

Mill's motor fix

quickly recoups cost



Fitting a variable-speed drive to a fan motor for a boiler has already saved Juken Nissho's Wairarapa mill \$20,000 on a \$50,000 investment made a year ago.

The Japanese-owned Juken Nissho mill, just outside Masterton, manufactures laminated veneer lumber (LVL) that is all exported to Japan for use in construction.

The site has a heavy demand for steam, with three veneer dryers, 10 timber drying kilns, two log conditioners and two hot presses. The sheets of veneer are pressed and glued together in 20-30 board batches, with thicknesses ranging from 9 mm to 51 mm.

The 29 megawatt boiler has been fitted with two PDL UltraElite variable speed drives from Schneider Electric (NZ) Ltd.

The first is a UE 250, fitted to the boiler's 132 kW induced draft fan motor, while a smaller UE 60 controls the boiler's windswept spout fan motor. The two drives are installed side by side (see photo, right).

The large drive was fitted to remedy poor performance during periods of low load. Previously, a damper flap controlled by an analogue positioner was used to control the air flow to the boiler.



The drive replaces the analogue positioner. Now the fan speed can be perfectly matched to the load on the boiler, giving better control over the furnace.

Installing the large drive cost \$50,000, including the drive, switchboard panels, air conditioning units for panels and neutral screen cable to replace the single XLPE cables.

The payback period is expected to be around two and a half years.

The smaller drive was installed during Christmas 2003 to allow easy adjustment of the air being forced into the boiler by the 30 kW windswept spout fan.

When the boiler is running at low levels, say during the weekend, it no longer puts out the smoke that was a sign it was running inefficiently, like driving a car with the choke out.

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Cost savings from variable-speed drives

BEFORE

High load	96 kW, running for 120 hours a week*	\$ 806.40
Low load	80 kW, running for 48 hours a week	\$ 268.80

\$1,075.20

AFTER

High load	75 kW, running for 120 hours a week	\$ 630.00
Low load	11 kW, running for 48 hours a week	\$ 36.96

\$ 666.96

Weekly energy savings	\$ 408.24
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Annual energy savings (49 weeks a year)	\$20,003.76
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*Electricity cost of 7c/kWh

