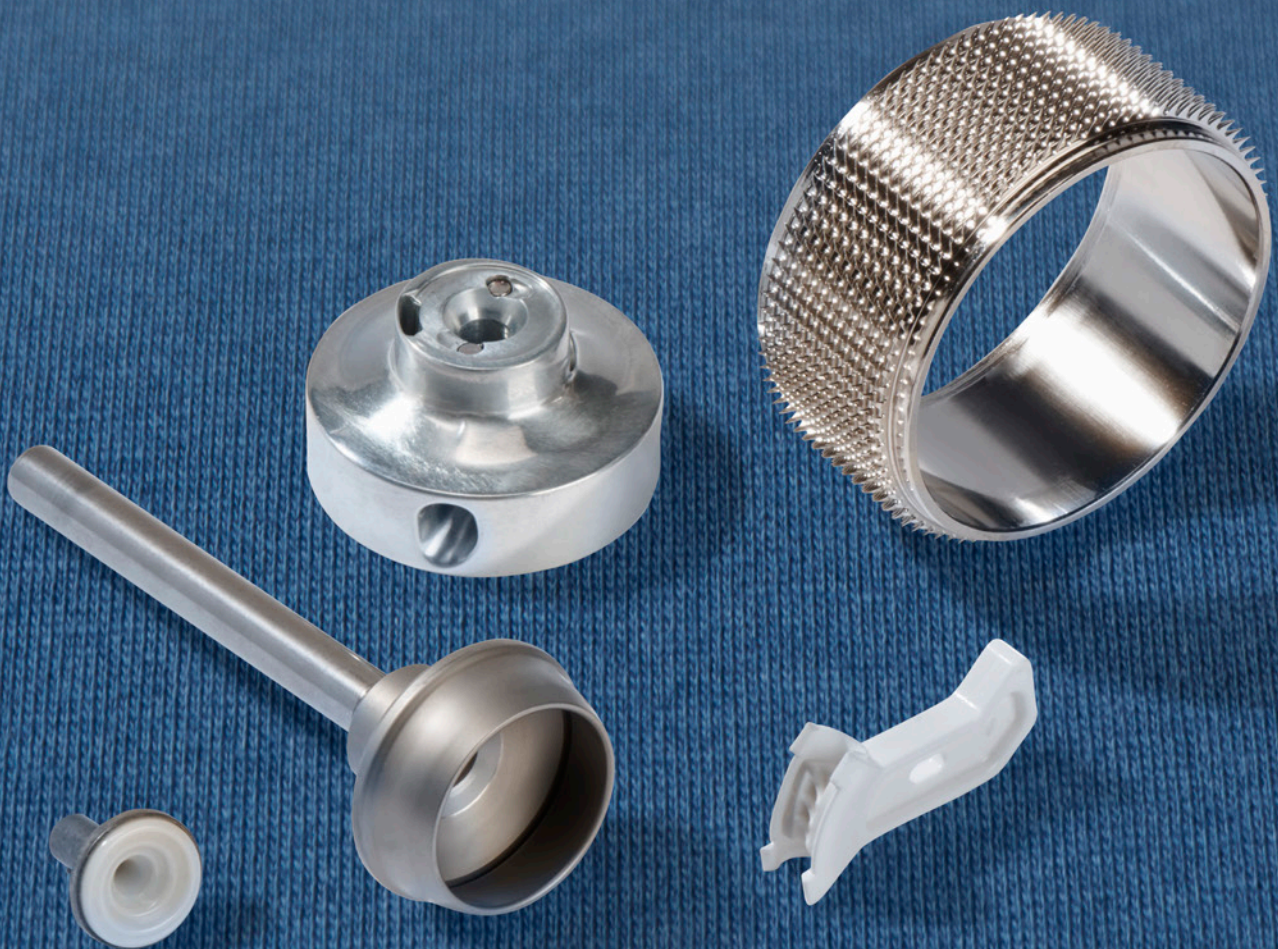
The SOLIDRING B 174 DN guarantees perfect and gentle opening of the sliver to ensure excellent yarn evenness. Cotton sliver as well as blends with up to 50% man-made fibers can be processed.

