

ROLLING MILLS AND STRIP PROCESSING LINES

Annealing and pickling line

Annealing and pickling line for cold-rolled strip supplied to Baoxin Stainless Steel, China. Production: approx. 180,000 t/y of stainless steel; strip widths: 650–1,350 mm; strip thicknesses: 0.3–3.0 mm.

BUSINESS AREA MANAGER



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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 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.

The assets of Otto Kaiser GmbH, acquired in 2004 and now called "Andritz Kaiser", enable the Business Area to extend its range of equipment for the "downstream" area of strip finishing. The products and technology portfolio of Andritz Kaiser are a valuable supplement to the existing product range and strengthen the Business Area's strategic focus on value-added steel strip production.

The Rolling Mills and Strip Processing Lines Business Area operates through the following companies: Andritz AG, Austria; Andritz-Ruthner, Inc., USA; Thermtec B.V., Netherlands; Sundwig GmbH, Germany; Andritz Selas S.A.S., France; Andritz Technologies Pvt. Ltd., India; and Andritz Kaiser GmbH, Germany. There are manufacturing and assembly facilities in Graz, Austria, and Hemer and Bretten, both in Germany.

Market development

The year 2004 was characterized by continued high demand for steel and stainless steel products, mainly as a result of strong demand from China. World consumption of finished steel has risen by 7.7% to approximately 950 million tons in 2004. The stainless steel market developed likewise, with global consumption of stainless steel growing by 7% to approximately 24 million tons in 2004. China continued to lead the growth of global (stainless) steel consumption and production.

Prices for cold-rolled steel and stainless steel products increased steadily during the reporting period and remained at a very high level until the end of the year. Capacity utilization was at a very high level throughout the whole year even though capacities increased quite steeply.

Project activity was almost solely concentrated on China (including Taiwanese, Korean, and European investments in China), where several large projects, especially in stainless steel, were decided. Andritz was able to secure a large share of orders for stainless steel plants, thus confirming its leading market position in this area. In North America and Europe, only selective investments were made.

The measures of the Chinese government to slow down over-investment in some industries like cement or steel led to a delay of some projects from new private companies. However, projects of established steel producers continued as planned.

Sources: ISSF, IISI

Business development

Sales of the Rolling Mills and Strip Processing Lines Business Area in 2004 increased significantly. At 235.4 MEUR, Sales surged by 36.0% compared to 2003 (173.1 MEUR). This favorable development is mainly due to the execution of the record Order Backlog as of the end of 2003.

EBITA also developed very favorably in 2004. At 12.1 MEUR, it almost tripled compared to 2003 (4.4 MEUR), which was affected by a tem-

porary capacity under-utilization in one of the Business Area's product segments. Profitability also showed a positive development, with EBITA margin increasing to 5.1% in 2004 (2003: 2.5%).

The Business Area's Order Intake in 2004 was 266.7 MEUR, a decrease of 7.3% compared to the record level achieved in 2003 (287.6 MEUR). However, several orders were announced in the Third Quarter 2004 which will become effective in the First Quarter 2005. The main portion of the Order Intake came from China, amounting to approximately 71% of the Business Area's total Order Intake in 2004.

Major orders

- Chinese Taigang Group placed an order to supply the world's largest annealing and pickling line for cold-rolled stainless steel strip. The plant will have an annual capacity of 500,000 tons and will be installed at Taiyuan Iron and Steel Co. Ltd., Taiyuan Shanxi, China. With this order, Andritz further strengthens its position as a leading technology supplier for complete stainless steel processing lines. In addition, several orders for strip processing lines (tension levelers, recoiling lines), including mechanical and electrical equipment, were obtained.
- SeAH Steel Group, Seoul, South Korea ordered a 6-high cold-rolling mill which will be delivered in spring 2005. This mill will roll carbon steel up to 1,360 mm width at a maximum speed of 1,400 m/min. The line is equipped with a POS (Process Optimization System).
- The Business Area will supply two sophisticated inspection lines for steel strip for automotive applications to Wuhan Iron & Steel (Group) Corporation, Changqian, Quingshang, Wuhan, China. In addition, Andritz received an order from this customer to supply a very special hydrochloric acid regeneration plant with a twin reactor design, with a total capacity of 15,000 l/h.
- Hunan Valin Iron & Steel Group of the Hunan province in China ordered an hydrochloric acid regeneration plant with waste acid purification and silicon pre-sedimentation. Capacity of this plant is 10,000 l/h.
- The Business Area received an order from Shanghai Krupp Stainless (SKS), a joint venture of Thyssen Krupp Stainless and Shanghai Pudong Iron & Steel Company Ltd. (subsidiary of Baosteel Group), to supply a hot-strip annealing and pickling line for stainless steel

