



**PULP & PAPER**

# **FROM SINGLE COMPONENTS TO COMPLETE PAPER MILLS**

**FULL-LINE TECHNOLOGIES AND VALUE-ADDED SERVICES**

**ANDRITZ**

**ENGINEERED SUCCESS**



**ENGINEERED  
SUCCESS**

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# ANDRITZ paper mill capabilities – all from one premium brand

One simple message states our brand promise to our customers, our shareholders, and our employees alike and portrays what ANDRITZ stands for: ENGINEERED SUCCESS.

ANDRITZ is a leading global supplier of complete plants, systems, equipment, and comprehensive services for the production and processing of all types of pulp and paper.

From stock preparation to the reel, including paper, board and tissue machines, air and energy systems, fabrics and rolls, automation, pumps and comprehensive services – we deliver solutions for complete lines and single components.

Benefit from our vast know-how and global experience as well as from our worldwide service network.

Innovative technology, extensively tested in our pilot plants, goes hand in hand with profound process knowledge. With ANDRITZ, you have ONE partner to meet your challenges in papermaking.

ONE ANDRITZ for your ENGINEERED SUCCESS.



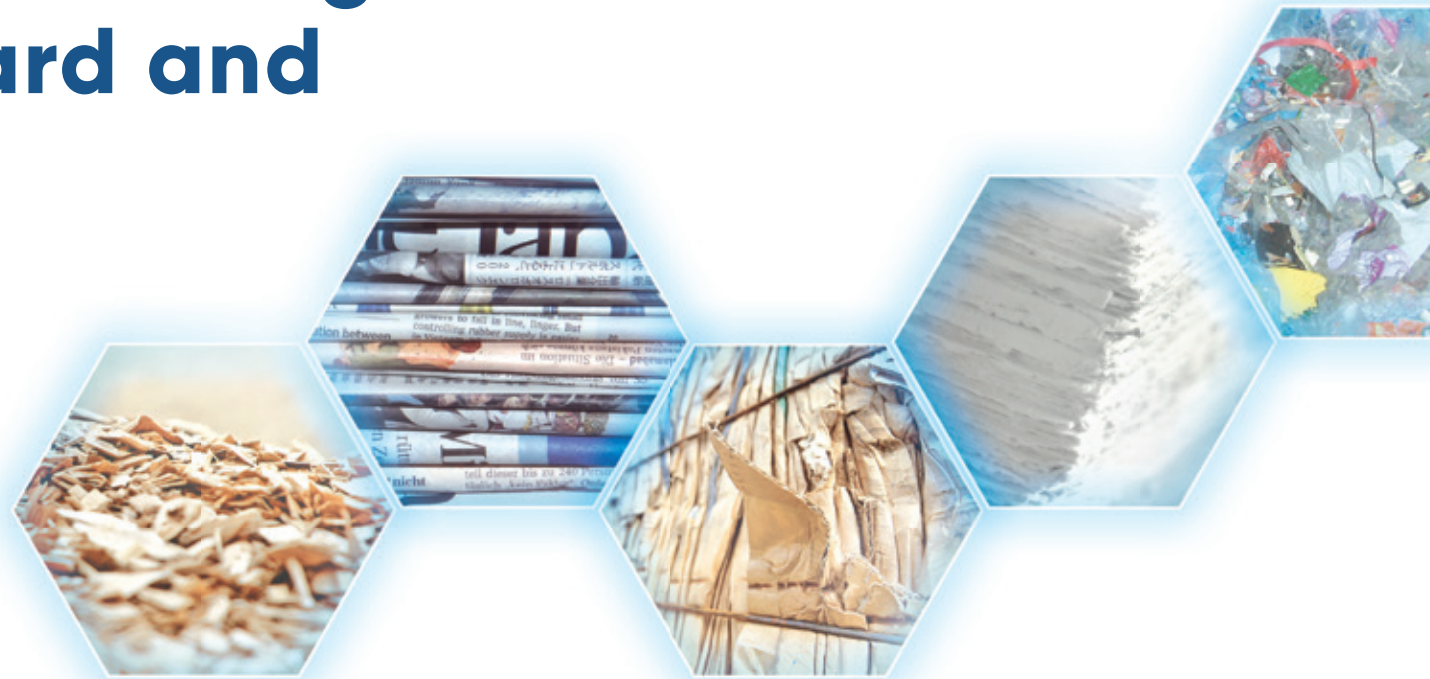
**We drive the success of our customers through innovative and quality engineering and services, and we form strong and sustainable relationships.**





# Superior fiber processing for all paper, board and tissue grades

ANDRITZ knows how to meet the challenge of enhancing fiber quality with economical use of resources and offers complete mechanical pulping and fiber preparation systems comprising highly efficient equipment in every process step.



## GET THE BEST SYSTEM FOR YOUR VIRGIN OR RECYCLED FIBER LINE

Full-line capabilities in processes and equipment

Innovative design in best product quality – for highest efficiency and reliability to increase pulp quality

Efficient components with low energy consumption result in lower operating costs

Systems and units with highest availability, as well as shortest maintenance and downtimes

Lowest possible impacts on the environment – high reject consistencies are utilized to save on drying and disposal costs



### MECHANICAL PULPING SYSTEMS

ANDRITZ P-RC APMP technology for superior chemical-mechanical hardwood-based pulps

ANDRITZ ATMP (Advanced Thermo Mechanical Pulping) technology for enhanced fiber development of softwood pulps at reduced energy consumption

Semi-chemical pulping lines and special processes for annual fiber processing



### RECYCLED FIBER SYSTEMS

Full range of recycled fiber technologies for the production of excellent stock for various paper grades

Modern deinking lines meeting the most stringent requirements for the final stock quality (brightness increase, reduction of stickies and dirt specks)

State-of-the-art systems processing low-quality waste paper to produce high-quality packaging grades



### STOCK PREPARATION AND PMA SYSTEMS

Integrated stock preparation and approach flow systems for the production of all paper and board grades

Key equipment for every process step – from bale pulping through screening, cleaning, refining, thickening, deflaking, and fiber recovery

Innovative machine concepts for highest efficiency and availability at low energy consumption and minimum impact on the environment



### SLUDGE AND REJECT TREATMENT SYSTEMS

Extensive system competence for sludge and reject treatment process technology

Key unit equipment from fiber recovery, shredding, separation, fractionation, and thickening to drying and pelleting

Waste-to-value processes, converting rejects and mill waste into renewable energy and valuable by-products – thus helping to improve a mill's profitability



# World-class tissue machines and key components with innovative features

ANDRITZ is an experienced and proven partner to the global tissue machine industry.

