



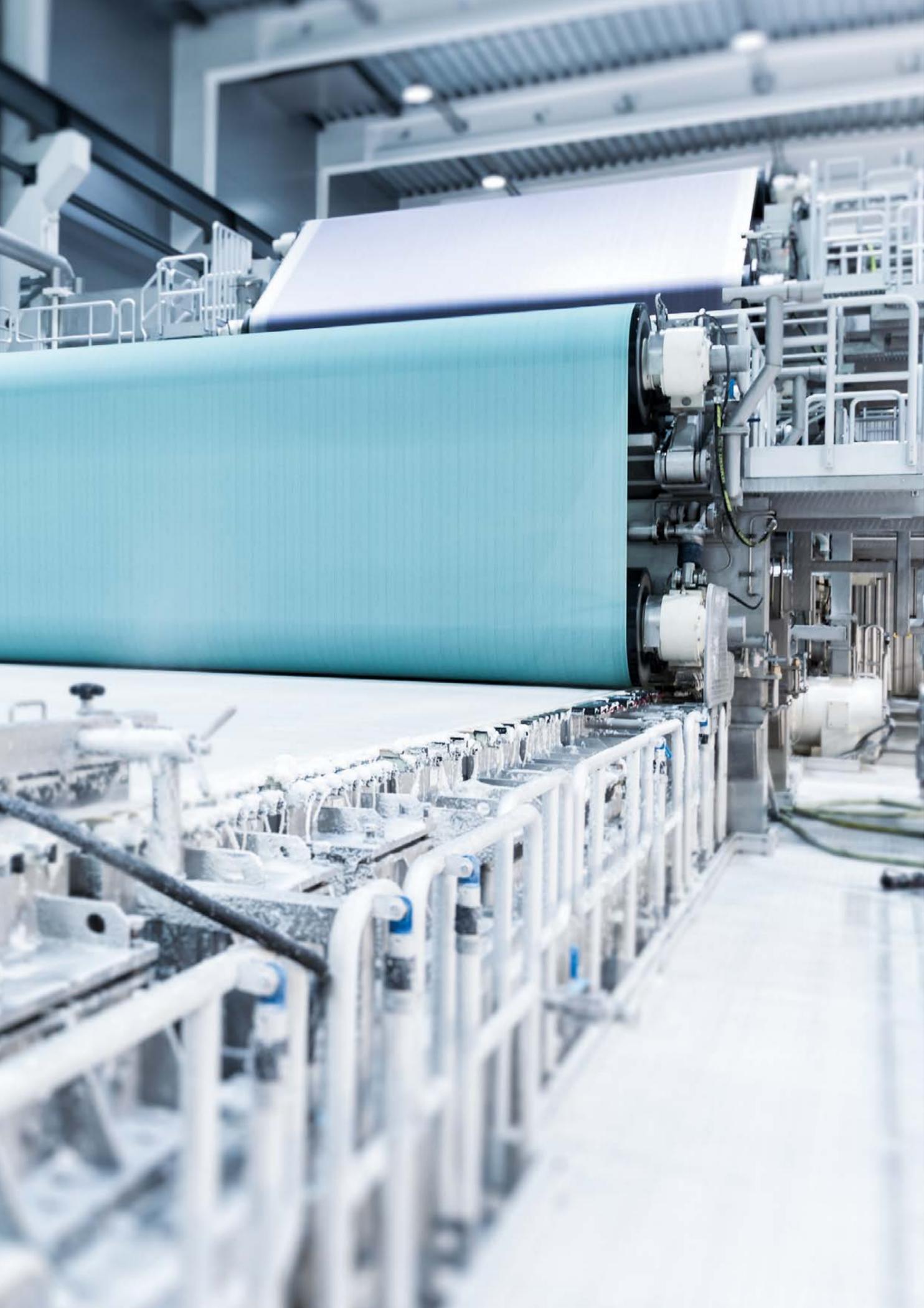
PULP & PAPER

# UNLEASH THE FULL POTENTIAL

FULL LINE SERVICES OVER THE WHOLE  
LIFETIME OF YOUR MILL

**ANDRITZ**

ENGINEERED SUCCESS



## ENGINEERED SUCCESS

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**UNLEASH THE  
FULL POTENTIAL**

# Unleash the full potential over the whole lifetime of your paper mill

With ANDRITZ as your partner you have access to full line services, from Pulper to Reel

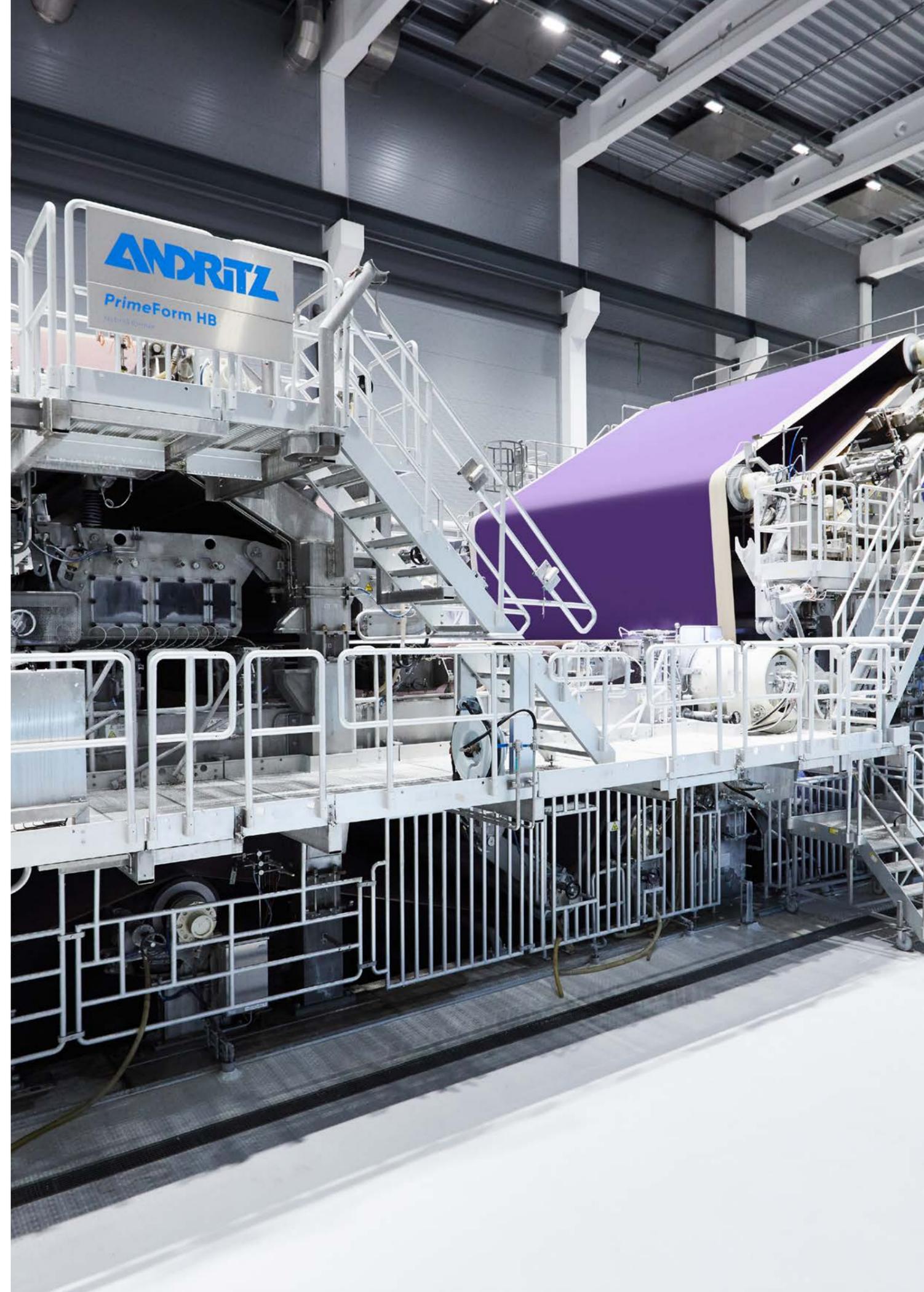
ANDRITZ Paper Mill Services is a global network of ideas, interdisciplinary thinking, and innovative solutions. Servicing hundreds of paper mills worldwide, we bring all of our experience, to unleash the full potential over the whole lifetime of your paper mill.

