



TEXTILE

KEEP PROFITS ROLLING WITH CALENDERS

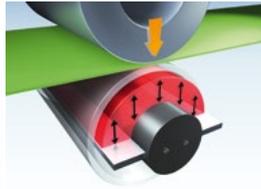
FOR YEARS TO COME

ANDRITZ

ENGINEERED SUCCESS

Range of textile calenders

At a glance: Depending on your final product and its requirements, such as soft handle, gloss, or air permeability, our textile calender portfolio ranges from two-roll calenders to three-roll calenders to special configurations designed precisely to meet your needs.

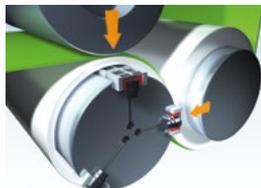


teXcal s-roll calender

The all-rounder in textile calendering

Line force: up to 400 N/mm

Roll width: up to 3,600 mm*



teXcal Raconip L calender

The expert in clothing and home textiles

Line force: up to 300 N/mm

Roll width: up to 3,600 mm*



teXcal Raconip TT calender

Designed for technical textiles

Line force: up to 400 N/mm

Roll width: up to 3,600 mm*

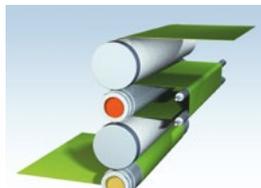


teXcal trike calender

Designed for special textiles

Line force: up to 400 N/mm

Roll width: up to 3,600 mm*

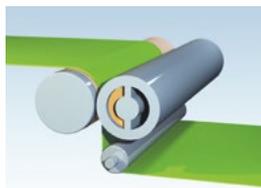


teXcal simili calender

Specialist for african damask

Line force: up to 400 N/mm

Roll width: up to 2,000 mm*



teXcrush finishing system

Master of textile crushing

Line force: up to 110 N/mm

Roll width: up to 5,600 mm*

*larger widths on request



VARIOUS APPLICATIONS

You can use ANDRITZ textile calenders in a large number of markets, such as:

- Home textiles
- Clothing
- Technical textiles
- Denim
- African damask ...



"Today, textile machinery engineering is one of the important branches of engineering and plant construction in Germany. With an export rate of 95 percent, the industry is one of the strongest engineering branches in terms of exports."

VDMA (Verband deutscher Maschinen- und Anlagenbauer)

Range of textile calenders →

CONTENTS

Range of textile calenders	2
Experience and competence	6
Textile finishing system solution	8
Peak your production performance	10
Metris: ANDRITZ Digital Solutions	12
teXcal s-roll calender	14
teXcal Raconip L calender	16
teXcal Raconip TT calender	18
teXcal trike calender	20
Special applications	22
Swimming Roll (S-Roll)	24
Raconip L roll	25
Raconip roll	26
Sleeves	27
Multicovering technology for S-Rolls	28
Heating systems	29

AUGMENTED REALITY CONTENT

To show videos, illustrations and picture galleries in a more direct and lively way, we have added augmented reality to several contents! Download our **ANDRITZ AR APP** from our website or from the AppStore/PlayStore!

SCAN THE MARKED PAGES AND EXPERIENCE THE ENHANCED CONTENT.



Experience and competence

Textile calendering is part of our DNA: Be it home textiles, technical textiles or traditional textiles, we offer exactly the right textile calender solution targeting your needs in an ever more demanding market. With more than 150 years of experience in textile calendering, it is not just our daily business. It is our passion – and part of our DNA.

Take advantage of an all-embracing, first-class product and service portfolio in the textile calender market. Together with the prestigious ramisch technologies, we have made our way to the top of this market. Our teXcal calender range powered by ramisch offers you highest quality standards, top performance, reliability, flexibility, and state-of-the-art deflection-controlled rolls for any textile application.

LONG-STANDING EXPERIENCE

2016

Cooperation with the specialist Rolf Ramisch

2006

Acquisition by ANDRITZ GROUP: ANDRITZ Küsters GmbH

2002

Takeover of textile and nonwoven business of KKA Kleinewefers GmbH, founded in 1862

1956

First Küsters patent: Swimming Roll, first deflection controlled roll in the world

1953

Company established by Eduard Küsters

1949

R&D location for textile machinery





Textile finishing system solution



One source, one partner: With ANDRITZ, you can always rely on a smooth process with our textile finishing system solution. Ensure your production operations are in perfect and continuous harmony, from unwinding to rewinding. All necessary and optional peripheral equipment is available to you – from one single source.





INLET

This can encompass a fabric infeed frame, traction device, seam and metal detectors, humidifying device, web guiding, and an expander system.

CALENDERS

You benefit from a wide range of textile calenders that are perfectly suited to your needs and your product demands. From two-roll to three-roll calenders (in special cases even more) with state-of-the-art, deflection-controlled roll technologies, you can trust in our many years of experience and know-how.

OUTLET

Our outlet equipment can include cooling rolls, a peripheral winder, an ascending roll winder, a combination of winder and plaiter, center drives for delicate fabrics, an antistatic device, and inline gauges to measure thickness, air permeability, and so on.

LINE CONTROL

Continuous process control ensures you have high quality and maximized uptimes. A touch panel with recipe management simplifies checks, and a closed-loop operation control system could also be included in your process.

YOUR BENEFITS

- One source
- Process guarantee
- Feasibility check possible in our technical center

Peak your production performance

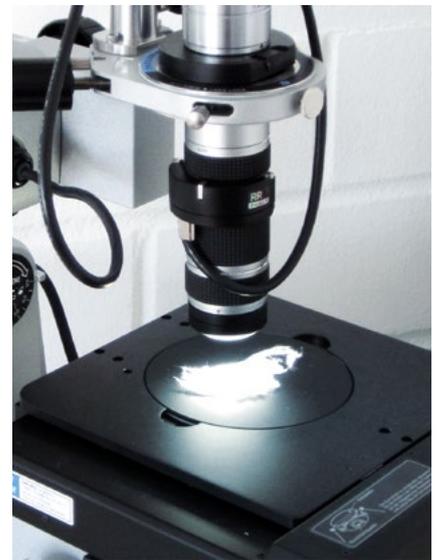
Spot-on development and service: Continuous research and development targeting your needs in an ever more demanding market. Ensure a fast, profitable, and sustained ROI with our highly skilled service engineers. You can trust in more than 150 years' experience and expertise, profiling over the entire fabric width.