## EXPERTS IN TISSUE

Through continuous development and project experience around the globe, we offer world-class tissue machinery and components with innovative features.

Experience at production speeds exceeding 2,000 m/min, high-quality paper grades as well as advanced solutions to reduce overall energy consumption form the basis of our offerings.

There is increasing pressure for tissue producers to improve efficiencies and reduce consumption of energy. ANDRITZ has solutions which are innovative, efficient,

and minimize the consumption of resources – without compromising on product quality.

*PrimeLine* tissue machines are available in various configurations for the production of high-quality dry-crepe, textured, and structured (TAD) tissue. Key components like the ANDRITZ shoe press, steel Yankee and heat recovery steam generator help to save resources and costs.

In addition, these key components are ideal for rebuilds and modernization projects.



*PrimeLine*TIAC tissue pilot plant in Graz, Austria



Textured tissue from ANDRITZ



Textured tissue with a quality superior to dry-crepe and very close to structured (TAD) tissue

## **PrimeLine**TIAC – TISSUE INNOVATION AND APPLICATION CENTER

The tissue pilot plant is located in Graz, Austria, and comprises a complete, state-of-the-art tissue production line, including laboratory facilities for tests and trials to develop new products and processes in the tissue sector. It offers utmost flexibility for the production of conventional, textured, and structured (TAD) tissue.

The pilot machine features various configurations that are also available on the market as single-machine concepts. This means customers can run extensive trials with what could potentially be their future machine configuration.

With a design speed of 2,500 m/min and a sheet width of 600 mm, the machine can be operated with either a suction press roll or a shoe press, a regular CrescentFormer or a vertical CrescentFormer, and with a 16 ft. steel Yankee or two 14 ft. TAD drums.

The *PrimeLine*TIAC has its own complete stock preparation line together with the approach flow system. Many different kinds of pulp can be processed in one production line, which is split into a separate short fiber and a long fiber line. In addition, all units are available in small industrial scale, creating an excellent environment for best possible fiber treatment and tests according to the individual needs of customers and products.

The Metris *PrimeControl* E automation hardware and software developed by ANDRITZ provides utmost flexibility in monitoring and controlling the various machine configurations as well as the stock preparation system, including alarm management, online documentation, and eco-monitoring for example.

Custom-tailored pump solutions convey stock suspensions with the required consistencies in all production stages. The pumps are equipped with sensors to obtain detailed measurements and provide precise pump control and regulating.

## **LATEST INNOVATION:** **NEW MACHINE FOR TEXTURED TISSUE**

The new *PrimeLine*TEX tissue machine enables customers to produce textured tissue of a quality superior to dry crepe and very close to structured (TAD) tissue, while at the same time achieving significant cost savings. The machine offers up to 25% fiber savings compared to dry crepe and consumes up to 50% less energy than a TAD machine.

The new *PrimeLine*TEX machine configuration is a result of the *PrimeLine*TIAC research and development activities.



# High-tech solutions for efficient paper and board production

ANDRITZ offers full-line paper, board and specialty paper machines for high-quality paper grades. Mills can obtain a complete paper production line from one integrated supplier.

## **PrimeLine PAPER AND BOARD MACHINES: RESOURCE EFFICIENCY AND HIGH QUALITY**

PrimeLine paper and board machines are flexible and reliable machines that incorporate both experience and innovation for the production of high-quality paper and board.

Each PrimeLine component has its unique strengths and innovations. Combined, they create state-of-the-art paper and board machines. ANDRITZ supplies complete paper and board production lines including project management and basic/detail engineering,

auxiliary equipment, electrification and control systems, start-up assistance, training, and after-sales service.

