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## Comprehensive quality management solution at Mexican steel mill helps to streamline strip handling

- **ArcelorMittal Lázaro Cárdenas has implemented an integrated quality control, production management, and transportation system from Primetals Technologies**
- **Automated processes for detection of material defects and for coil logistics**
- **Solution covers all quality management for the plant's hot-strip and skin-pass mills**
- **Results in less redundant transporting of materials**

An integrated quality control, production management, and transportation system from Primetals Technologies recently went into operation at ArcelorMittal Mexico's production site in Ciudad Lázaro Cárdenas in the state of Michoacán, Mexico.

The new system includes a production management system (PMS) with a manufacturing execution system (MES), the Modular Coil Shuttle System for autonomous transport of hot strip, and the quality control system Through-Process Quality Control (TPQC), which encompasses the entire production chain. The seamless integration of all these solutions with Primetals Technologies' process control system (Level 1) and process optimization system (Level 2) provides operators with a high level of connectivity, structure, and depth of production data. The new solution orchestrates the entire quality management process in the hot-rolling mill and skin-pass mill.

### **Reduces unnecessary transport of coils**

The complete integration of all systems into Primetals Technologies' process control and optimization system results in the availability of vast amounts of information on all products made using the plant's production lines, which is highly practical in the event that defects occur and need to be analyzed. This system architecture makes the solution stand out from other approaches. As a result, the quality of the hot strip is evaluated directly upon completion of all production steps, and the system automatically decides if the strip should be sent to the storage areas or to the skin pass mill for the finishing process.

Antoine Dhennin, Chief Digital Officer and Chief Information Officer at ArcelorMittal North America, comments on the new solution's essential contribution: "It enables automated quality assessment in real time and reduces unnecessary transport routes, as coils are diverted directly to the skin-pass mill for processing when defects are detected." With conventional solutions, the strip is moved to a yard for storage, where it is kept in case it is found to exhibit defects. However, strip that is suited for further processing could, in theory, be directly forwarded to the next production step—thereby increasing efficiency, streamlining logistics, and shortening overall production time. The solution from Primetals Technologies capitalizes on this principle.

## TPQC supports optimization of processes and products

All quality-relevant data from the hot-rolling and skin-pass mills are collected and stored in a structured manner in the quality control system TPQC. This enables long-term data evaluation for each production step. Product and process quality is automatically evaluated and the findings from the system can be used as a basis for further optimization measures. Thanks to these aspects, TPQC helps to continually increase product quality and process reliability.

## Automated production planning and transport

The production management system (PMS) includes a comprehensive range of modules covering various planning levels, from demand and sales planning to material-flow management, order planning, and sequencing. Material logistics and inventory are continuously optimized. The Modular Coil Shuttle System moves hot-rolled coils from the hot-strip mill to the storage area or to the skin-pass mill using motorized, rail-mounted coil-transport cars.

ArcelorMittal plans to add additional parts of the plant to scope currently covered by the integrated quality control, production management, and logistics system at the plant in Ciudad Lázaro Cárdenas.

ArcelorMittal Lázaro Cárdenas produces billets, wire rods, slabs, and hot-rolled strip and is Mexico's largest steel producer. The company mainly uses sponge iron (DRI) for steelmaking, which results in slabs of high quality and of uniform grain structure. Annual slab output is at around four million tons. The hot strip mill has a production capacity of 2.5 million tons of hot strip per year, and the skin-pass mill processes 650,000 tons annually. Both mills are supplied by Primetals Technologies.



Primetals Technologies' new integrated quality control, production management, and logistics system enables automated quality assessment and the autonomous transfer of coils to the processing stage.

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