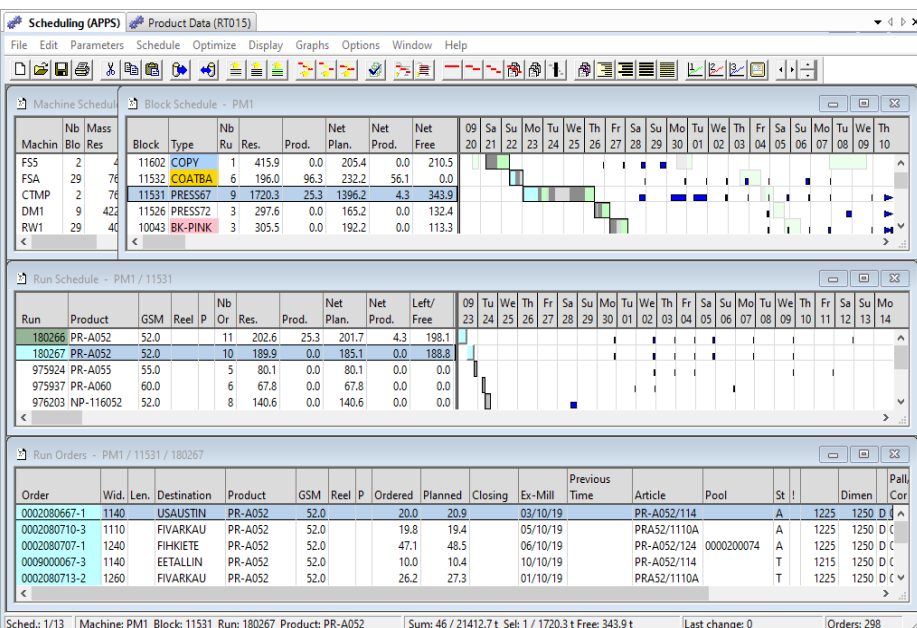


PULP AND PAPER

Production Planning

ABB Ability™ Manufacturing Execution System for pulp and paper



Optimize paper machine capacity, time and resource utilization by getting a better overview of machine availability and profitability with Production Planning, part of the ABB Ability™ Manufacturing Execution System (MES) for pulp and paper. The system helps you streamline production across multiple machines and mills to eliminate high trim waste and grade change costs, unbalanced machine utilization, scheduling conflicts, late deliveries and unprofitable production.

Paper Machine Scheduling dashboard

Solves complex scheduling challenges

Paper machine order scheduling and capacity utilization, as well as on-time order deliveries, make major impacts on profitability. However, achieving high efficiency in machine scheduling is difficult due to widely varying order sizes, basis weights and dimensions, as well as changing sales priorities, machine downtime and bottlenecks, and other factors. Making everything work efficiently is a complex challenge.

The Production Planning module within ABB's MES solves this by simplifying optimal real-time planning and scheduling of production blocks, runs and orders. All production equipment, including the paper machine, winder, rewinders and sheeters are taken into account, and production schedules are systematically reoptimized in the event of change orders or process disruptions. The program is easily configured to cover restrictions set by the orders, such as maximum number of rolls per set or edge roll restrictions, helping optimize the trim widths to cut production costs – while also ensuring on-time delivery.

Benefits

- Easily and rapidly creates the optimum production plans, with accurate timing and cost information
- Ensures orders are produced and delivered on-time, for improved customer satisfaction
- Minimizes grade change and trim waste costs
- Reduces inventory to more manageable levels
- Provides projected profitability of an order
- Helps manage capacity as well as raw and packing materials
- Reduces costs, complexity and headaches in production planning and scheduling

Features

- Scheduling and allocating of machine time for single/multiple machines/mills using optimizing algorithms and costing functionality
- Covers block/run, trim, and re-trimming, including multiple algorithms to account for all scenarios
- Accurate timing information with full reports for: order backlog, run schedule and instructions, and possible late orders
- Dynamic visual user interface, with clear pulp balance curve graphs to find the best balance between production and consumption
- Fine planning of complex scenarios with multiple machines on the production route
- Simulation modes to explore What-If scenarios
- Finishing machine optimizer helps allocate orders more efficiently based on changeover times, capacity, etc.
- Alarms with missing materials lists for when there is not enough raw or packing materials available for the scheduled production

Profitable-to-Promise reality check

A key feature of the software is the 'Profitable-to-Promise' function that immediately checks real time machine availability, capacity and projected profitability of a potential order. This optimizes paper machine capacity in the most profitable manner, while simultaneously making sure that promised orders and delivery schedules can be met.

