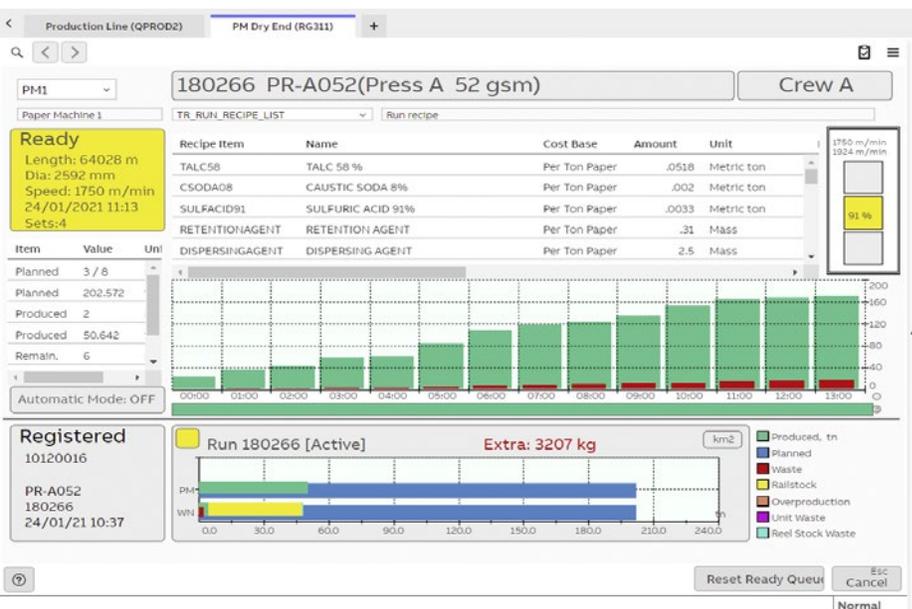


PROVEN. FLEXIBLE. SCALABLE.

Production Management

ABB Ability™ Manufacturing Execution System for pulp and paper



Remove silos, reduce waste and maximize production by executing plans efficiently with Production Management, part of the ABB Ability™ Manufacturing Execution System (MES) for pulp and paper. This module integrates shopfloor data and material stock into one platform, providing the visibility and traceability needed to produce the right quantity and quality of any product at the lowest cost, for optimized operation.

— Paper machine dry end operator view

Production challenges

The complexities of papermaking, including adjusting for different grades, process upsets, and variability challenges, as well as the islands of automation created by multiple software systems, make standardization and production efficiency an ongoing challenge. Balancing that with inventory, resource and asset utilization for every production run makes it a hurdle to optimize costs and efficiency.

If mills had a way of harmonizing different systems for visibility of the process and end-to-end traceability of products, then not only could the above challenges be addressed, but also new levels of profitability and performance could be achieved.

Overview

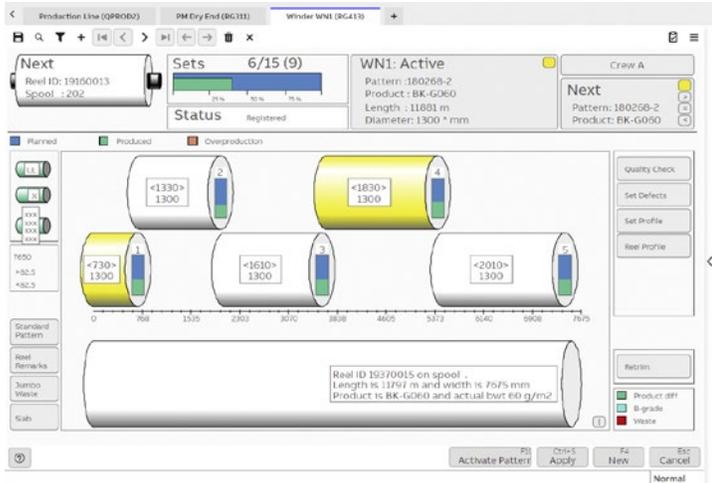
ABB's Production Management is purpose-built for the pulp and paper industry to execute production plans, leveraging all data available to avoid under or over producing. It gives mills complete visibility into all transactions for all reels/pallets, uncovering any

raw material concerns, quality issues and production bottlenecks, which also makes root cause analysis easier.

Ultimately, Production Management works with other ABB MES modules to identify how best to repeatedly achieve the optimum quantity of the best quality product with the most efficient use of recipes (i.e. the Golden Batch).

