

Drives installation cuts operating costs at sawmill



A major upgrade at Scierie Zahnd SA, a Swiss sawmill has seen the installation of 1.2 MW of AC drives from Control Techniques – and this will rise to over 2 MW once the company’s improvement plans have been completed.

The project included a substantial reorganisation of the drives for the saws and milling cutters over a total of seven DC buses, each with just one breaker per group, shared feed, lower operating temperatures in the cubicles (with less braking capacity being used) and a saving in power consumption.

The completed project will double the plants output to 200,000 cu metres of cut timber, for approximately the same operating costs, enabling the company to compete more effectively in a very aggressive European marketplace. Present power consumption is in the region of 280,000 kWh per year and early estimates indicate that the electrical power consumption per cubic metre of cut timber has almost halved!

Four Unidrive SPM large module drives, rated at 160 kW each are being used for driving the 1800 rpm milling cutters, two pairs of which mill the logs from a circular shape to square profile, prior to them going through the circular saws.

The Unidrive SPM range of IP20 input and output modules enable the creation of a comprehensive range of power systems. Encompassing the range from 90 kW to 1.5MW, the units are extremely compact and are designed for interconnection on a common DC bus supply to reduce running costs by regenerating braking energy to the AC mains and to circulate energy between drives to provide efficient motor-to-motor braking.

In this instance, the Unidrive SPM units are on four separate buses, each with a power supply, rectification, RFI suppression and braking resistors, with 15 smaller Unidrive SP drives

arranged on three further DC buses. Originally it was proposed that one braking resistor should be fitted for each of these three DC buses, but this proved to be unnecessary in practice because of the shared energy along the bus, saving energy. These drives, all in open-loop mode and ranging from 5.5 to 30 kW, cover duties including line speed, rotation of wood lengths, selection left/right and cut-to-length machines along the line. Each of the 14 circular saws is fitted with a Control Techniques CT-START soft starter, and then runs at constant speed throughout the shift, unless a blade needs to be changed.

The plant was closed down at the end of December 2005, with a target to restart production on the 1st March 2006 and this was easily achieved. The drives proved to be straightforward to retrofit with just 20 parameters to set on each and all provide connectivity to the controlling PLC due to being fitted with a Profibus-DP fieldbus option module.

The result? The line-speed has been increased from 60 to 80 metres per minute, with a current output of 500 cu metres per day and this will double once the upgrade on the rest of the plant has been completed. Even so, cost per cubic metre has reduced from 52-53 to 48 Swiss Francs, with a target within three years of 43 Swiss Francs.

“We investigated a number of drives before embarking on this project says,” Scierie Zahnds’ Technical Manager, Laurent ZAHND. “In all the tests, Control Techniques drives gave the best performance and we have been very pleased with the support from their Drive Centre in Zurich. We have a good relationship with them and have now standardised on Control Techniques products across the plant.”

KEY BENEFITS

- PLANT OUTPUT TO DOUBLE
- ENERGY CONSUMPTION PER M³ VIRTUALLY HALVED
- LINE SPEED INCREASED BY 33%
- APPROXIMATELY 20% COST REDUCTION



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