ANDRITZ is a leading global supplier of 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, fabrics and rolls, automation, pumps, and comprehensive services – we deliver complete lines and key equipment for the production of tissue, paper and board.

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



**“SAFETY FIRST”  
FOR A SUSTAINABLE  
SAFETY CULTURE**

# A sustainable safety culture is one of our major goals

With ANDRITZ's global initiative "Safety first" we dedicate a lot of effort to the prevention of unsafe actions and a high level of safety awareness to keep workplaces and processes accident-free

The global safety initiative is part of a strategy to establish a sustainable safety culture based on prevention and a high level of safety awareness throughout the Group. It aims to prevent unsafe actions from the outset and making workplaces and processes safe. Every accident that happens is one too many and our ultimate goal is always to operate completely accident-free.

Risk analyses of all areas of our work and safety training courses are conducted regularly, and safety activities are integrated continuously into the daily work routine. ANDRITZ produces parts weighing several tons and installs them in many different regions of the world. In addition to static measures such as cleanliness or accessibility, we pay close attention to the risks of dynamic processes, such as handling and moving parts, both in manufacturing shops and on job sites. Our primary goal is zero accidents at work. Other global requirements relate to safety reporting and the obligation to prepare certification under OHSAS 18001 if it is not yet available.



# HIGHEST MILL AVAILABILITY



## We are engineers

From pulper to reel, we know equipment requirements precisely – we’ve built it for decades

Independent of make or model, you can expect exceptional quality and asset reliability due to our vast engineering experience and our wide expertise in manufacturing of spare and wear parts, rebuilds, and upgrades for maximum operational uptime. Our roots are in technology and the passion for innovative, engineering solutions – and that is where we add considerable value to your screening, cleaning, refining, dispersing, and all other stock preparation processes, as well as the paper machine itself. Together with our customers we develop countless smart solutions driven by their cost, production, or quality targets. Whenever possible we provide engineered solutions instead of simple replacement parts. Even the best equipment has improvement potential – just challenge us!

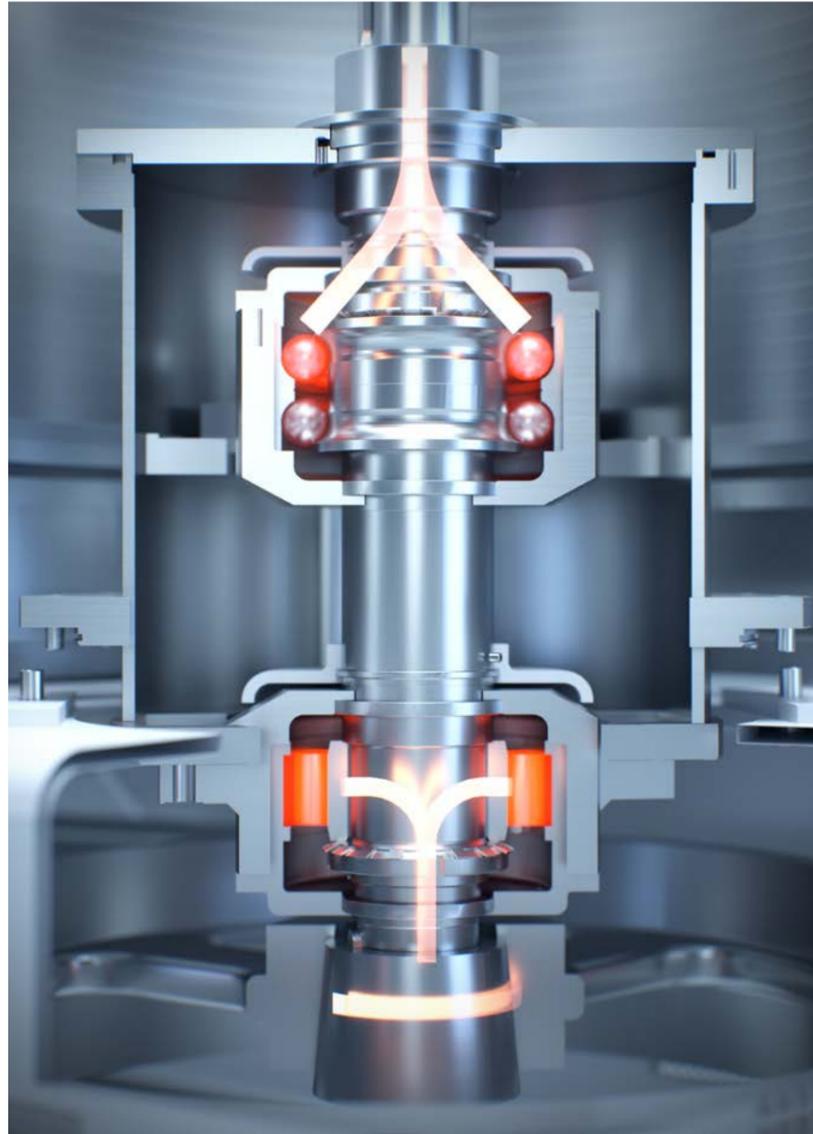
## Smart design is key for equipment that keeps your mill up and running.