RESEARCH AND DEVELOPMENT

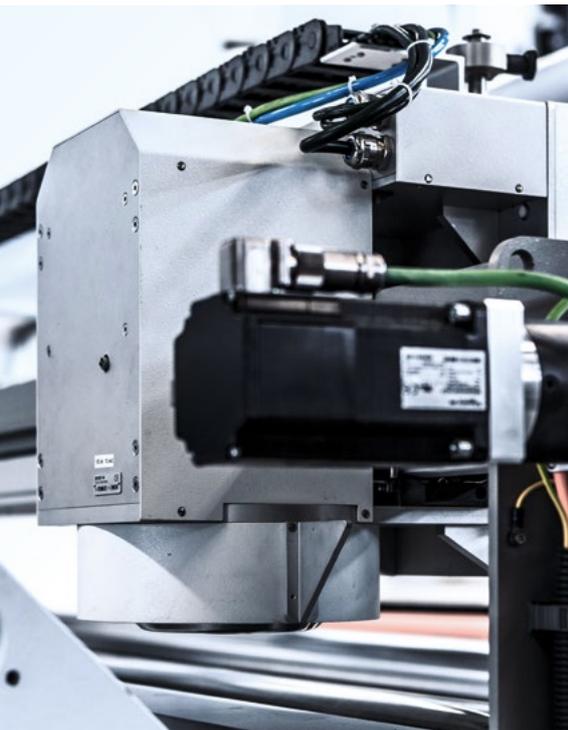
Ongoing R&D can come up with multiple solutions to leverage textile finishing technologies. Being dedicated to high quality and innovative production technologies propels us to seek ideal solutions. Let our combined forces achieve maximum results. Highly skilled staff provide you with the best and unique know-how based on our installed base and continuous R&D.

TECHNICAL CENTER

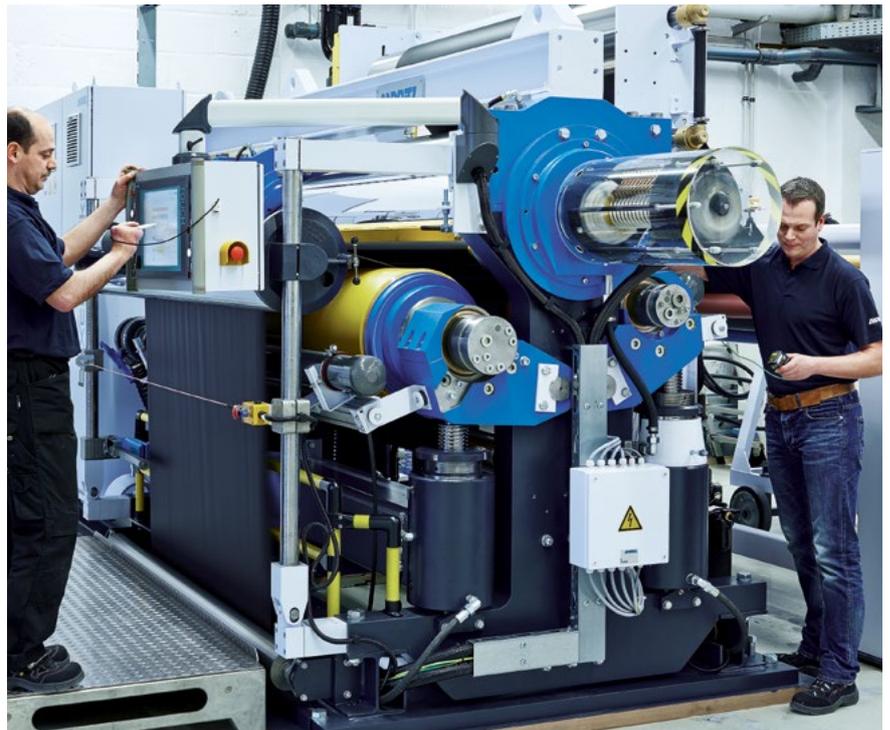
The state-of-the-art installations at our technical center in Krefeld, Germany and expert process engineers work with you to develop and ensure reliable technologies and process optimization. Evaluating new processes and defining parameters for product guarantees are yet another main focus.



3D microscope



Air-permeability measurement system



Technical center for calendering in Krefeld, Germany





View our service contacts in our augmented reality app!

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View video footage of this brochure in our augmented reality app!

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**RESPONSIVE,
RELIABLE SERVICE**

You can rely on top performance and a sophisticated service level being available nearby. Highly trained field and service engineers, worldwide service centers, and a 24/7 hotline guarantee you have the best, most reliable and fastest support. With ANDRITZ as your partner, the value of your process remains secure long after the warranty period has expired.

SPARE PARTS

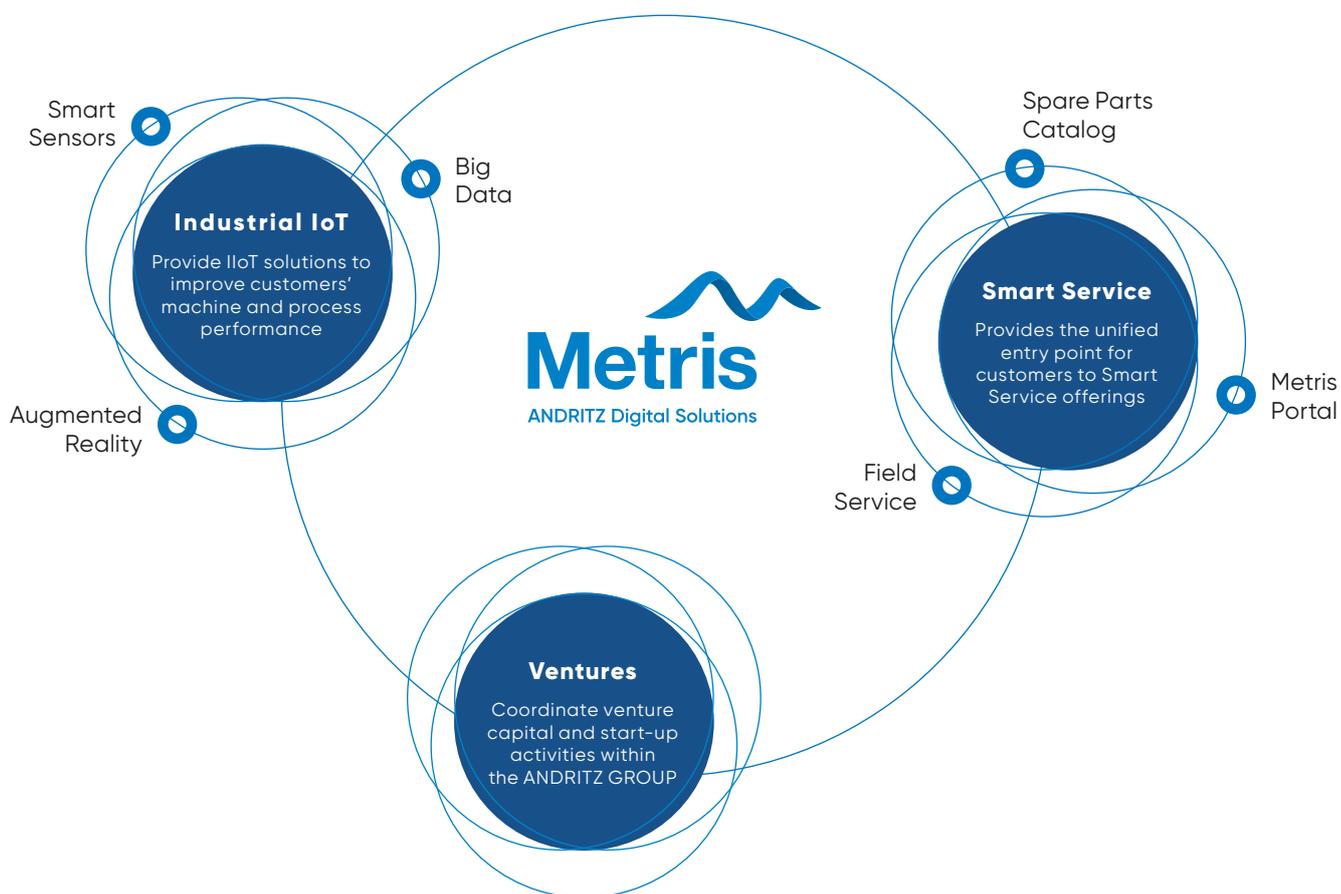
To ensure the longevity and performance of your equipment, we recommend using only original spare parts from ANDRITZ. A sales team for spare parts is at your disposal at ANDRITZ to help you make your choice.

