Textile calendering
Solutions for every application

www.andritz.com/textile

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Tradition in innovation

Textile calendering is part of our DNA

Be it home textiles, technical textiles or traditional textiles, ANDRITZ Küsters offers 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.

Experience and expertise

With more than 3,500 textile calenders delivered, ANDRITZ Küsters is a well-known brand that stands for top performance, reliability, flexibility, and proven technology for every application. Gloss, density, smoothness, soft handle, silk finish, metallic printing, embossing, laminating, or any other finish can be applied with our textile calenders. We are the right partner for spot-on solutions that perfectly suit your needs.

The right partner for textile solutions

Our portfolio includes complete system solutions, single units, rebuilds, automation systems, and complete life-cycle services. These are designed to meet your needs in an ever more demanding market. Together we can design and innovate new technologies to create first-class textiles for any end use. Our top-quality technical center offers the widest variety of textile calenders and testing opportunities on the market. Development, design, consulting, and service – all from one source.

Core competences

ANDRITZ Küsters is currently the only supplier that can offer three different deflection-controlled roll technologies from one source. The technology set-up of the S-Roll, HyCon Roll, and Xpro Roll is our core competence, and all rolls are manufactured and tested at our facility in Krefeld, Germany, before delivery. We ensure top performance and ultimate flexibility.

1862 KKA Kleinewefers established

1949 R&D location for textile machinery

1953 Company established by EDUARD Küsters

1956 First Küsters patent: Swimming Roll

2002 Takeover of textile and nonwoven business of KKA Kleinewefers

2006 Acquisition by ANDRITZ GROUP: ANDRITZ Küsters

2012 Acquisition of ANDRITZ Wuxi, China

The all-rounder in textile calendering

ANDRITZ teXcal s-roll

Almost any application can be finished with our teXcal s-roll calender. From traditional textiles, like home textiles or clothing, to technical textiles, such as air-bag fabrics, the teXcal s-roll applies one effect with best possible results.

With a maximum line force of 400 N/mm, the teXcal s-roll benchmarks standards and opportunities for multiple use. Combined with a thermo-elastic, homogeneous polyamide FlexRoll Sleeve, the teXcal s-roll creates first-class effects.

Plug and play

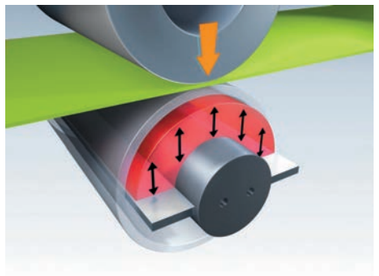
Thanks to its compact design, the teXcal s-roll takes up extremely little space, which means it can be shipped by container to the point of assembly without having to be dismantled beforehand. As it is fully pre-assembled, wired and functionally tested, the calender can be commissioned almost immediately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

Design 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
- Multicovering technology available
- Plug and play

Some final product applications

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



The expert in clothing and home textiles

ANDRITZ teXcal hycon L

Double your benefit in a single cycle. Two effects, like gloss and soft handle, especially suited for clothing and home textiles, can be achieved in one fabric passage.