### OUR ROOTS ARE IN TECHNOLOGY

The components we deliver are not simple replacement parts that are mass-produced in a machine shop. Every single ANDRITZ component – screen basket, rotor, refiner plate, cleaner, or forming fabric – is engineered to improve your process. We have 150+ years of original equipment manufacturer (OEM) experience in equipment design, coupled with extensive process design expertise as a full-line supplier for pulp and paper producers. This knowledge is blended into every component you receive from us – for ANDRITZ or any brand of equipment. Production increases. Energy demand drops. Quality improves. Components last longer. Yield is boosted.

# Prepare for highest quality in any paper grade

Top-performing equipment for your stock preparation, packed with state-of-the-art technology



## **SCREEN BASKETS AND ROTORS, REFINER PLATES, CLEANER CONES, SCREW PRESSES, DISC FILTER BAGS, AND MANY MORE**

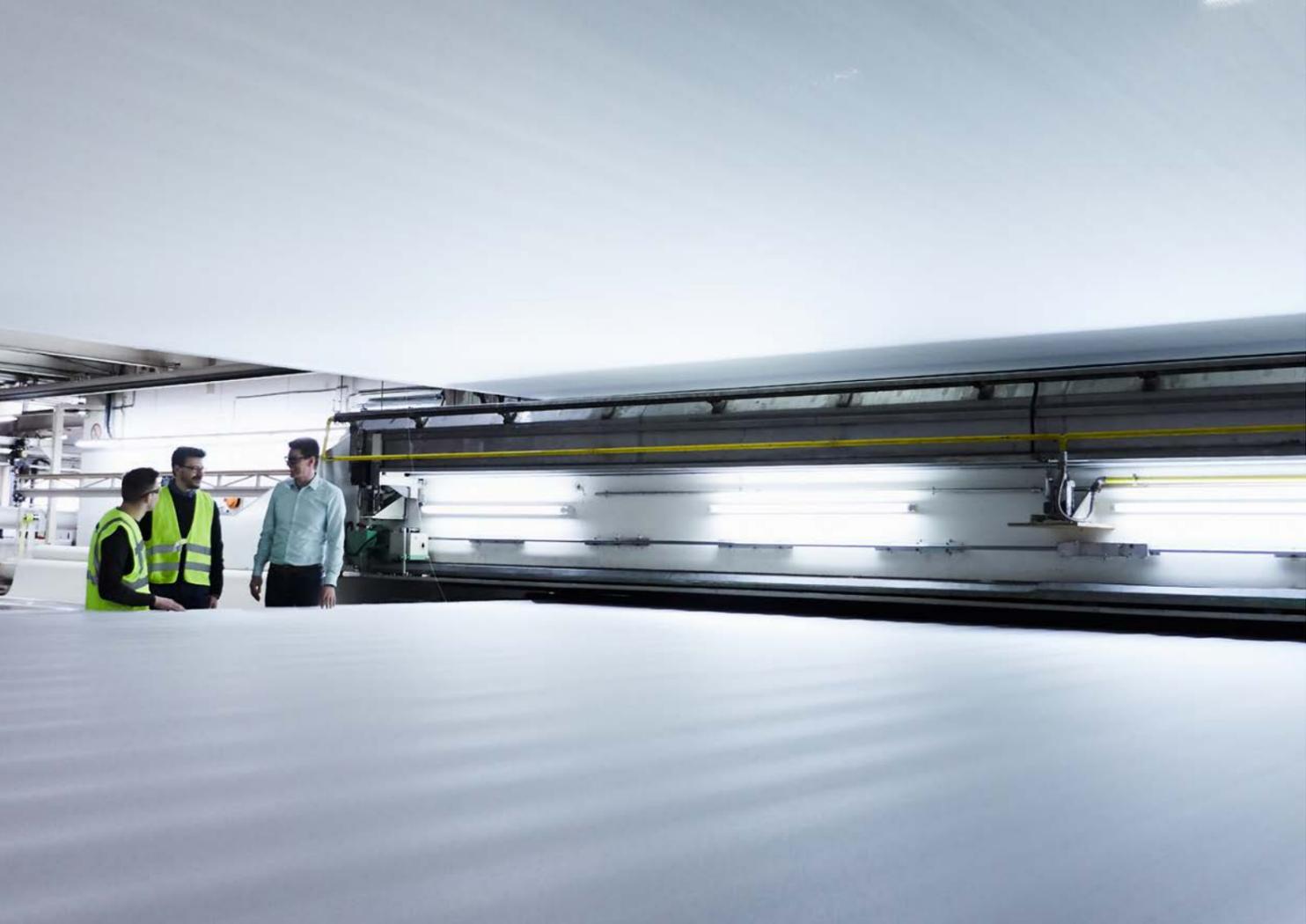
High-end equipment and our outstanding service product portfolio contribute to improved reliability, availability, and production while reducing overall operating costs. We always work in close cooperation with the mill's operation and maintenance personnel, and with a clear view of the goals of your mill.

Almost each and every spare and wear part required to run your mill at the highest level can be supplied by ANDRITZ. Independently if you have a planned shutdown, an emergency case or whether you just want to populate your stock, ANDRITZ is your number one partner.

We also offer consignment stock solutions, spare part boxes as well as exchange equipment for longer lasting repair or rebuild operations. Our most important goal is to keep your mill running.



**THERE IS INNOVATION IN EACH ENGINEERED WEAR PART FROM ANDRITZ – ENHANCING RELIABILITY AND PERFORMANCE SIGNIFICANTLY**

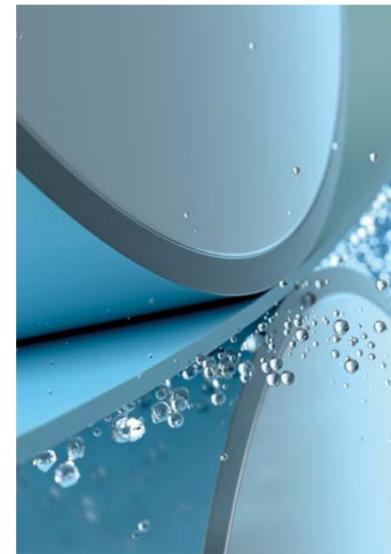


# Trouble-free paper making with fabrics from ANDRITZ

Our world-class products, experienced application engineering teams, and strategically located global manufacturing plants continue to deliver documented value for our customers

With our innovative patented product portfolio of fabrics, felts, belts, roll covers, SMART™ Technology machine automation systems, spreader rolls, and mechanical services, ANDRITZ Fabrics and Rolls provides these industries with tailored solutions designed to optimize the performance of production equipment and reduce the costs of their operations.

