Success stories

Perfectly packed
New world record for start-up speed

Adolf Jass Papierfabrik is also one of the first paper mills in Europe to install ABB's new automation platform, the Extended Automation System 800xA.

Client: Adolf Jass Papierfabrik GmbH
Location: Schwarza, Germany
Scope of Delivery: Papermaking Suite Solution including Process Electrification; Extended Automation System 800xA; Direct Drive System; Quality Control System; Energy Management and Optimization System; and engineering, project management, installation, testing, commissioning, and customer training.

ABB's Direct Drive is the Ferrari of the paper industry, said Mr. Prinzhorn, managing director of Adolf Jass.

In September 2005, Adolf Jass Schwarza GmbH celebrated the official opening of its facility with high-ranking guests from the political and business community. But about six month before that, PM1 had begun production and set a new startup speed record for this kind of machine: 1,105 m/min.

Adolf Jass Papierfabrik is located in central Germany in the town of Schwarza, 300 kilometers from Frankfurt. The new PM1, built by Voith, has a production capacity of 400,000 tons per year. The construction speed is 1,500 m/min and wire width 8,250 mm. The machine produces lightweight corrugated paper: 90–120 g/m^2 testliner and corrugating medium in a basis weight of 75–110 g/m^2. The raw material is 100% recycled pulp. The mill employs 160 people directly.

The "Schwarza PM1" paper machine uses Extended Automation System 800xA as well as the gearless Direct Drive System for the Paper Machine.

ABB Measurement Control technology is used for the measurement of basis weight, ash, and color. There are two scanning platforms installed.

In addition, ABB delivered the process electrification for the entire production line. With this technology, the Adolf Jass paper mill is seeing the implementation of the most advanced technology on the market.

Project implementation time was 14 months from the start of construction to start up.

Integration based on a shared platform

With its System 800xA offering, ABB has created a new platform for automation solutions, forming a platform for ABB systems such as process control, drive systems, and quality management systems. Thus, ABB delivers true integration, based on the same, shared user interface at the same process stations, a common system architecture, and optimal functionality.

The 800xA system extends the performance range of traditional automation systems for a continuous increase in productivity. The extensive use of industry-standard hardware and software solutions ensures tried and tested cost-efficient customer systems as well as efficient integration of external systems and components.

Visualization and operation takes place on industry-standard servers and PC clients. The AC800M process stations take care of the process management, drive operations, and quality control functions. The field instruments are connected to the system via PROFIBUS-DP and remote I/O module S800. Third-party deliveries are connected via PROFIBUS, Ethernet, or OPC. The 800xA process management technology includes machine-based control with approximately 12,000 I/Os. The system includes 14 operator stations.

ABB is the forerunner in drive technology. The special feature of this solution involves supplementing the conventional asynchronous motors with the Direct Drive – permanent magnet synchronous motors developed by ABB. They can be used at low revolution speeds and high torque – e.g., in wet areas and dryer groups, whereby the mechanical gears can be completely removed. These new, high-torque motors are as small as conventional asynchronous motors used with gears. Improved total efficiency, space savings, better dynamics, and tacholess operation are other benefits of the Direct Drive. Of the total of 59 drives in the paper machines in Schwarza, 20 are fitted with permanent-magnet synchronous motors.

The drive switchgears of the paper machine and winder drives are also delivered with the new compact ACS800 technology. This makes it possible to reduce the space requirement for switchgears by around 50%, while at the same time allowing better accessibility of the components. The three-phase, parallel-connected module, which is placed on wheels, also permits fast emergency operation as well as simple dismantling. This drive is already the second major Direct Drive and ACS800 Multidrive installation in Germany.

The comprehensive Quality Control System features two SP1200 Smart Platforms with basis weight, ash, moisture and color sensors.

ABB's QCS controls the machine direction and cross direction sheet properties. Advanced controls include stock blending for two stock flows, coordinated speed change for maximum paper production, and ABB's latest generation color control.

Electrification

The Process Electrification delivery included intelligent Motor Control Centers with about 750 motor starter units; 180 ACS800 single drive frequency converters; MV and LV motors of type HXR, AMA, and M3BP (300 pcs.); safety switches and emergency stop buttons (300 pcs.); project management, engineering, documentation, testing, commissioning, and customer training for the equipment delivered; and installation work related to MCCs and FCs.

Energy Management

In addition, ABB delivered an energy management system to count energy consumption impulses for the whole mill. This information is transferred to the RTDB database, where energy data will be stored and aggregated for reports and trend analysis. Energy consumption development is followed in 15-minute increments.

Celebrating PM1's work

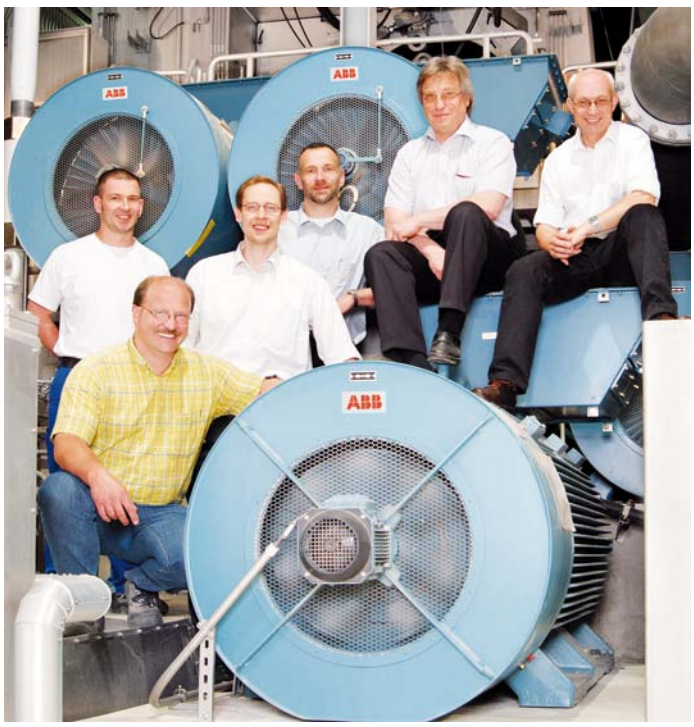
The inauguration of the new mill in September 2005 was a big event, with hundreds of guests. Dr. Marietta Jass-Teichmann, the managing partner at Jass, said, "Even during commissioning, its designated capacity of 1,300 t/d was surpassed several times over and we were able to push off with a very steep start-up curve. Based on many innovations, including the gearless drive and a new process control system (800xA) by ABB, its motto should really be 'Heavyweight innovations – a much swifter way to full capacity.'" She also thanked all business partners and praised the splendid cooperation between the suppliers and Jass.

Adolf Jass Papierfabrik GmbH

Adolf Jass Papierfabrik Schwarza is a family-owned company located in Rudolfstadt-Schwarza in Thuringia, Germany.

The company was founded in 1960 by Adolf Jass. Located in Gronau an der Leine, it produced corrugated board base paper. Jass set up the first of the two paper machines in Fulda, Germany, in 1970. At present, Fulda produces a total of 500,000 tons per year of wellenstoff and testliner on two machines.

In the Schwarza mill, the new PM1 produces 90–120 g/m² testliner and corrugating medium in a basis weight of 75–110 g/m². PM3 produces wellenstoff of 110 g/m² and above, and PM4 testliner 125 g/m² and above.



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