



ANDRITZ DIGITAL SOLUTIONS

Nonwoven and textile industry

ANDRITZ

Solutions for nonwoven industry

In the nonwoven industry, maintaining high productivity with consistent quality is a constant challenge. The complexity of the lines, the demand for availability, and the need for quick decisions make the environment increasingly challenging. In today's digital age, operational autonomy is no longer a vision for the future. It's a strategic decision.

To address this scenario, ANDRITZ presents solutions such as ANDRITZ Advanced Process Control (APC), ANDRITZ AI Expert Agent and ANDRITZ SYNERGY™ Service Agreements, a lifecycle management solution that keeps your line operating at peak performance. This solution combines ANDRITZ's technical expertise with your own team experience to create customized action plans to achieve the best possible results.



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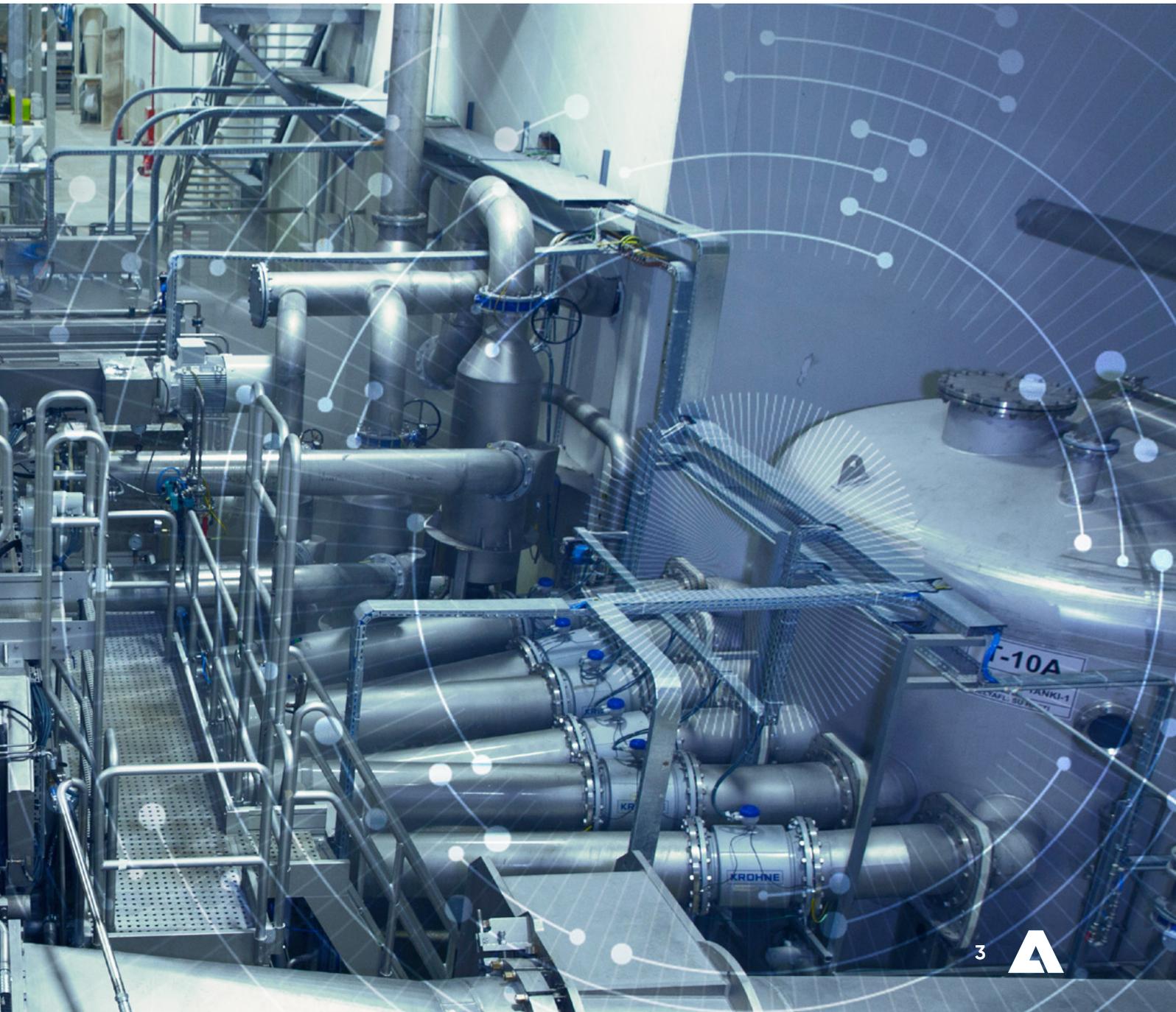
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What drives us forward?