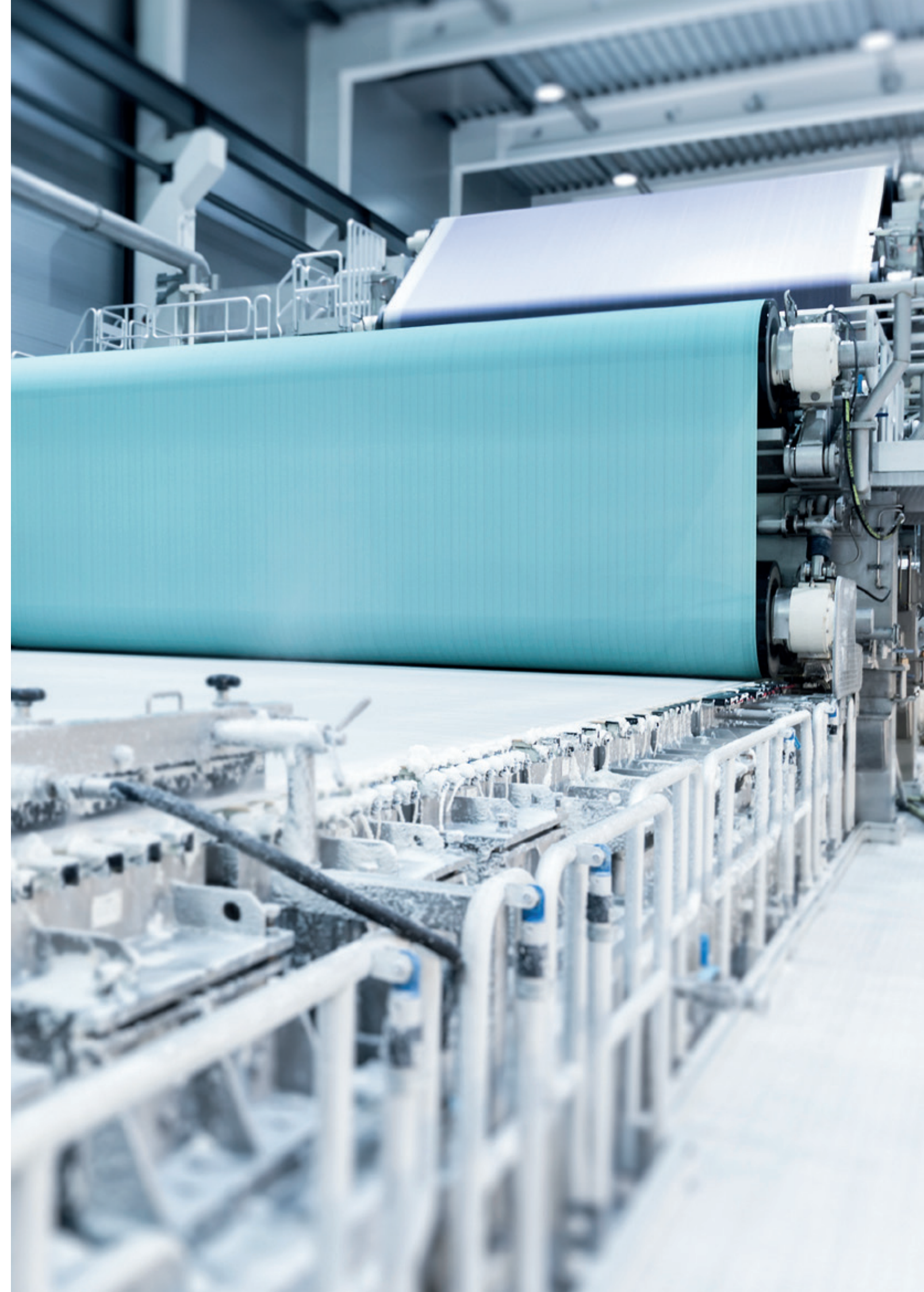
Our core PrimeLine components are designed to work in two ways: stand-alone as part of an upgrade to existing machinery, or fully integrated to create a new, state-of-the-art machine.

## **PrimeLine PAPER AND BOARD MACHINES: MAIN KEY COMPONENTS AT A GLANCE**

- **PrimeFlow headbox**  
Highly efficient turbulence generation for optimum formation over a wide range of flows and consistencies.
- **PrimeForm TW gap former**  
Optimized design delivers excellent paper quality and uniformity.
- **PrimePress XT Evo shoe press**  
Increasing production with reduced drying energy.
- **PrimeDry Steel Yankee**  
High-performance drying cylinder that is made entirely of steel. It offers greater safety and better machine performance compared to cast iron models.



ANDRITZ delivers PrimeDry Steel Yankees with diameters of up to 26 ft.





# Energize your mill with ANDRITZ Novimpianti

ANDRITZ and Novimpianti have become one, enabling you to energize your mill with proven air and drying systems for innovative tissue production.

## WHEN TISSUE MACHINE EXPERTISE AND PASSION FOR DRYING INNOVATION MEET EACH OTHER

ANDRITZ Novimpianti, located in Lucca, Italy, is one of the leading suppliers of drying and ventilation equipment for all kinds of paper machines.

Novimpianti S.r.l. was founded in Lucca in 1983 to design and realize air and energy solutions for tissue and paper machines. Over the past 35 years, Novimpianti has installed around 700 air and energy systems in more than 50 countries.

Novimpianti Drying Technology has been part of the ANDRITZ GROUP since June 2018. Combining Novimpianti's products and expertise with the experienced ANDRITZ paper and tissue team means customers have a superb range of engineered solutions for productivity, quality and sustainability.

## PRODUCT RANGE FOR AIR AND ENERGY

The product range includes high-temperatures hoods for tissue and MG (machine-glazed) machines, heat

recovery systems for heating process air as well as steam generators and dust removal systems for tissue machines and converting lines.

In addition, ANDRITZ Novimpianti acts as supplier to the paper and board industry and provides steam systems for corrugators.

ANDRITZ Novimpianti will provide exhaustive support for its customers' future developments as it will build up and drive innovation for air and energy systems with focus on reducing energy and operating costs.

Customers can benefit from the combined expertise, achieving continuous improvement in productivity, competitiveness and sustainability.





# ANDRITZ Fabrics and Rolls: Innovative fabrics, felts, rolls technology and services

The former Xerium brands Huyck Wangner, Weavexx, Stowe Woodward, Xibe/Stowe, Mount Hope, Robec, IRGA, JJ Plank and Spencer Johnston have joined ANDRITZ Kufferath to form ANDRITZ Fabrics and Rolls.

## THE PERFECT FIT: ANDRITZ AND XERIUM

In the pulp and paper industry, the name Xerium is synonymous with high-quality consumable products used in the paper, board, and tissue industries. It is also a well-known supplier to pulp drying plants around the world. In fact, for ANDRITZ and its vast portfolio of superior technologies supplying all those industries above, it is the perfect fit.

The result of this integration is that ANDRITZ becomes a full-line supplier of paper machine clothing and roll services for the global pulp and paper industry as well as other process industries.

Becoming a full-line supplier means that existing customers of both Xerium and ANDRITZ Kufferath products and services can be assured of a greater choice of advanced technologies and services. The new combined company delivers the industry's best forming fabrics, press felts, dryer fabrics and roll technology for all paper grades and machine designs.

