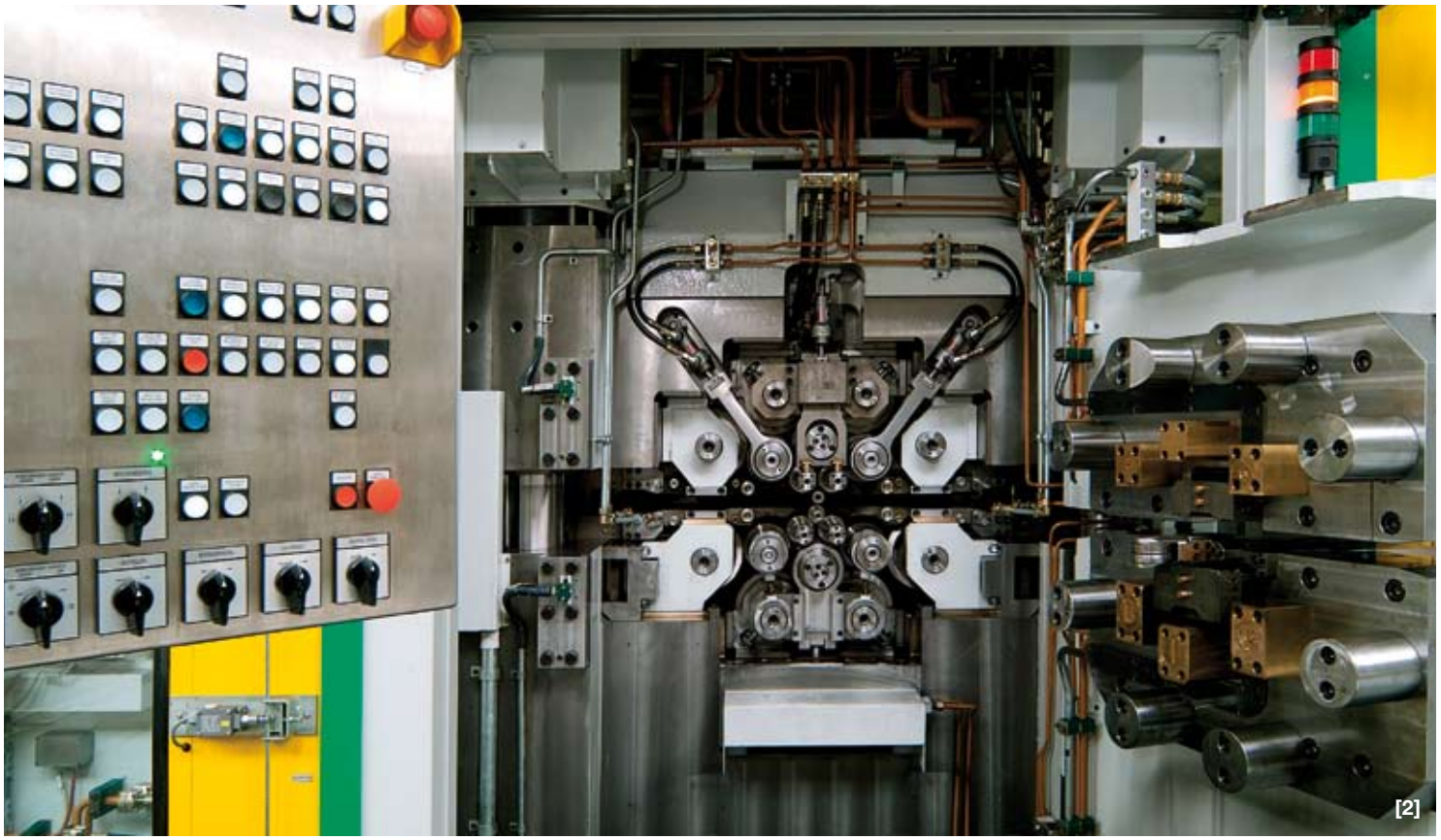
[1]

[1] Andritz delivered advanced process control to CMPC Santa Fe, Chile for the cooking, brownstock, and bleaching processes. The delivery included BrainWave® equipment for stabilizing control and ACE™ software for supervisory control and optimization. This helps the customer to reach the target pulp quality with minimum chemical input.