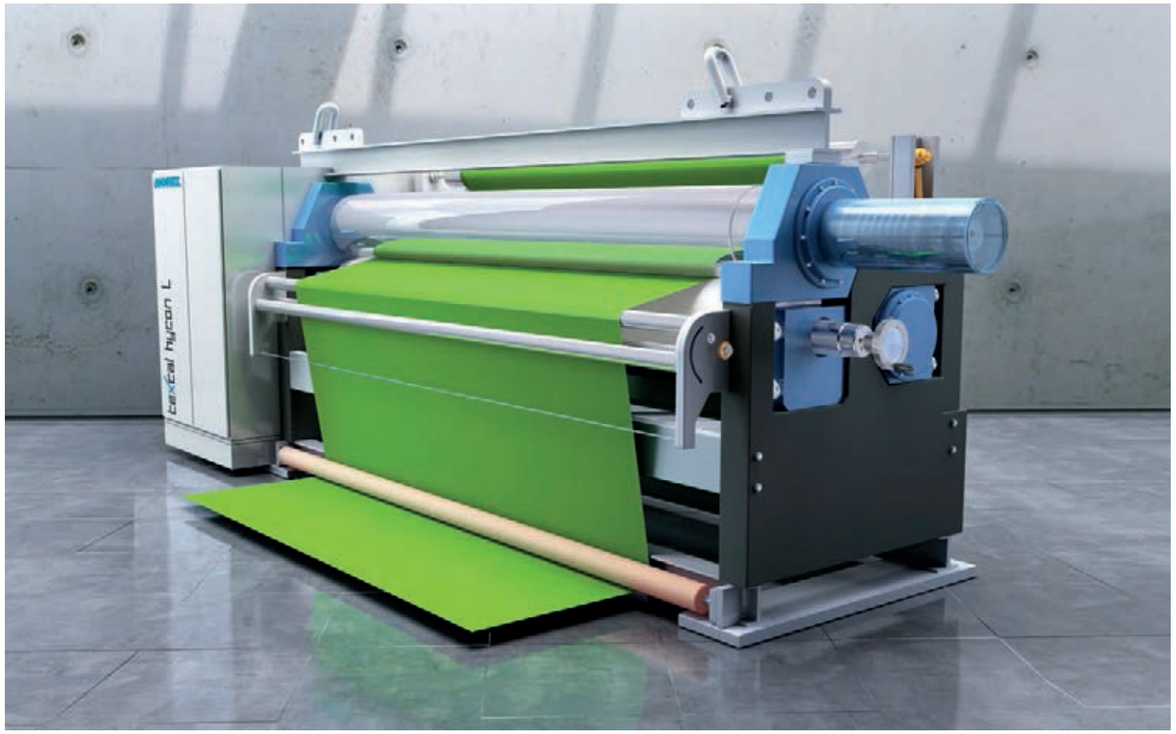
Soft handle and gloss are much requested effects in clothing and home textiles. The teXcal hycon L calender with its L-shaped roll arrangement and infinitely adjustable line forces in the top nip and rear nip provides not only this specific soft handle effect, but also a multitude of other effects, including smoothness and density.

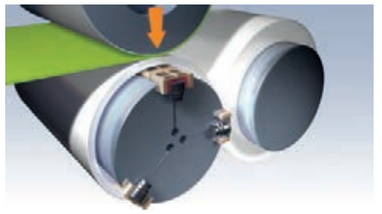
Design features

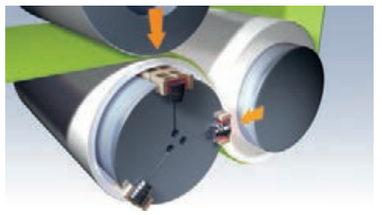
- Line force of 50-300 N/mm can be adjusted individually in each nip without stopping production
- Roll surface width of 1,800-3,600 mm (larger width possible for special applications)
- Adjustable pressing width to suit change in web width
- Thermal relief of the FlexRoll Sleeve alongside the web by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

Some final product applications

- Home textiles
- Shirting
- Knitted goods
- Linings







The revolution in technical textiles

ANDRITZ teXcal trike

This calender takes you a step ahead by maximizing flexibility with two independent nips. Fabric losses at the seam passage are minimized, providing a substantial economic advantage for your production operations. Be it parachute fabrics, sailcloth, sportswear, or down-proof textiles, our teXcal trike calender meets every application demand perfectly.

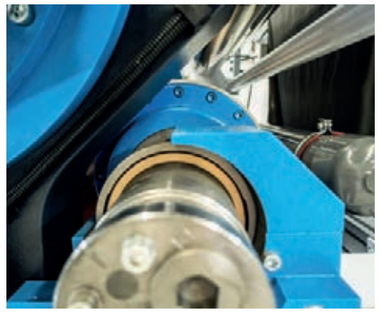
Besides being operator-friendly, calenders need to provide a high degree of flexibility, reproducibility, and process control. The patented teXcal trike meets these requirements ideally and sets new standards for sophisticated technical textiles.

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 individual pressure adjustment. Depending on the product, the fabric can be fed through the front nip, the rear nip, or both.

