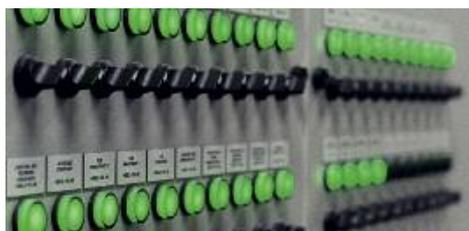


AluControl[®] - Level 3

Electrical and Automation Systems



AluControl® – Level 3

Production planning systems

PRODUCTION PLANNING SYSTEMS

To provide a broad variety of products in top quality and with minimum delivery times, precise planning of the production process is required. Furthermore, a connection to the production systems of supplier and customer must be available to be able to react to changes as quickly as possible. There is a trend towards “Real Time Enterprise” concepts (RTE) by means of which changes can be checked and taken into account in real time.

On the other hand, there are the technical and technological restrictions of the plant which must be considered for program planning. In combination, these aspects generate the demand for a comprehensive and anticipatory production planning system.

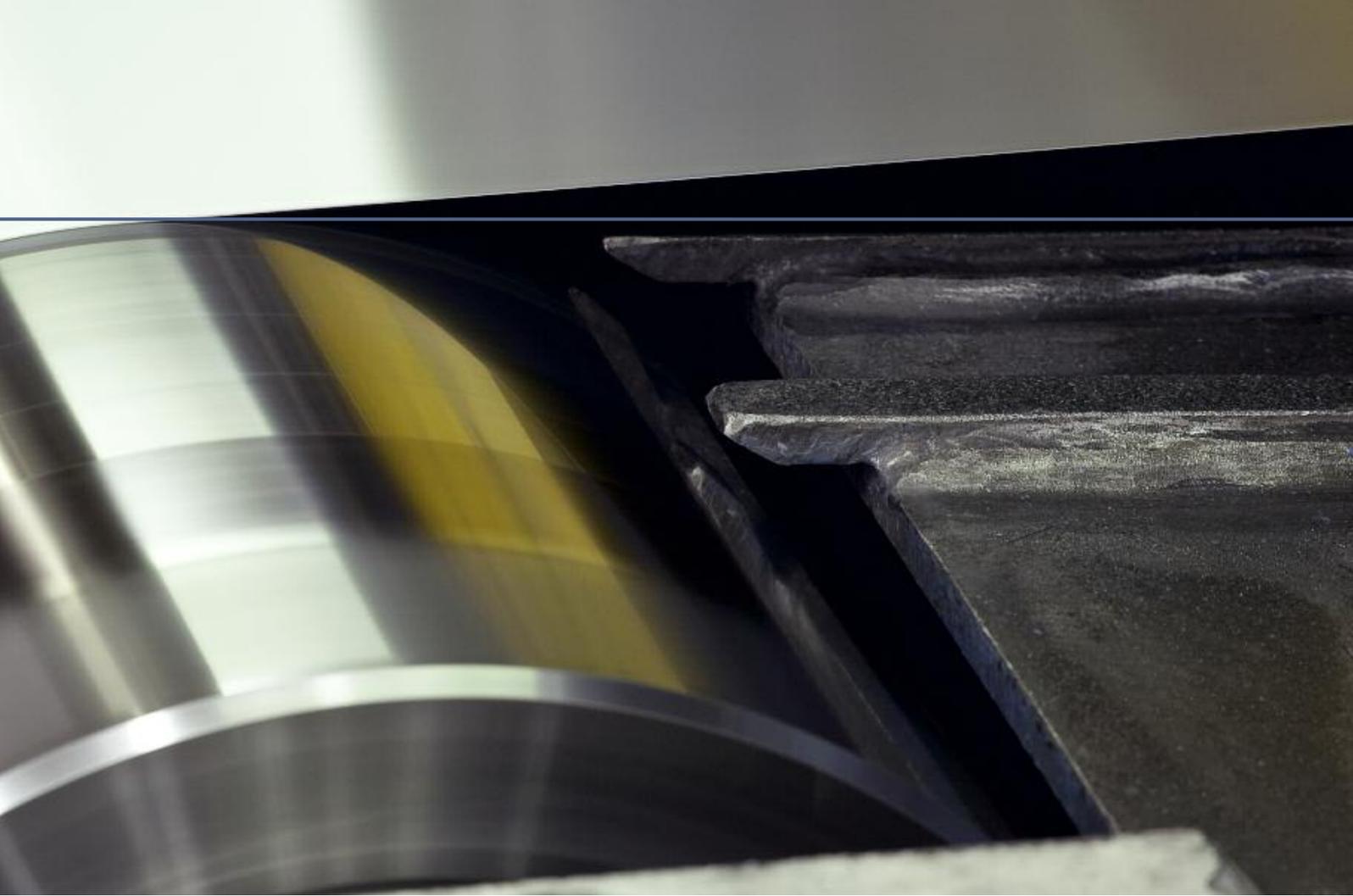
AluControl® is a part of the X-Pact® automation package from SMS group and particularly takes into account the special requirements of aluminum hot and cold rolling processes.