[2] Detail of an Andritz Sundwig European-standard 20-high cold-rolling mill, including process optimization, static process control, and advanced flatness control for high-precision stainless steel and carbon steel strip.



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ANDRITZ AUTOMATION

PROFILE

Andritz Automation is a global network consisting of the electrification and automation specialists of Andritz's Business Areas and the fully owned affiliates IDEAS Simulation & Control and Universal Dynamics Group. In 2007, this network was strengthened by Sindus Human Technology, a company specializing in maintenance of instrumentation and electrical equipment for pulp, paper, and other industries in Brazil. With almost 1,000 engineers, Andritz Automation has a presence at 55 locations in 24 countries worldwide.

By combining automation know-how with in-house expertise in process and mechanical design, Andritz Automation develops unique customer-oriented automation products that meet customers' technical and economical requirements. Complete automation systems from one source enable short start-up times and the smooth operation of Andritz plants and technologies. Simulation models, advanced process control technologies, and special sensors are used to improve customer plants as part of the comprehensive lifetime services offered by Andritz Automation.

PRODUCT DEVELOPMENTS

In 2007, Andritz Automation successfully developed and implemented BrainWave® and Advanced Process Control solutions for the pulp and paper, mining, chemicals, and glass industries. Advanced Control Expert (ACE™) is the common Andritz software platform for all process optimizing solutions in the pulp and paper industry. ACE™ is based on the patented BrainWave® technology, which is a PC-based advanced controller that allows customers to optimally control various processes during operations. It helps to reduce process variabilities by more than 50% and provides tools for comprehensive mill data analyses, thus achieving higher production rates, increased quality, and lower energy and operating costs. The supervisory functions optimize the controls and provide a full-scale autopilot for the operators to maximize customer profitability.

IDEAS Simulation & Control received orders from Visy Paper, Australia and Aracruz, Brazil to supply BrainWave® solutions for digesters. The BrainWave® technology installed at the Veracel pulp dryer, Brazil proved so successful that the customer has implemented a complete Pulp Dryer ACE™. BrainWave® solutions for bleaching have been implemented at CMPC and Arauco in Chile, and Weyerhaeuser in the U.S., with several installations underway in Brazil. The BrainWave® refiner solution now also integrates the newly developed Andritz MIS online consistency and freeness sensors.

The Kiln ACE™ solutions that have been installed at the sites of Domtar, Georgia-Pacific, and Weyerhaeuser, all in the USA, and at the Cenibra and Aracruz sites in Brazil, are particularly noteworthy. Kiln ACE™ ensures that the lime kiln produces top-quality lime at all times at the lowest possible cost.

Pulp Automation received an order for the delivery of a comprehensive ACE™ solution for the fiberline of CMPC Santa Fe 2, Chile, covering the cooking, washing, oxygen delignification, and bleaching process areas. Further orders for Cooking ACE™ were placed by customers in China and Australia.

Development activities for ACE™ solutions for soot blowing and combustion optimization in recovery boilers have continued. A pilot project has been agreed upon with a Finnish customer. Tiger Paper Group's Huaihua mill in China ordered a Recovery ACE™ along with the evaporator and recovery boiler plant.

More than 20 SRS packages (SRS: Safety-Related Systems) have been ordered for recovery boilers, lime kilns, and power boilers since development of this product was started in 2003. These SRS products are highly standardized and modularized, thus providing maximum benefit to customers and users during all engineering and execution phases. Andritz engineers follow a predefined procedure that covers steps from risk evaluation through safety control planning up to testing, start-up, and regular operation. The product concept is widely appreciated by customers all over the world.