EASY DOCUMENTATION

Take advantage of our operator-friendly machine documentation. It's available on an interactive tablet computer located exactly where you need it most. Find information quickly by using the full text search option. Our multimedia operating manual with pictures and videos helps you understand complex processes. An integrated spare parts catalog simplifies inquiries and the ordering process for any parts required.

Metris: ANDRITZ Digital Solutions

Digitalization is changing the textile world: With digitalization, Industrial Internet of Things (IIoT) and Smart Service, expectations for greater line efficiency and increased profitability are rising. This can be gained by networking of machines and applying such technologies as Smart Sensors, Big Data Analytics, and visualization using Augmented Reality. Metris OPP (Optimization of Process Performance) as one of the core products of the Metris portfolio can provide the whole range according to individual needs.



WHAT IS METRIS?

With the Metris brand's digital solutions, you are preparing for the growing digital challenges in the industrial environment. Metris products are the very latest state of the art – they can be customized to suit your individual requirements. They make you achieve the best possible productivity and efficiency for your nonwovens production.

WHAT DOES METRIS OPP DO?

The intelligent Metris OPP platform analyzes available line data, compares it with data already gathered, assesses the data, and provides you with valuable output. But Metris OPP is not just a platform – it offers ANDRITZ service contracts for both on-site and remote assistance services by specialists.





YOUR BENEFITS

- Full use of equipment and no need to install new hardware
- Continuous measurement of savings
- Ongoing R&D to provide the latest state-of-the-art technology
- Field model proven in many different countries
- Big data analysis with tried-and-tested models for deviation analysis
- Providing information locally with augmented reality
- Extensive solution and process engineering knowledge
- Cybersecurity solution to safeguard data on the network



View video
in our App!

FOR FURTHER
INFORMATION
SEE PAGE 5



SMART SENSORS

ANDRITZ uses micro and wireless sensors for Metris solutions. You can use these sensors to collect even more detailed machine and plant data that are taken from pre-defined areas and are relevant in optimizing operations.



BIG DATA ANALYSES

To provide you with a rapid overview of the plant operating status, the data is analyzed automatically in real time. Necessary control measures can be initiated based on the knowledge of possible effects in order to avoid plant shutdowns, for example, or reduce the use of consumables.



AUGMENTED REALITY

Augmented reality can make information visible at the machine or plant and display it very easily on mobile devices such as a tablet PC or smartglasses. Technology enables you to operate the machine and system more easily and more efficiently.

teXcal s-roll calender

The all-rounder in textile calendaring: Most of your applications can be finished with the ANDRITZ teXcal s-roll calender. Ranging from traditional textiles, such as home textiles and clothing, to technical textiles, such as air-bag fabrics, the teXcal s-roll applies one effect to give you the best possible results.

With a maximum line force of 400 N/mm, the teXcal s-roll is a benchmark, offering you multiple opportunities for various uses. Combined with a thermo-elastic, homogeneous polyamide FlexRoll Sleeve, the teXcal s-roll creates first-class effects.

PLUG AND PLAY

Thanks to its compact design, the teXcal s-roll takes up very little space. This means it saves you time and effort because it can be shipped by container to the point of assembly without having to be dismantled beforehand. As it is fully pre-assembled, wired and functionally tested, the calender can be commissioned almost immediately (plug and play).

SOME FINAL PRODUCT APPLICATIONS

- Home textiles
- Clothing
- Denim
- Upholstery material
- Sun protection fabrics
- Filter fabrics
- Air-bag fabrics
- Wall coverings

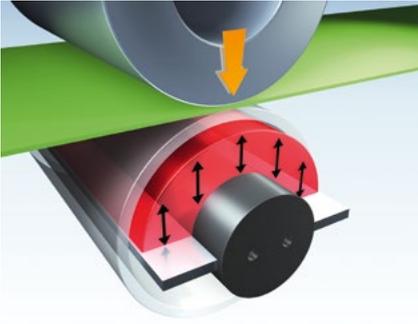


FEATURES

- Infinitely adjustable line force 30–400 N/mm
- Standard roll surface width from 1,800–3,600 mm (larger width possible for special applications)
- Adjustable pressing width to suit change in fabric web width
- Multicoating technology available
- Plug and play