Design features

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



Some final product applications

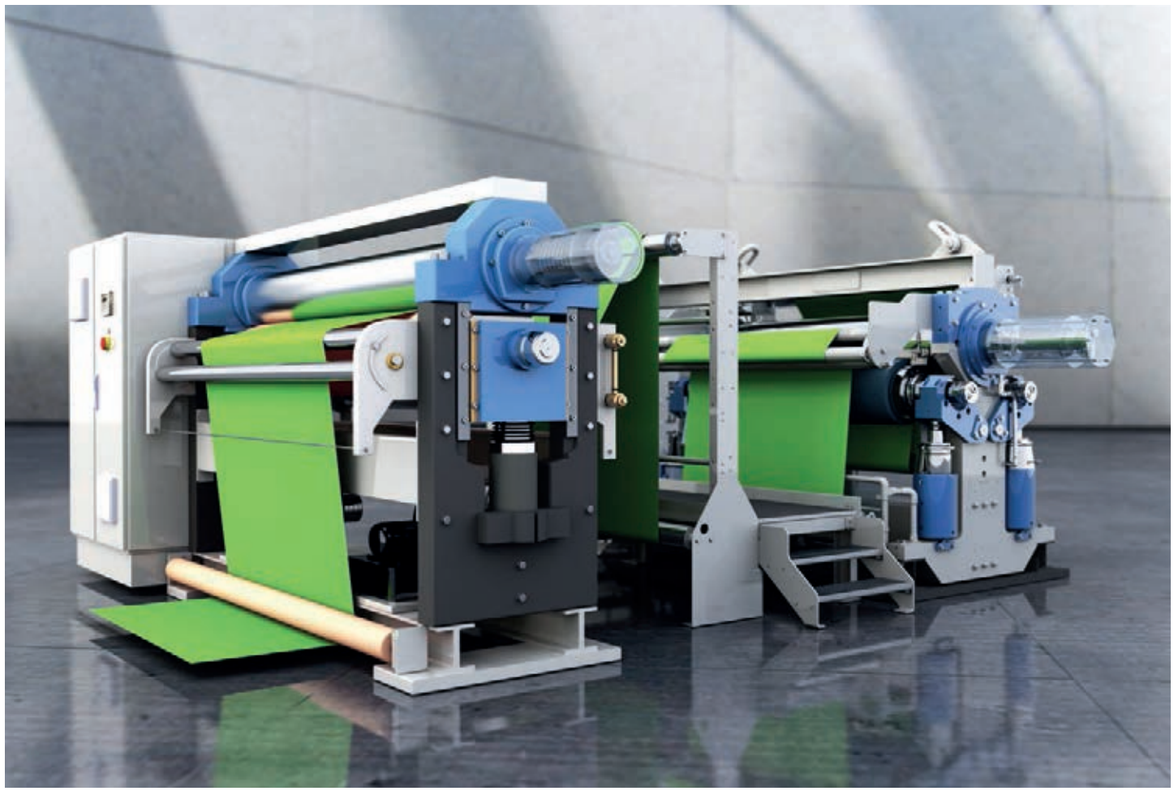
- Parachute fabrics
- Sailcloth
- Sportswear
- Packaging material
- Down-proof textiles

Tailor-made solution
Keeps you a step ahead

Our latest development takes you beyond today's standards.
Combine two ANDRITZ all-round calenders – teXcal s-roll and teXcal trike – and your options multiply. This system solution offers utmost flexibility in production and a unique finish for every end use.

As a leading textile industry supplier, our R&D concentrates on your requirements and competitive edge. Placing a teXcal s-roll in line with a teXcal trike allows you to produce a fabric with maximum flexibility when changing fabric width, speed, line force or finishing effect. One single calender or two calenders combined can ensure optimum results. Partner with ANDRITZ to set new benchmarks in textile finishing.

Some final product applications
- Technical textiles
- Traditional textiles
- African damask



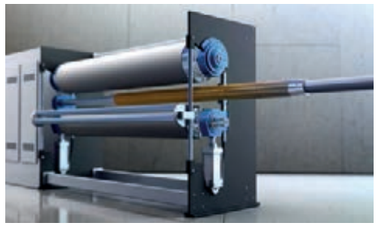
Special applications, special machines
Fulfill your special needs

Another focus lies on solutions for special applications and niche markets to generate highly sophisticated results. Special needs require a special solution, and we can provide the perfect technology to maintain your competitive edge.

Embossing specialist

For final products like velvet, plush, clothing and furnishing fabrics as well as fake fur, our teXcal embossing calender is the right solution, embossing flat and pile fabrics and applying transfer and metallic printing. Sleeves can be changed easily by using an embossing shell in the center position.

Some final product applications
- Automotive
- Wall coverings
- Upholstery



Master in textile crushing

The ANDRITZ teXcrush finishing system is frequently used after a stentering frame for breaking the finished web. The horizontally arranged rolls offer the best results for foam-treated blackout curtains, for example. Compact design and optimal material feed allows easy integration into any finishing line.