ANDRITZ's aim is to make the fully autonomous mill a reality because of the measurable outcomes it brings to our customers' industrial plants. These outcomes impact four strategic pillars that directly influence operational performance: process, asset, human, and sustainability.



PROCESS



ASSET



HUMAN



SUSTAINABILITY

These pillars make our value tangible, connecting solutions to what truly matters to our clients: real, measurable results.

How can we make a difference in your mill?

This is the question that guides the development of every ANDRITZ solution. More than delivering technology, our commitment is to generate real and measurable impact on our customers' operations.

We believe that true value lies in results you can measure. That's why we focus on outcomes that are tangible, trackable, and aligned with our customers' goals. In practice, this means connecting solutions that can act on:



PRODUCTION INCREASE



MILL AVAILABILITY INCREASE



COST REDUCTION



PRODUCTIVITY INCREASE



REDUCTION IN WATER USAGE



QUALITY LOSSES REDUCTION



MAINTENANCE COST REDUCTION



INCREASE ENERGY EFFICIENCY



OPERATOR ACTIONS REDUCTION



REDUCTION IN EMISSIONS



SAFETY IMPROVEMENT

These are real gains, connected to each pillar, transforming technology into tangible results. By connecting solutions designed to solve specific industry challenges, we deliver new ways to make a difference and contribute to results. This is how we transform technology into real value.



ANDRITZ PIMS

Drive smarter, faster data-driven decisions across your mill

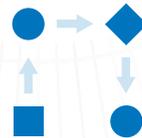
By working closely with its customers to overcome production, quality, and cost challenges, ANDRITZ has developed ANDRITZ PIMS over the past 12 years—a comprehensive solution that integrates PIMS with advanced capabilities such as reporting, LIMS, statistical process control, product traceability, and AI-driven machine learning. This powerful combination transforms raw data into actionable information, converts information into insights, and ultimately turns insights into measurable value.

ANDRITZ PIMS offers a suite of more than 15 applications, available individually or as a fully integrated package, making it the most complete solution for optimizing asset performance. Through the intelligent use of data, mills can unlock significant benefits and achieve peak operational efficiency.



FORGED ON THE FIELD

More than 17 years in many plants in different countries



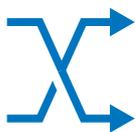
APPLICATIONS PORTFOLIO CONTINUOUSLY INCREMENTED

Getting value from mill data for operation, maintenance, process control, production cost, environmental



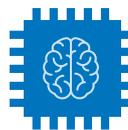
YOUR ALLY ON PROCESS OPTIMIZATION

Main pillar of process optimization, the tool we rely on to achieve savings guarantees



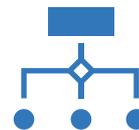
INTEGRATED AND COMPREHENSIVE PLATFORM

All mill data into a single platform allowing multiple dimensions analysis



AI READY

Machine learning tools are incorporated



KPIS TO TRANSLATE DATA INTO INFO

Wherever the KPI concept can be used we have an application to make it

ANDRITZ PIMS

Converting raw data to useful insights

Unlock the full potential of your plant operations with ANDRITZ PIMS, a combination of various applications to handle data from end to end, making a complete PIMS solution with Reports, Statistical Process Control, Product Traceability, and Artificial Intelligence (AI)/machine learning (ML) functionality. This enables a PIMS with unique capabilities to cope with future market demands and convert raw data to useful insights and beyond to allow plant-wide process optimization.