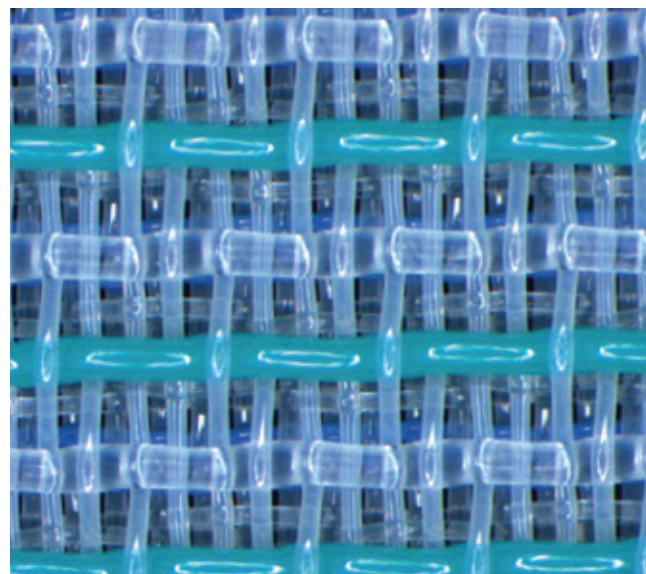
With the innovative product portfolio of patented fabrics, felts, belts, roll covers, SMART™ Technology machine automation systems, spreader rolls, and mechanical services, ANDRITZ Fabrics and Rolls provides the pulp and paper industry with tailored solutions designed to optimize the performance of production equipment and reduce its operating cost.

## NEW TISSUE FORMING FABRIC: INCREASED QUALITY AND BETTER RUNNING TIMES

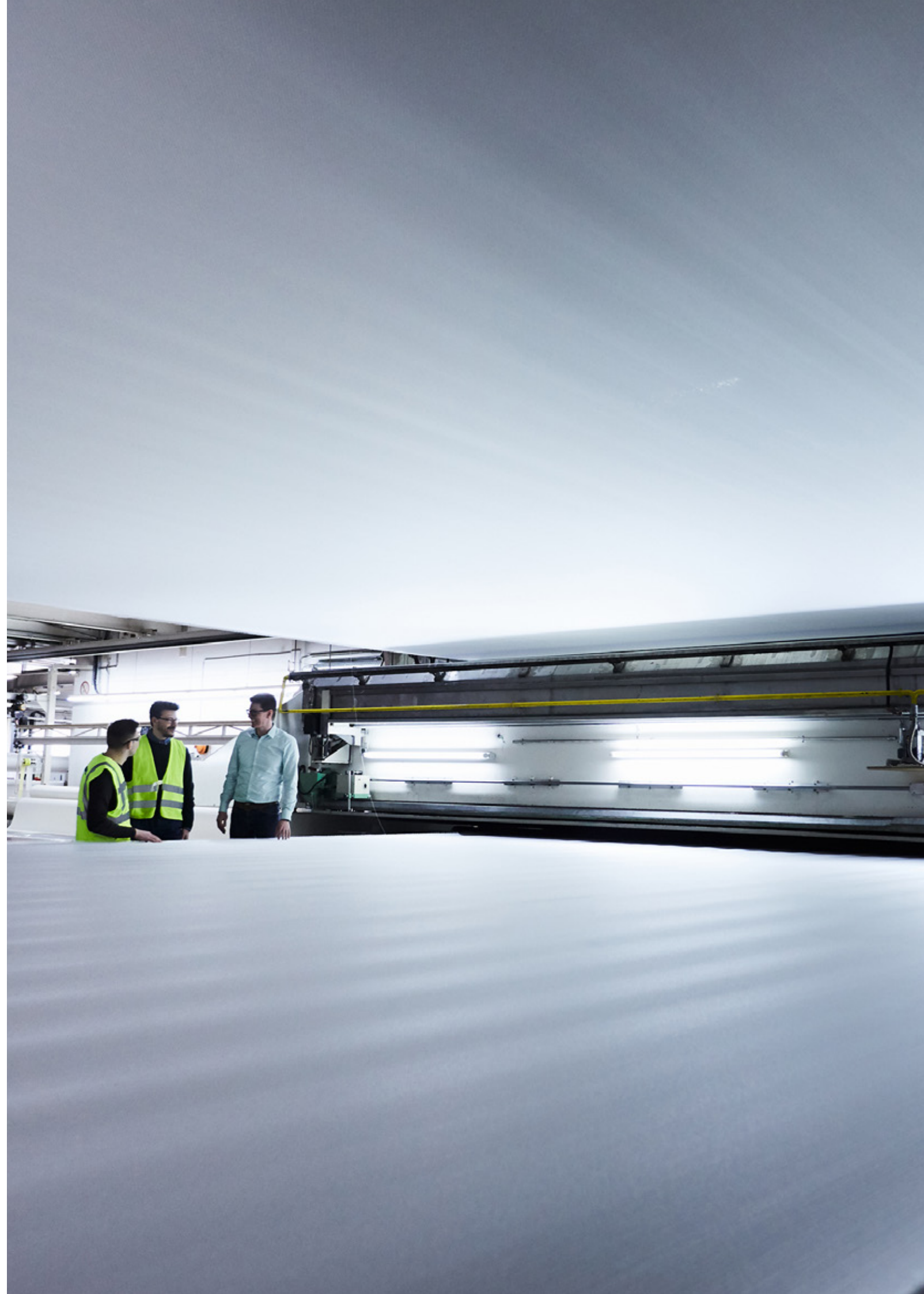
ANDRITZ Fabrics and Rolls has developed a new forming fabric portfolio with plain weave paper-side structure and improved dimensional stability as well as the lowest caliper in the tissue market. The latest technology called QSB (Quattro Support Binder) can now be applied to this new tissue product line.

The patented QSB forming fabric design allows producers to improve tissue product quality and machine performance. It has already been tested successfully at the ANDRITZ Tissue Innovation and Application Center (TIAC) in Graz, Austria.

The new, patented tissue design, with its increased number of binding points, offers improved cross-dimensional fabric stability compared to conventional forming fabric designs. The result is reduced internal fabric wear and allows up to 15% longer running times on the machine. The improved co-planarity and fabric stability lead to significantly improved resistance to high-pressure shower damage. New monofilament material compositions and the re-engineered top fabric design reduce fabric wear and enhance energy-saving potentials.