teXcal s-roll calender





S-Roll principle

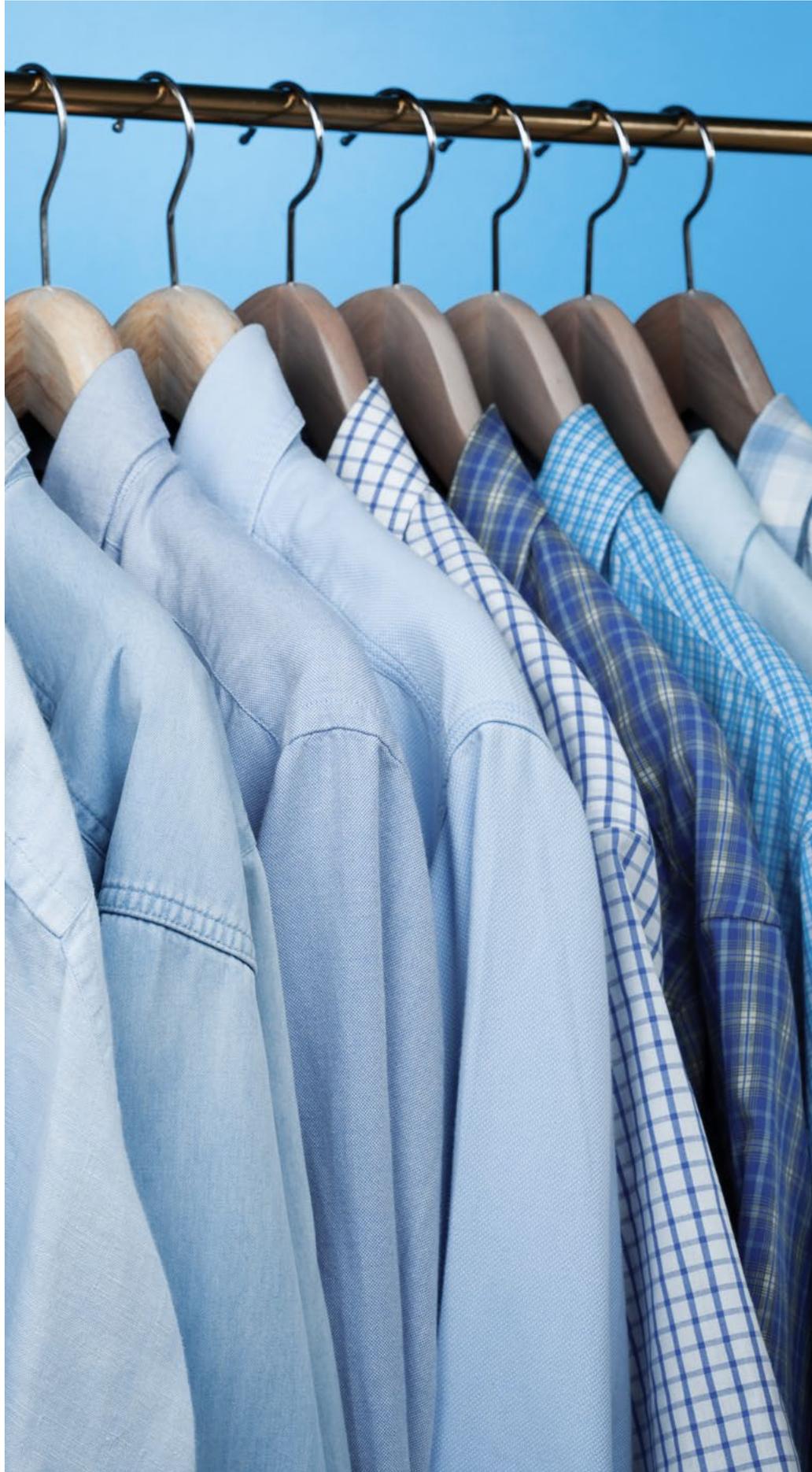


teXcal s-roll detail insight



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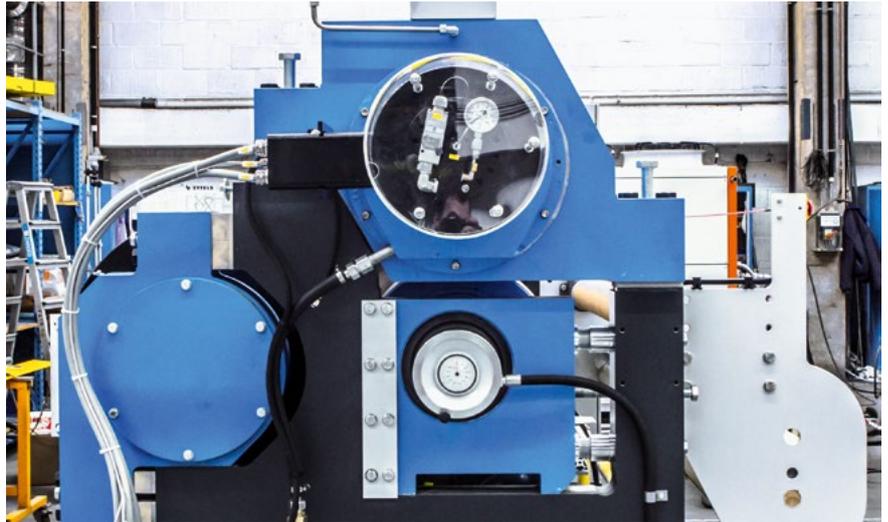
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teXcal Raconip L calender

The expert in clothing and home textiles: Double your benefit in a single cycle. Two effects, such as gloss and soft handle, which are especially suited for clothing and home textiles, can be achieved in one fabric passage.

Soft handle and gloss are effects often desired in clothing and home textiles. The teXcal Raconip L calender provides this specific soft-handle effect along with a multitude of others, including smoothness and density. It works with an L-shaped roll arrangement and individually adjustable line forces in the top and rear nips.



Side view of teXcal Raconip L



FEATURES

- Line force of 50–300 N/mm (can be adjusted individually in each nip without stopping production)
- Roll surface width of 1,800–3,600 mm (larger width possible for special applications)
- Adjustable pressing width to suit change in web width
- Thermal relief of the FlexRoll Sleeve alongside the web by means of retraction elements
- Plug and play

teXcal Raconip L calender



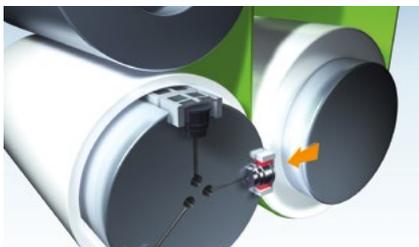
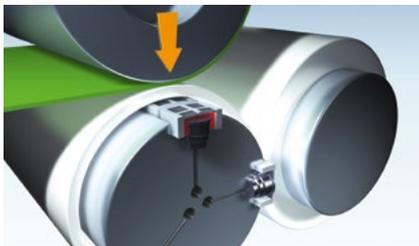
SOME FINAL PRODUCT APPLICATIONS

- Home textiles
- Shirting
- Knitted goods
- Linings



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teXcal Raconip L principle

teXcal Raconip TT calender

The revolution in technical textiles: The teXcal Raconip TT provides you with state-of-the-art technology and the highest standards for technical textiles. Take advantage of Industrial Internet of Things (IIoT) solutions to optimize your production.

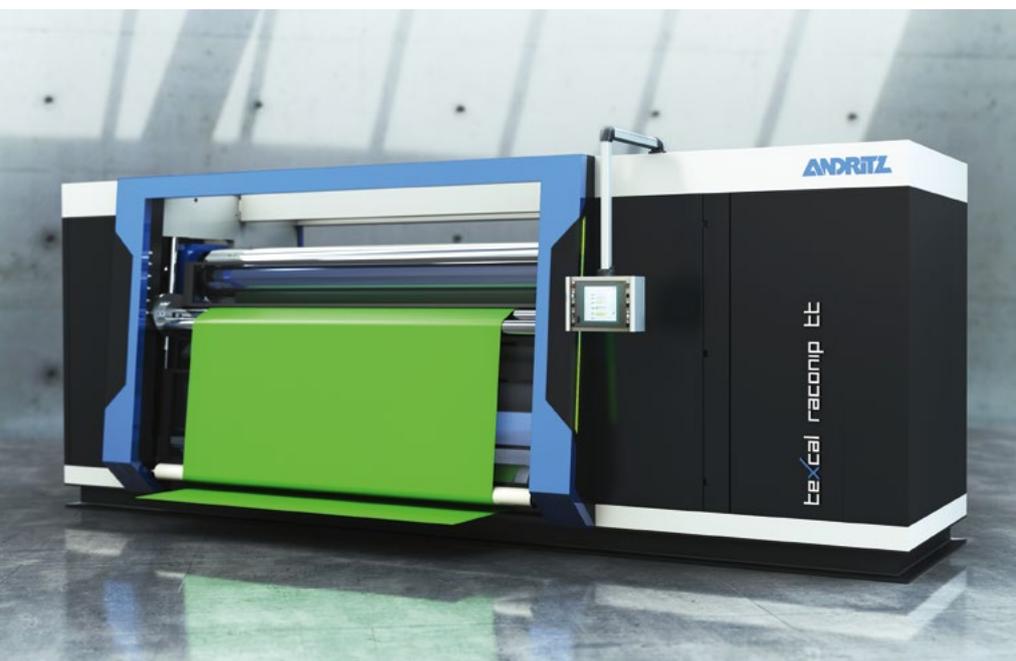
In a cutting-edge textile production plant you need versatility and operator-friendly handling along with excellent product quality and process stability. The new ANDRITZ calendaring concept meets your market demands perfectly.