PRODUCTION ORDERS

Customer orders are subdivided into technically feasible production orders. Based on the purchase order specification, the individual production order for the product is generated using an extensive set of rules and regulations.

They include:

- Definition of the required production steps and possible plant alternatives
- Definition of the dimensions and the quality of the feedstock and semi-finished products
- Yield planning for every production step in order to determine the required feedstock quantities
- Definition of sampling and test specifications



PRODUCTION SPECIFICATIONS

Every individual plant requires detailed specifications for the individual production steps. These are generated taking into account process-defining restrictions, such as:

- Target analysis and tolerances for the casting plants
- Annealing temperatures and holding times for furnaces
- Intermediate thicknesses and target rolling temperatures in aluminum rolling mills
- Cooling behavior between the passes in aluminum cold rolling mills

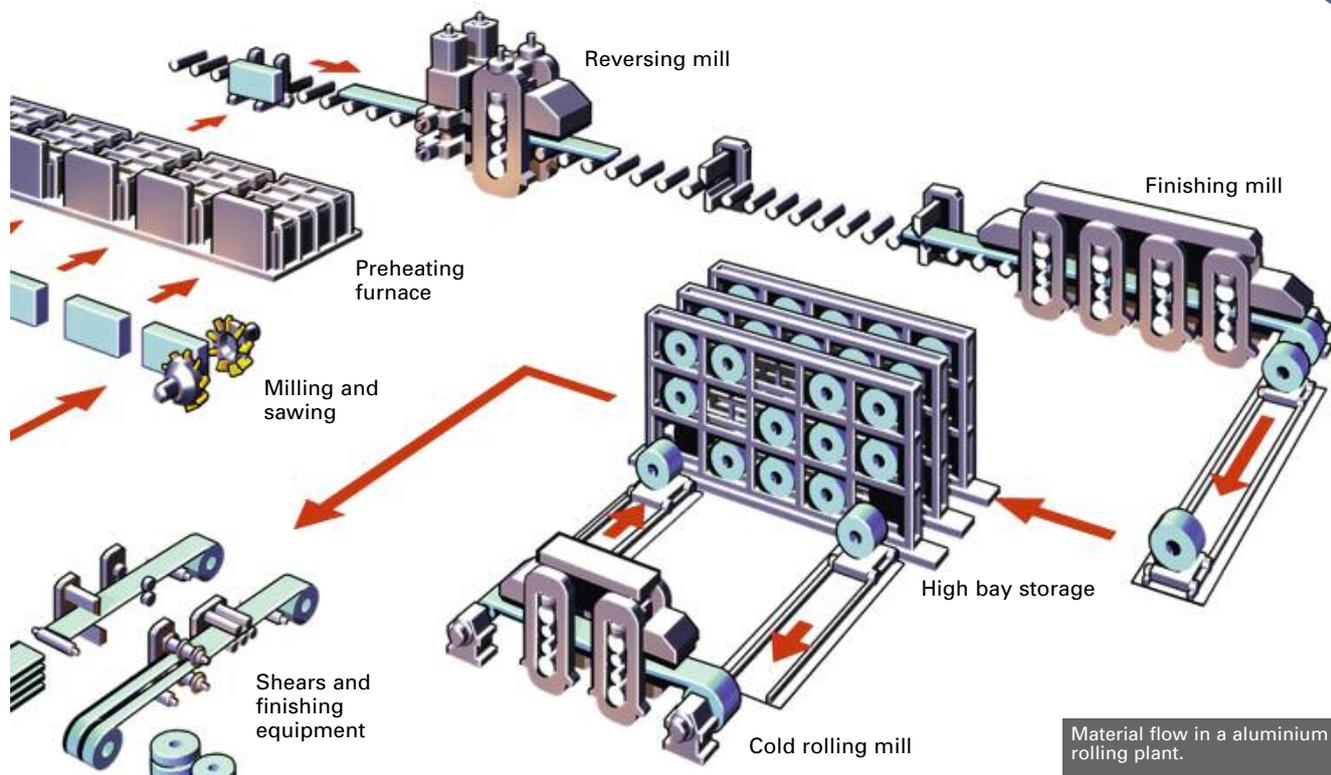
THE FACTORY MODEL

A consistent planning system which includes all areas is based on a factory model.

This model reflects the current production status in the factory and comprises:

- Processing status of the orders
- Status of materials, their quality and the following work steps