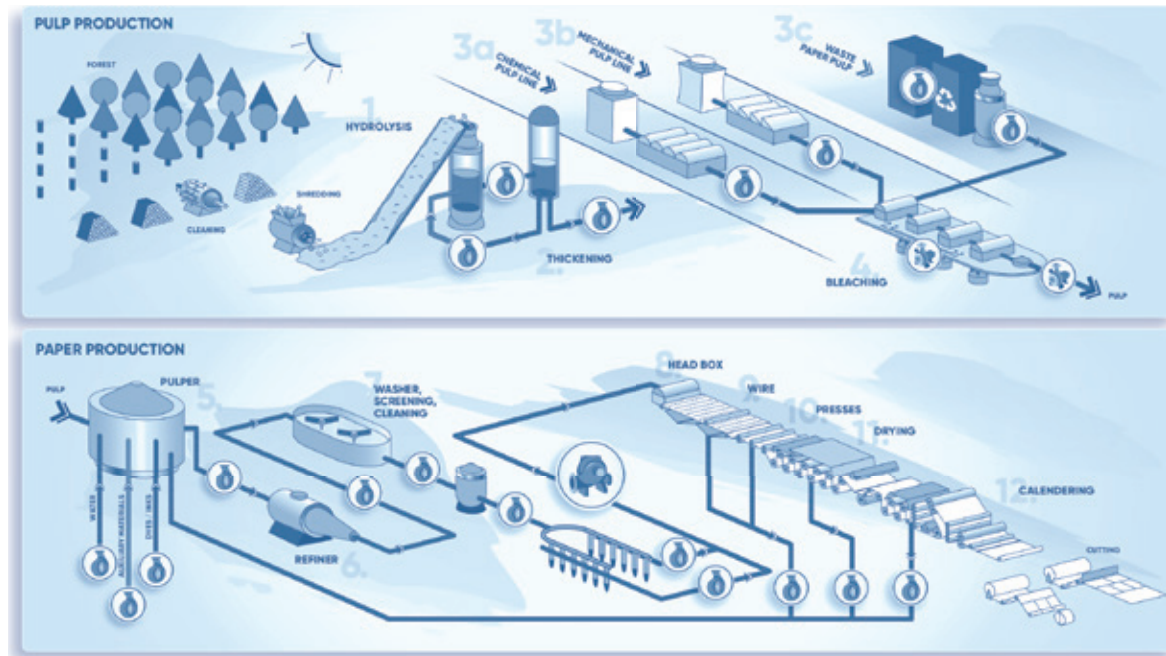
*New tissue forming fabric with patented QSB design from  
ANDRITZ Fabrics and Rolls*





# Premium pumping technology for the paper industry

As plant and equipment supplier to the pulp and paper industry, ANDRITZ has acquired broad expertise in the related process technologies.



## CENTRIFUGAL PUMPS

These are used as process pumps in many different areas of pulp and paper mills. They pump suspensions at consistencies of up to 8% b.d., offer high efficiencies of up to 90%, and convince customers with their service-friendly and modular design. These pumps are also available with an additional degasser if the medium to be pumped has a high gas content.

## DOUBLE-FLOW PUMPS

Double-flow pumps have been optimized for use in the pulp and paper industry as headbox or cleaner pumps. They feature efficiencies of over 90% and low pulsation due to the offset rotor blades developed especially for the pulp and paper industry.

## MEDIUM-CONSISTENCY PUMPS

These pumps convey the following media: chemical and mechanical pulp as well as secondary fibers with consistencies of up to 16% b.d. and efficiencies of up to 74%. In most applications, they can be operated without an internal or external vacuum pump.

## SELF-PRIMING CENTRIFUGAL PUMPS

These pumps convey media with a high gas content. Thanks to the semi-open impeller, they are also well suited to conveying viscous media and media containing solids.

