



ABB Ability[™] Manufacturing Operations Management for Metals

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What is Manufacturing Operations Management?

Manufacturing Operations Management (MOM) is a family of solutions from ABB for information sharing, production planning and execution, reporting, asset monitoring, and process optimization (mathematical models) covering all processes from steel production, hot rolling, cold rolling to finishing and treatment in processing lines.

Typical features:

- plant-wide sharing of information between business systems and the shop floor
- production execution (dispatch of production order data/collection of process data)
- paperless production management (online information, less misprinted data, availability of instructions)
- visualization of real-time production and equipment status (line stops, operating time, etc.)
- production performance analysis (time-based and individual-based reporting).

ABB MOM for Metals allows users in the organization to increase the efficiency of working by making the right decisions at the right time with fewer mistakes.This information is up-to-date and quickly accessible to users. This allows them to collaborate in a more informed way to ensure maximum productivity and quality.

Hardware and software

ABB MOM for Metals is the common software framework for production planning and execution systems within ABB's Metals business. The framework forms the basis for the different Metals applications and is used for adapting base functionality to customer-specific requirements.

The software package is object-oriented and is based on the MS.NET framework. The application software operates in Windows environments using standard hardware and software components.

"What and why" in your production

- Is your production integrated with your planning?
- Can you back-trace your production?
- Do you know the 'what and why' of your plant downtime?
- Are you managing your line set-up parameters optimally?
- Do you monitor material quality during production?



ABB's MOM4Metals provides the solution

This application is engineered around ABB's MOM4Metals Framework and provides a suite of modules, which will be tailored to your needs:

- Production data historian
 Data repository with long-term storage of production data
- Production performance analysis
 Production reports and statistics and online
 production data feedback
- **Production stop/downtime monitoring** Recording and analysis of production stop/downtime detailing when, what and why
- Equipment monitoring Recording of equipment operating time and cycles for planning and maintenance
- **Quality management** Inspection, material rejection, recording and analysis of quality set-points versus measured process values
- Roll management
 Keeps track of the rolls, monitors the roll wear and supports roll change
- Set-up models and recipes
 Calculation of pass schedule and set-up values based on mathematical models or storage in fixed tables
- Material identity tracking Tracking of individuals (pieces) along the production process.

Your benefits

- access to online information giving higher operational efficiency (paperless work)
- optimized equipment set-up for less scrapping, uniform quality and potential energy savings
- knowing plant availability gives improved plant utilization
- direct feedback on production and quality characteristics supports quick and correct decision-making, immediate action and correction
- filter/search capabilities for quick access to stored information.



Production planning and scheduling

The medium and long term production plan is maintained in the ERP and Scheduling systems. A sub-set of production data for the following hours and days is downloaded to the MOM system so operations is well informed and authorized users can, in case of need, quickly adjust the plan and adapt to the actual production situation in the plant.

The production of the material follows a defined 'process route' along the production line from entry equipment to exit equipment. When the material in a production order advances along the production line, it passes through defined states. These states reflect the progress in production, providing a clear view of the order situation.

Production data historian and production performance analysis

Production and process related data is collected from different data sources (e.g. Level 1 process control system, lab systems, furnace control systems, etc.). The data is stored in the history database on a time series and individual (material) basis.

The production performance analysis provides the means to follow up production performance in periodic reports (shift, daily, weekly, etc.) and individual reports (coil, plate, beam, heat, etc.).

Management of line stops/delay handling

Line Stop Management allows you to handle and classify disruptions in the plant and identify critical reasons for downtime using statistics.



Production planning and scheduling

The Level 2 system offers extensive packages of optimization models such as:

- Steel Production Scrap Mix, Energy Balance, Alloys, Slag, Melt Down Control, Oxygen, DRI, Vacuum
- Hot Rolling Hot Strip Mills, Plate Mills, Steckel Mills
- Cold Rolling Single nd Multi Stand Mills, Reduction-, Temper- and Foil-Mills

Management of equipment

Production and guality of the plant output rely on equipment, which has to function in a safe and reliable way. Equipment Monitoring and Roll Management provides support for monitoring operating time, cycle count and rolled tonnage as well as administering maintenance, roll logistics and roll change.

Management of quality defects

The Quality Management module allows effective management and monitoring of quality-related matter. The function supports management of:

- quality inspection allowing the user to handle prime/nonprime material, add text remarks and follow test instructions
- rejecting/scrapping of material allowing the user to handle reject causes, reject location, etc.
- automatic monitoring of deviations in material property values versus target/nominal values.

Material identity tracking

An accurate identity tracking image of material movements in the production line is crucial for correct reporting, triggering other functions and ensuring the correct setup of the process equipment.

Identity tracking reflects the material movement along the line based on different sensor signals and manual input. The user/operator always has the possibility to make corrections for sensor failure and when unexpected situations occur.

New tracking information is shown when the situation changes and therefore provides an up-to-date image/map of the actual material positions.



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ABB Ability Manufacturing Operations Management for Metals

- ABB MOM for Metals systems bridge the gap across production and the business providing improvements in product quality, production output and customer service
- ABB MOM for Metals solutions are built upon 35 years' experience with insight and feedback from more than 250 projects in the Metals industry
- ABB MOM for Metals solutions helps customers achieve their continuous improvement goals, enabling them to maintain their competitive advantage
- ABB MOM for Metals solutions delivers increased revenues, reduced operating costs and higher return on capital employed.



Contact us



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