- Processing status of production sequences
- Individual plant status (e.g. maintenance in progress)

The factory model provides the data base for realizing high-quality production planning and for reporting.



Material flow in a aluminium rolling plant.

PRODUCTION PLANNING

The capacity planning and scheduling functions determine the deadline feasibility for all production orders. In this context, the process routes can be selected with a focus on time-optimized throughput at a preferably homogeneous plant capacity utilization; however, alternative process routes within the plant can also be considered. The result of production planning is the sequence planning for the individual machines and the planning of the available feed-stock for the individual production orders.

QUALITY TRACKING

Through the data exchange with the various Level 2 systems of the overall plant, the AluControl® Level 3 system is informed at all times about the individual production steps and the product quality during processing. The integration of inspection and laboratory data from the material analyses supplements the result. By means of comparing actual values and target values, quality deviations can be detected and indicated automatically.

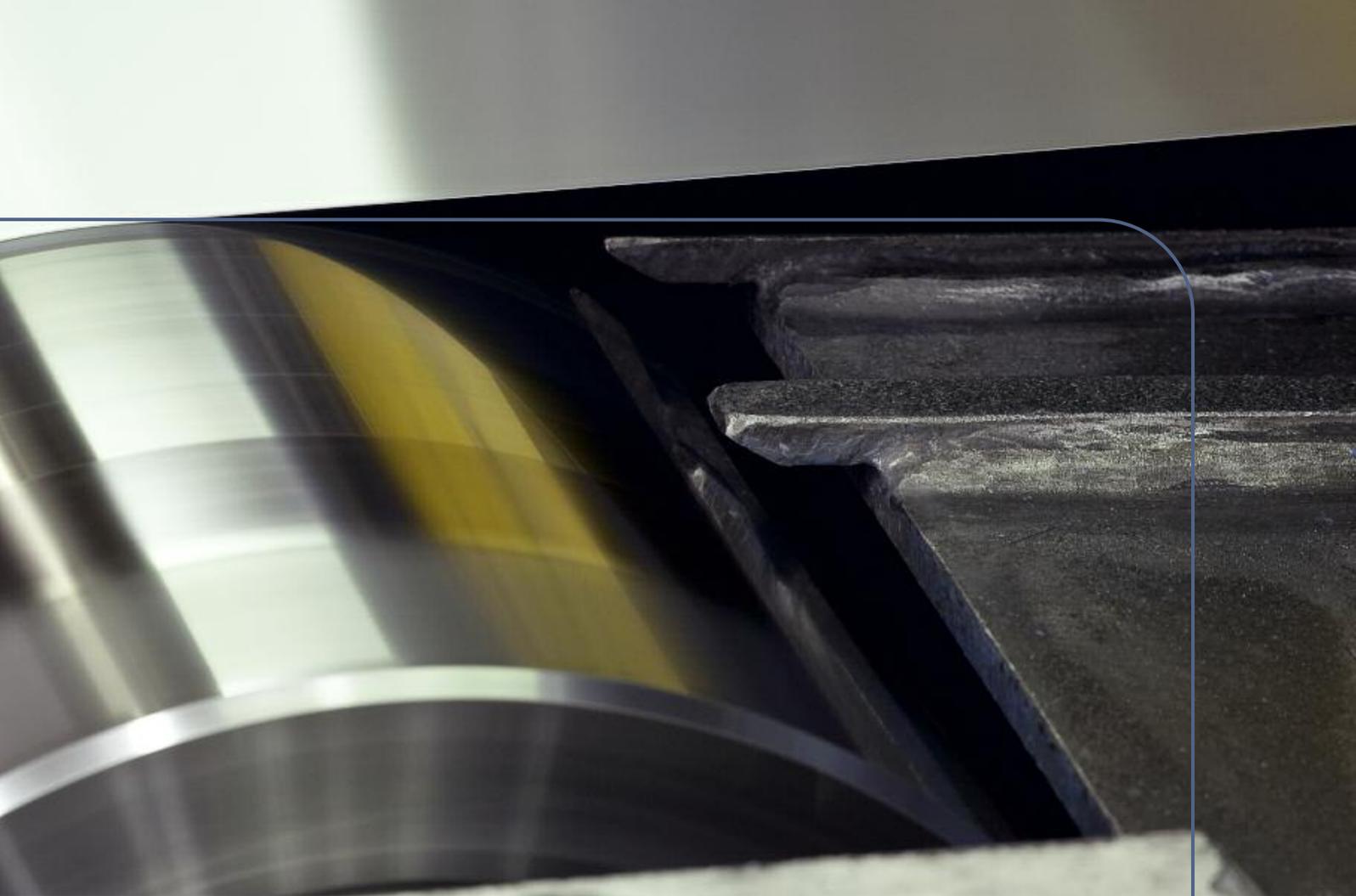
Based on this information, the final quality approval for the end products before delivery is given.