ASSET HEALTH

- Condition Monitoring
- Control Valves
- On-off Valves
- Motors
- Pumps

DATA HISTORIAN, VISUALIZATION & ANALYSIS

- Data Analytics
- Display Studio
- Reports
- Notifications
- Breaking News
- AI / machine learning

ROUTINE MANAGEMENT

- Inspection
- Calibration Management
- Planning
- Bypass Management
- Management of Changes
- Connected Worker
- Kanban
- Logbook

PROCESS HEALTH

- Statistical Process Control
- Control Performance
- Assessment
- Laboratory (LIMS)
- Alarm Management

STRATEGIC MANAGEMENT

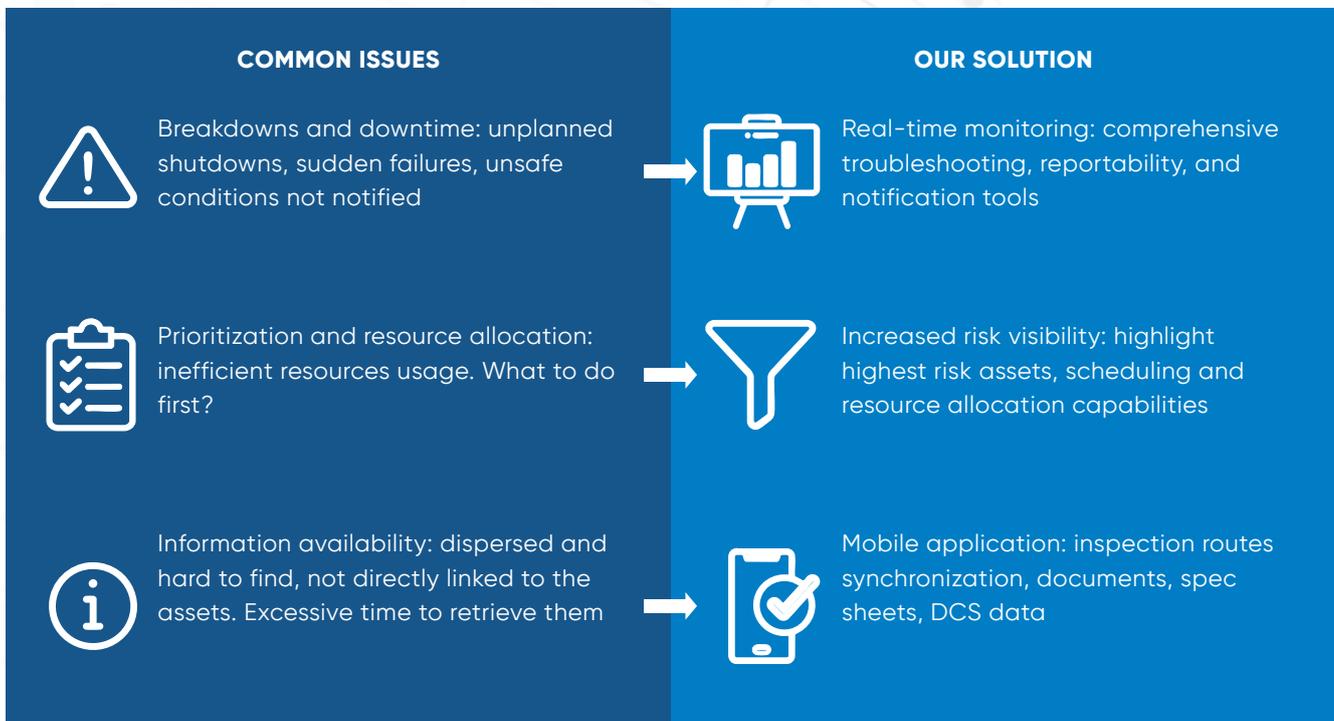
- OEE
- Cost Management
- Energy Management
- Risk-Based Management



ANDRITZ PIMS

Minimize production disruptions with seamless integration of equipment data and achieve maximum uptime

In today's fast-paced, data-driven business environment, effective asset management is essential for organizations of every size. ANDRITZ PIMS delivers comprehensive solutions that help businesses streamline operations, improve decision-making, and optimize resource allocation. Since performance is closely tied to the ability to maintain assets efficiently, ANDRITZ PIMS plays a critical role in empowering mill managers to work proactively and achieve peak operational results.