More than 200 years of experience, reflected in over 500 active patents and customers in more than 60 countries are testimony of our focus on delivering superior performance on your most demanding machines.



## STRATAPRESS™

Innovative StrataPress™\* press felts are a comprehensive new portfolio of high-performance technology specially developed to help maximize your machine's press performance. StrataPress™ is designed with a game-changing combination of materials, base fabric structures, and unique batt concepts which deliver the highest sheet quality, faster machine speeds, and with reduced energy consumption. The StrataPress™ portfolio offers both endless and seamed technology to enable your press section to run more efficiently with products specifically engineered for each application on every grade and machine configuration.



## TRANSFORM™

TransForm™\* is a new generation of forming fabric technology produced with innovative fabric structures combined with game-changing materials delivering superior performance on your most demanding machines. Engineered for all grades, the TransForm™ portfolio includes designs to maximize efficiency on all your machines' unique fabric positions; Fourdriniers, twin wire, top formers, gap formers, bottom ply, mid-ply, or top ply positions.



## MASTERDRY™

MasterDry™\* is a new and comprehensive portfolio of premium-performance dryer fabric technology. With the most modern monofilament yarns and time-tested structures, there's a MasterDry™ woven or spiral design specially engineered for top performance on your most demanding dryer positions. The MasterDry™ family of products includes fabrics specifically designed for the fastest low-caliper single tier positions, high temperature, contamination resistance, all with extended fabric durability and lifetime. And MasterDry™ woven designs are available with integrated pin seams or with pin-spiral seams.



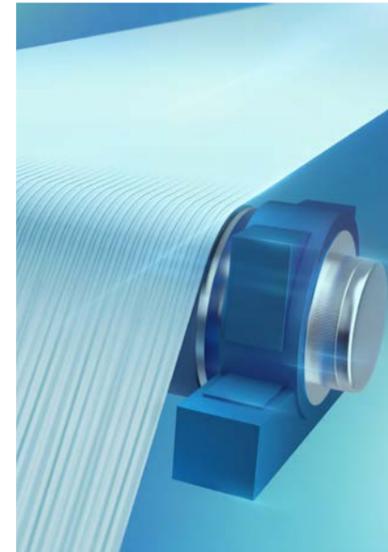
# Keep your paper machine running - with rolls from ANDRITZ

Components with a dramatic impact on your overall machine performance and profitability

With a comprehensive range of products, ANDRITZ covers your entire machine including press rolls, size press and film coating rolls, coater-backing roll covers, soft calender and super-calender covers, fabric and felt carrying rolls, cylinder couch rolls, wire-turning rolls, breaker stack, and more. We also supply unique venting options for maximum efficiency including drilled, grooved, and gridded-grooved combinations.

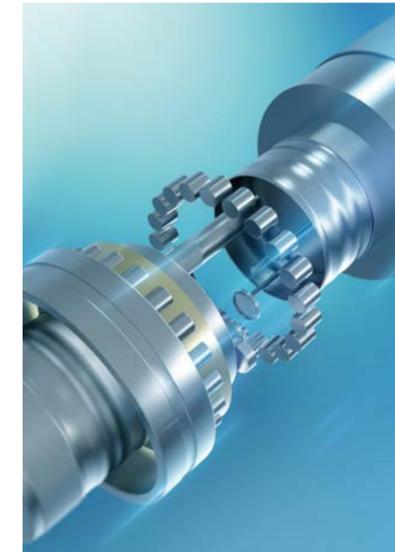
## **PREMIUM PERFORMANCE: ROLL COVER TECHNOLOGY**

ANDRITZ provides roll cover solutions specially engineered to deliver enhanced product quality, machine efficiency, energy savings, and longer running life. Some customers have realized annual gains in improved productivity and energy savings that total over € 1 million from simply replacing conventional roll covers with custom-engineered roll covers tailored specifically for their machine and the end-product it produces.



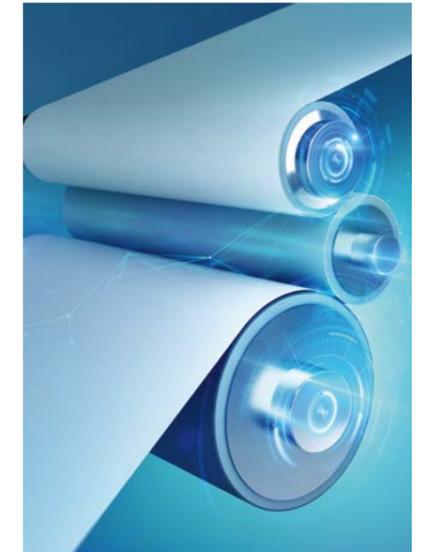
## **PREMIUM SPREADER ROLL TECHNOLOGY- THE ULTIMATE IN WEB CONTROL**

ANDRITZ delivers world-class bowed spreader roll performance with the largest product portfolio specifically designed for a variety of industrial applications. Whether your requirements are web smoothing, web widening, slit separation, or more efficient control of your web, we have a product solution specifically for your machine including fixed and adjustable bow configurations. Our global network of specialized spreader roll facilities are equipped to repair, rebuild, and upgrade your existing rolls for even greater performance.



## **MECHANICAL SERVICES FOR ROLL REPAIRS AND REBUILDS**

ANDRITZ provides world-class comprehensive refurbishment services that include a full range of rolls-related repairs and upgrades. Our facilities, strategically located throughout the world, combine the widest range of mechanical services with the industry's premier portfolio of high-performance rubber, polyurethane, and composite roll covers for the highest quality and fastest turnaround. We offer complete inspection and repair services for rolls, bearings and journals, housings, suction boxes, and crown compensating components.



## **SMART™ TECHNOLOGY DYNAMIC 3D NIP ANALYTICS**

SMART™\* Technology is the most advanced and comprehensive nip monitoring system available to help you improve the performance of all your nipped roll positions, including suction roll and tissue Yankee applications. SMART™ Technology comes with its own integrated computer system that controls monitoring, retrieving, saving and displaying data, processing real-time calculations, and more.