INTEGRATION

The AluControl® Level 3 system is smoothly integrated into the factory and completely fills in the gap between the Level 1 and/or Level 2 plant automation systems and the commercial planning tools on Level 4. Manual interference by the operator is reduced to a minimum. When it comes to connecting the AluControl® Level 3 system to the customer's Level 4 systems, SMS group can draw on varied experiences with the following systems:

- SAP
- Oracle Financial
- MS Dynamics (GP)

Furthermore, the AluControl® Level 3 system can be used as a stand-alone solution, that means without connection to a Level 4 system.



PRODUCTION KNOW-HOW

The benefit of the Level 3 system increases with the degree of completion of the process description and the quality of the implemented production know-how. Ideally, the customer orders a final product with special properties and the Level 3 system uses these specifications to determine the optimum process route in terms of production time and production costs.

We support our customers in the formulation and implementation of production rules. For this purpose, we can draw on our long-standing experience gained in designing and dimensioning numerous plants and production facilities.

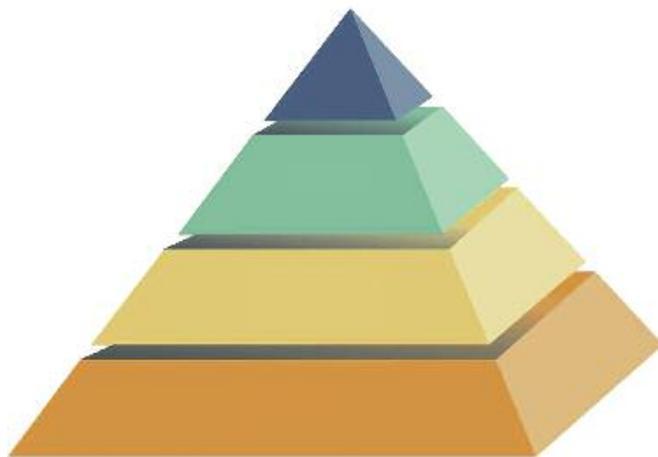
Also our customers' own specialist knowledge can be integrated directly into our AluControl® Level 3 systems and taken into account for the planning tasks.

ALUCONTROL® LEVEL 3 BENEFITS

The AluControl® Level 3 system provides the plant owner with all tools required for the planning and monitoring of the production processes in metallurgical plants and rolling mills. Interlinking the commercial world and the technical process automation systems, the Level 3 production planning system offers the following benefits:

- Maximization of the overall throughput for the factory
- Planning and minimization of inventory stocks for semi-finished products
- Homogeneous and cross-plant product tracking
- Integrated quality control up to the final quality approval
- Improved adherence to delivery deadlines





- Level 3** Production planning systems
- Level 2** Technological process models, process sequencing and reporting
- Level 1** Process automation and control systems
- Level 0** Power distribution and drive systems, sensors and measuring devices

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