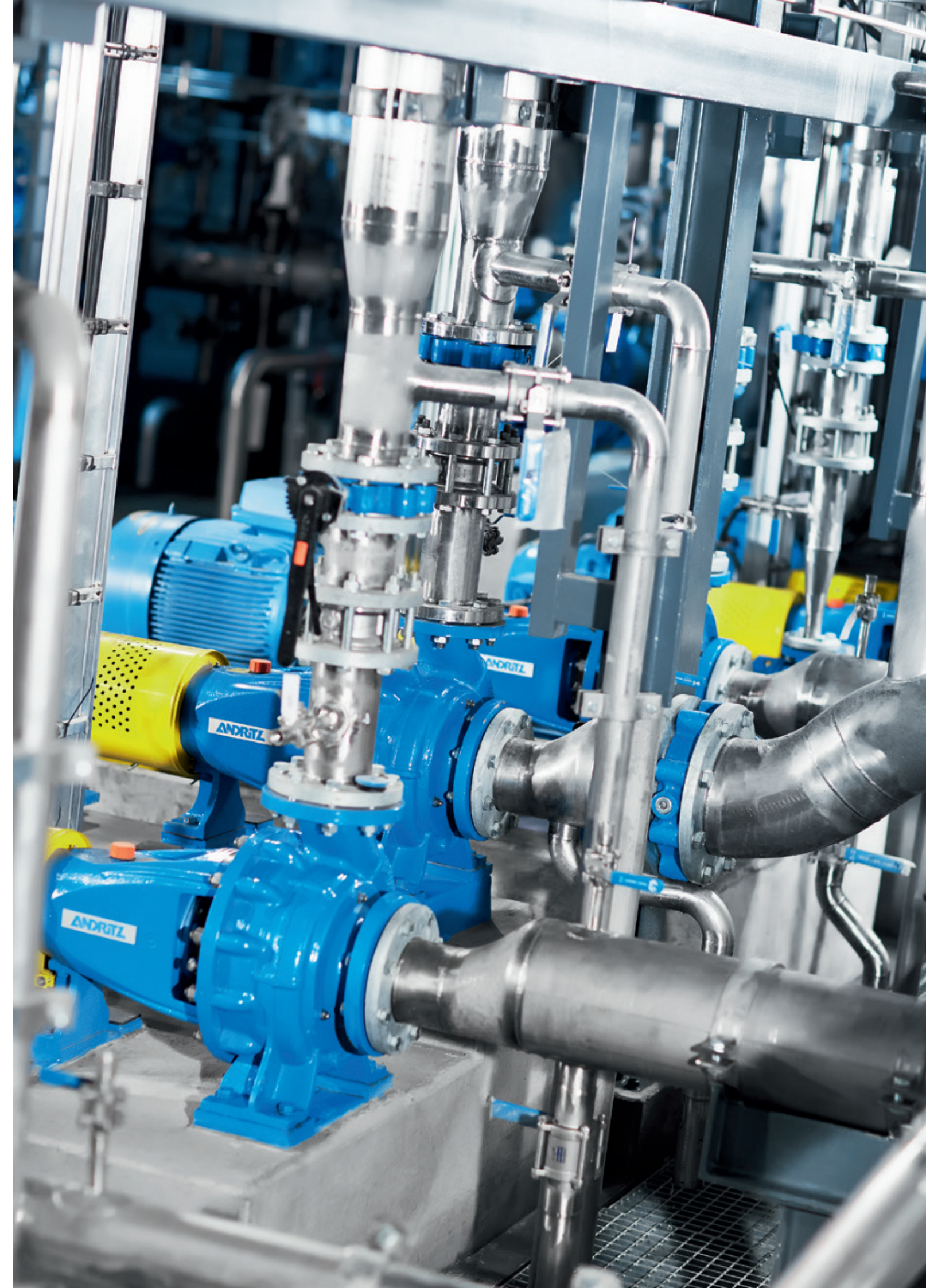
## SUMP PUMPS

Sump pumps convey water, waste water, pulp suspensions, slurries containing solids, and abrasive media.

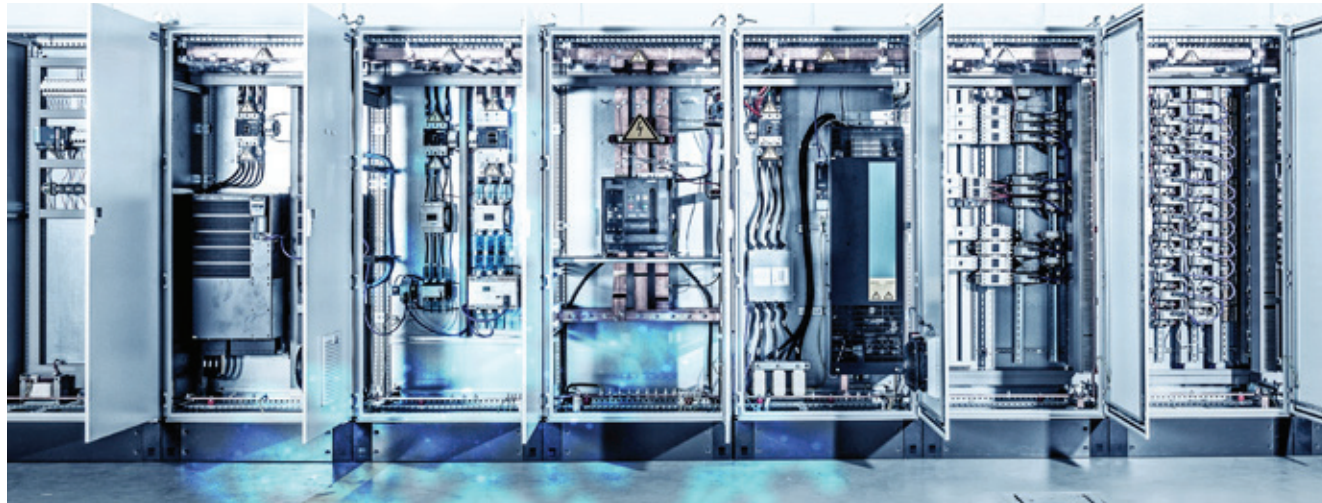
## THE ADVANTAGES AT A GLANCE

Complete pumps program for the entire pulp and paper industry

- Efficiencies of up to 90%
- Consistencies of up to 16%
- Long life cycles
- Highly cost-effective
- Good NPSH values







# Automation solutions: Process-specific or complete turnkey installations

Control, automation, and optimization are handled with a multi-disciplinary and holistic approach. All solutions are fully integrated to enhance operations, maintenance, information delivery and quality assurance.

Modern mills require a very high degree of automation to monitor and control the flows, valve technology, machinery, drives, on-machine quality, speeds, throughput, and other important aspects of paper and board production. Systems with the flexibility to monitor and control everything from stock preparation to paper finishing are very important.

With over 110 different ANDRITZ Automation locations all around the world, the portfolio comprises both project concepts and execution throughout operations, starting with pre-feasibility studies and front-end engineering of controls, electrical and power systems engineering followed by estimating, scope development, and value engineering. This also includes project management, erection work, start-up and operator training and continues with maintenance and engineering work for expansion and improvement projects.

## TURNKEY CAPABILITIES

The turnkey approach is interdisciplinary, closely linked with process design and using well-maintained templates and consistent design data for plant engineering and framework supply. With plant control systems, simulation and advanced control tools, automation ex-

perts help paper plants to become operationally ready within a short start-up period through comprehensive process know-how and pre-tested components. The close cooperation between automation experts and other business areas consolidates the concentrated process knowledge that creates significant advantages and customer-focused solutions.

## INCREASE IN OVERALL PROFITABILITY

The drive for innovation continually improves both processes and plants in order to raise the efficiency, sustainability and profitability of the plant and its processes while reducing costs and downtime.



# Foresee digitally with Metris

Industrial IoT, Industry 4.0, digitalization – current buzzwords that industries use when seeking to improve their performance and equip themselves for the future of industry.

## ANDRITZ DIGITAL SOLUTIONS

As a technology leader with extensive and long-term experience in supplying industrial measurement, control, and optimization solutions for various industries, ANDRITZ is combining process and equipment expertise with the latest enhancements in the digital era. The result of this powerful combination is Metris: a portfolio of ANDRITZ Digital Solutions.

