The task
Progroup AG, Offenbach a.d.Q. commissioned Siemens Industrial Technologies to equip a new location for the production of corrugated base paper with power equipment and electrical technology. The paper production line – with a capacity of 650,000 tons annually – was installed in Eisenhüttenstadt in the German state of Brandenburg, and is operated by Progroup subsidiary Propapier PM2 GmbH.

Progroup AG already operates one plant in Germany, Propapier GmbH, for the production of corrugated base paper in Burg, Sachsen-Anhalt. The new plant will boost Progroup’s capacity to about one million tons annually. In Eisenhüttenstadt, corrugated material and test liner grades in weights from 70 to 110 grams per square meter are produced from scrap paper. The new PM2 paper machine ranks among the largest machines of its type in the world, with an operating width of 10.85 meters and a production speed of 1,900 meters per minute. The project demands high standards in terms of the drive and control technology employed: the five-meter diameter reels, for example, weigh 160 tons.

The electrotechnical equipment delivered by Siemens is based on the SIPAPER solution platform developed for the paper and pulp industry.

Customer:
Progroup AG
Implementation period:
September 2008 to March 2010
Scope of supply and services:
- SIPAPER Drives:
  Multimotor drive for PM2
  Power supply concept Power Infeed TM
- SIPAPER Power:
  Energy-saving motors
  Geafol transformers
  Low-voltage and medium-voltage switchgear
The solution

The scope of delivery from Siemens included the multimotor drive from SIPAPER Drives with a total installed power of 30 megawatts and individual power ratings of up to 3.6 megawatts. The SIPAPER Power delivery also included energy-saving motors, 27 GEAFOL transformers, and 230 low-voltage switchgear bays of type Sivacon S8, as well as gas-insulated 20-kilovolt and 6-kilovolt medium-voltage switchgear for a reliable, low-maintenance energy supply. The integrated comprehensive concept not only maximizes energy efficiency, availability, and occupational safety, but ensures maximum flexibility in designing the plant. The standardized Profibus DP bus system provides uniform control and data acquisition.

For the individual drives of the various machines, Siemens SIPAPER Drives delivered four high-voltage motors with a drive output of 1,900 kilowatts and about 600 low-voltage motors with power ranges up to 3,300 kilowatts. Roughly 300 individual frequency converters ranging from 0.37 to 900 kW optimize the generating units in terms of technology and energy. Profibus DP also provides universal control and visualization. And thanks to Sinamics S120 converters, state-of-the-art drive technology is being utilized in the multimotor drives of the mixing pumps, the PM2, and the winder, where the greatest drive capacities are installed.

The SIMATIC PCS 7 automation platform is the basis for the modular drive solution of the PM2. The comprehensive technological functions of the SIPAPER solution platform provide greater operating convenience as well as high operational reliability and availability of the drive technology. With its numerous integrated interfaces, the system also provides standardized communications to the machine control unit and to the master control system. Siemens has developed the Power Infeed method specifically for supplying energy to large mechanical drives. This method enables large amounts of energy to be supplied for a smaller investment.

To meet this goal, Siemens will deliver five drive systems with infeed capacities of up to 8 megavolt-amperes of transformer power, for a total of 70 drive motors with a shaft output of up to 3.3 MW. The multimotor drives are controlled and regulated by the Sipaper Drives software standard.

The Progroup subsidiary Propower GmbH is building a new power plant for powering the new paper factory that can be fired with coal or with waste products from the paper recycling operations and other alternative fuels. Once completed, the power plant will be operated by EnBW, and it is designed to provide the paper machine with its full steam requirement and most of the electricity it needs. The electricity will be generated using a steam turbine of type SST-300 delivered by the Siemens Energy Sector.

Siemens’ scope of delivery is completed by supplying the electrotechnical equipment for the power plant, including the medium- and low-voltage switchgear, and all installation.

The result

The success of the project is attributable not only to innovative Siemens technology, but also to professional project management and the availability of experts on site. Having only one contractual partner ensures that there are fewer interfaces. This makes it possible to establish clear responsibility and warranty rules and to ensure a standard system for maintaining spare parts.

Additional advantages:
- Extremely high level of energy efficiency and availability
- High operating reliability
- Maximum control quality
- Individually coordinated service concept