By using a rotor with T-groove, a lean yarn with good CVm%, low imperfections and high yarn strength can be achieved. For rotor speeds of up to 130 000 rpm, a 31 mm diameter rotor is recommended.

The nano6 nozzle has a small trumpet radius which reduces friction and guarantees excellent yarn quality at high productivity. They also contribute to a gentle fiber process by keeping the temperature of the nozzle surface low. Furthermore, dust formation and fiber shedding are reduced.

Machine settings	Business shirt
Raw material	70/30 % CO/PES CO 1 1/16", micronaire 3.6 – 4.0 PES, 1.3 dtex, 38 mm reliance
Sliver	kTex 5.5, RSB quality
Draft	372 fold
Yarn count	Ne 40
Opening roller speed	8 000 rpm
Opening roller type	B 174 DN
Twist	1 154
Alpha e	4,62
Rotor speed	130 000 rpm
Rotor type	31-XT-BD-CHI281
Channel insert	Channel insert 28
Nozzle type	nano6
TWISTstop	TWISTstop W3/white A
Delivery speed	113 m/min

Cotton Knitting Kit



Producing Yarn for T-shirts

A comfortable T-shirt is characterized by using 100% cotton. The yarn count ranges from Ne 20 to Ne 30.

The kit for T-shirts includes:

- SOLIDRING B 174 N
- GM groove rotors
- KS-NX nozzles

With the use of the SOLIDRING B 174 N, a gentle opening of the sliver and a perfect yarn evenness will be guaranteed.

The rotor with the GM groove is used exclusively to produce knitting yarn with the desired soft handle of the fabric.

To attain T-shirts with a soft and pleasant touch and high-quality printability with very clear and clean stitches, the KS-NX nozzles are recommended.

Machine settings	Knitting yarn T-shirt
Raw material	100% cotton 1 1/16" micronaire 4.4 – 4.6
Sliver	kTex 5.5, RSB quality
Draft	279 fold
Yarn count	Ne 30
Opening roller speed	8 000 rpm
Opening roller type	B 174 (N or DN)
Twist	792
Alpha e	3,7
Rotor speed	120 000 rpm
Rotor type	31-XGM-BD
Channel insert	Channel insert 31
Nozzle type	KS-NX
TWISTstop	TWISTstop W3/white A
Delivery speed	152 m/min

Cotton Knitting Kit



Producing Yarn for Sweatshirts

The production of yarn for sweatshirts requires the basic separation of yarn for the right and for the left side (back yarn) of the fabric. The distinction refers to the yarn count and the spinning elements.

The yarn for the right side of the fabric (outside of the sweatshirt) needs a very good CVm% and a low number of IPI. The back yarn is characterized by a high volume and must be able to be straight after the knitting process.

The kit for sweatshirts includes:

- SOLIDRING B 174 N opening roller
- GM-groove rotors
- KS-NX nozzles

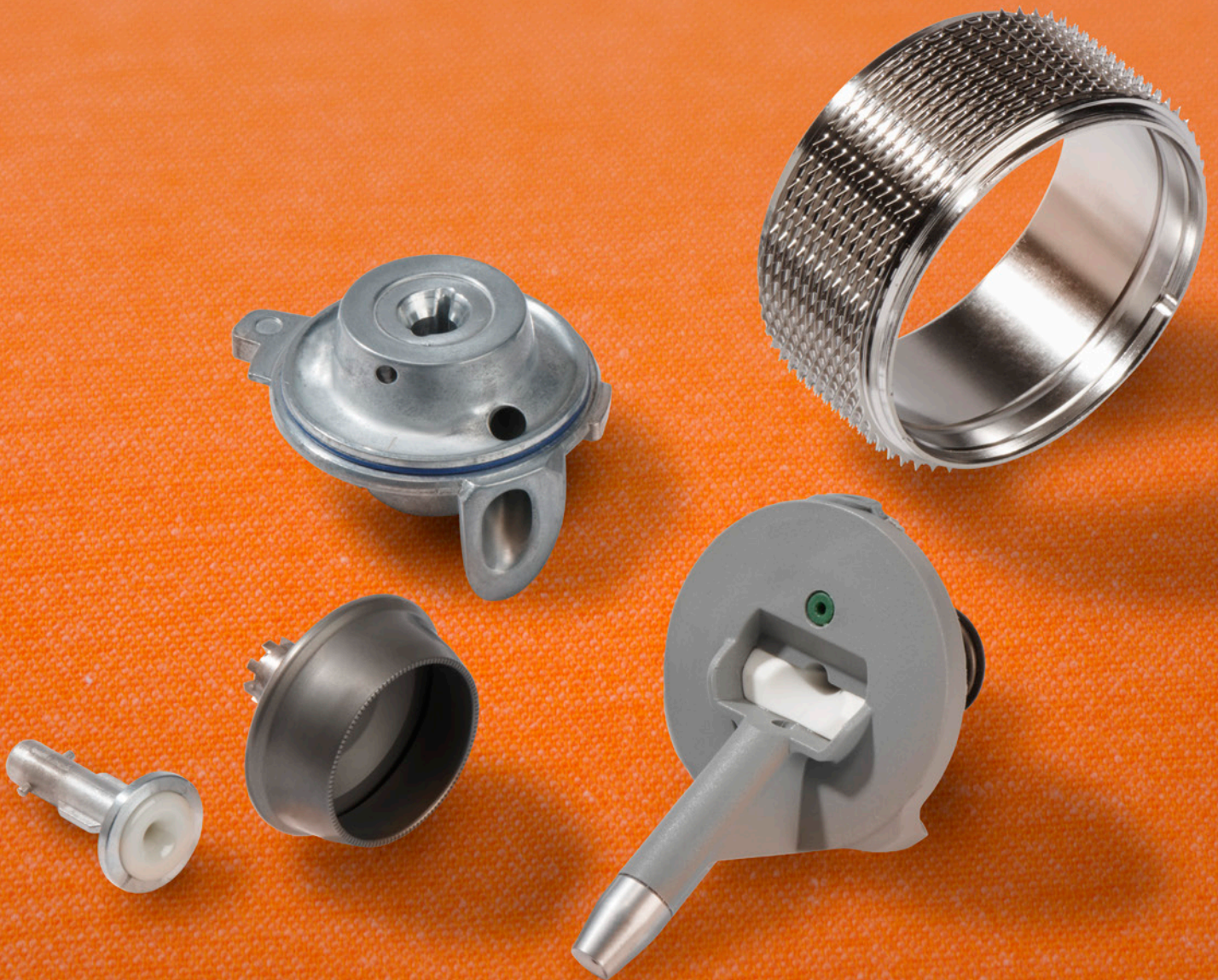
The SOLIDRING B 174 N guarantees perfect and gentle opening of the sliver to ensure excellent yarn evenness.

With a yarn count of Ne 18 – Ne 20, rotors are used that can process the very voluminous, absorbent and tear-resistant yarn. In this case, the rotor with the GM groove is the ideal rotor.

For the take-off, the KS-NX nozzles are recommended. With these nozzles, delivery speeds of more than 220 m/min are achievable.

Machine settings	Knitting yarn sweatshirt
Raw material	100% cotton 1 1/16" micronaire 4.4 - 4.6
Sliver	kTex 5.5, RSB quality
Draft	167 fold
Yarn count	Ne 18
Opening roller speed	8 200 rpm
Opening roller type	B 174 (N or DN)
Twist	585
Alpha e	3,5
Rotor speed	115 000 RPM
Rotor type	31-XGM-BD or 33-XT-BD
Channel insert	Channel insert 31
Nozzle type	KS-NX
TWISTstop	TWISTstop W3/white or green
Delivery speed	178 m/min

Technical Application Kit



Producing Yarn for Technical Applications

When using PES yarns for technical applications, the uniformity of the yarn is the most important and most critical aspect.