To bring you one step further, we have developed a top-notch textile calender, which sets you apart in the race for smart production and excellent product quality.

Highest flexibility is achieved with the proven Raconip roll technology, providing unrestricted profiling over the entire fabric width by hydrostatic pistons. This ensures absolute flatness, highest quality, and spot-on air permeability.

YOUR BENEFITS

- Infinitely adjustable line force – ultimate profiling
- Operator-friendly handling of machinery during assembly and production
- All data at a glance with big data management
- Improved and transparent production process
- Less maintenance



FEATURES

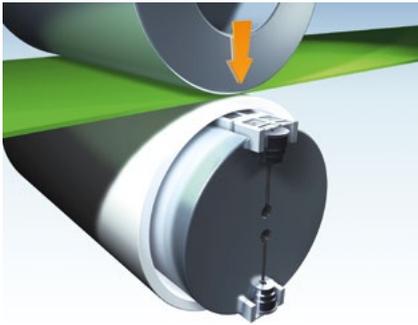
- Infinitely adjustable line force of 30 – 400 N/mm
- Standard roll surface width: Up to 3,600 mm (larger width possible for special applications)
- Adjustable pressing width to suit change in web width
- New C-frame with optimized web infeed
- Innovative Raconip deflection-controlled roll
- Contactless temperature measurement of steel roll
- Roll shell surface hardness: approx. 92 Shore D

teXcal Raconip TT calender



SOME FINAL PRODUCT APPLICATIONS

- Parachute fabrics
- Sailcloth
- Down-proof textiles
- Filtration
- Personal protection wear



teXcal Raconip TT principle



teXcal trike calender

A step ahead in textile calendaring: This calender gives you an advantage by maximizing flexibility with two independent nips. Fabric losses at the seam passage are minimized, providing you with a substantial economic benefit for your operations. Be it parachute fabrics, sailcloth, sportswear, or down-proof textiles, the ANDRITZ teXcal trike calender meets all your application demands perfectly.

Besides being operator-friendly, you need calenders that provide a high degree of flexibility, reproducibility, and process control. The patented teXcal trike meets these requirements and sets new standards for your sophisticated technical textiles.

WHAT IS THE SECRET?

The innovative teXcal trike is a three-roll calender with a triangular roll arrangement. A heated top steel roll and two identical or different deflection-controlled system rolls allow you to make individual pressure adjustments. Depending on the product, the fabric can be fed through the front nip, the rear nip, or both, giving you the utmost flexibility.



Side view of teXcal trike

FEATURES

- Line force of 30–400 N/mm (can be adjusted individually in each nip without stopping production)
- Minimum fabric loss at seams
- Standard roll surface width of 1,800–3,600 mm (larger width possible for special applications)
- Multicoating technology possible
- Plug and play



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**FOR FURTHER INFORMATION
SEE PAGE 5**



teXcal trike calender



SOME FINAL PRODUCT APPLICATIONS

- Parachute fabrics
- Sports- and outdoor fabrics
- Packaging material
- Down-proof textiles



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FOR FURTHER INFORMATION SEE PAGE 5



teXcal trike principle



Special applications

Fulfill your specific needs: Benefit from solutions for special applications and niche markets to generate highly sophisticated results. Specific needs require special solutions, so you have the perfect technology to maintain your competitive edge.

SPECIALIST IN AFRICAN DAMASK

One of the special applications in textile finishing is simili-mercerisation, which achieves a special wash and dye-permanent gloss on high quality damasks (e.g. African damask) and poplin material of pure cotton, at the same time retaining smoothness and density.

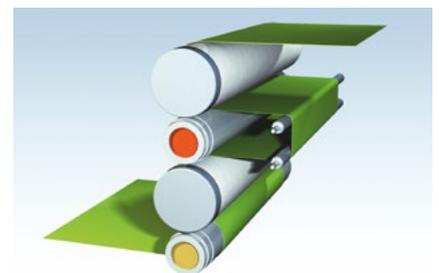


SOME FINAL PRODUCT APPLICATIONS

- African damask
- Poplin material

The teXcal simili four-roll calender hosts two steel rolls and two special rolls with a cover made of cotton blend, a special fiber blend, or a homogeneous composite material.

The special fiber blend cover ensures excellent product parameters and can withstand very high surface temperatures.



teXcal simili principle

FEATURES

- Common line force 400 N/mm
- Standard roll surface width 2,000 mm

teXcal simili calender



MASTER OF TEXTILE CRUSHING

The unique teXcrush finishing system frequently follows a stentering frame for breaking the finished web. The horizontally arranged rolls offer you the best results for foam-treated blackout curtains, for example. The system's compact design and optimal material feed allows for easy integration into any finishing line.



Vertical blinds

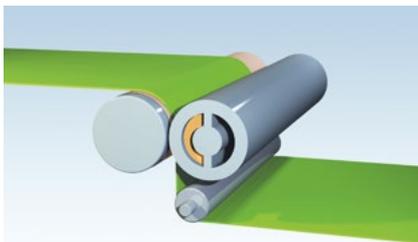
SOME FINAL PRODUCT APPLICATIONS

- Blackout curtains
- Non-transparent curtains
- Truck tarpaulins
- Advertising posters



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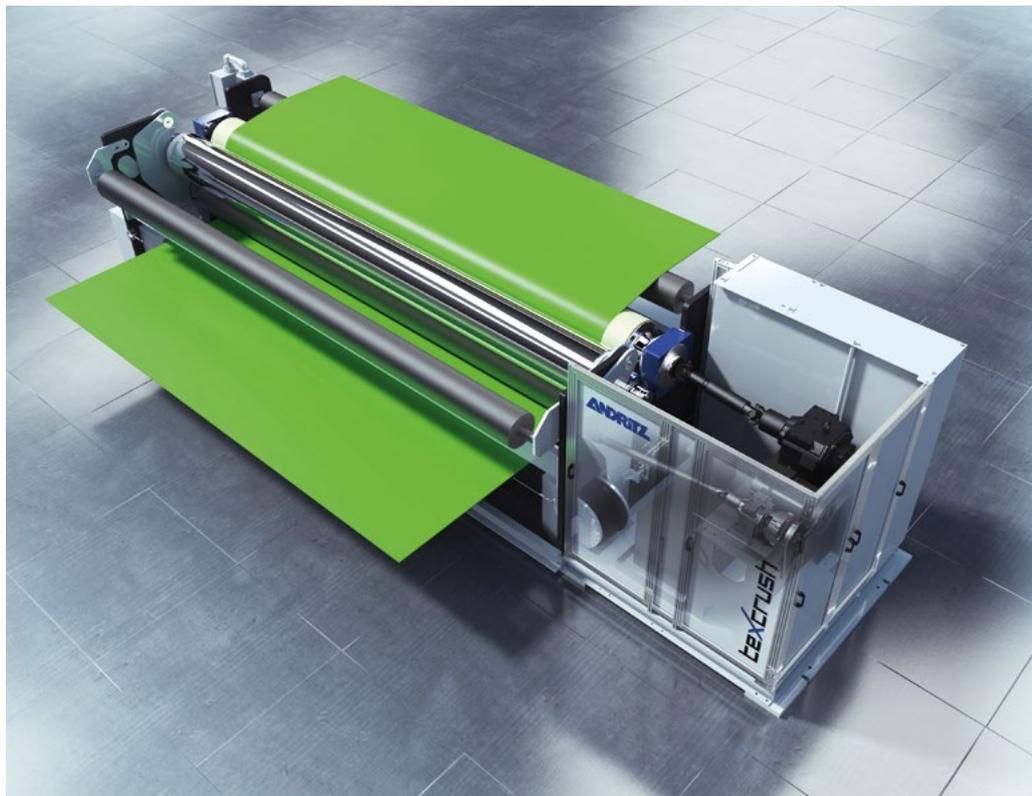
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SEE PAGE 5



teXcrush principle

FEATURES

- Infinitely adjustable line force 30–110 N/mm
- Standard roll surface width 1,800–5,600 mm
- Adjustable pressing width to allow for changes in fabric width



teXcrush finishing system

Swimming Roll (S-Roll)

Long-standing expertise in roll technology: Trust in the inventors of the deflection-controlled roll to ensure best results. The S-Roll has revolutionized calendering technology worldwide and is designed for a wide range of applications to ensure best results.