KEY BENEFITS

- The application design is based on customer needs
- Flexible infrastructure to fit different process industries and budgets
- As part of the Metris All-in-one platform PIMS functionality can be enhanced towards autonomous operation step-by-step

THIS APPLICATION ALSO INCORPORATES

- Used for the creation of soft sensors, even with implementing Python codes
- Enhanced Human-Machine Interface (HMI) to create every type of visualization needed
- KPI-based dashboard for objective, consistent, and systematic process analysis



Data analytics application

The Metris All-in-One platform provides solutions that can be used to analyze data from a set of variables. It offers countless visualization capabilities to transform data into actionable insights, supporting analysis and decision-making. Histograms and box plots can be used to compare the behavior of process parameters over different time periods or batches,

while the time shift feature for individual variables allows for comparing actions within the same interval. Additionally, we can integrate the batch reference and jumbo number with associated information from the customer database (such as lab measurements and fiber references) for full 360° process traceability.



Reveal opportunities and enable users to make more practical, cost-effective decisions.

BENEFITS

- Increase productivity
- Additional data to gain process insights
- Increase stability
- Increase traceability and product quality

Display studio application

With the display studio application, you can easily and professionally develop an integrated visualization, that makes it simple and professional for machine operator displays (HMI – Human Machine Interface), process information displays (PIMs) or custom dashboards. It can also be used as a SCADA system (Supervisory Control and Data Acquisition) to manage complete production line control.

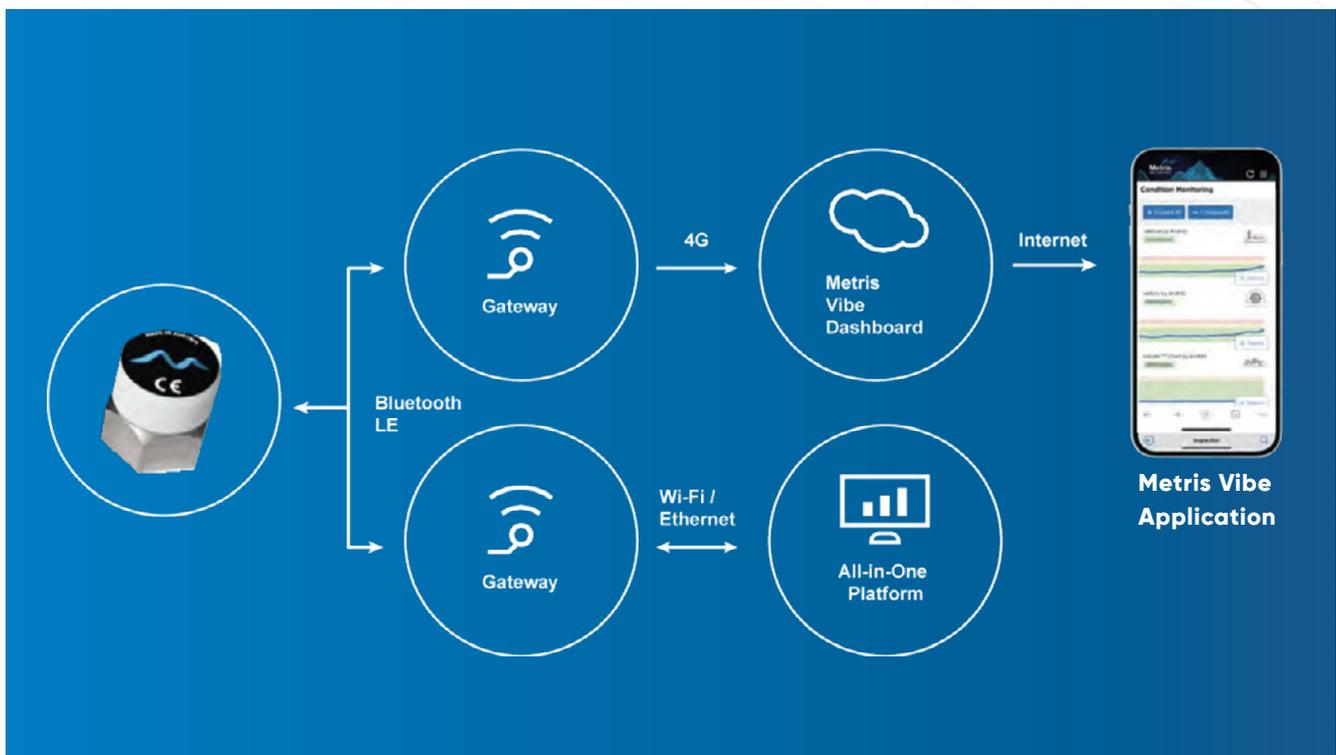


ANDRITZ neXline airlay line.