**EXCEPTIONAL  
PROCESS  
PERFORMANCE**

# Benefit from our vast process know-how gathered servicing paper mills around the globe

## PAPER MILL SERVICES

### ONE PARTNER COVERING YOUR ENTIRE PRODUCTION LINE - FROM PULPER TO REEL WITH QUALITY EQUIPMENT AND PROVEN PROCESS KNOW-HOW

We work together with you to maximize the process reliability and overall production efficiency of your plant. Together with ANDRITZ value-added services you achieve the highest mill availability, equipment reliability, and optimum performance over the entire lifecycle of the equipment.

You can depend upon our millwide knowledge and years of experience to deliver proven results. All of our operations are carried out in compliance with environmental and quality requirements, with safety being of prime importance. Our promise is to be committed to reaching your quality, efficiency, safety, and productivity goals.

Stock Preparation

PULPING

DEWATERING

REFINING

SCREENING

CLEANING

PAPER MACHINE SERVICE

Paper Machine

FORMING FABRICS

PRESS FELTS

ROLLS SERVICE

AUTOMATION SOLUTIONS

# We listen carefully to your specialists

Benefit from our process experience from paper mills around the globe. In close collaboration with you, we listen carefully to your mill specialists and fully understand your operational demands



## ON-SITE AUDITS AND ASSESSMENT

Every process improvement requires a detailed analysis of the current status. Let us support you with state-of-the-art tools, in mill diagnostics, with troubleshooting, and innovative upgrades to add significant value to your paper production. Additionally, we can provide modern simulation and process optimization tools from our Metris platform.



# Partnership is key to common success

Our maintenance agreements are commitments to clear quality and profitability goals for constant progress



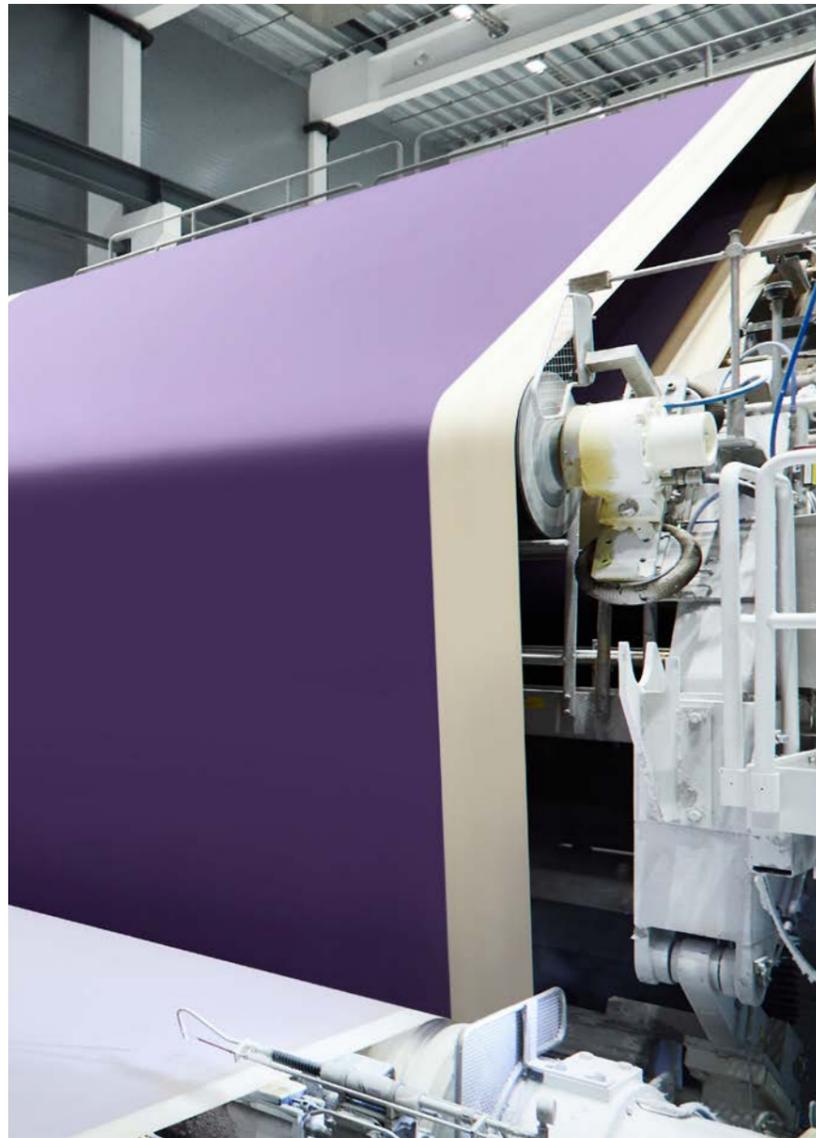
## MAINTENANCE AGREEMENTS

Keeping your equipment in perfect shape is one basic requirement for reaching a high lifetime value. ANDRITZ offers Maintenance agreements that ensure operational safety and increase the availability of your machines. We can cover maintenance work for your entire mill, including start-up support. Supported by our local service centers, we are always just one call away. Close cooperation with your on-site team and high flexibility is key to us.



