Smurfit Kappa Netttingsdorfer
- investing for the future
In these tough economic times investment programs come under even more scrutiny, but some simply can’t be shelved

KEEPING PM 6 AHEAD OF THE GAME

The Smurfit Kappa Group is one of the giants of the pulp and paper industry. In the latest PPI Top 100 published in September 2009, the company came in at seventh largest globally in terms of turnover of more than $7 billion with production of around 5 million tonnes/yr.

The company has a multitude of operations around the globe with 349 operating facilities in 30 countries predominantly making and converting containerboard and corrugated packaging. PPI recently visited one of the group’s "jewels in the crown" in Europe, the Nettingsdorfer mill, part of the European operation in the region of Upper Austria. The integrated mill produces around 420,000 tonnes/yr of brown kraftliner and testliner, from a weight range of 115 g/m² to 300 g/m².

It is easy to see why Austria is such a European powerhouse in terms of papermaking; there is plenty of wood, and plenty of water wherever one looks. It is also centrally situated in Europe, making it an ideal location to server customers across the continent. An important economic driver, the Austrian pulp and paper industry exports some 85% of its production, and employs around 8,200 people.

The Nettingsdorfer mill sits right next to the town of the same name and employs some 360 people. It is an integrated mill, and is self-sufficient in pulp; its wood supply coming mainly from the local area in the form of chips from sawmills and logs. The mill consumes around 1 million m³ of wood per annum and has full yardwood and debarking capacity.

A NEW DRIVE FOR PM 6

But the real reason for PPI’s visit was to see at close hand the company’s recent Euro 15 million ($18.3 million) investment in a completely new drive system for its paper machine, PM 6. The machine was built and installed by Voith in 1984 and was designed to run at a speed of 750 m/min. However, since then it has been subject to a number of rebuilds over the years, most notably a "big" one in 1992 when new drying capacity was added. This resulted in an increase of speed up to 1100 m/min. All this time, PM 6 ran with the same original drive installed in 1984.

In these tough economic times, why was a replacement drive so essential to the mill? Siegfried Hochrathner, the mill’s electrical maintenance manger explains why the project was so vitally needed: "The fact is, we needed to remain in business. Nettingsdorfer is a very successful mill, and has a long history of solid, profitable output, but we were running on an old drive that was beginning cause unscheduled downtime of the paper machine. The DC motors were operating up to 67% above the nominal speed of the motors which was causing heavy wear. Added to this, the machine frame gears in the dryer section were running at the loading limit and parts were becoming extremely worn."

This was a classic case of one of the problems in-
curred when a machine is being run faster than the design speed, eventually replacements have to be made. But the decision to go ahead was not taken lightly. Hochrathner explains: "We have a very strict procedure within the Smurfit Kappa Group when it comes to investments. Because we there are so many mills within the group, each project has to be carefully analysed and most of all justified. In the case of a new drive system for PM 6, we had discussions starting around five years ago, which really got serious over the last two years."

Essentially, the project targets were based around two central missions; to increase drive availability, (and therefore uptime of the paper machine) and reduce maintenance costs. The major decision to be made however, was what best technology to choose for the motors and drives - conventional gears, or gearless direct drive. Hochrathner explains: "We looked very carefully at both options, with the future performance of PM 6 very much in our minds. We did a close comparison, and found out that although drives with gears are less expensive, in a short time the cost of ownership rises due to the maintenance costs."

**DECISION TIME - GO GEARLESS**

It was a tough decision, but the more expensive gearless technology was chosen by the group for the complete new drive system. The project involved the complete renewal of the PM 6 drives, including all control and automation systems. The full scope of the project was a serious undertaking, on the electrics side it involved the renewal of 60 motors, plus all frequency converters, cabling, control and automation, and on the mechanical side, base plates had to be rebuilt, drive shafts replaced, and infrastructure including cranes and hoists had to be put in place for the installation.

**The scope:**
- Wet end and dry end
- 12 motors – wire/press section
- 10 motors – dry end
- 4 motors – fan pump
- 35 motors – dryer section

The main bulk of the new drives for PM 6 was supplied by ABB, which included motors and fre-

---

**Paper Mill of the Year**

Nettingsdorfer and its employees were singled out for special attention recently when it received the award "2009 Paper Mill of the Year".