Metris Vibe and condition monitoring application

Metris Vibe is a wireless vibration and temperature sensor used to periodically monitor the health status of mechanical equipment. It transmits data via Bluetooth Low Energy (BLE) to either a mobile device or an industrial gateway that is connected to the ANDRITZ All-in-One platform. This platform combines a range of features for professional production management, simulation, and optimization. The Metris Vibe sensors provide data including raw signal, overall vibration, and the Fast Fourier Transform (FFT) analysis, as well as allowing users to configure their own spectral bands to monitor issues such as misalignment, unbalancing, bad lubrication, bearing-related issues, etc.



With energy-saving Bluetooth technology, the data gathered is transferred via gateway to the Metris server, where different analyses are carried out.

FUNCTIONALITIES

- Monitoring the condition/status of machines and systems
- Vibration is one of the first indications that some form of damage is developing
- Detection in advance can predict potential damage and outages
- Send warnings/alarms to the operator

- Means of increasing reliability and customer productivity, as well as decreasing unplanned downtime
- Schedule a more effective maintenance plan, including planned stoppages

BENEFITS

- Increase safety
- Increase productivity
- Reduce downtime
- Cost-efficient wireless device

Metris VibePro

Maximum uptime and efficiency

Metris VibePro is your solution for real-time, 24/7 machinery health monitoring. Equipped with cutting-edge vibration and temperature sensors, VibePro delivers actionable insights that help you detect issues early and prevent costly downtime. With a battery life of up to 15 years and seamless wireless connectivity. Experience proactive maintenance, extend equipment lifespan, and keep your operations running smoothly with Metris VibePro, the future of predictive maintenance.

LONG BATTERY LIFE

Lasts up to 15 years, minimizing the need for frequent battery changes.

ACCURATE MEASUREMENTS

Captures precise vibration data in three axes, with up to 64g amplitude detection.

WIDE TEMPERATURE TOLERANCE

Operates on surfaces up to 105°C and ambient up to 85°C, certified also for ex-zones.

EXTENDED RANGE

Covers up to 50 meters line-of-sight, ensuring reliable data transmission in large areas.

ADVANCED VIBRATION ANALYSIS

High sampling frequency (up to 25,600 Hz) with up to 45000 points per measurement.



WATCH THE VIDEO

ANDRITZ VibePro – 24/7
Wireless Condition Monitoring



ANDRITZ Mill-wide Optimization (MWO)

Reach target values for key product properties with the lowest possible production cost

Take full control of your entire production site with ANDRITZ Mill-wide Optimization, a solution designed to optimize every unit process and deliver maximum efficiency across operations. The ultimate goal is simple: achieve target product quality at the lowest possible cost. This starts with accurate production and inventory management. By measuring output

precisely from the very first material input, you can stabilize processes and prevent costly upsets. Quality and cost optimization come next. Advanced analytics and process tests help define the best production targets for the entire site. These targets consider raw materials, grade requirements, energy, and chemical costs, creating a strategy tailored to your operation.

Key capabilities



PRODUCTION & INVENTORY MANAGEMENT

Track fiber throughput and material flow from raw input to final product, enabling precise control and reducing waste



QUALITY & COST OPTIMIZATION

Use advanced analytics to balance energy, chemical, and raw material costs while meeting quality standards for different fabric grades



OPERATOR EMPOWERMENT

Dashboards and mobile apps support smarter decisions, reduce manual interventions, and improve collaboration with maintenance teams



REAL-TIME INSIGHTS

Visualize constraints and performance opportunities across spinning, bonding, finishing, and packaging lines

Energy management application

Monitor, forecast and optimize the energy consumption (electricity, heat, etc) of plants

The Energy Management application consolidates diverse energy source information of the plant operations allowing the management teams to have a quick and intuitive overview of the most important key performance indicators and dashboards that affects energy usage.