You can finish an almost unlimited number of applications with the S-Roll. From ANDRITZ you can always expect maximum flexibility and highest quality. This is ensured by continuous R&D that adapts and optimizes the S-Roll to meet all of your demands in the textile markets.

COVERS AND SLEEVES

For this type of roll, a wide variety of covers and surface hardness can also be applied directly to a steel shell. A very soft rubber cover may also be used, depending on the application.

TAKE A PEEK BEHIND THE SCENES

The roll is designed to follow the bending of the counter-roll and achieve maximum flexibility in your production operations. This allows rolls to be completely cylindrical and prevents friction. The roll has a fixed axle with a tube rotating around it. The inner part is divided into two different chambers, allowing the roll shell to bend towards the counter-roll. The line pressure can be adjusted individually.



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FOR FURTHER INFORMATION SEE PAGE 5

FEATURES

- Hydraulic pressure chamber
- Variable adjustment of fabric width
- Variable line force
- Correction: left – center – right
- Line force: 30–400 N/mm
- Quick and easy sleeve change
- Multicovering technology possible



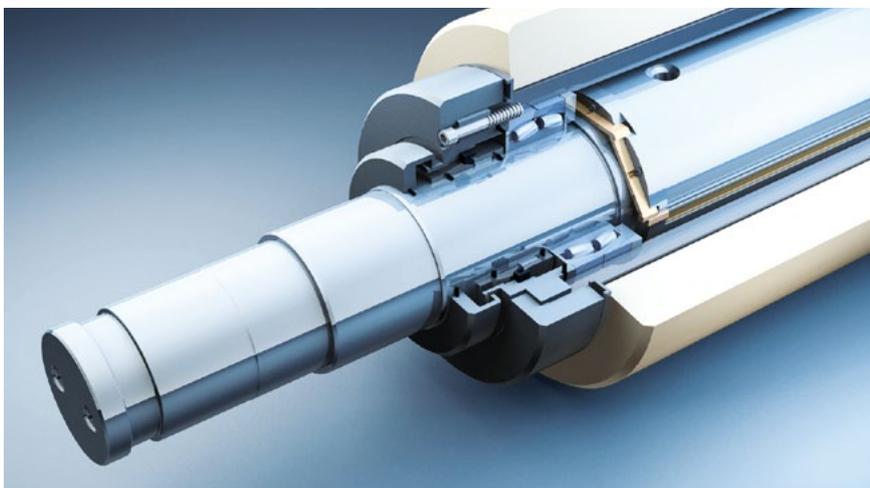
Increased line force in center



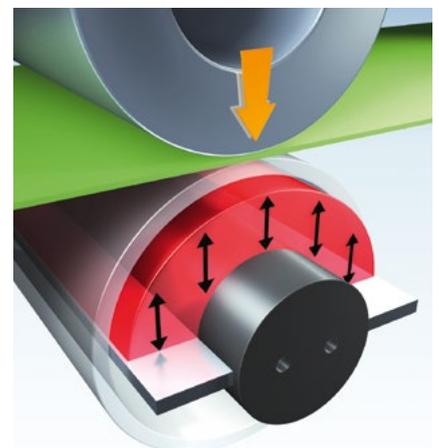
Even line force at full fabric width



Increased line force at the edges



Inside view of S-Roll



S-Roll principle

Raconip L roll

Hydrostatic deflection control: In comparison to the Swimming Roll, the Raconip roll technology offers you hydrostatic pistons for deflection control. The Raconip L roll has hydrostatic pistons arranged in an L-shape.

Giving you yet another benefit while increasing flexibility in production, the roll controls the line pressure in both nips independently. ANDRITZ manufactures rolls and sleeves in-house, which always ensures you the highest quality control.

COVERS AND SLEEVES

A wide variety of covers and surface hardnesses can be used for this type of roll as well. For soft handle the perfect combination is a polyamide and cotton sleeve.

UNCOVER THE SECRET

The rotating polyamide Racolan Sleeve of the deflection-controlled roll is supported on hydrostatic elements (pistons). A uniform, infinitely adjustable line force is transmitted to the Racolan Sleeve via an oil film. You can adjust the pressure width by switching the supported elements on and off symmetrically.

FEATURES

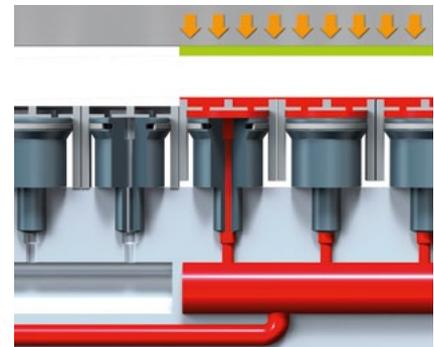
- **Piston control**
- **Variable adjustment of fabric width**
- **Variable line force**
- **Two independently adjustable effect nips**
- **Retraction of piston for edge relief**
- **Line force: 50–300 N/mm**



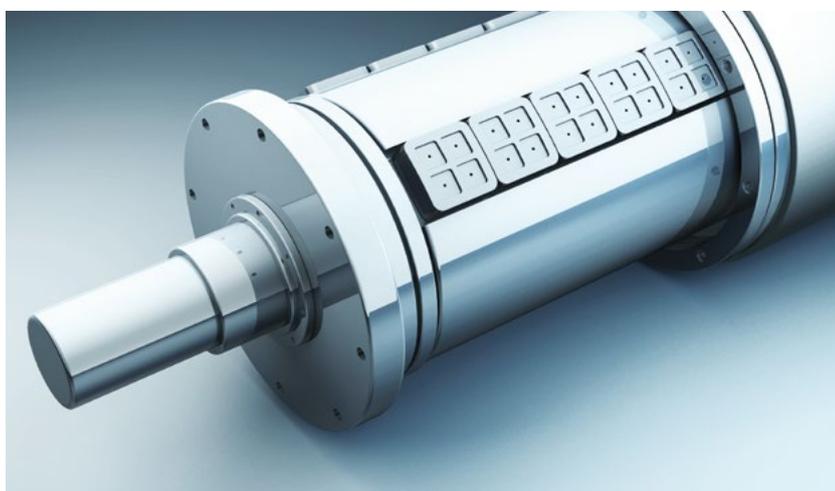
Roll retraction at full fabric width



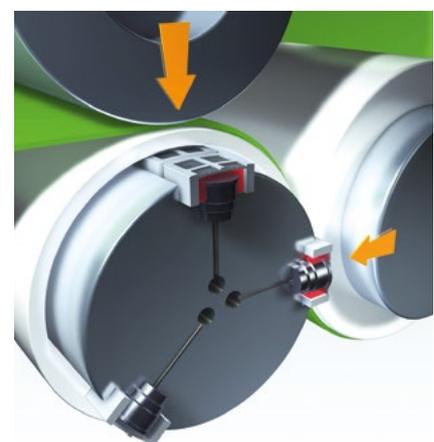
Roll retraction at narrow fabric width



Schematic of support elements (pistons)



Inside view of Raconip L roll



teXcal Raconip L principle

Raconip roll

Highest profile control: Ensure absolute flatness, highest quality, and spot-on air permeability with this innovative roll concept.

