

Online Machinery Health™ Technology Reduces Plant Shutdowns and Increases Productivity at Paper Mill

RESULTS

- €720,000 in lost production avoided following the prevention of three shutdowns
- Detection of a failed outboard motor bearing and fan bearing cage
- Fan misalignment of a fan detected and consequently corrected



APPLICATION

Monitoring vibration on motors and fans that provides air to the recovery boiler.

CUSTOMER

Paper mill, Austria

CHALLENGE

Should any of the three large fans that provide air to the recovery boiler fail, then the boiler needs to be shut down. Without a boiler to provide steam and power, the whole site is forced to shut down, resulting in production losses of €240,000 a day.

A common failure was found to be the bearing cage on the fan bearings. Deterioration of the bearing cage produces only small amounts of energy on an intermittent basis and the resultant vibration was proving difficult to detect during the periodic vibration checks that were performed.

In order to gain a true picture of the fans health, vibration and temperature indicators were required to be taken on a continuous basis, and advanced analysis technology was required to identify and flag any minor changes.

“By identifying problems with bearings at an early stage, we have been able to schedule repairs and avoid shutting the plant unnecessarily. This has increased production as well as lowered our overall maintenance costs.”

Maintenance & Automation Manager

SOLUTION

To address this problem, the paper mill decided to install an Online Machinery Monitoring system from Emerson to provide automated, continuous, predictive machinery health monitoring of the fans.

The CSI 6500 Machinery Health Monitor, which includes real-time predictive diagnostic monitoring of mechanical and rotating equipment, can be used as part of a predictive maintenance strategy. Overall vibration levels are displayed to the operator who can immediately see the impact any process changes have on the health of the machine.

Vibration data from Emerson's Online Machinery Monitoring solution is fed to AMS™ Suite: Machinery Health Manager predictive maintenance application, enabling the maintenance personnel to easily monitor the health of the fans. The system includes PeakVue technology, which provides early, accurate, and trendable roller bearing anomaly detection. PeakVue processing utilizes digital technology to detect stress waves on the spot for an early indicator of bearing wear. PeakVue processing also indicates the severity of any fault, enabling the technicians to call for immediate maintenance, if necessary.

Since the system was installed, it has identified a number of potential problems including a failing fan bearing cage, a failing outboard motor bearing, and a fan being out of balance. Using the Emerson's Online Machinery Monitoring solution, these problems were identified much earlier than when periodic testing was taking place. As a result, maintenance personnel were able to schedule maintenance for a time that suited the production plan, reduce the length of shutdowns by identifying exactly what the problem was, and avoid unscheduled downtime. Since the system was installed, it has prevented three separate unnecessary shutdowns, saving in total an estimated €720,000 in lost production.

“Emerson's Online Machinery Monitoring technology was seen as the ideal solution. We needed to move to an online system that would collect more data and then use it effectively to identify problems and help us predict potential faults.”

Maintenance & Automation Manager

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