The application takes into consideration aspects of the International Standard ISO50001, which establishes the systems and processes necessary to improve energy performance, including energy efficiency, use, and consumption.



BENEFITS

- Provides support for the energy planning process
- Key performance indicators of energy
- Usage and costs
- Dashboards provide an overview of energy usage

Cost management application

Get the precise decision you need

Cost Management interpret process data into behaviors to clearly point out where are the opportunities in middle of vast mill scenarios. Clarifying indicators allow deep diagnoses to dynamically investigate raw material losses and savings grouped by different process areas and other dozens of categories. Monitor mill consumption cost 24/7, visualize online mill opportunities snapshot and saving estimation, easily identify hidden losses, and check the cost control based on various pre-defined and personalized reports with cost management application.

BENEFITS

- Take right decision tracking your control project success
- Eliminate guesswork
- Planning next process adjustments and repairs
- Faster control project startup
- Discover hidden economic impactful disturbances



ANDRITZ Advanced Process Control (APC)

Stabilizing, improving, and optimizing plant performance with Advanced Process Control (APC)

ANDRITZ offers a suite of Advanced Process Control solutions that help industrial operations remove bottlenecks, reduce energy consumption, produce higher quality products more consistently, and lower production costs.

Advanced Process Control builds on basic process control to deliver greater value in terms of throughput, quality, and cost efficiency. By leveraging advanced technologies, APC optimizes processes in alignment with business objectives, ensuring minimal resource usage while maintaining performance targets for throughput, quality, and cost.

CONTROL OPTIMIZATION WITH ACE (ADVANCED CONTROL EXPERT)

"It works reliably – better than our best operator." That's how many mills describe the APC multivariable, predictive, and adaptive controller. The supervisory process management system autonomously optimizes process areas based on cost and value, acting as an automated "expert operator". Its advanced capabilities ensure continuous, real-time optimization, delivering maximum efficiency and performance without manual intervention.

The expert operator in APC is always fully attentive, never distracted, and achieves optimum conditions for the plant. It can be implemented to determine the best setpoints so that the process can operate at maximum efficiency. Unlike the Black Box solutions others offer, our solution communicates to the operators in their native language, advising them about changing strategies and goals, constraints, and operational issues.