What-If scenario analysis

System users can also visualize impacts and order flows via the dynamic graphical representation of schedules, downtime, and bottlenecks, even including potential overloads in downstream operations. What-If analysis scenarios allow users to view the impact of scheduling changes on production times, profitability and possible order delays. This results in shorter lead times that maximize machine utilization and efficiency, and at the same time cut costs normally caused by trim losses, grade changes, cycle times and finishing waste. Multiple trimming algorithms and trimming strategies are applied to further increase profitability and give better ROI on the assets.

Applications within Production Planning

Rough planning

Rough planning is used for capacity control for the mill so that the ideal amount of orders are booked against the schedules and the booked orders are produced on time, in the optimum sequence.

Fine planning and trimming

Order planning can be started from any of the machine phases and all orders with the same base paper are brought together in the same machine/winder run. The trim solution considers trim loss, order deviations and finishing efficiency to provide the best end result.

Winder trimming and re-trimming

Trims can be modified, and the remaining quantities optimized any time, even when the run is under production. This way the deviations caused by production losses and alternating parameters can be efficiently corrected.

Replenishing

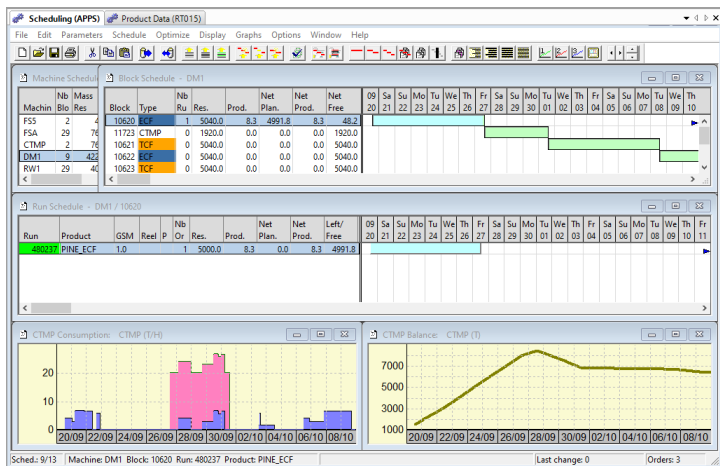
Based on Stock Keeping Units (SKU) and articles, the calculation creates production orders that fulfil the given targets. The targets can be based on customer orders entered against the SKU.

Integrated pulp and paper planning

The pulp drying machine can be planned like a paper machine, with customer orders or with standard SKU that is based on actual or estimated customer order quantities.

Tissue handling

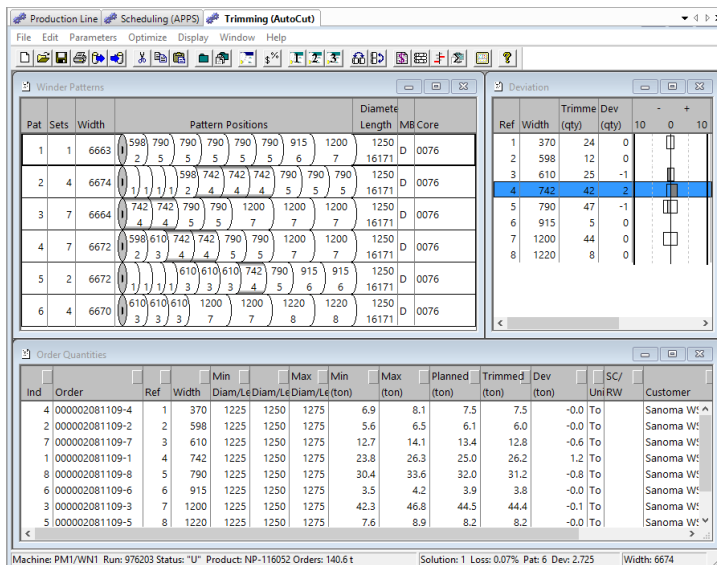
ABB MES supports all kinds of tissue converting processes, such as the specific raw materials used for tissue making or the ability to wind several rolls at the same time at the tissue winder.



01

01 Dashboard showing pulp balance for optimal planning of machine and order schedules based on raw material.

02 Trim planning of rolls helps find the best end result by considering trim loss, order deviations and finishing efficiency.



02

About ABB Ability™ Manufacturing Execution System

Based on decades of experience in supplying information and operational technology to the sector, ABB Ability™ MES for pulp and paper consists of integrated enterprise software modules that bring together business and manufacturing information to help papermakers make decisions based on the financial impacts of production choices. ABB's modular and flexible MES applications cover all core functionalities, from order-through-invoice. These modules work seamlessly together and can be further enhanced with other ABB Ability™ applications for pulp and paper to help you achieve new levels of operational efficiency.

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