New 3100 m² Foil mill assembly bay, SVMC Taicang

Siemens VAI manufacturing and assembly facility for aluminum-foil mills now in China

Combining the Best Of East and West

A golden rule in a global economy calls for locating production value chains close to major markets whenever possible. Consequently, Siemens VAI moved its manufacturing and assembly facility for its high-performance foil mills to Siemens VAI Manufacturing Company (SVMC) located in Taicang, China.

Siemens VAI continuously develops and optimizes its high-speed wide-foil mills for key markets. Particularly focusing on the Chinese market, the company opened a local manufacturing facility, and therefore needed to assess which system components could be sourced locally and which had to be imported from overseas for the best cost-performance ratio.

Value-chain analysis

In preparation for the move, the company identified a number of items and features critical to mill performance that would continue to be sourced from Western Europe to ensure optimum, consistent quality of the finished rolled product. This mainly concerned key items to control gauge, flatness and quality of the finished rolled product, including passline rolls, roll-load cylinders, work and back-up roll balance and bend cylinders, work and back-up roll-spray bars, hot edge sprays, shaperoll and roll-coolant filter. These and other high-tech items

will still be imported into China to complete the mill assembly.

In principle, low-tech items, large fabrications and simple structures are cost-effectively sourced locally through Siemens-owned workshops or approved fabrication and machine-shop facilities.

Stringent quality requirements

To gain approval from Siemens, all facilities must adopt stringent Siemens quality requirements as a minimum practice. Furthermore, local manufacturers have to follow a Siemens VAI quality plan to ensure the integrity of each part, which is monitored and checked by SVMC engineers. In economic, logistic and environmental terms, it does not make sense for customers within China to ship 30 tons of simple and large low-tech structures halfway around the world if the capability and experience at the required quality is available locally.

Originally, the Taicang factory had been established in 2004 to produce and assemble high-quality equipment for aluminium mills, bar mills, billet casters, cooling beds, gear reducers, mill guides and tube mills. In 2008, with growing business, Siemens added new facilities with 3,100 m^2 of additional floor space, giving a total of 4,500 m^2. The new building has an extensive area dedicated to precision assembly of items like rolling-mill stands. It features two 50-ton overhead cranes and a modern office space over five stories.

Extended capabilities

The facility is ideal for aluminum-foil mill assembly. Thus, Siemens VAI is now capable of building mills in its own workshop, using its own skilled work force that adheres to strict Siemens procedural and quality control.

For the standard foil-mill project, the mill housings are set down onto their bedplates and aligned to within 0.05 mm in three planes. All housing attachments including passline height-adjustment equipment, roll latches, roll-load cylinders and all balance and bend cylinders are assembled into and onto the mill stands. To ensure mill-stand interface integrity, the mill-entry bridle and exit table are assembled and fitted to the mill housings, together with the mill drive and operator-side fume-exhaust enclosures. Mill-stand piping is then assembled to the housings and enclosures. This reduces the installation time at the customer's site and ensures conformance with the Siemens VAI requirements for high quality. Subsequently, a set of work-roll and back-up-roll assemblies is prepared and inserted into the housings, completing the trial mill build. All these activities are performed under continuous supervision by experienced engineers directly from Siemens VAI in the UK.

Foil-mill assembly trial

High-quality technical and commercial support

Strong emphasis is placed on technical and commercial support from Europe to ensure the best quality and timely delivery. Detailed engineering for all disciplines such as mechanical, hydraulic and automation equipment are part of the overall product, and continues to be based in Europe. This ensures that the highest technical standards are maintained and that the latest technological advances can be introduced rapidly.

New cost-performance standards

The new Siemens VAI Taicang facility is producing both for the local Chinese and for the global foil-mill market. It sets new standards for foil-mill manufacture and assembly in terms of high-tech product performance, high-quality manufacturing and cost efficiency. ■

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