KEY CHARACTERISTICS

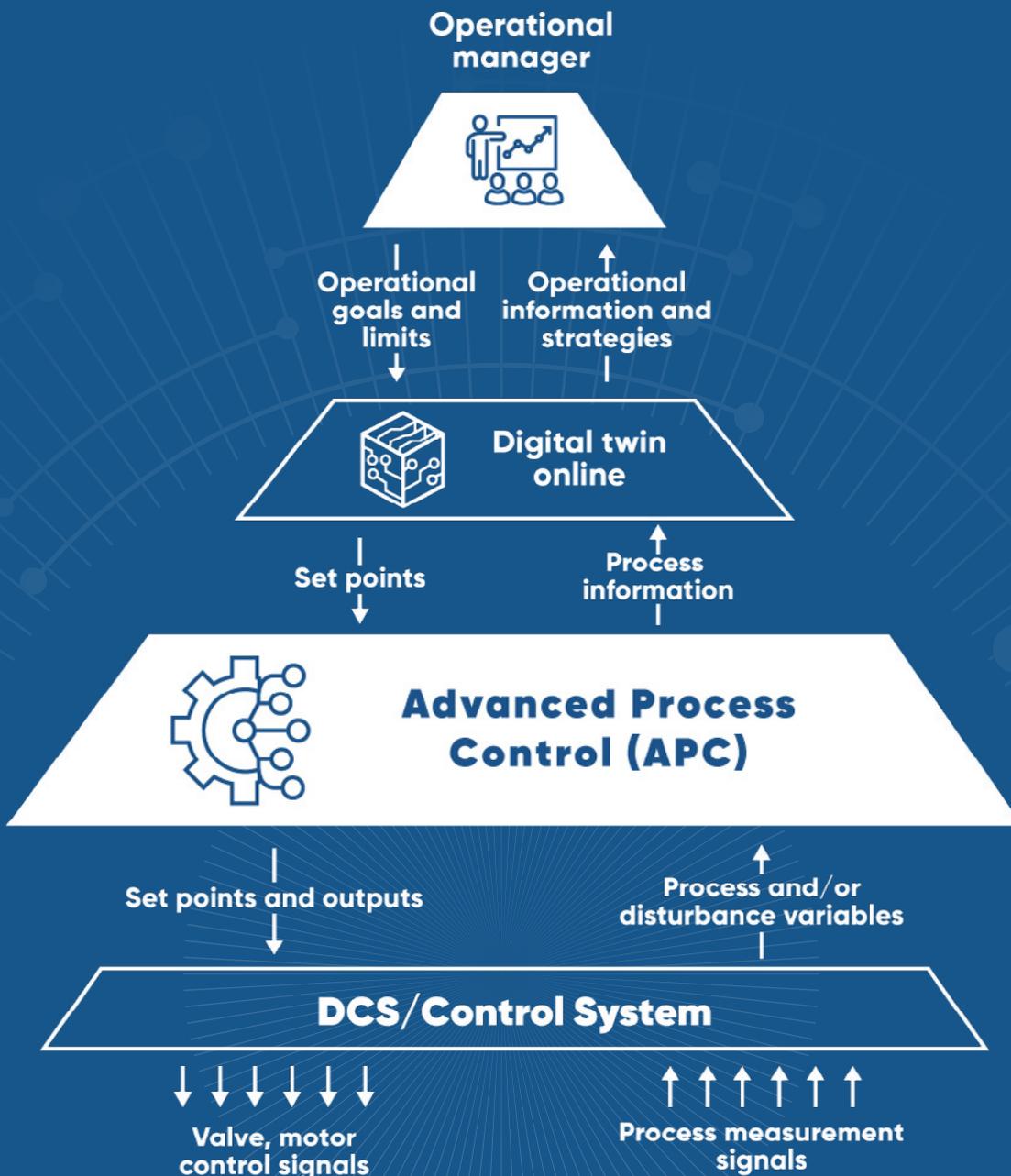
- ANDRITZ's know-how built into Advanced Process Control Libraries
- Efficient and consistent deployment of controls
- Embedded documentation of control functions – it is a glass box
- Available for final customers' own deployment via a low-code

WHAT CAN BE INCLUDED IN AN APC PROJECT

- We can deliver a complete solution for any defined scope
- Deliver a solution with a ROI guarantee
- Can deliver (as required): instruments, upgraded controls, operator training-simulations, equipment services and upgrades

MULTIPLE BENEFITS, DEPENDING ON THE PROCESS AREA

- Reduce process variability
- Reduce raw materials, chemicals, and energy
- Increase production, working closer to limits
- Reduce process upsets and sheet breaks



ANDRITZ AI Expert Agent

Introducing our digital assistant

Imagine having a chat box on the dashboard of your PC where you can converse directly with your mill equipment, in your own language, checking on condition and performance and then receiving instant feedback and advice. Sounds like something out of the future? ANDRITZ AI Expert Agent is already doing this here and is ready to continue the digital transformation resulting in improved performance of nonwoven industry.

ANDRITZ AI Expert Agent integrates anomaly detection and a chat interface to provide real-time insights for operators and maintenance teams. It uses IoT sensors and machine learning to identify and prevent faults.

The ANDRITZ AI Expert Agent solution has been developed in collaboration with Microsoft, bringing together ANDRITZ's process industry expertise with Microsoft's technical proficiency.