The development of online sensors for Andritz processes is a permanent part of Andritz Automation's R&D activities. Online sensors based on photometric spectroscopy for various pulp parameters were successfully tested in industrial installations. →

IMPORTANT ORDERS

HYDRO Automation engineers are experts in the design, installation, and commissioning of hydropower plant automation systems for new stations and rehabilitation or upgrade projects. The integrated hydropower plant automation solution NEPTUN includes all devices and systems for control, excitation, protection, monitoring and diagnosis, power plant management, synchronizing, and digital turbine controllers. Research activities of HYDRO Automation are focused on the development of digital protection systems, excitation systems, and SCADA systems (Supervisory Control and Data Acquisition) with ergonomically optimal solutions for operators.

For the Environment and Process Business Area, specific control modules were developed to lower the energy consumption of the dewatering and drying equipment. Experience from start-up and operating phases was used to improve the SCADA systems in view of easier and more efficient equipment operation.

Andritz Automation further strengthened its position as a leading supplier of complete automation systems in 2007. Orders including process control, electrification, and instrumentation were received from customers in Austria, Brazil, Chile, Portugal, Spain, Sweden, and Uruguay. Hebei Yongxin Paper Co., Ltd., China awarded an order to supply an automation system for a board machine including stock preparation and air engineering systems.

Electrical and automation equipment for wood processing plants was supplied to customers in South America and Europe. At Myllykoski Plattling, Germany, a new grinder feeding system with automatic level control and two LogScan lines for automatic log sorting went online. Norske Skog Bruck, Austria also ordered two LogScan lines and an upgrade of the DrumMatic system. A major order received from Price Maryvale will mark Andritz Automation's entry into the Australian market. Start-up is planned for 2008.

HYDRO Automation received orders for turnkey and rehabilitation projects in Europe, Asia, America, and Africa. In Turkey, a large rehabilitation project for a 540 MW hydropower plant was awarded. The overall automation solution will be based on NEPTUN and include the control system with SCADA, digital turbine controllers, redundant excitation systems, and the protection system for all units and electrical lines. HYDRO Automation has successfully expanded the existing excitation business with one of the leading suppliers of thermal power plants worldwide.

Andritz Automation very successfully continued to supply automation solutions for rolling mills and strip processing lines in China, India, and Russia. All Andritz stainless steel plants were equipped with Andritz software packages including mathematical models for process optimization. Rebuilding of the two lines in Krefeld, Germany, which included implementation of the latest Andritz technology for process automation and automation models, was completed in minimum time. From Russia, orders for two complete rolling mill plants including all technological controls were received from NLMK and VIZ Stal. The plants will be equipped with process optimization (POS) and pass program calculation and optimization modules.

The success story of the IDEAS simulator was continued with the VCP Horizonte project, deliveries for the Suzano Mucuri project, the Klabin 1100 CTMP project, all in Brazil; the CMPC Santa Fe delivery in Chile, and Fray Bentos for Botnia in Uruguay. 2007 saw the first simulation sale in South Africa for Sappi and also the first project delivery for Marusumi, Japan.

IDEAS Simulation & Control secured the first FiberVision order in Europe with a sale to SCA. FiberVision, online sensors for pulp quality control, were also installed at Bowater and Augusta Newsprint mills in the USA and at customer mills in Brazil and China.

In the mining business, IDEAS Simulation & Control had a strategic success with multiple licenses sold to BHP Billiton, the largest diversified resources company in the world. BHP Billiton decided to standardize their steel business on IDEAS software; this means that in the future, BHP Billiton and the engineering companies working with it will all be using IDEAS software to design new processes. IDEAS was also chosen by Antofagasta Minerals to simulate its entire new Esperanza copper concentrator in Chile.

Oil sand treatment in Canada continues to be a strong business for IDEAS, with companies choosing to use the simulator to assist in the design of several new plants. ○