

Stora Enso Maxau favors state-of-the-art drive solution

Client: Stora Enso Maxau GmbH & Co. KG

Location: Karlsruhe, Germany

Scope of Delivery: Industrial^{IT} drive system, power distribution, process electrification and related services

ABB's contribution to the project was its most advanced drive technology, PMC800 Direct Drive, plus power distribution and process electrification.



Paper production in Maxau has a long history. Over 120 years ago, there was already a paper mill established there, which then went by the name E. Holtzmann & Cie. OHG. Tradition is not, however, a barrier to embracing the future. When Stora Enso arrived at an understanding in order to invest in the PM6, it was clear from the very outset that only the newest technology available would be acquired.

Stora Enso Maxau sits near the banks of the Rhine, and pulp arrives at the mill's harbor on ships from Stora Enso mills in Finland and Sweden. But the main raw material for the specialty and magazine papers that Maxau produces is waste paper. The mill's deinking plant was enlarged in connection with the PM6 project. It now has a production capacity of 380,000 tons per year.

To increase capacity, Stora Enso ordered a new paper machine from Voith. Other considerations influencing the investment were the better paper quality and the current and future SC-B quality requirements. Maxau was able to fit the new PM in the same building which had housed the old Voith PM which it replaced. All that was left of the original machine was the winder, which Voith rebuilt. The new machine has a wire width of 8.1 m, will run at nearly 1800 m/minute and has a capacity of 260,000 tonnes/year - more than double the capacity of its predecessor.

First Direct Drive Solution in Central Europe

ABB's contribution to the project was its most advanced drive technology, PMC800 Direct Drive, plus power distribution and process electrification. The drive system delivery to Maxau was in fact the first in central Europe to be based on the PMC800 concept. The controller hardware is dedicated to drive systems including the high capacity ACS800 frequency converters as well as new technology AC800 converters, which features common communication and AC800 I/O modules.

ABB's Direct Drive solution is a gearless drive technology. It combines AC drives, traditional and new permanent magnet motor control, and system control features designed specifically for Direct Drive.

The system delivery included a total of 80 drive sections, from which 15 were Direct Drives. The system is integrated in the automation system. It can be also operated via Graphical Operator Panels located alongside the paper machine.

In Maxau, while the use of an existing paper machine hall was efficient and convenient, it presented some challenges. The hall is just 35 meters wide, 170 meters long, and 20 meters high, so one major benefit the facility derives from Direct Drive technology is that it does not require very much space for mechanical drive components, thanks to direct coupling of the motors to the paper machine.



Electrification

The electrification delivery supply started with dismantling the old motor control centers and cabling. The delivery included complete electrification engineering and equipment installation as well as testing, training, and start-up services. ABB also delivered appropriate spare parts.

Equipment included 20/07 kV distribution transformers, MCC switchgears (in total, 107 meters), 20 kV and 6 kV switchgears, 6/0.7 kV asynchronous motors, reactance capacity compensation, frequency converters, and auxiliaries, as well as a 123 kV GIS substation, an 80 (100) kV transformer, and a 100/20 kV cable connection.

Before the decision was taken to acquire ABB's systems, equipment and services, mill management and engineers had scrutinized ABB's major delivery to Stora Enso's Langerbrugge mill in Belgium, where the largest newsprint machine in the world was built about a year before.

Working vacation at Maxau

Commencing on July 2, 2004, installation work for the PM6 was completed within 60 days. When most of Germans was enjoying the summer holiday season, the installation team was working at full capacity. On September 15, 2004, the PM6 entered production use.

"PM 6 started as scheduled," reports **Sauli Skrötkki**, Project Manager for the drive system delivery. "The new concept created a bit more work than planned, but we made it. There was good teamwork with Maxau's specialists, and this was very important."

According to the project management, this about EUR 170 million project showed exemplary cost control and efficiency. The mill's long tradition in papermaking and technical know-how proved invaluable in this respect.

There were just 30 staff based at the mill to execute the whole project, but efficiency and competence proved more important than numbers. Voith planned the entire installation and no consultant firms were involved.

Stora Enso

Stora Enso is an integrated paper, packaging and forest products company. It produces publication and fine papers, packaging boards and wood products, areas in which the Group is a global market leader.

Stora Enso sales totaled EUR 12.2 billion in 2003. The Group has some 44,000 employees in more than 40 countries in five continents. Annual production capacity is 15.7 million tonnes of paper and board and 7.4 million cubic meters of sawn wood products.

Stora Enso has six paper mills in Germany. Maxau has three machines, producing a total of 710,000 tons of high-quality magazine paper and newsprint per year. Maxau is certified to ISO 9001 (Quality Management) and ISO 14001, EMAS (Environmental Management).





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