

ROLLING MILLS AND STRIP PROCESSING LINES

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The annealing and pickling line for cold-rolled stainless steel strip at LISCO, Guangzhou, China processes stainless steel strip of 0.3 to 3.0 mm thickness and up to 1,600 mm wide, at speeds of up to 95 m/min. The line includes a skin pass mill and a tension leveler.

Profile

The Rolling Mills and Strip Processing Lines Business Area designs and builds complete lines for the production and further processing of cold-rolled stainless steel, carbon steel, and non-ferrous metals. These lines consist of equipment for cold rolling, surface treatment, strip coating and finishing, stamping and deep drawing, and acid regeneration. The expertise and key equipment are developed in-house and manufactured at the Business Area's own facilities.

The Andritz Group is the only single-source supplier worldwide, capable of providing all technologies and processes involved in the manufacturing of stainless steel strip (cold rolling, annealing, pickling, and finishing) on a comprehensive basis (mechanical, process, and electrical equipment). This ensures minimized interfaces and takes the interdependencies of the overall process into consideration.

Market development

In 2006, the market for carbon steel and stainless steel equipment developed very positively. Projects concentrated mainly on China, India, and Europe; in these regions, several orders for new plants and the modernization of existing mills were awarded. In North America, only selective investments were made.

Prices for cold-rolled steel and stainless steel products developed positively during the reporting period due to continued solid demand – especially for stainless steel. Global crude steel production in 2006 is expected to amount to approximately 1.2 billion tons, up 9% as compared to 2005. The output of China amounts to approximately 400 million tons, which is approximately one third of global crude steel production. As a result, China has become a net exporter of crude steel.

For stainless steel, market researchers expect global production in 2006 to rise to approximately 28 million tons, up 14% compared to 2005. Demand growth was solid in all regions of the world, with China showing continued double-digit increases in stainless steel demand.

Sources: ISSF, IISI, MEPS

Business development

In 2006, the Business Area's Sales amounted to 450.5 MEUR, which is a strong increase of 63.3% compared to 2005 (275.9 MEUR). As a result of higher Sales and successful order execution for some projects, EBITA and profitability also developed very positively. At 30.6 MEUR in 2006, EBITA was 92.5% higher than in 2005 (15.9 MEUR). EBITA margin surged to 6.8% (2005: 5.8%).

Order Intake in 2006 reached 401.9 MEUR, down 9.6% compared to the exceptionally high level of 2005 (444.8 MEUR), which was influenced by the receipt of some very large orders from China.

Major orders

Andritz will supply a stainless steel cold-strip annealing and pickling line (annual capacity: 250,000 tons) with in-line skin-pass mill and leveling line to the E-United Group, Taiwan, for the YUSCO stainless steel mill. Production is planned to start in the autumn of 2007. The order includes the complete engineering work and start-up of the entire plant, as well as the supply of the major plant parts. The mechanical equipment, pickling line, furnace, and automation are all based on proprietary technologies developed by Andritz.

In addition, the E-United Group, Taiwan placed a further order for an annealing and pickling line with integrated rolling mills for their new stainless steel plant in China. This is the fourth large order awarded to Andritz for this new stainless steel plant.

The Business Area received an order from Thyssen-Krupp Nirosta, Krefeld, Germany for the reconstruction of the stainless steel annealing and pickling lines at its Krefeld works which had been damaged in a fire.

TIAN-TIE Group, Tianjin, China ordered an acid regeneration plant for their plant in Tianjin, near Beijing. The plant, which has a capacity of 11,700 liters per hour, is designed for a future upgrade to produce even higher oxide qualities. Start-up is scheduled for the beginning of 2008. With this order, Andritz once again confirmed its leading position in acid regeneration technology. In addition, the TIAN-TIE Group placed an order with Andritz for the supply of a continuous annealing furnace for a new hot dip galvanizing line.

Research and Development

Salzgitter Flachstahl, Germany awarded an order for a cut-to-length line for materials with thicknesses in the range from 2 to 16 mm. With a patent for highly precise levelers with almost unlimited thickness range, Andritz is among the market leaders for cut-to-length lines for thick materials with high precision requirements.

The Business Area received an order from OJSC Novolipetsk Steel, Russia for a turnkey push pickling line with acid regeneration. Start-up of the plant is scheduled for the First Quarter of 2007. This new pickling plant is designed for the treatment of a product mix of oriented silicon steel strip, as well as standard carbon steel. It will have an annual production capacity of approximately 300,000 tons, for strip up to 1,300 mm wide and in a thickness range of 1.5 to 3 mm. Optimized balancing of operating fluids and agents will minimize consumption levels and effluents.

Shanghai Baoshan Iron and Steel Co. Ltd., China ordered a stainless steel hot-strip annealing and pickling line with in-line rolling mill for the new stainless steel mill in Baoshan. The order comprises the complete engineering services and start-up of the complete plant as well as the supply of important machinery and plant components. All required processes (rolling, annealing, pickling) will be based on Andritz's own technologies. The line has been designed for approximately 900,000 tons of strip per year, depending on the product mix, and will process strip in the thickness range of 2 to 10 mm and up to 1,600 mm wide. Production is scheduled to start in the summer of 2007.

Taiyuan Iron and Steel Company Ltd. (TISCO), China placed orders for two very wide (2,100 mm) cold-rolling mills, once again demonstrating the customer's satisfaction with Andritz's support and technology.

The Business Area received an order for the fifth acid regeneration plant from Baosteel, China. This plant has a capacity of two times 7,500 l/h. In order to produce high quality iron oxide, a WAPUR (Waste Acid Purification) unit will also be supplied.

To Jindal South West Steel, India, the Business Area will deliver a hydrochloric acid recovery plant for processing 6,400 l/h of waste acid. The final acceptance test is planned for May 2007.

In 2006, R&D activities focused on the standardization and optimization of push pickling lines and mixed acid recovery plants. A Zero Effluent Mixed Acid Plant (ZEMAP) was developed to meet the demand for a nitrate-free stainless steel pickling process. The combination of the total mixed acid recovery process (PYROMARS) and a patented rinse water recycling system has led to an economical and ecological breakthrough in stainless steel processing.

New coating technologies were investigated, using ionic liquids, CVD technology, and aqueous electro-galvanizing processes.

A new series of roll grinding machines was developed to enlarge the diameter of rolls that can be ground on machines up to 650 mm, meeting the closest tolerances. Special attention was paid to further optimizing the design of heavy shears and multipurpose levelers covering a wide range of material thickness.

For the first time, the Business Area has installed a newly developed direct fired furnace zone as part of the new hot dip galvanizing line for voestalpine in Linz, Austria. It allows specific heat control over the strip width.

During 2006, Andritz presented a new generation of punching and metal-forming presses. The new generation of presses features a modular design which allows flexible adaptation to various customer demands. ■

Key figures Rolling Mills and Strip Processing Lines

MEUR	2006	2005	2004	2003	2002	2001
Sales	450.5	275.9	235.4	173.1	177.4	167.4
Order Intake	401.9	444.8	266.7	287.6	175.7	196.3
Order Backlog as of 31.12.	403.7	458.9	293.1	265.4	154.0	159.2
EBITDA	32.8	18.2	14.3	6.6	11.1	8.7
EBITDA margin	7.3%	6.6%	6.1%	3.8%	6.3%	5.2%
EBITA	30.6	15.9	12.1	4.4	8.5	6.1
EBITA margin	6.8%	5.8%	5.1%	2.5%	4.8%	3.7%
Capital investments	2.3	2.2	3.2	1.4	1.6	3.4
Employees as of 31.12.	819	749	736	533	642	562