# Let's push your process performance to the next level

Unleash the improvement potential of your processes and equipment

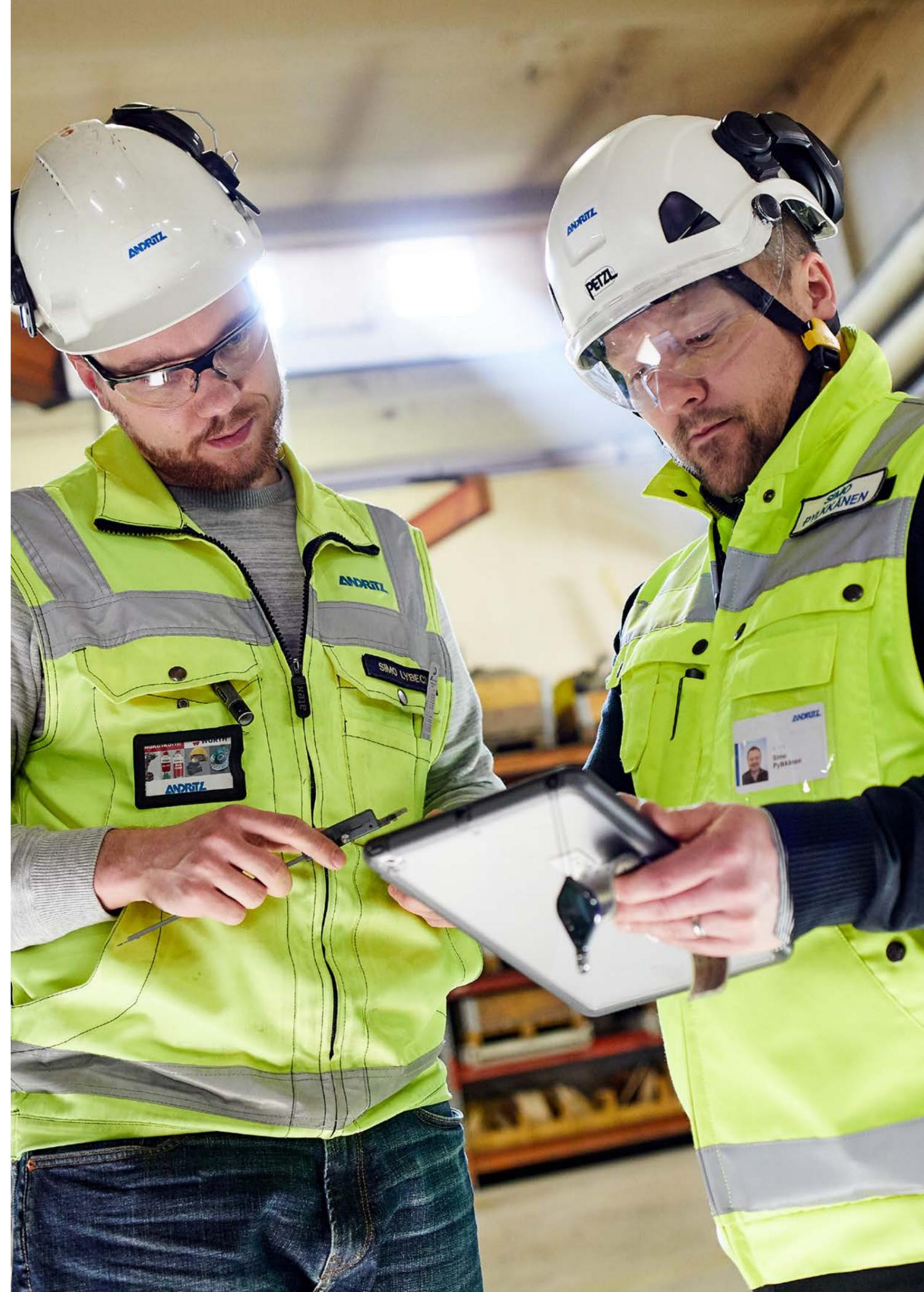


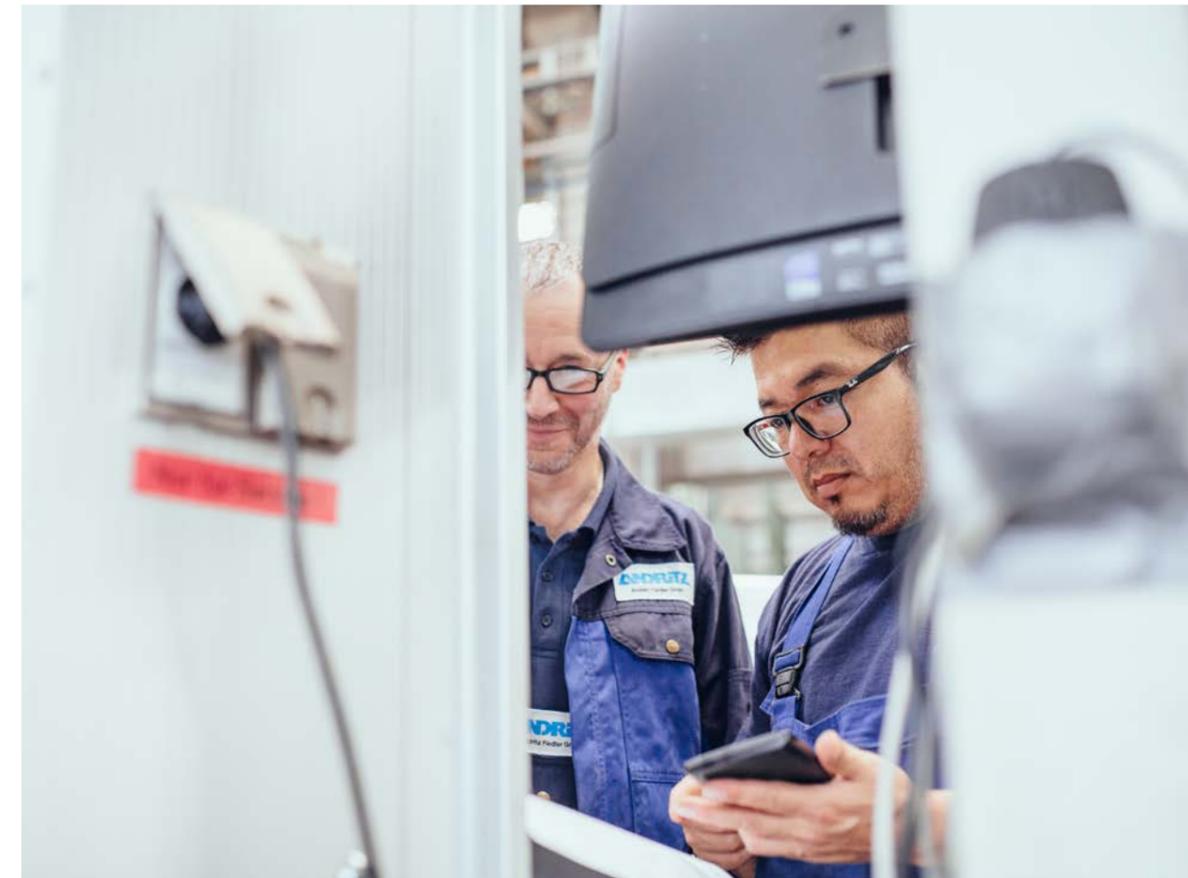
## FAST PROCESS AND PROFIT IMPROVEMENTS WITHOUT CAPITAL INVESTMENTS

Even if your mill has the world's most modern automation system, there is always room for process improvement. Studies show that about 80% of the control loops in the system are poorly tuned and that, quite often, the process runs better in manual mode than automatic. We identify opportunities in your mill to save money and stabilize your production.

## OUR TARGET IS TO

- Increase your production by increasing your processed ability
- Prediction of failures in specific equipment
- Increase equipment availability
- Identify process improvements and savings opportunities





## Profit from cost-comprehensive repairs and reconditioning

Our local workshops offer extensive capabilities for any OEM

Services performed on-site often need the support of a local machine shop to repair, replicate, or recondition a piece of equipment. The advantage of using an ANDRITZ Local Service Center for such work is that you know the work will be performed to OEM specifications with high quality – backed by the ANDRITZ global manufacturing network.