KEY FIGURES ROLLING MILLS/STRIP PROCESSING LINES

MEUR	2004	2003	2002	2001
Sales	235.4	173.1	177.4	167.4
Order Intake	266.7	287.6	175.7	196.3
Order Backlog as of 31.12.	293.1	265.4	154.0	159.2
EBITDA	14.3	6.6	11.1	8.7
EBITDA margin	6.1%	3.8%	6.3%	5.2%
EBITA	12.1	4.4	8.5	6.1
EBITA margin	5.1%	2.5%	4.8%	3.7%
Capital investments	3.2	1.4	1.6	3.4
Employees as of 31.12.	736	533	642	562

strip. The line will have an annual production capacity of approximately 440,000 tons. Equipment delivery is scheduled for the end of 2005 and production of the first strip is planned for the summer of 2006.

- Andritz also received a large follow-up order from Lianzhong Stainless Steel, a member of Taiwanese Yieh Group, for the extension of the new stainless steel mill in Guangzhou, China. In 2003, Andritz had received an order to build the world's largest stainless steel hot strip annealing and pickling line for the same customer and that project is currently underway. The recent order relates to a stainless steel cold strip annealing and pickling line with a capacity of approximately 250,000 t/y. Delivery is scheduled for August 2005, with production of the first strip expected in July 2006. In order to regenerate the waste mixed acids of these lines, the customer additionally ordered a Pyromars plant, which will recover nitric acid and fluoric acid.
- For the automotive plant joint venture of Mazda in China on the island of Hainan, Andritz received the first cut-to-length line which will be implemented together with Jier Company, a Chinese press manufacturer.
- JISCO, a steel company in the northwestern Chinese province Gansu, signed a contract with Andritz for the supply of a complete stainless steel strip manufacturing plant, consisting of several rolling mills, two pickling and annealing lines, and several slitting, cutting and processing lines. The contract was split up in an engineering part which came into force in December. The supply contract for the equipment will probably follow in 2005, after receiving all necessary approvals from the Chinese authorities.

Research and Development

In 2004, R&D activities focused on product improvements to further strengthen the competitive advantage of processes offered to customers.

The mixed acid recovery system has been optimized to increase the nitric-acid recovery rate, as well as the water balance between stainless steel pickling lines and acid recovery plants.

A previously started project on alternative corrosion-resistant coatings has been continued, with special focus on zinc/chromium- and zinc/magnesium-coatings to reduce the zinc-layer thickness for improved laser weldability in the automotive industry.

Implementation of the IDEAS simulation software was successfully started by creating a static mass balance model of the acid recovery plant.

The filter systems for 20-high rolling mills have been further improved and are now offered as standardized product. The roll and strip cooling systems of 4-high and 6-high rolling mills have been optimized for improved flatness of the produced strip.

New advanced coater technology has been successfully installed and commissioned for a line of the Austrian steel producer voestalpine. With this technology, Andritz once again underscores its leading position in high-precision color coating.



Annealing and pickling line/Furnace

This furnace supplied by Andritz affiliate Thermtec is part of the annealing and pickling line for cold-rolled strip delivered to Shanghai Krupp Stainless Steel, China. Production: approx. 290,000 t/y of stainless steel; strip widths: 800–1,340 mm; strip thicknesses: 0.3–3.0 mm.