The Raconip roll provides you with unrestricted profiling over the entire fabric width by hydrostatic pistons.

You can vary the line force in several zones via individual elements. This provides flexible fabric adjustment and precise profile control to achieve absolute flatness.

COVERS AND SLEEVES

For this type of roll, you can use a wide variety of covers and sleeves.

- Polyamide sleeve: Racolan
- Glass-fiber reinforced plastic shell with cover: Racoflex
- Homogeneous composite sleeve: Racoflex plus

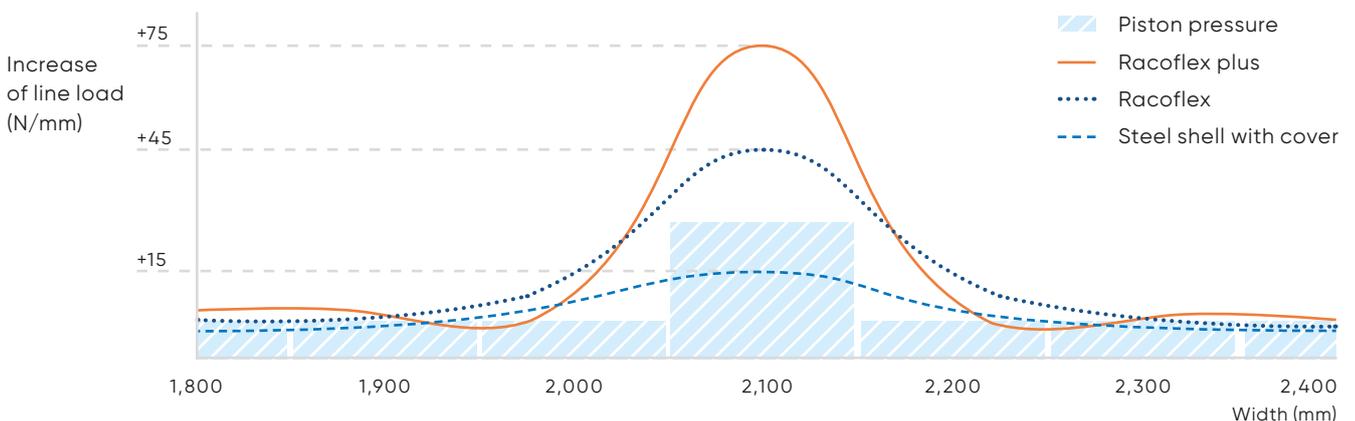
Variable adjustment of pressure zones according to fabric width is ensured with all sleeve types.

FEATURES

- Unlimited piston control within several zones
- Zone width distribution according to customer demands
- Variable adjustment of fabric width
- Variable line force
- Line pressure: 30–400 N/mm



Example for an asymmetric zone control with 11 zones



Comparison of different sleeves elasticities (90–92 Shore D): The Racoflex plus sleeve is the most flexible sleeve on the market.



Sleeves

The perfect sleeve for your purposes: Whether it is a sleeve or shell cover made of polyamide, composite, cotton, rubber, steel or any other special material, we select the ideal solution for your textile production.



POLYAMIDE SLEEVE

A polyamide sleeve features high elasticity and high resilience. It is largely resistant to indentations by seams, textile web edges and individual threads. Quick and easy maintenance and disassembly of the sleeve are assured by using special devices.



COTTON SLEEVE

The elastic roll is very smooth and has a coating made of polished cotton. In combination with the polyamide sleeve, it is able to finish the textile web with a soft-handle effect at defined pressure and speed. Small marks or scratches on the roll surface affecting seams and so on can be washed and ironed out easily.



COMPOSITE SLEEVE

A composite sleeve is a cover held on a glass-fiber reinforced plastic or steel shell. The sleeve is characterized by its adaptability to pressure relief and retraction forces in the edge area. It can be used to hold a wide range of different covers and surface hardnesses. In addition, a very soft rubber cover can be used.



HOMOGENEOUS COMPOSITE SLEEVE

This special composite sleeve is made of a homogeneous composite material that provides excellent flexibility and bending. A very smooth surface ensures high compression and gloss development in the fabric web. The shell hardness is in the range of 90–94 Shore D, combined with high temperature resistance. This sleeve is available exclusively from ANDRITZ.

Multicovering technology for S-Rolls

Quick and easy sleeve change: Add value to your production operations with our multicovering technology and achieve a multitude of calender effects with quick and easy sleeve changes. As ANDRITZ is the only manufacturer delivering this outstanding technology, you profit from maximized flexibility and production time.

This pioneering invention allows sleeve changes without removing the roll or opening the hydraulic system. The steel tube is covered with a basic coating and a FlexRoll polyamide sleeve. Depending on the desired calender effect, production can continue with the basic coating or the sleeve.

The FlexRoll sleeve is extremely robust and resistant to indentations such as seams, weaving faults, and folds.