Some final product applications
- Blackout curtains
- Non-transparent curtains

Textile finishing system solution
One source, one partner

Guarantee a smooth process with our textile finishing system solution. Ensure your production operations are perfectly and continuously in tune, from unwinding to re-winding and all the necessary or optional peripheral equipment – all available from us.

Inlet

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

Outlet

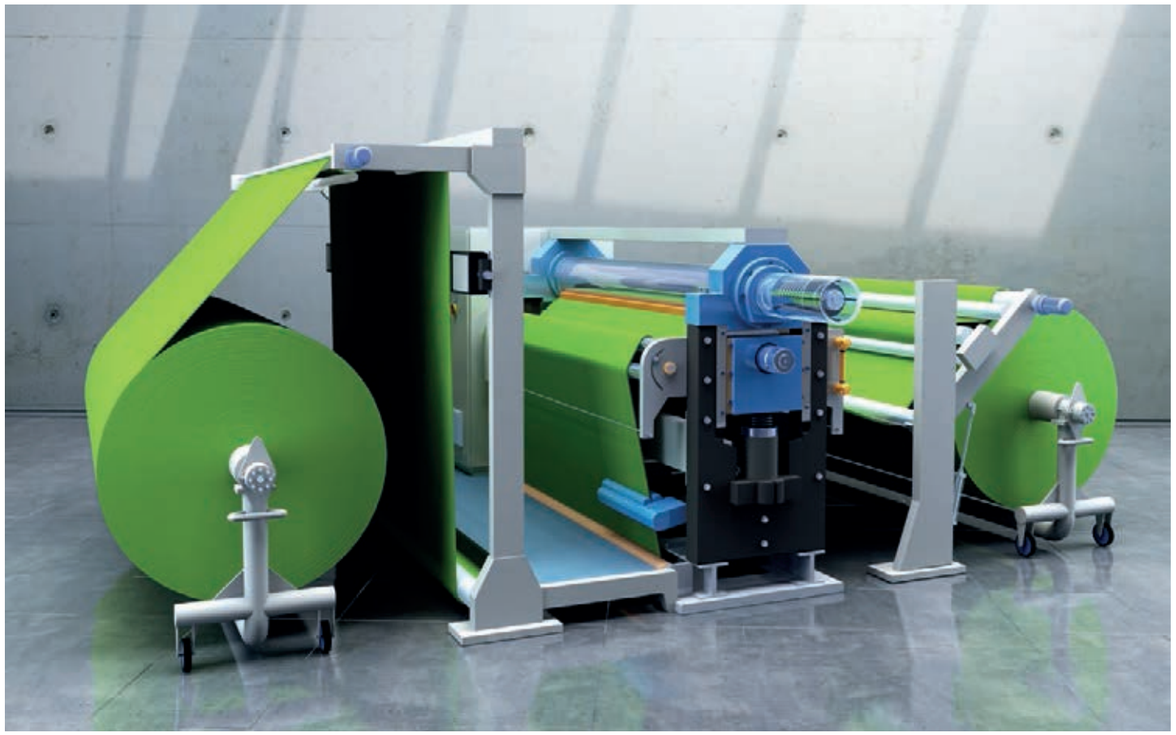
Our outlet equipment can include cooling rolls, a peripheral winder, ascending roll winder, a combination of winder and plaiter, center drives for delicate fabrics, an anti-static device, and inline gauges to measure thickness, air permeability, and so on.

Line control

Continious process control ensures 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.

Benefits

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



Quick and easy sleeve change
Multicovering technology

Add value to your production with our multicovering technology, and achieve various calender effects with quick and easy sleeve changes. As the only enterprise that delivers this outstanding technology, we ensure maximized flexibility and production time.

This pioneering invention allows a sleeve change without removing the roll or opening the hydraulic system. The steel tube is covered with a basic coating and a FlexRoll sleeve. Depending on the desired calender effect, production can continue with the basic coating or the sleeve. In addition, the FlexRoll sleeve is extremely robust and resistent to indentations like seams, weaving faults, and folds.

Benefits

- Quick and easy sleeve change
- Various calendering effects
- Hardness level 65-95 Sh D
- Maximized uptime

Process reliability through automation
teXmaster inline quality control

Optimize the quality of your product and minimize process errors.
Our teXmaster control system is the right choice to fulfill these demands.
Ensure top quality through automation.