Technical fabrics are usually produced in the yarn count range between Ne 12 and Ne 30. Thick places or neps in the fabric cannot be tolerated.

The kit for technical applications includes:

- SOLIDRING S 43 DN opening roller
- T-groove rotors
- nano6 nozzles

The SOLIDRING S 43 DN is the best choice for releasing the fibers from the opening roller into the fiber channel. Furthermore, the S 43 DN guarantees a pleasant and dust-free opening of the sliver. The coated version of the opening roller is recommended due to the very aggressive PES fibers.

Rotors with T-groove are predestined to produce a yarn with a very good CVm% and a very low IPI level.

Recommended are the nano6 nozzles with the small trumpet radius. These nozzles guarantee excellent yarn quality with highest productivity.

Machine settings	Technical textiles
Raw material	100% PES, bright 1.3 dtex 38 mm Nanya
Sliver	kTex 6.0, RSB quality
Draft	122 fold
Yarn count	Ne 12
Opening roller speed	7 500 rpm
Opening roller type	S 43 DN or S 43 N
Twist	590
Alpha e	4
Rotor speed	80 000 rpm
Rotor type	41-XT-BD
SPEEDpass channel insert	Channel insert 40
Nozzle type	nano6
TWISTstop	TWISTstop GO/green S
Delivery speed	138 m/min

Home Textile Kit



Producing Yarn for Home Textiles

Depending on their use, home textiles must fulfill a wide variety of properties. It ranges from increasing people's well-being by absorbing sound to improving the indoor climate by creating light effects. Those properties can be achieved by special fabric structures, which affect the characteristics of the fabric and in the end of the home textiles.

The kit for home textiles includes:

- SOLIDRING B174 N opening roller
- G-groove rotors
- KS or KS-NX nozzles

The SOLIDRING B 174 with diamond coating increases wear resistance and enables reliable operation even with low fiber throughputs. For best quality (CVm% and IPI), opening roller speeds > 9 000 rpm are suggested.

G-groove rotors are used for bulky yarns with high absorbency and tensile strength.

The KS-NX nozzle results in yarns with a high hairiness and a soft and pleasant handle – ideal for home textiles.

Machine settings	Bed sheets
Raw material	100% cotton 1 1/16" micronaire 3.8 – 4.4
Sliver	kTex 6.0 RSB quality
Draft	304 fold
Yarn count	Ne 30
Opening roller speed	8 200 rpm
Opening roller type	B 174 (N or DN) or B 20 DN
Twist	990
Alpha e	4,6
Rotor speed	145 000 rpm
Rotor type	28-XG-BD
SPEEDpass channel insert	Channel insert 28
Nozzle type	KS or KS-NX
TWISTstop	TWISTstop W3/white A
Delivery speed	140 m/min



Regenerate Application Kits

1

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Producing Regenerated Yarn for Knitting and Weaving Applications

Yarns from recycled fibers found their way into fashion and are increasingly demanded. Spinning elements and settings need to consider the higher short fiber content and more variations in fiber properties.

The use of the following SOLIDRING rotors and nozzles is recommended.

The kit for regenerated weaving/knitting fabrics includes:

- SOLIDRING B 174 DN opening roller
- T- or TC-groove rotors
- KS or nano6 nozzles

The SOLIDRING B 174 DN is recommended for perfect sliver opening. The diamond coating prevents a premature wear.

Rotors with the TC groove help to obtain a voluminous yarn for regenerated raw material. The rotor is also characterized by its insensitivity to contamination.

The KS nozzles ensure low hairiness of the yarn as well as good yarn values, high strength, reduced dust and low removal of good fibers.