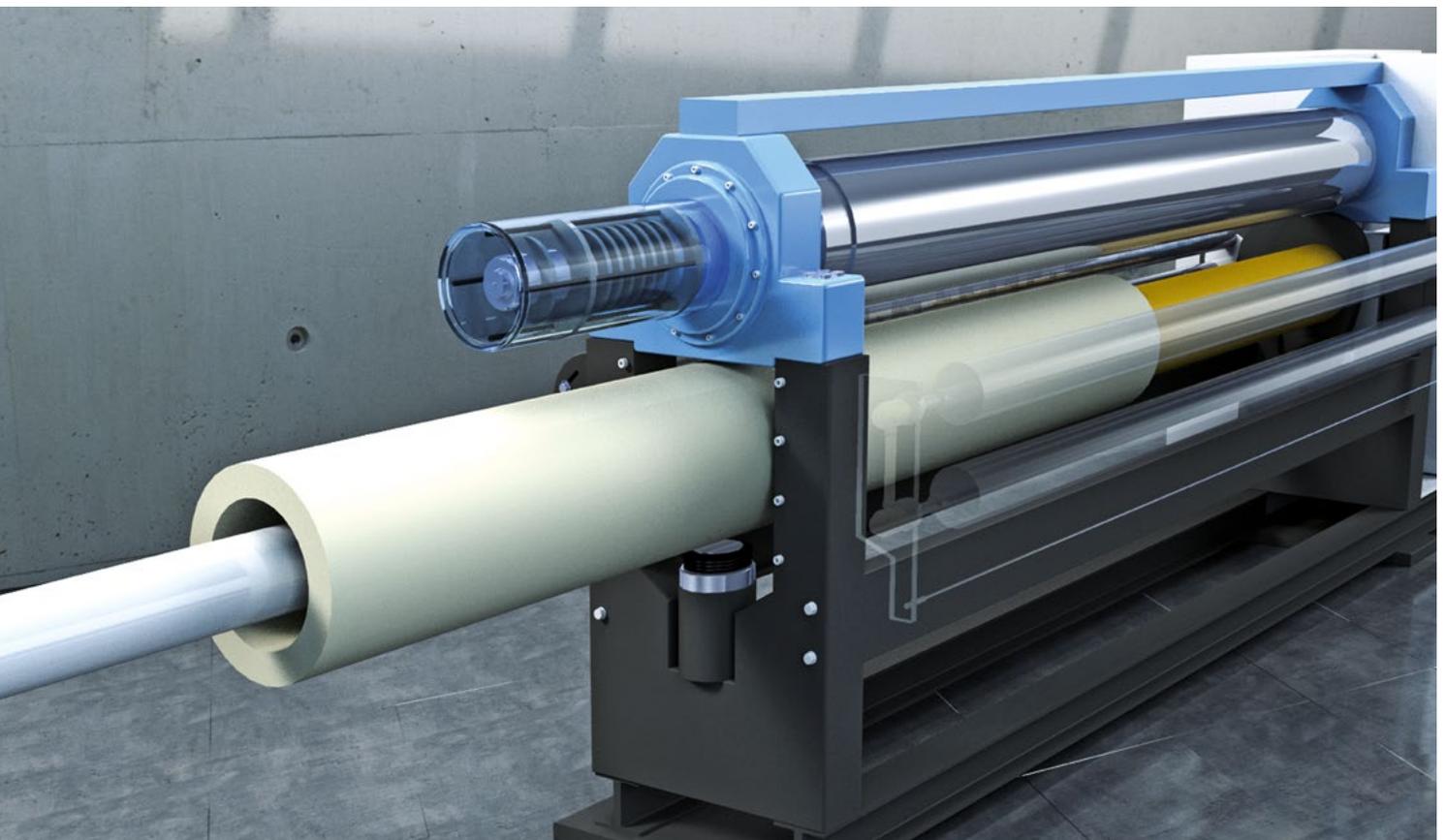


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YOUR BENEFITS

- Quick and easy sleeve change
- Various calendering effects
- Hardness level approx. 90 Shore D
- Maximized uptime



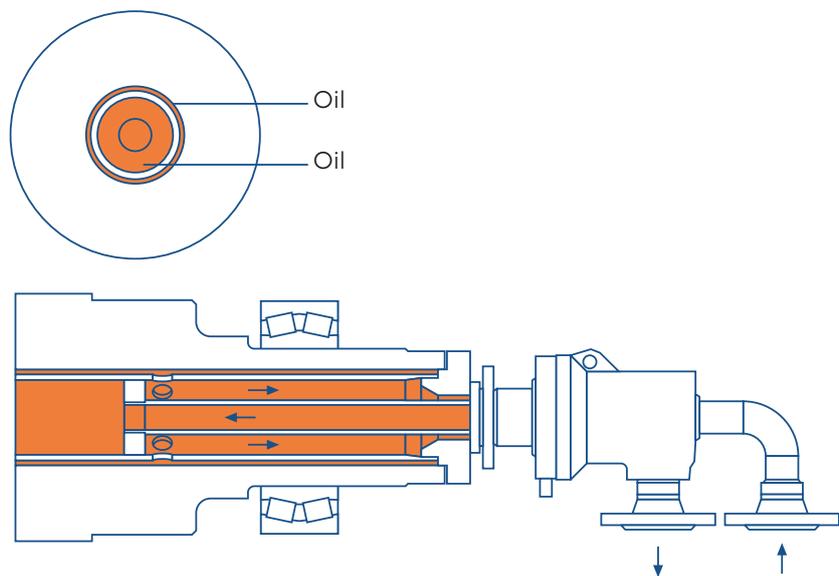
FlexRoll sleeve change

Heating systems

Two options for your calender: Depending on your regional conditions and demands, you can heat the steel roll in two different ways – with thermal oil or electrically generated steam. This ensures that you have the most advantageous option to reduce your energy costs.

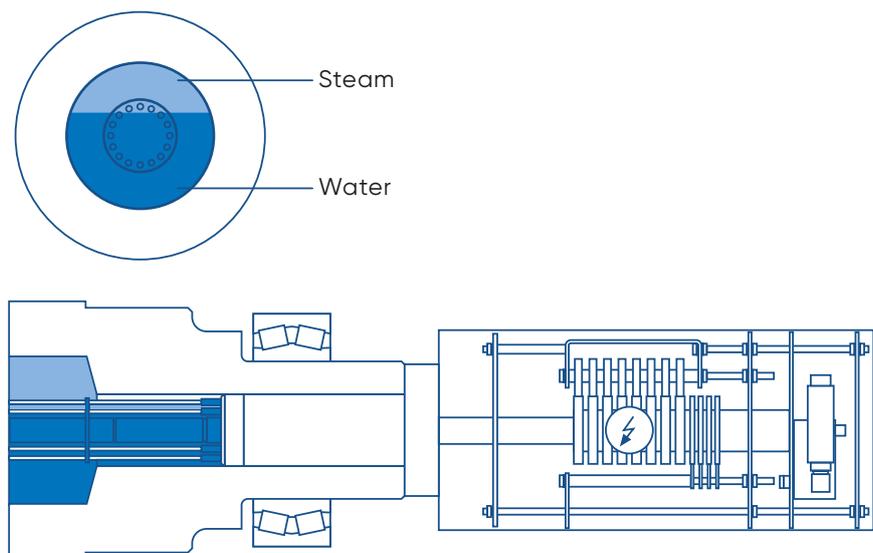
THERMAL OIL HEATING

- Counter-flow principle for optimum temperature distribution
- Max. roll surface temperature: 250 °C, for special applications even higher
- Temperature accuracy: ± 1.5 °C over the entire fabric width
- Quick cooling time due to heat exchanger in the secondary circuit
- Variable primary energy: electricity, gas, oil



ELECTRIC STEAM HEATING

- Large steam chamber for excellent temperature uniformity
- Highest energetic efficiency due to optimal roll wall thickness and large internal bore
- Max. roll surface temperature: 230 °C
- Temperature accuracy: ± 1.5 °C over the entire fabric width
- Short heating up time due to lowest heat loss
- Compact design and no need for peripheral components
- Plug and play





GET THE MOST OUT OF YOUR INVESTMENT

At ANDRITZ Nonwoven, we know that your business depends on satisfied customers and efficient processes. That's why we support you in every aspect of your nonwoven production. Take advantage of technology that lets you produce consistent quality for decades to come. Profit from the highly efficient use of energy and raw materials that our production provides. You can rely on our responsive service teams who will protect your investment and optimize your processes. Experience how innovative approaches and digital services give you more control than ever before. With ANDRITZ, the leading supplier for the nonwovens market, you get the most out of your investment.

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