

Industry Sector Industry Solutions Division

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First installation worldwide at an electric arc furnace: LiquiRob improves operational safety and increases precision of measurement and sampling

The Riva Group has become the world's first steel producer to use the Siemens LiquiRob technology at an electric arc furnace. The robot system has been installed in its French plant in Neuves-Maisons where it handles sampling and temperature and Celox measurements. Operating personnel now no longer need to enter potentially dangerous areas, which has substantially increased industrial safety. The system is designed for fully automatic operation and enables precise and reliable measurements to be made at frequent intervals. The acceptance certificate was issued mid-March.

The Neuves-Maisons works produces rebars and coils, and belongs to the SAM Division of the Riva Group, based in Milan, Italy. The plant produces steel in an electric arc furnace with a tapping weight of 150 tons and a ladle furnace. The steel is cast on a six-strand sequential billet casting plant, from which the billets pass to a rolling mill for further processing.

Until recently, the operating personnel had to enter the dog house to take samples and measure the temperature and oxygen activity of the liquid steel using a manipulator. These dangerous and strenuous activities are now handled by the LiquiRob System which accesses the steel bath directly through a window in the slag door. The robot system is operated and monitored from a central control room. Siemens was responsible for integrating the LiquiRob System into the existing Dog house and the EAF automation system, as well as for commissioning, and training the operating personnel.

The solution implemented in Neuves-Maisons also includes installation of three automated magazines to store the sample and measuring, which can be safely filled by the operating personnel one time per day outside the dog house. The sampling and measuring procedures can be run completely automatically.

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LiquiRob offers a number of advantages over the use of manipulators. It requires only a small window in the slag door and the cartridge reaches further into the furnace and dives deeper into the steel bath. This eliminates incorrect measurements and the measured data is considerably more accurate. Shorter measuring intervals can also be achieved thanks to the automated cartridge selection. This, in turn, provides a more precise picture of the temperature and composition of the steel.

Siemens developed LiquiRob specifically to improve industrial safety and the quality of measurements under the harsh operating conditions encountered in the iron and steel industry. The system was implemented for the first time in 2008 in the Gwangyang Steel Works of the Korean company Posco. There, LiquiRob is used for sample taking, temperature measurement within the distributor and for casting powder dosing on the casting platform of a two-strand Slab Caster.

Further information about solutions for steel works, rolling mills and processing lines can be found at <http://www.siemens.com/metals>

A photo supplements this press release. Please see <http://www.industry.siemens.com/data/presse/pics/IIS201005920.jpg>



The Siemens LiquiRob robot system in action at the electric arc furnace of SAM Neuves-Maisons, Riva France

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