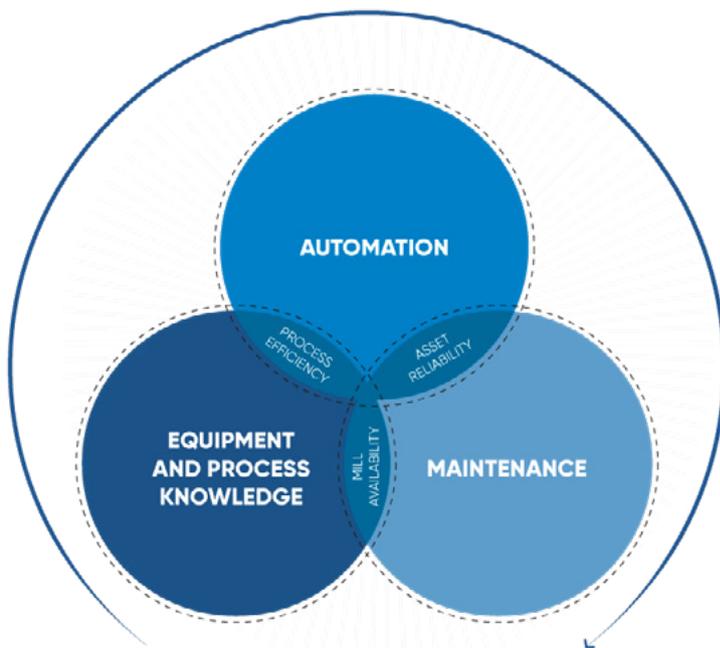


ANDRITZ SYNERGY™ Service agreements

A proven service solution for collaboration, expertise, and profitability

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 or plant 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 SYNERGY™ AGREEMENT'S BENEFITS

- Increased operating efficiency
- Highest possible equipment availability
- Optimized production and maintenance costs
- Expert advice from a leading technology and maintenance partner
- Value-added transfer of knowledge and training
- Access to expert technical assistance

ANDRITZ SYNERGY™ SERVICES

ASSET RELIABILITY

MILL AVAILABILITY

PROCESS EFFICIENCY



Making industry safe

ANDRITZ Cyber Security – powered by Armis

Digital transformation makes industrial networks more connected, more productive – and more exposed. Cyber and digital threats include hackers looking to disrupt normal operations, everyday incidents such as misconfiguration of machines or lack of defined security processes and can seriously impact your business.

ANDRITZ helps its global customers minimize digital and cyber risks through its partnership with leading OT security provider Armis.

Founded by leading OT Cyber Security experts, Armis' portfolio of cutting-edge solutions ensures continuous digital risk management and compliance. These solutions are now fully integrated into the ANDRITZ portfolio, providing customers with safer machines and a significantly more resilient infrastructure.

KEY BENEFITS

- Enriched inventory of all OT, IT, and IIoT assets
- OT security posture assessments that prioritize risk by impacting on operations
- Feasible, customized mitigation playbooks
- Automatic generation of compliance and audit reports
- Visibility into components, assemblies, machines, network segments, shops, entire production sites, and across production sites
- Current with latest threat intelligence
- Control of access to assets
- Central security management of production sites from a single pane of glass





CONTACT US FOR MORE INFORMATION

Advancing autonomous operations is our vision and is becoming an integral part of industrial processes. ANDRITZ is at the forefront of this transformation, leveraging digital innovations along with deep operational and technical expertise to improve process efficiency, quality management, and production reliability and availability.

We focus on developing autonomous pulp mills and process optimization, to support efficient and sustainable operations by combining automation, electrification, intelligent instrumentation, and digitalization to create measurable value throughout the full life cycle and the entire value stream.

FRANCE

ANDRITZ Asselin-Thibeau SAS
Elbeuf, France
p: +33 2 32 96 42 42
asselin-thibeau@andritz.com

ANDRITZ Laroche SAS
Cours-la-ville, France
p: +33 4 74 89 84 85
laroche@andritz.com

ANDRITZ Perfojet SAS
Montbonnot, France
p: +33 4 76 52 23 11
perfojet@andritz.com

GERMANY

ANDRITZ Küsters GmbH
Krefeld, Germany
p: +49 2151 34 0
kuesters@andritz.com

ITALY

ANDRITZ Diatec Srl
Collecorvino, Italy
p: +39 085 82060-1
diatec@andritz.com

DENMARK

ANDRITZ Dan-Web A/S
Galten, Denmark
p: +45 87 43 95 00

CHINA

ANDRITZ (China) Ltd.
Wuxi, P.R. China
p: +86 510 8536 1269
nonwoven-china@andritz.com

INDIA

ANDRITZ Technologies Pvt. Ltd.
Chennai, India
p: +91 44 4293 9393
nonwovenservice.india@andritz.com

USA

Spartanburg, USA
p: +1 864 587 4848
nonwoven-americas@andritz.com

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