### MORE THAN 250 SITES WORLDWIDE

Clearly, certain mechanical work and repairs cannot be performed on-site. That is why our Local Service Centers have their own workshops, staffed with skilled machinists and modern machine tools.

The ANDRITZ GROUP has in-depth manufacturing expertise and a network of about 250 sites worldwide. Our local workshops adhere to the high quality standards expected within ANDRITZ and often contain specialty tools to support local business needs.

Our skilled personnel utilizes high tech machining in order to achieve the best results. Repairs, maintenance, and re-vamping of spare and wear parts, as well as upgrades, are being conducted with any manufacturer, no matter what make or model.

# You can rely on your personal service partner around the clock

## MANY GOOD REASONS FOR CHOOSING ANDRITZ

Our Local Service specialists are committed to focusing on the challenges and opportunities at your mill. This local team can tap into ANDRITZ's worldwide network – giving them access to experts on the whole tissue, paper and board production process. When you partner with ANDRITZ, this knowledge and experience becomes available to your mill.

Time savings. Cost savings. Improved throughput. Reduced environmental impact. Safe operations. Longer equipment life. These are the goals of all mills. These become ANDRITZ's goals when you choose us as a Local Service partner.

As your service partner, we work closely with you to monitor, maintain, repair, or enhance your equipment assets. Each one of our services is targeted to extend the life of your equipment, enhance its economic payback, and lower the overall lifecycle cost. You will notice shorter, more effective shutdowns and longer intervals between shutdowns – to lower your cost of operation.

We support your team by evaluating your plant and equipment, and then recommending high-payback improvement actions such as procedural changes, repairs, upgrades, rebuilds, modernizations, and shutdown support.

You can depend upon our millwide knowledge and years of experience to deliver proven results. All of our operations are carried out in compliance with environmental and quality requirements, with safety being of prime importance. Our promise is to be committed to reaching your quality, efficiency, safety, and productivity goals.

## THE RIGHT TOOLS – THE RIGHT PEOPLE

Specialized instruments and analytical tools are important, but having the right people to provide the service is even more important. Our Local Service specialists are skilled at raising the production efficiency of your mill. The team has expertise in every vital area: from replacement parts to comprehensive maintenance programs.



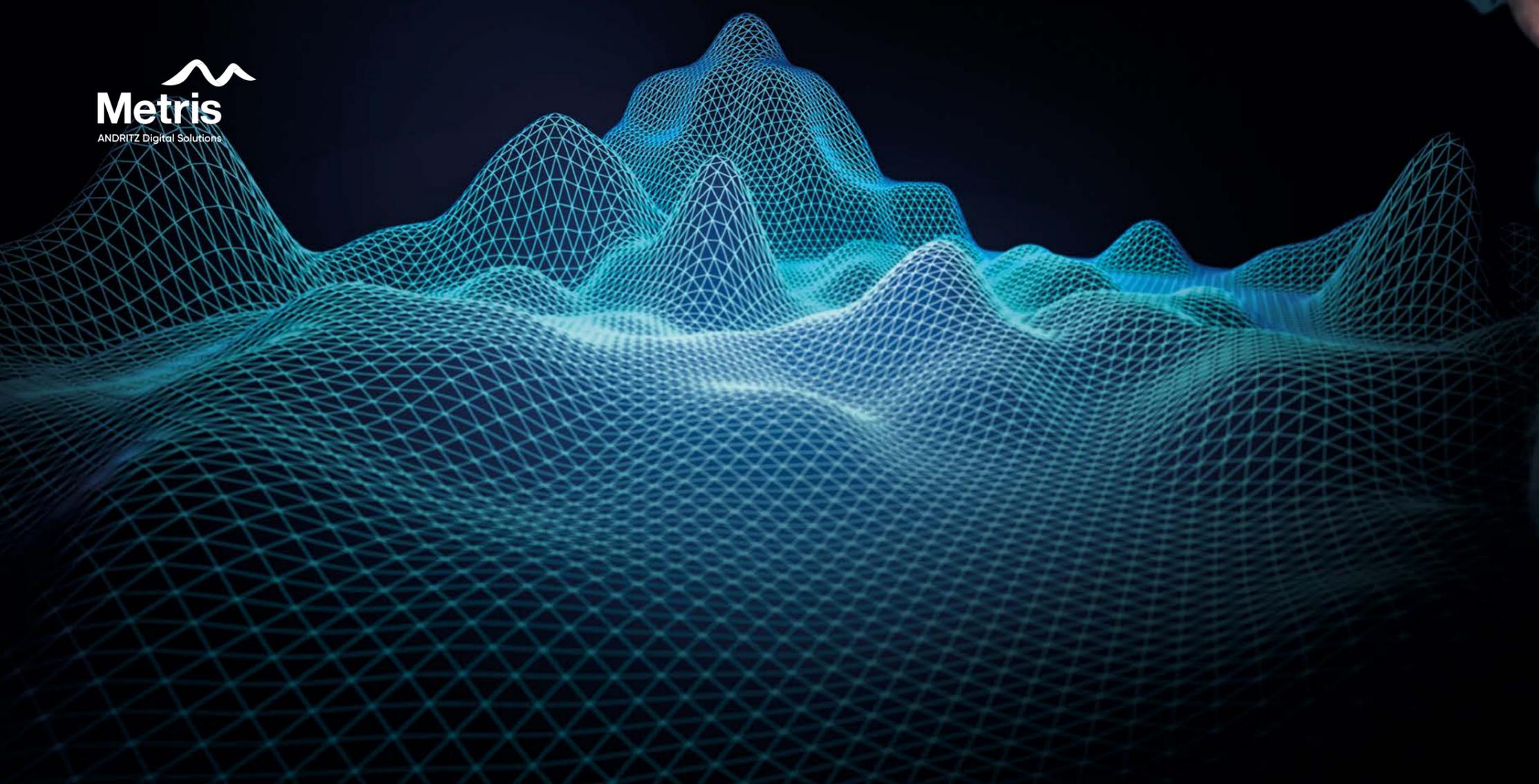
COLLABORATION ON THE BASIS OF MUTUAL TRUST IS KEY TO JOINT SUCCESS

# MAXIMUM PRODUCTIVITY

# Let's foresee digitally - with METRIS

Augmented reality, smart sensors, and big data analysis - our wide range of industrial IOT solutions empower you to predict future conditions in your process, make the right decisions, and avoid costly downtimes. Through smart digital solutions, you can add significant value to your paper production

Metris technologies are aimed at digitalizing and networking machines and plants as well as developing new customer-specific solutions. Metris products are state-of-the-art. They can be customized to suit individual customer requirements, and they make a substantial contribution towards helping customers achieve the best possible productivity and efficiency goals.