Machine settings	1 Regenerate – weaving yarn
Raw material	PES/CO – 65/35% with 30% post-consumer & 43% chemically recycled PES
Sliver	4.1 kTex
Draft	111 fold
Yarn count	Ne 16
Opening roller speed	8 000 rpm
Opening roller type	S 43-3.6 DN
Twist	708 T/m
Alpha e	5
Rotor speed	77 000 rpm
Rotor type	37-XT-BD
SPEEDpass channel insert	Channel insert 31
Nozzle type	nano6
TWISTstop	white
Delivery speed	109 m/min

Machine settings	2 Regenerate – knitting yarn
Raw material	Recycled denim (blue)/ Bio cotton – 80/20%
Sliver	6.0 kTex
Draft	86 fold
Yarn count	Ne 8.5
Opening roller speed	9 300 rpm
Opening roller type	B 174 DN
Twist	551 T/m
Alpha e	5
Rotor speed	70 000 rpm
Rotor type	41-XT-BD
SPEEDpass channel insert	Channel insert 40
Nozzle type	KS
TWISTstop	white
Delivery speed	130 m/min

Opening Roller

Wide range of opening rollers with a simple and quick replacement

Rotor spinning is based on the complete opening-up of the feed sliver before the yarn is produced in the rotor. A gentle handling of the fibers plus a highly efficient trash extraction is crucial. Even more so when processing man-made fibers. The rapidly rotating opening roller continuously captures the fibers and accelerates them significantly. While the fibers are held in the teeth of the opening roller, smaller

and heavier trash particles can be removed due to the centrifugal force.

The opening roller housing is easily accessible so that manual checking and replacement of the opening roller can be carried out in a convenient way.



The properties of the SOLIDRING offered by Rieter match the raw materials and the desired yarn properties. The correct SOLIDRING is defined by the application range of the yarn and the production parameters.

Once the correct SOLIDRING has been specified, it is important to use the correct opening roller speed to ensure optimal performance. The opening roller speed range is between 6 000 and 10 000 rpm. A too high or too slow speed can have a negative effect on the yarn quality.

To provide best yarn quality while efficiently removing trash, Rieter laid special emphasis on the major design points of the SOLIDRING:

- The angle of inclination of the tooth breast
- The density of teeth
- Special coatings for different applications
- The geometry of the teeth

The opening roller is subject to wear and has to be replaced periodically to keep the yarn quality and production at a high level. The following tables lists opening rollers for each application for the machine types R 40 – R 70.

Raw material	Yarn count		R 40/R 60/R 66/R 70 – SOLIDRING					
	Ne (tex)	B 174 N	B 174 DN	B 20 DN	S21 DN	S 25 DN	S43-3.6 DN	S43-3.6 N ¹
CO	> 12 (< 49.2)		x	(x)				
	≤12 (≥49.2)		x					
CV	all counts	(x)	x		(x)			
PES	all counts				(≥ Ne 6)	(≤ Ne 6)	x	(x)
PAN	all counts				x			
Waste (div.)	≤12 (≥49.2)		x		(x)			
Regenerate – linen	all counts		x					
Blends: CO/CV < 50%	> 12 (< 49.2)		x		(CV ≥ 10%)			
Blends: CV/CO < 50%			x		(CV ≥ 10%)			
Blends: CO / CV	≤12 (≥49.2)		x		(CV ≥ 10%)		(x)	
Blends: PES – PAN/all mat.	all counts				x			
Blends: CO/PES < 50%	all counts		x		(x)		(x)	
Blends: PES/CO < 50%	all counts		(x)		(x)		x	
Blends: CO/Reg. L linen	all counts		x		(x)			
Blends: Reg. – linen/MMF < 50%	all counts		x		(x)			
Blends: MMF/Reg. – linen < 50%	all counts		(x)		x			

¹ SOLIDRING S 43-3.6N (N-coating) is alternatively applicable for sensitive PES

Wired opening rollers available for R 40, R 60 and R 66, on request

() = possible variant

Rotor

Meeting every requirement in all machine generations

After the opening roller split the sliver into separate fibers, the fibers enter the rotor. The centrifugal forces induced by the rotor combined with a vacuum in the rotor housing cause the fibers to move via the fiber channel to the inner wall of the rotor.

