Forest Farming for paper in India
Existing machines, particularly those using recovered paper as a raw material, need constant updating

"THE MACHINES ALWAYS HAVE TO IMPROVE"

Smurfit Kappa Hoya in Germany has an interesting history; the site was originally a military airport, and then was transformed into a carton mill in 1957. And the word “transformation” is a key word at Hoya, as it keeps pace with ever more demands on speed and output.

The mill uses 100% recycled fiber as its raw material source and has two machines PM 2 and PM 4, but it is PM 2 that has seen a flurry of attention over the years. The machine’s original specification when it was started up in 1990 was of a 7.5 m wide linerboard machine producing 150,000 tonnes/yr of 100-300 g/m² product at a speed of 600 m/min. It was rebuilt in 2001 which increased the speed up to 710 m/min and increased output to 290,000 tonnes/yr of fluting and testliner. But more recently, even more was needed out of the workhorse PM 2.

The mill basically makes corrugated paper medium and testliner that is used finally for the packaging of goods such as TVs and radios, and Hoya mostly supplies Smurfit Kappa’s own converting plants around Europe. Being a 100% recycled mill throws up all sorts of challenges to a modern papermaker situated in Europe, especially when talking about raw material which has seen dramatic price hikes along with a lowering of quality. This puts the burden firmly and squarely at the heart of the mill; the paper machines. Frank Wortmann, technical manager on PM 2 simply explains: “The mill has to be more efficient, and rebuilds have to take place because the machines always have to improve”.

THE DRIVES

The latest project is a two-phase event: the first phase was to increase the machine speed from 710 to 1,100 m/min which was completed in March 2011. Wortmann says: “The challenges were to completely renew the drive and dryer sections of PM 2 as we had an old geared system that had speed limitations. We
needed a complete rethink here, and in fact a completely new drive system.

ABB was tasked to come up with a plan to replace the whole drive system on PM 2 and supplied a new PMC300 sectional drive system with total of 53 drives that would transform the machine and drying section into one that could cope with a substantial increase in speed. The ‘silent’ drives supplied were ABB’s air cooled ACS800 sectional drives which Wortmann says are particularly special because the hardware is designed to be changed effortlessly. “This makes a huge difference to our downtime as the drives are built in modules and you can pull them out and replace them with a new one in as little as 15 minutes. It also means we don’t have to stock a lot of spare parts and already we have noticed a reduction in maintenance spend.”

In the past if there was a problem with any drive on PM 2 it meant that the machine would have to be stopped, but with the new system, drives can be taken in and out as the machine is still running. Adds Wortmann: “In the past with the old drives we had a lot of downtime as we would have to stop the machine to change the brushes every month. The new drives have made a massive difference”.

**THE DRYER SECTION**

Andritz was chosen as the supplier to replace the dryer section and was tasked to completely dismantle the dry end of the machine and install new framing and rolls. It also installed its PrimeRun web stabilization system, ropeless tail-feeding and a new energy-recuperation hood as well as replacing the existing pond-style size press with a PrimeCoat film press. The rebuild allowed for four more cylinders in the pre-dryer section.

The new film press, allows the application of a precise amount of starch on a cylinder which is then transferred to the paper.

As in the case of a lot of rebuilds, one of the major challenges at Hoya was the lack of room to work with. The solution Andritz came up with was an imaginative one it converted the first group of dryers to a single tier and moved the position of the first dryer cylinder to shorten the length of the unsupported draw from the press section, then it drilled out some of the existing dryer cylinders to serve as vacuum rolls.

**THE RESULTS**

Now PM 2 is running a lower basis weight paper (90 g/m²) at a speed of 1,000 m/min, and by all accounts the management are delighted with the results so far. Wortmann says: “This was an excellent project, and both the suppliers and the mill personnel made a huge effort on the rebuild and installation all with the challenges of time and space constraints. In fact we have all learned a lot from each other on this project!”

Improvements are set to continue at the Hoya mill with the on-going phase two of the project, including a rebuild of the after dryer section of PM 2, a new winder, and a new warehousing system. **PPI**

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Frank Wortmann, Technical Manager, PM 2, at Smurfit Kappa Hoya

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