To meet today's top-level textile production demands, we have taken a leaf from a proven technology in the paper industry: the teXmaster inline quality control system. Increase your production time in closed-loop operation for inline quality measurements on the product.

The calender is controlled entirely through this system, which offers a broad spectrum of possibilities for recording process data, managing recipes, issuing alarm signals, data analysis, and displaying trends.

How does this work?

A measuring sensor installed at the calender outlet measures the calendered fabric continuously, e.g. air permeability or thickness. Comparing set values with the current values, the teXmaster corrects such machine parameters as pressure, temperature, or speed automatically. Operator errors are minimized.

Benefits

- Process automation
- Closed-loop operation available
- Simple configuration
- Maximized uptime

Long-standing expertise in roll technology
ANDRITZ Swimming Roll (S-Roll)

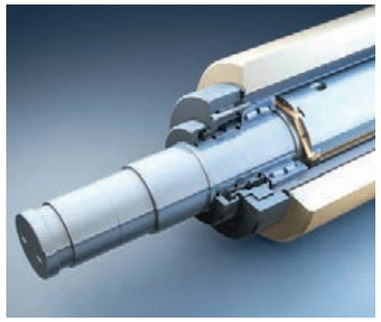
As the first deflection-controlled roll in the world, the S-Roll revolutionized calendering technology and is designed for a wide range of applications to ensure best results.

An almost unlimited number of applications can be finished with our S-Roll. Maximum flexibility and highest quality is ensured by our in-house manufacturing. Continuous R&D adapts and optimizes the S-Roll to meet every demand of the textile market.

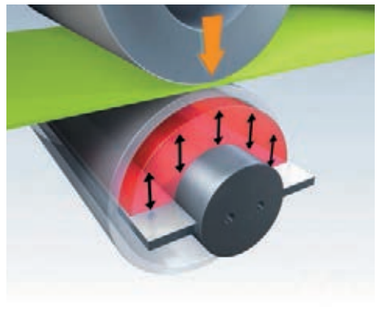
Features
- Hydraulic pressure chamber
- Variable adjustment of fabric width
- Variable line force
- Correction: left – center – right
- Line force: 30-400 N/mm
- Quick and easy sleeve change
- Multicovering technology possible

Take a peek behind the scenes

The roll is designed to follow the bending of the counter-roll and achieve maximum flexibility for your production. This allows rolls to be absolutely cylindrical and avoids 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.

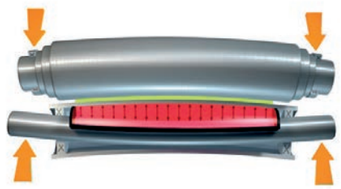


▲ S-Roll insight



▲ S-Roll principle

▲ Increased line force in center



▲ Even line force at full fabric width

▲ Increased line force at the edges

Hydrostatic deflection control
ANDRITZ HyCon Roll

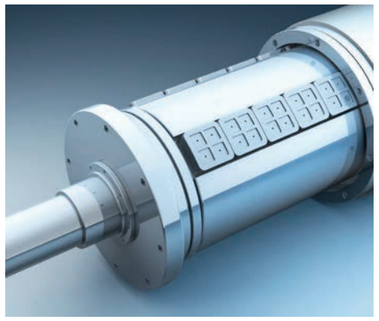
Contrary to the Swimming Roll, the HyCon Roll has hydrostatic pistons for deflection control. This is necessary when two different effects, like gloss and density, need to be created in one fabric passage.

Adding yet another benefit while increasing flexibility in production, the roll controls the line pressure in both nips independently. Manufacture of our rolls and sleeves in-house ensures highest quality control.

