Siemens supplies electrical equipment for new plate rolling mill at Baosteel

The Siemens Industrial Solutions and Services Group (I&S) has received an order from Baosteel Group Shanghai Pudong Iron& Steel Group Co. Ltd., Shanghai, to supply the electrical equipment for a new plate production line which is to be set up in Luojing. The order includes the automation, power-supply and drive systems for the rolling mill and for the downstream plate treatment stations. The order is valued at around 39 million euros and start-up is scheduled for the beginning of 2008.

In the course of relocating heavy industry from Shanghai’s municipal area, Baosteel is building a new production facility in Luojing in the Baoshan Industrial Park. The new plate mill is designed to produce around 1.6 million tonnes per year. It will manufacture plates with a thickness of between 5 and 200 millimeters and a width of up to 4200 millimeters. These products are intended for the shipbuilding industry, gas and oil pipelines, pressurized containers or bridge constructions. The rolling mill will include two heating furnaces, two plate rolling stands, an edger, a rapid-cooling system and a hot plate leveler. The subsequent finishing shop will comprise, among other things, two cooling tables, an inspection line, a shearing line and a cold leveler. China’s largest steel manufacturer will thus be expanding its plate capacity even further. In spring this year, a comparable plant which was also equipped by Siemens started production.

For the new plate mill, Siemens is supplying the automation system, the sensors, the dynamic compensation system as well as all the drives, which will be based on three-
phase technology. The rolling stands will be fitted with twin drives with rated outputs of two times 6.3 and 9.0 megawatts and a maximum torque of two times 1719 and 1433 kilonewton meters with 250 percent overload capacity. The synchronous motors to be used have cylindrical rotors and are especially suitable for the rough conditions encountered in a plate mill.

Several process computers will control and monitor the entire production sequence. The automation system will consist of basic automation with technological control systems as well as of human-machine interface equipment. Thanks to the combination of analytical process models with neural networks, all the process parameters will be kept within close tolerance limits. Functions such as Plan View Control, thermo-mechanical rolling as well as the production of plates with variable thickness are also part of the Siemens solutions. A rolling-sequence control system will enable nested multiple-plate rolling. This will enhance the productivity of the rolling equipment. The system can be adapted flexibly to changes in the range of products or the quality requirements, thus protecting the original investment. A higher-level material tracking system will ensure a smooth flow of material and correct correlation of plates and process data.

Siemens will also coordinate the engineering work and installation of the electrical equipment for the whole rolling line and the finishing shop. This also includes integration of automation software packages for the heating furnaces, the rapid cooling facility and the levelers. All the components and systems used are part of “Siroll PM”, the Siemens integrated solution for plate mills. In addition, Siemens will be responsible for commissioning and customer training. Baosteel will provide the locally produced standard motors, the power distribution system and the transformers as well as the infrastructure electrical equipment, the heat treatment line and the heating furnaces.

Among the reasons for the contract being awarded to Siemens were the latter’s automation concept, the robust highly available drive systems, and the good past experience of the customer with Siemens in respect of the plate rolling mill which was very recently put into operation. Siemens’ strong local presence in China was also a motivating factor.
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