



Siemens VAI Media Summit in Moscow highlights improvement solutions for steel producers

Driving Forces for New Iron and Steel Production

ROLLING & PROCESSING >



The horizontal and vertical integration of electrical systems and automation solutions is opening up new potential for cost savings, flexibility and transparency in the production of steel and iron. "Electrical engineering, sensors and automation are becoming the drivers of change in the industry and, in the future, will have more impact on company competitiveness than location factors alone," explained Guenther Winter, head of Technology & Innovation at Siemens VAI, on the occasion of the 3rd international "Media Summit Metals and Mining Technologies" in Moscow, Russia. "Crucial in this connection is the close intermeshing of mechatronics, horizontal and vertical integration of the automation system and the creation of integrated process routes," he stressed.

The current drop in demand for iron and steel products and the metal industry's weakness when it comes to making necessary investments will intensify competition in the coming two years as well as accelerate consolidation. "In the years to come, the competitiveness of steel producers will be determined not only by the cost of energy and raw materials, but also by stricter environmental and safety regulations as well as the flexibility and quality of production, which will have to satisfy new market requirements," explained Winter.

Siemens offers customers added value by integrating technological processes into an automation system and using optimally matching automation and software solutions to create the prerequisites for better performance and more flexibility. The efficiency, quality and flexibility of production can be enhanced even further through the integration of solutions such as sensors, automation systems and drive technology in an overall system, and through the integration of individual steps in an improved overall process. Additional added value is created by means of new automation functions. Above all, the seamless interaction of both horizontal and vertical integration and mechatronics plays a decisive role in this context. Such integration solutions give not only new plants but also existing production chains a chance to improve productivity, efficiency and industrial safety, making these integration solutions ideal modernization packages.

For example, Siemens has developed the LiquiRob robot system for the operation of electric arc furnaces, converters and continuous casters. Tasks such as sampling, temperature measurement or powder charging

no longer have to be performed by the plant personnel directly but are carried out automatically by robots. This mechatronic system improves industrial safety by a vertical integration and, thanks to reproducible process sequences, increases productivity as well.

The Simelt FSM system – based on structure-borne noise sensors for electric arc furnaces – is unique throughout the world. The structure-borne noise is measured at the furnace and a process model is then used to exactly determine the way in which the melting process and foamed slag formation occur. This new software-sensor combined with suitable control algorithms, brings about a reduction in operating costs in the vertical integration. With regard to carbon injection, the amount of injected carbon can be reduced by 20 percent to 30 percent. These savings automatically lead to lower CO₂ emissions, while the shortened process-sequence times result in a reduction in energy consumption.

Another very successful example of a horizontal technological integration is the process automation used for heavy plate lines. Siemens is thus setting new standards for the efficient integrated production of thermo-mechanically rolled, high-quality steel sheeting. This material is used, for example, in the shipbuilding industry and for pipelines. Productivity is increased by the fact that several metal sheets are alternately rolled automatically and are then optimized in the Mulpic cooling section in such a way that the properties of the resulting material ensure a high level of quality. The most recent commissioning of such a system took place two weeks ago for a Chinese steel producer. ■



Automated thermo-mechanical rolling in "batch mode" increases mill utilization

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