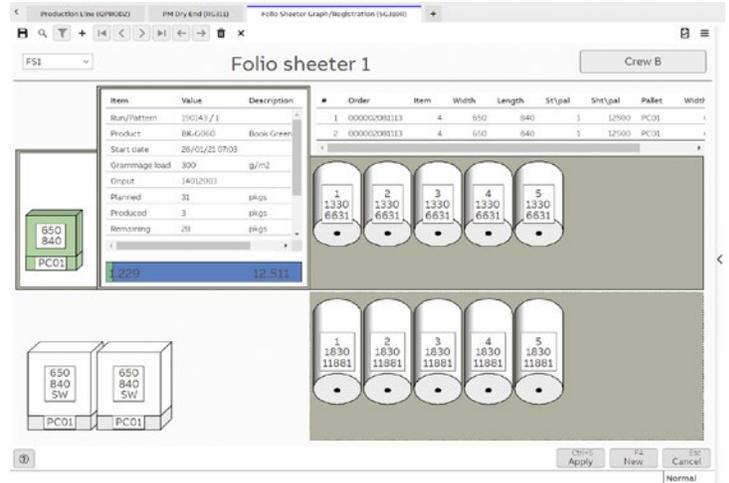
Benefits

- Superior mill-wide to shop floor visibility
- Helps lower production input costs by ~2%
- Easy spotting of inventory shortages or excesses, for both raw materials and finished goods, helping reduce inventory by ~10%
- Improves customer satisfaction ~10-20% with on-time, on-spec and in-full deliveries
- Improves manufacturing efficiency by 2-5%
- Detects bottlenecks and production and quality issues and enables better root cause analysis
- Improves personnel productivity



01

01 Winder operator view



02

02 Folio Sheeter operator overview

Features

- Execution, visibility and closed loop reporting of production plans for real-time adjustments and optimization over time
- Complete customizable displays
- Easy configurability to meet specific operational needs including tailored applications for paper, tissue, pulp, sheet, and converting production
- Material traceability and product genealogy, from creation and raw materials received to finished goods delivered
- Material consumption forecasts
- Scalability of functions to meet mill needs
 - Material and warehouse management determines current inventory levels and locations giving an updated status for everything used to produce goods – from pulp to sheet
 - Finished goods, loading and delivery with common identifiers (barcode, RFID tags, QR)
 - Online product costing to determine the price to produce
 - Integration with other ABB MES modules and/or ERP level reporting
- Automation of downstream equipment in winding/wrapping/packaging with interfaces to winder PLC, automatic slitter knife settings, conveyor, wrapper PLC, etc.
- Works with most common third-party labeling software (e.g., Nice Label, BarTender)
- Business intelligence and OEE data and integration
- Integration with ABB Performance Services for diagnostics and analytics of process variability and sheet breaks

How it works

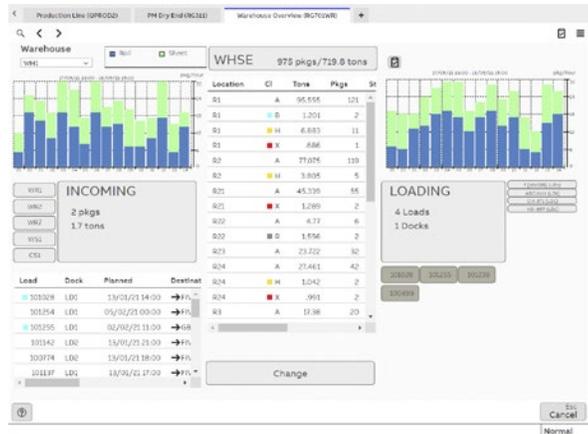
Production Management supports, harmonizes and optimizes mill operations by connecting shop floor data and finished good inventory directly to orders. It also acts as the middle layer between ERP and the shop floor, giving visibility about what's important to empower faster, more detailed, numbers-based decision making.

The system shows if mills are over production, where there are bottlenecks, how much wastage and what is needed to achieve production goals. This enables mills to plan, respond and change on demand as production plans are executed. With visibility of what's been done and what is planned for the future, mills can continuously optimize plans and make adjustments that maintain profitability, such as negotiating with customers or adjusting stock levels.

Genealogy

The module provides material traceability and product genealogy, from creation and raw materials received to finished goods delivered, including jumbo-reel-to-order-item status tracking. The comprehensive, time-based tracing capabilities allows quality managers to pinpoint issues within the process or raw material used as well as identify the mother roll of a single unit or order item and its neighboring rolls cut from the same jumbo reel. By documenting and storing all products shipped, raw material used, quality and process measurements, and actions taken, users get a full transaction log with the ability to see the DNA of every order delivered for better quality and complaint tracking.

Warehouse overview for both incoming and outgoing production



Material management

Track and trace everything used to produce the finished goods. With real-time reporting of materials consumed and current inventory levels (down to the tank-level), mills can better manage availability and ordering of raw materials.

Warehouse management

Easily determine which production units are in what storage location based on barcode/ID code tracking of production unit. Control inventory levels and movement within warehouses. Easily integrates with ERP-level load planning and executes based on shared data.

Online product costing

Production Management also has the capability of calculating the cost of a product produced, from the jumbo roll to the order-item level. This can be used to calculate profitability of products, which ones to focus on and where to look for cost reductions.

Reporting

Production Management has standard reports including documents for the delivery note, packing list and more. Reports can be localized to customer needs, such as the terminology and nomenclature used. The module provides functionality for ETL (Extract, Transfer and Load) to transfer transactional data to ABB's Decision Support module, which provides data warehouse reporting, calculation of KPIs, and the ability to build customized reports.