As the fibers gather in the rotor groove and the centrifugal forces remain constant, a fiber ring is formed. The yarn twist results from the ratio between rotor speed and take off speed and can be adjusted accordingly.

As an original equipment supplier, Rieter supplies rotors for every machine generation that are ideally adapted to the operating parameters of the machine and required application. The rotors are available in different coatings and different shapes of the rotor groove. For customers, this means the right rotor for every application and requirement.

Like the opening roller, the rotor must be exchanged periodically due to wear. Rotors in a good condition keep the productivity and quality of the yarn consistently high.



Rotor identification

B – boronized steel

Boronized steel has higher wear resistance and the smooth finish, especially of the sliding wall, is favorable for processing man-made fibers and viscose.

BD – boronized + diamond coated

The rotor is given a diamond coating in addition to the boron treatment resulting in positive properties for processing cotton. These two treatment processes result in a longer service life.

Customer benefits

- Extended lifetime thanks to various coatings
- Up to 12% increased rotor speed
- Up to 5% energy savings



R 40/R 60/R 66/R 70 – Rotor

Raw material	Rotor	Main application				Rotor speed rpm x 1000
		Weaving (Ne)		Knitting (Ne)		
		Optimal	Possible	Optimal	Possible	
Cotton ≥ 1 1/16	26-XG*-BD		≥ 20			140 – 160
	28-XG-BD	> 24 – 60	≥ 16	28 – 60	≥ 16	125 – 150
	28-XGM-BD ¹		≥ 16		≥ 16	130 – 150
	31-XGM-BD ¹			> 24 – < 28	≥ 14	95 – 135
	31-XT-BD-CHI28 ¹		≥ 14			95 – 135
	31-XG-BD		≥ 14	> 14 – 24	≥ 14	95 – 130
	33-XT-BD ¹	> 10 – 24	≥ 10		≥ 10	85 – 125
	33-XG-BD		≥ 10	> 10 – 14	≥ 10	85 – 125
	36-XTC-BD		≥ 6	> 8 – 10	≥ 6	70 – 115
	37-XT-BD	> 8 – 10	≥ 7		≥ 7	70 – 115
	40-XTC-BD	> 6 – 8	≥ 3	> 5 – 8	≥ 3	65 – 90
	46-XTC-BD	> 4 – 6	≥ 3	3 – 5	≥ 3	45 – 80
	56-XTC-BD ¹	3 – 4	≥ 3		≥ 3	35 – 70
	Cotton < 1 1/16 – noil – waste blends: CO/waste ≥ 25%	31-XGM-BD ¹		≥ 10	> 10 – 20 ²	≥ 10
33-XT-BD ¹		> 10 – 20 ²	≥ 8			85 – 120
34-XT-BD ¹			≥ 9		≥ 9	80 – 120
36-XTC-BD			≥ 6	> 8 – 10	≥ 6	70 – 110
37-XT-BD		> 8 – 10	≥ 7		≥ 7	70 – 110
40-XTC-BD			≥ 5	> 5 – 8	≥ 5	65 – 90
41-XT-BD		> 6 – 8	≥ 5		≥ 5	65 – 90
46-XTC-BD		> 4 – 6	≥ 3	3 – 5	≥ 3	45 – 80
56-XTC-BD ¹		3 – 4	≥ 3		≥ 3	35 – 70
Viscose 100%	28-XG-BD ³	16 – 40	≥ 14	16 – 40	≥ 14	120 – 155
	33-XT5-B ¹	10 – < 16	≥ 10	10 – < 16	≥ 10	95 – 125
	36-XTC-BD	8 – < 10	≥ 8	8 – < 10	≥ 8	70 – 110
	40-XTC-BD			6 – < 8	≥ 6	70 – 90
	47-XT-BD		≥ 5			55 – 65
	57-XT-BD		3 – 8			max. 45
Polyester 100% & blends with PES > 65%	34-XT-BD ¹	> 30 – 40	≥ 9	> 24 – 40	≥ 9	80 – 110
	36-XTC-BD				≥ 6	70 – 95
	36-XT5-B ⁴	> 16 – 30	≥ 8			70 – 95
	37-XT-BD	> 8 – 16	≥ 8	> 8 – 24	≥ 8	70 – 80
	40-XTC-BD	(> 6 – 8)	(> 5)			65 – 80
	41-XT-BD	> 6 – 8	≥ 5	> 6 – 8	≥ 5	65 – 80
	46-XTC-BD	> 4 – 6	≥ 4	> 4 – 6	≥ 4	45 – 65
	56-XTC-BD ¹	3 – 4	3 – 8	3 – 4	3 – 8	max. 45