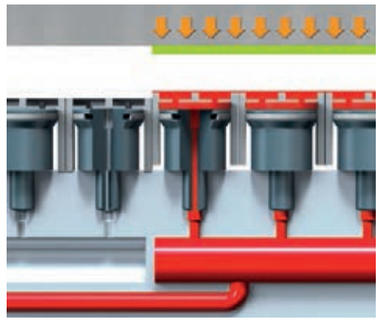
Features
- Piston control
- Variable adjustment of fabric width
- Variable line force
- Two independently adjustable effect nips
- Retraction of piston for edge relief
- Line force: 50-300 N/mm

Uncover the secret

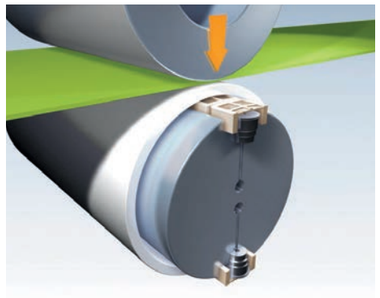
The rotating polyamide FlexRoll Sleeve of the deflection-controlled roll is supported on hydrostatic elements (pistons). The uniform, infinitely adjustable line force is transmitted to the FlexRoll Sleeve via an oil film. The pressure width can be adjusted by switching the supported elements on and off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



▲ HyCon L insight



▲ Schematic of support elements (pistons)



▲ HyCon I principle

▲ Roll retraction at full fabric width

▲ Roll retraction at narrow fabric width

Ultimate profile control
ANDRITZ Xpro Roll

Absolute flatness, highest quality, and air permeability are vital in technical textiles, like sailcloth or parachute fabrics. Highest flexibility is achieved with our proven Xpro Roll technology, providing unrestricted profiling over the entire fabric width.

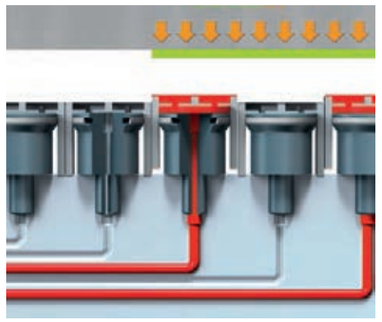
Quality tolerances are shrinking and market needs are increasing every day. This is the reason why we have adapted our own, proven roll technology, which has long been established in the paper industry, to meet the requirements in the production of technical textiles.

Features

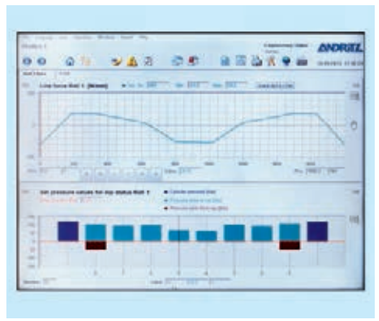
- Ultimate piston control
- Single piston adjustment for profile setting
- Variable adjustment of fabric width
- Variable line force
- Quick and easy sleeve change
- Line pressure: 50-400 N/mm

Unfold the truth

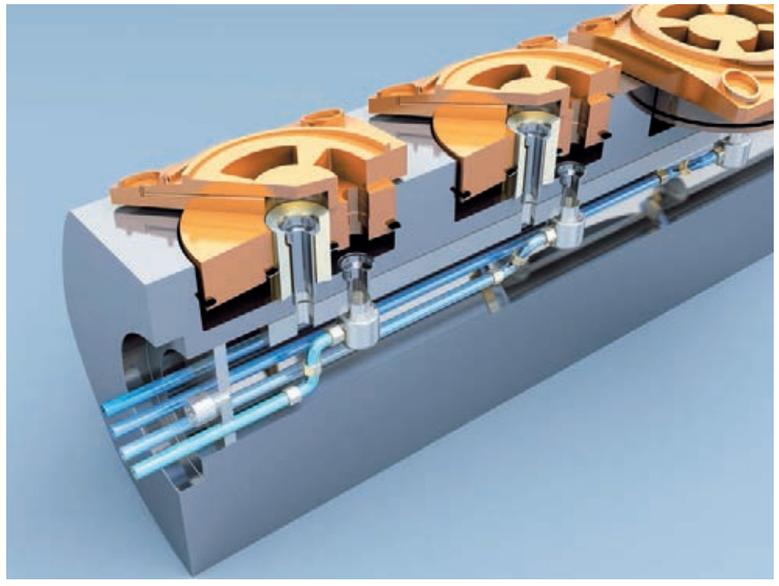
The line force can be varied infinitely from a minimum of 50 N/mm to a maximum of 400 N/mm via the individual elements. In addition to the flexible fabric width adjustment, this technology offers precise adjustment of each piston individually. When combined with our teXmaster quality control system, this achieves the ultimate in profile control.