# IDEAS Simulator

The smart solution for achieving faster start-up, reducing risk, and increasing profit

The ANDRITZ dynamic simulator, IDEAS, is the simulator of choice for the pulp and paper industry. It contains all the key objects required to simulate a conventional paper mill at a macro level of fidelity, from a twin wire former to a steam dryer.

With IDEAS you have a real-time digital twin of your plant right at your fingertips. Simulate the entire lifecycle of a process plant operation: Run multiple design scenarios automatically, accelerate the start-up phase, increase the level of automation, and train your staff in complete safety. With IDEAS you save time, money, and resources.



### PROCESS MODELING

Create and observe heat and mass balances, flows, temperatures, and other criteria



### CONTROL LOGIC VERIFICATION

Stage and test control systems quickly and accurately, reducing the steep curve to start-up



### RISK-FREE TRAINING

Staging and operator training in complete



### RETURN ON INVESTMENT

Pinpoint plant production improvements and shorten projected start-up dates for a ROI up to 200%



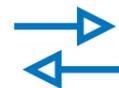
# Fiber GPS™

The breakthrough navigation system to highest fiber quality and maximized profits

## PAPER GRADE DEVELOPMENT

Paper grades may be quite stable for long periods of time, but driven by market changes or grade policies within a group of paper machines, the development of new or improved standards may be required. Scenario management utilizing current pulps and refining systems combined with experience / demand driven requirement changes on the paper grade standards (more strength, higher bulk, etc.) allow the faster achievement of new paper quality targets.

Certainly success rates will vary from application to application. However, utilizing ANDRITZ Refiner Plates and taking full advantage of the holistic Fiber GPS™\* view, promises substantial quantitative annual savings in addition to qualitative benefits of your mill.



**COMPARE TO STANDARD**  
Compare qualities of real-time and simulation modes to standard qualities



**VISUALIZE FIBER QUALITY**  
View all quality nodes as individual spider diagrams with all relevant parameters at a glance



**SET UP QUALITY STANDARDS**  
Set up and manage quality standards for each paper grade to compare different scenarios



**BROWSE PLATE PATTERNS**  
Browse through ANDRITZ refiner plate library and simulate with different plate patterns

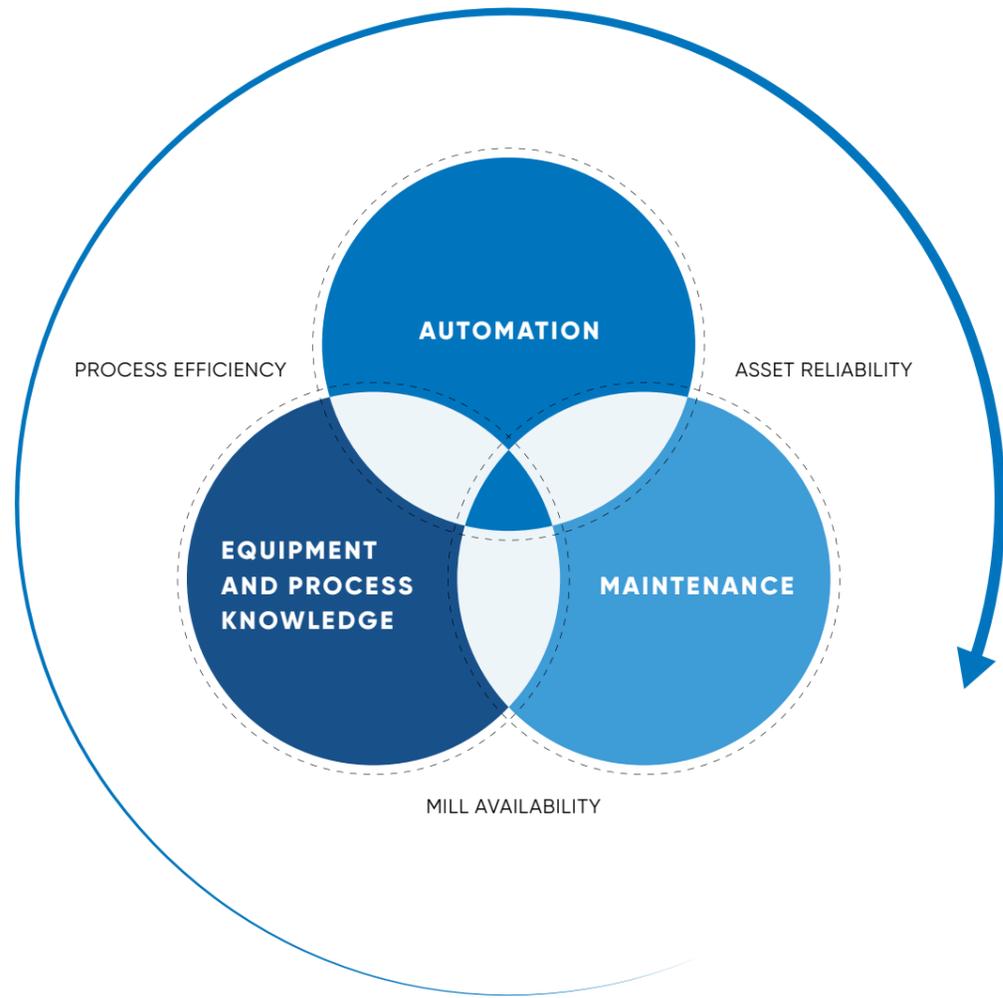


**MANAGE SCENARIOS**  
Build your own process set-ups easily using the components library and manage complete scenarios



**ADJUST PROCESS VARIABLES**  
Adjust relevant process variables to simulate impact on fiber quality and TCO

# ANDRITZ SYNERGY™



## With ANDRITZ SYNERGY™ you get it all

ANDRITZ SYNERGY™\* service is a long-term service agreement for process equipment, a certain mill area, or the whole mill. The core of the ANDRITZ SYNERGY™ service agreements are process and equipment expertise in cooperation with customer experts to achieve the customer's targets. Every agreement is tailor-made and can contain various ANDRITZ products and expertise. The challenge for any mill is to find a reliable partner who has the capabilities to support a broad approach in helping customers to improve their production and profitability by offering experience and

expert opinions on operation, process, equipment, automation, IIoT, and maintenance activities. ANDRITZ employees are passionate about uncovering the optimum ways to take customers pulp, chemical recovery, and paper production equipment to the highest levels of performance. By integrating all this knowledge into an agreed action plan – combining the best that the customer's team and the ANDRITZ team has to offer – we create ANDRITZ SYNERGY™ service agreement to raise the overall production efficiency of your mill.





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# **ANDRITZ**

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