R 40/R 60/R 66/R 70 – Rotor

Raw material	Rotor	Main application				Rotor speed rpm x 1000
		Weaving (Ne)		Knitting (Ne)		
		Optimal	Possible	Optimal	Possible	
Blends with PES ≤ 65%	33-XT-BD ¹	> 14 – 60	≥ 9	> 14 – 60	≥ 9	85 – 110
	36-XTC-BD	(> 8 – 60)	≥ 6		≥ 6	70 – 95
	37-XT-BD	8 – 14	≥ 8	8 – 14	≥ 8	70 – 95
	40-XTC-BD	(3 – 8)	(≥ 3)			65 – 80
Blends with PES ≤ 50%	31-XG-BD	18 – 60	≥ 18	18 – 60	≥ 18	95 – 115
Polyacrylic	37-XT-BD	18 – 30	≥ 10	18 – 30	≥ 10	75 – 95
	41-XT-BD	> 8 – < 18	≥ 7	> 8 – < 18	≥ 7	65 – 85
	46-XTC-BD	> 5 – 8	≥ 5	> 5 – 8	≥ 5	50 – 65
	56-XTC-BD ⁵	3 – 5	3 – 8	3 – 5	3 – 8	35 – 45
MMF/CO-MMF, except with PES	31-XG-BD		≥ 14	> 24 – 60	≥ 14	95 – 125
	31-XT-BD-CHI28*	> 24 – 60	≥ 14		≥ 14	95 – 125
	33-XT-BD ¹	> 10 – 24	≥ 9		≥ 9	85 – 120
	33-XG-BD		≥ 9	> 10 – 24	≥ 9	85 – 120
	36-XTC-BD		≥ 7	> 8 – 10	≥ 7	70 – 95
	37-XT-BD	> 8 – 10	≥ 7		≥ 7	70 – 95
	40-XTC-BD	> 6 – 8	≥ 3	> 5 – 8	≥ 3	65 – 80
	46-XTC-BD	> 4 – 6	≥ 3		≥ 3	45 – 75
	56-XTC-BD ¹	3 – 4	≥ 3		≥ 3	35 – 55
Regenerate	36-XTC-BD		≥ 8	> 10 – 24	≥ 8	70 – 95
	37-XT-BD	> 10 – 24	≥ 8		≥ 8	70 – 95
	40-XTC-BD	> 6 – 10	≥ 6	> 6 – 10	≥ 6	65 – 80
	46-XTC-BD	> 4 – 6	≥ 3	> 4 – 6	≥ 3	45 – 75
	56-XTC-BD ¹	3 – 4	≥ 3	3 – 4	≥ 3	35 – 55
Linen and blends ⁶	36-XTC-BD	> 10 – 14	≥ 8	> 10 – 14	≥ 8	70 – 95
	40-XTC-BD	> 6 – 10	≥ 3	> 6 – 10	≥ 3	65 – 90
	46-XTC-BD	> 4 – 6	≥ 3	> 4 – 6	≥ 3	45 – 75
	56-XTC-BD ¹	3 – 4	≥ 3	3 – 4	≥ 3	35 – 60

¹ with 1.5mm washer

² finer Ne 12 only with min. 30% virgin cotton (noil/waste)

³ fiber length max.32mm

⁴ 100% PES only

⁵ for PP only

⁶ Recommendation: with trash adapter

() = Recommendend for Denim application

Take-off Nozzles

Application specific nozzles through extensive use of materials and shapes

The take-off nozzle guides the yarn out of the rotor. Design and position of the nozzle have a substantial influence on both the spinning stability and the yarn characteristics. It determinates the twist level in the rotor and thus the spinning conditions in the rotor groove.