## METRIS OPP

One of the flagship capabilities of Metris is its ability to optimize industrial processes, known as Metris OPP. Metris OPP has been developed over the past decade and is installed today in over 50 mills – mainly pulp mills – around the world. It combines powerful analytical and data mining software with the knowledge of the world's top process experts to deliver a smart service initiative for customers.

## A CONSTANTLY GROWING PORTFOLIO

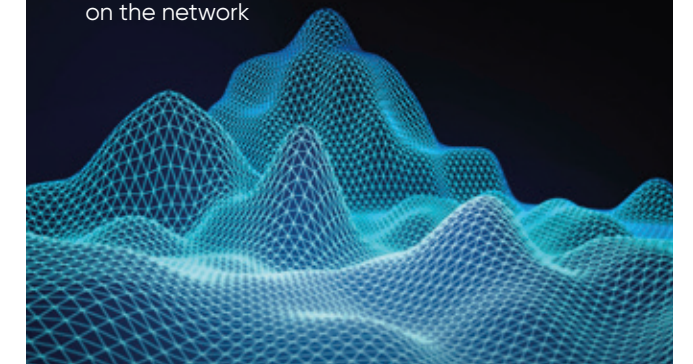
The depth and effectiveness of the Metris portfolio continues to improve thanks to ongoing R&D, collaboration with key customers and institutions, and venture activities. Portfolio options all rely on the three strategic focus areas of the Metris brand: Industrial IoT technologies, Smart Service concepts, and Venture activities. The main technological advancements integrated into individual Metris products are derived from Big Data analytics, Smart Sensor technologies, and Augmented Reality solutions. The Metris UX digitalization platform providing full support throughout the

entire lifecycle of a plant is the most recent of our IoT developments. With Metris, customers foresee digitally due to the continuously improved portfolio and its performance – and to ANDRITZ providing tailored and fully integrated digital solutions from a single source.

## INDUSTRIAL IOT

### Benefits

- IIoT solutions across business segments
- Combined know-how from ten years' experience with Metris OPP
- Using the latest smart sensor technologies
- 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





# Value-added services

## From components to synergy service agreements and smart solutions

Our mission is to create value in two ways: improving the value of your mill's production and adding value in the way we work with you.

### ENSURING THE ECONOMIC VALUE OF OUR TECHNOLOGY AND SERVICES

Our roots are in technology – and that is where we add considerable value to your paper mill processes. But the components we deliver are not simple replacement parts that are mass-produced in a machine shop. Every single ANDRITZ component is engineered to improve your process. We have 150+ years' original equipment manufacturer (OEM) experience in equipment design coupled with extensive process design expertise as a full-line supplier for pulp, paper, and power producers.

### ADDING VALUE THROUGH COLLABORATION AND PARTNERSHIP

Our mission is enhanced in the way we do business. Lots of companies talk about partnership, but what does that really mean? A partnership is formed when we share common interests. For us, the goal is to maximize your production and efficiency and to increase your mill's profitability. We do this by listening to your concerns, talking to your staff, and then recommending solutions based on our experience.



Our service specialists are skilled and experienced at raising the production efficiency of a machine, process step, or production line. Their knowledge helps protect and extend the life of your equipment and lower your overall operating costs.

Our 60 service locations in the pulp and paper industry offer you full service support. This support is provided to you – technically, mechanically, and personally – regardless of who originally manufactured your equipment.



### FULL RANGE OF VALUE-ADDED SERVICES

For ANDRITZ components as well as machines from other OEMs

- **Wear parts and consumables:** Full range of replacement parts and engineered wear products
- **Rebuilds and retrofits:** Extending the return on your original investment
- **Upgrades and modernizations:** Giving the old technology a newer, more productive, and more energy-efficient design
- **Field services and inspections:** Establish the improvement potential of your processes and equipment as well as the key areas for optimization
- **Shut-down and start-up services:** Assistance with shut-down planning, on-site coordination, supervision, and the actual shut-down work
- **ANDRITZ SYNERGY services:** Process and equipment expertise in cooperation with customer experts to achieve the customer's targets
- **Smart solutions:** A broad portfolio of intelligent, digital solutions and products with the ANDRITZ technology brand Metris



# Comprehensive services for paper, board and tissue mills

## Improve your machine performance

The huge variety of ANDRITZ upgrade products provides performance improvements, energy and cost savings as well as return on investment (ROI) within the shortest time.

### OUR SERVICE SOLUTIONS FOR FIBER PREPARATION PLANTS

#### PULPING

ANDRITZ offers a variety of service packages and upgrades for all kinds of pulper and detaching systems.

#### SCREENING

ANDRITZ is a leading supplier of screen baskets and rotors for the production of pulp and paper.

#### CLEANING

ANDRITZ supplies spare and wear parts – and offers upgrade services – to ensure efficient removal of debris from pulp and paper stock.