According to Ian Curley, Smurfit Kappa’s CFO, the mill was a "worthy winner thanks to its continuous and exemplary reliability and planning security". High levels of dedication and individual responsibility as well as optimizing efficiency were also mentioned. But it was for the success of the replacement drive project that the mill really received the praise. Curley comments: "The success of the work to replace the drive mechanism on PM 6 in the summer of 2009 also played a part (in the winning of the award). This highly complex and demanding project was only possible due to the considerable expertise of all employees and the strict organisational measures within the proposed time and budget constraints, without any production losses."

Dr Ferdinand Fuhrmann, CEO of the Nettingsdorfer mill, said on receiving the award: "We shall continue to play a leading role within the Smurfit Kappa Paper Division and as one of the most productive sites in the group thanks to our outstanding and constant performance."

The award was presented to the company at Smurfit Kappa’s management conference held in Dublin, Ireland, in March 2010.

**At the award ceremony for “2009 Paper Mill of the Year” (from left to right): Alain Baudant CEO Smurfit Kappa Paper Division, Dr Ferdinand Fuhrmann, CEO Smurfit Kappa Nettingsdorfer, Ian Curley, CFO Smurfit Kappa Group**
The Direct Drive

More mills and customers are starting with this technology and select the Direct Drive for their paper machines. The solution that ABB provides is a combination of AC or DC drives, traditional or new permanent magnet motors and both motor control and system control features designed for the Direct Drive. The current deliveries include more than 250 permanent magnet motors and totally over 500 drive gearless sections.

ABB says that the Direct Drive concept for paper machines dramatically reduces the need for mechanical drive components and space for paper machines by putting the motor directly coupled to the paper machine. Since the first installations 1999, the solution has proven successful for many paper mills all over the world. The drive is based to a slow speed motor with a permanent magnet rotor. The synchronous Direct Torque Control (DTC) motor control also enables tacholess operation in paper machines. The traditional AC motors are mostly directly coupled to the machine rolls, too. In addition to saving the gears with the Direct Drive, the permanent magnet motor can deliver more torque from a smaller unit.

The Direct Drive also affects machine lifetime runnability and costs through reduction of gear maintenance, lower noise level and less losses.

Suction Rolls
Function Rolls
All kind of Rolls
for all applications
designed and manufactured according
to individual customer demands
Specially designed machinery
for the foil, non woven, glass fibre industry
MWN offers complete service
at our headquarters in Niefern
at Roll-Service-Center in Renningen
at your site
24 hours service
hotline +49 711-548 19 28
certified according to ISO 9001

MWN Maschinenfabrik GmbH
Bahnhofsstr. 51-53
D 75223 Niefern-Oschelbronn GERMANY
Phone +49 7233 / 750
Fax +49 7233 / 7511
eMail info@mwn-niefern.de
Internet www.mwn-niefern.de
unexpected shutdowns should happen much less frequently. Very importantly, they also use less energy.

UP AND RUNNING SOONER THAN EXPECTED

The mill allowed for a shutdown of three weeks for the full installation of the new drive system, but were completely delighted that the PM 6 was up and running much sooner than expected. Hochrathner says: “The shutdown was proposed for exactly 21 days, this was to allow us to get all the infrastructure in place, as well as replace the drive system. This involved all of the mill maintenance teams, as well as installation engineers, in all 250 personnel. In the end, it only took 19 days, and we had sellable paper one hour after startup.”

So, what is the result of the overall investment? Hochrathner says: “For us, the most important issue is the high availability of the drive, after all a paper maker wants to make paper. Also of major importance is the accuracy of speed control. We are very pleased with both of these elements, and we have calculated that we have gained two extra production days a year. But what we are really pleased with is that our PM 6 drive energy consumption has gone down by 10% resulting in a saving of around Euro 200,000 a year ($243,000).”

PPI Magazine
Digital Edition

More pulp and paper industry news than any other magazine.

For a free subscription visit www.risi.com/magazine