▲ Schematic of support elements (pistons)



▲ Xpro Roll touch panel

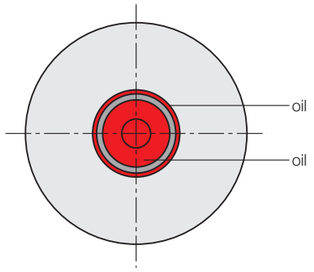


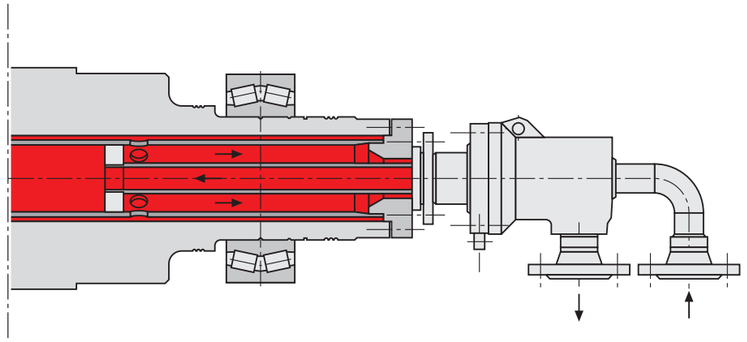
Heating systems
Two options for your calender

Depending on your regional conditions and demands, you can heat the steel roll in two different ways – with thermal oil or electrically generated steam. We take your energy costs into account to determine the most advantageous option for you.

Thermal oil heating

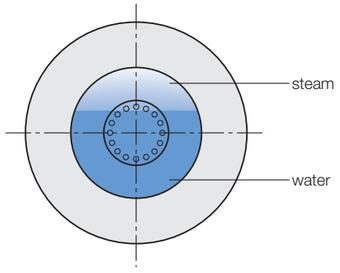
- Counter-flow principle for optimal temperature distribution
- Max. roll surface temperature: 250° C
- Temperature accuracy: ±1.5° C over the entire fabric width
- Quick cooling down time due to heat exchanger in the secondary circuit
- Variable primary energy: electricity, gas, oil

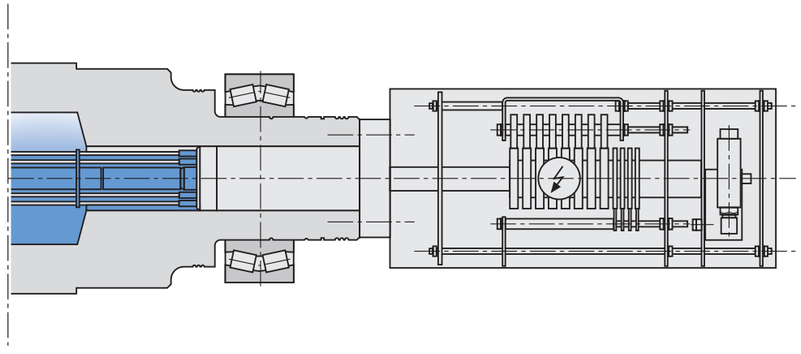




Electric steam heating

- 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





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 fall back on more than 150 years' experience and expertise.

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 the best and unique know-how based on our installed base and continuous R&D.

Responsive service

We provide the best technology and round the clock service support for top performance. Your process value is guaranteed long after the warranty period has expired with ANDRITZ Küsters as your partner.

Reliable and prompt

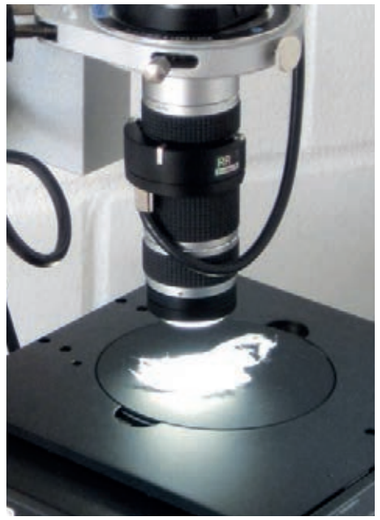
Our highly trained field and service engineers as well as our 24/7 hotline ensure best and prompt support. With our worldwide service centers, we are close to where you are – prompt and reliable.

Technical center

The state-of-the-art installations at our technical center in Krefeld 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.

Service activities

- Answers to technical queries
- Assistance with installation, operation, and maintenance
- Preventive maintenance through regular online diagnosis and service recommendations
- Quick response
- Well stocked genuine spare parts
- Possibility of upgrades or modernization work to improve your production



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