#### DEWATERING

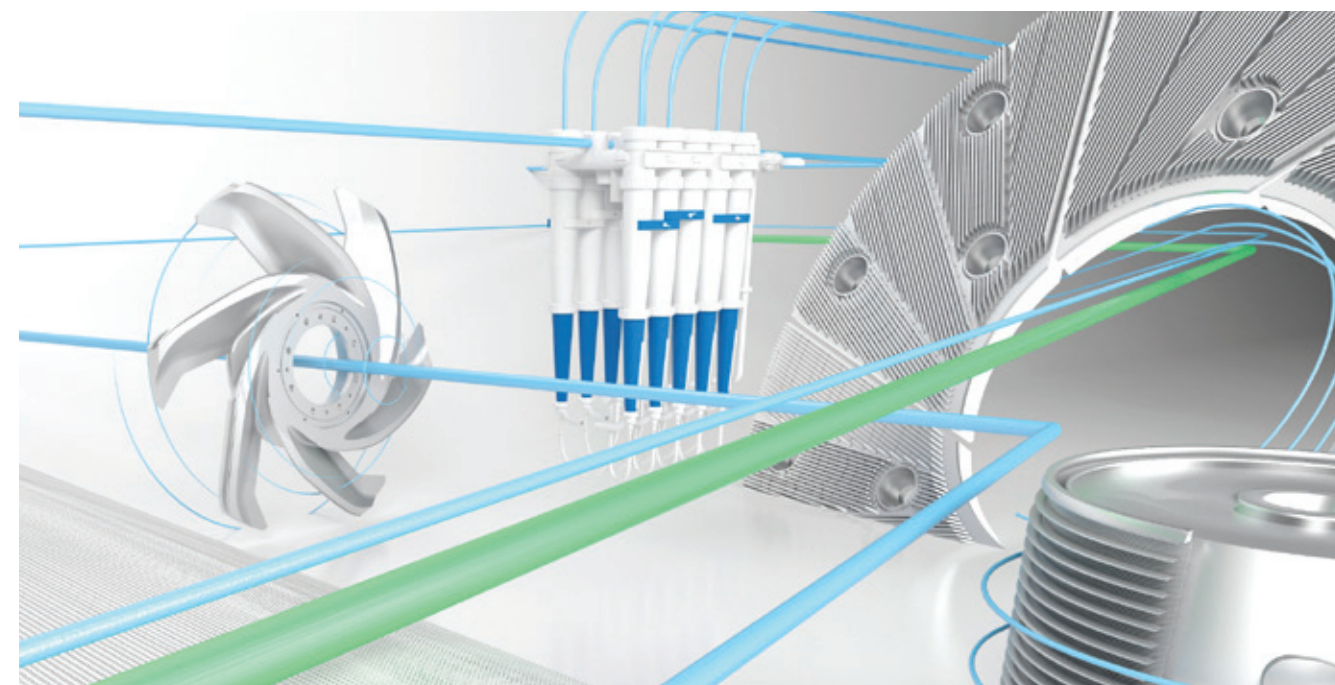
ANDRITZ supports your operations containing solutions for a variety of dewatering equipment, such as disc filters, screw presses, and twin wire presses.

#### REFINING

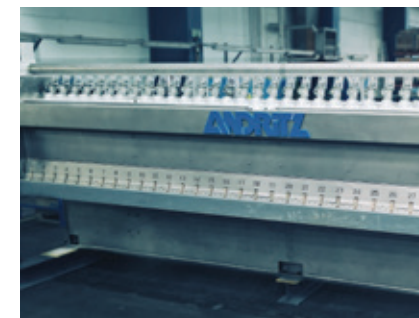
ANDRITZ offers spare and wear parts, upgrades, and on-site services for equipment from virtually any OEM from the pulp, paper and MDF industries.

#### REFINER PLATES

ANDRITZ has developed industry-leading refiner plates for HC/LC refining and MDF applications.

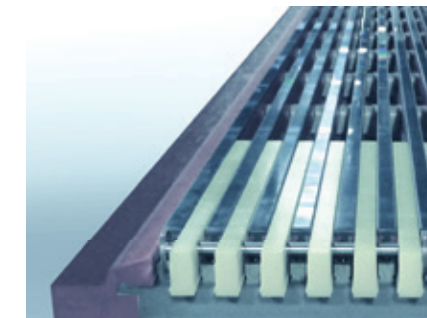


### PrimeService FOR PAPER, BOARD AND TISSUE – PRODUCT HIGHLIGHTS



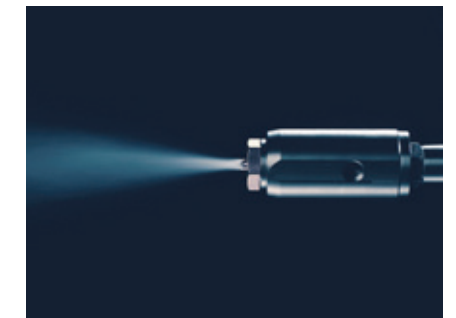
#### HEADBOX OVERHAUL

With our proven headbox overhaul program, we inspect, recondition, and, if necessary, rebuild your headbox to extend the lifetime of this component, restore machine performance, and improve sheet quality. This is a cost-effective alternative to replacing the entire headbox.



#### WET END TECHNOLOGIES

We deliver customized ANDRITZ PrimeCeramics solutions as well as blades and engineered drainage systems with advanced design suited for all paper machine types and paper grades. Our goal is to optimize sheet formation and reduce drive load, while providing the best ROI for the types of ceramics selected.



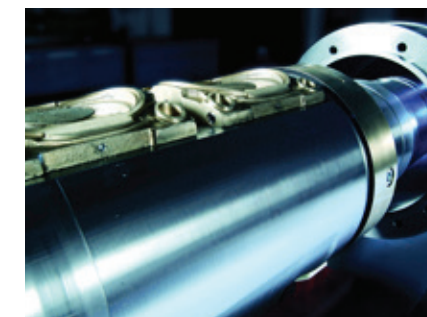
#### VIB PROFILING SYSTEMS

Improving the sheet's cross-directional moisture profile has been demonstrated as one of the most effective and economical means of saving fiber and energy and improving overall quality levels, as evidenced in our VIB product families.



#### NOZZLES

High-pressure nozzles, trim squirt nozzles, edge trimming units, and pump systems contribute to high-precision machine operations and excellent product quality. Best application and maintenance support is backed up by our comprehensive knowledge of paper machine design and operation.



#### ROLL SERVICE

We are experts in servicing conventional and deflection-controlled rolls of all designs and from any manufacturer. Our comprehensive roll services include roll and shoe press audits and repairs as well as new covers and coatings to enhance performance and increase lifetime.



#### THREADING SYSTEMS

We provide custom solutions for both new equipment and rebuilds to existing systems to suit all of your tail threading needs. This includes components, system design, in-depth threading audits, technical service, and start-up support with the aim of minimizing down time and enhancing safe operations.





## **DISCOVER OUR FULL-RANGE PORTFOLIO FROM FIBER PROCESSING TO PAPERMAKING**

An outstanding paper product requires outstanding production – matched with the particular needs of the raw material and final product.

Discover the full-range portfolio from ANDRITZ: Complete lines or single units, upgrades, and modernizations. Contact us and benefit from your individual package in paper-making technology.

### **EUROPE**

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