The choice of the right nozzle is depending on the downstream processes (knitting or weaving) as well as the required touch of the yarn (hairy or smooth).

Continuous further development has resulted in a wide range of nozzles for all application areas. Ceramic nozzles have been dominant in the last 25 years in almost all areas of application.



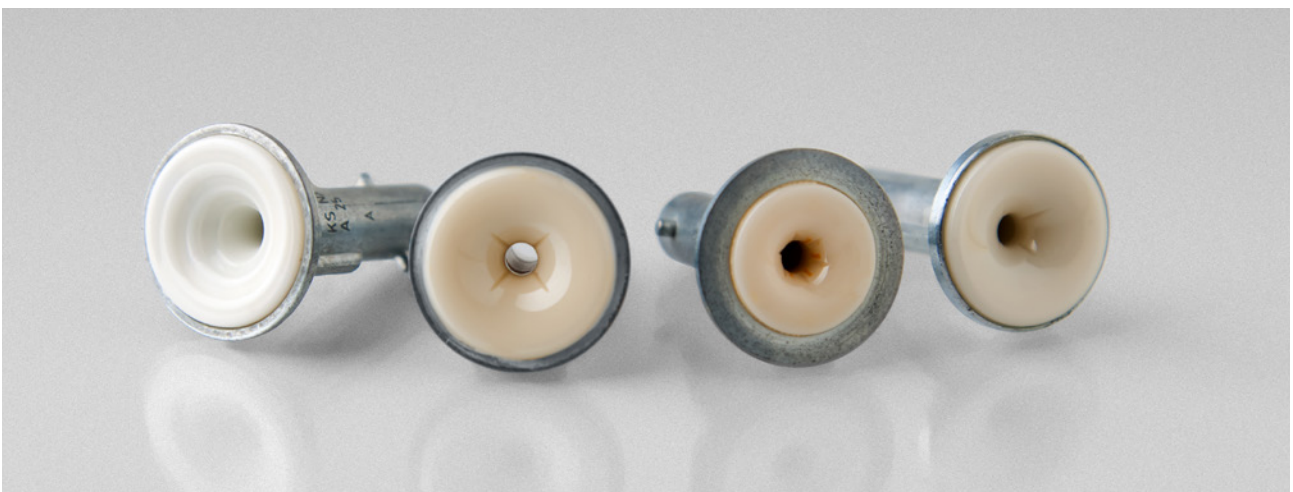
Customer benefits

- Increased productivity with nano take-off nozzles
- Increased spinning stability
- Optimum yarn quality
- Magnetic fixation (R 40) and bayonet lock (R 60/ R 66 / R 70)

Raw material	Application	R 40/R 60/R 66/R 70 – Nozzles							
		K4K	K 8K	KS-NX	KS F-NX	KS	KS RR	nano4	nano6
CO	Weaving	(x)		(x)		x		(x)	(x)
	Denim	x		(x)		(x)			
	Knitting	(x)		x	(x)		(x)	(x)	(x)
CV	all applications	(x)						x	(x1)
PES	all applications								x
PAN	all applications	(x)	(x)					x	
Regenerate – Linen	all applications	x				x			
Blends: CO/PES	all applications	(x)						(x)	x
Blends:CV/PES	all applications							(x)	x
Blends: CV – CO/PAN	all applications	(x)						x	

¹ CV: high rotor speed > 130 000 rpm nano6 preferred

() = possible variant



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