

Case Study

FAG Industrial Services GmbH (F'IS) / Spenner Zement GmbH & Co. KG

Internationale Fachmesse
für industrielle Instandhaltung

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Condition-Monitoring-System Made by FAG Industrial Services GmbH Secures Continuous Cement Production

Categories

1. Maintenance Services
2. Measuring and Monitoring Technology
3. Vibration-measuring Devices (Offline, Online)
4. Condition Monitoring Systems
5. Training

Market Sector

Building Materials Industry

Brief Description

- Installation of Online Condition Monitoring System FAG DTECT X1 for condition surveillance and early warning purposes regarding gear box and gear reduction unit of tube mills.
- Training of customer's staff to enable independent operation of the condition monitoring system on their own.
- Initial support from the vibration and analysis experts at F'IS.

Task

Implementation of a preventive maintenance system to avoid unplanned machine shutdowns and for securing total plant availability.

Preparation

Spenner Zement has several cement mills (tube mills) at its location in Erwitte, Germany. In 2002, one of these mills had to be shut down, because of gear box damage. The three-stage gear box had been monitored by a temperature sensor which, however, displayed the alarm too late. The complete shaft and parts of the housing had been damaged so badly that the gear box had to undergo very cost intensive repair. For this reason, Spenner Zement asked F'IS to work out a sustainable condition monitoring solution, enabling plant preventive maintenance.

Implementation

Building materials' manufacturer Spenner Zement GmbH & Co. KG had encountered a staggering damage to one of its machines. It therefore was on the lookout for an early warning system to evade future unplanned shutdowns. Spenner decided to commission FAG Industrial Services GmbH:

The installation of a condition monitoring system, combined with intensive staff training, provides maximum protection against costly unplanned shutdowns for Spenner Zement, a company based in Erwitte, Germany. The FAG DTECT X1 system used to permanently monitor the gear box and transmission gear of a cement mill (tube mill) at the Erwitte plant will automatically trigger an alarm in the event of values deviating from predefined specifications. After initial support from the vibration and analysis experts at FAG Industrial Services (F'IS), the Spenner employees are now capable of operating the monitoring system and evaluating the readings themselves, following intensive training by the F'IS team.

The Erwitte cement experts soon realized that they made the right investment decision. Recently the DTECT X1 online monitoring system diagnosed toothing damage on the main gear box, which was confirmed by the Spenner employees during a thorough visual inspection. Thanks to early damage detection, consequential damage with resulting high repair costs and major production loss was avoided. The gear unit was replaced on time within the scope of a planned facility shutdown.

One of the decisive advantages of online condition monitoring with the help of DTECT X1 is that the transmitted values permit precise localized identification of the damaged component in addition to the actual detection of damage. Also, the type of damage in a rolling bearing (outer or inner ring, rolling elements) enables valuable clues regarding necessary response time as these defects progress at different rates. For maintenance planning this means that any required special replacement parts as well as the mounting team can be ordered well in advance and that the replacement can often take place during scheduled maintenance intervals, as was the case here.

- FAG DTECT X1 online monitoring system was installed with sensors at the main gear box and reduction gear.
- Permanent monitoring (currently three tube mills).
- Vibration monitoring training of Spenner employees.
- 3 months' support in the analysis of data, since then Spenner has been using the system on its own.

Customer's Benefit

- Prevention of unscheduled shutdowns thanks to early automatic detection of damages by FAG DTECT X1.
- Prevention of major production losses.
- Prevention of subsequent damages to the gear box and saving of repair costs.

Ordering Party

Spenner Zement GmbH & Co. KG, founded in Erwitte 1927, is a family-owned medium-sized service provider and manufacturer of building materials ranging from products such as cement, lime, and powder mortar. Spenner produces and distributes cement, lime, mortar, daub and finery, silo silts, and concrete for the construction business sector. At the same time, Spenner acts as recycling agent for residues produced by many business branches, using their waste materials as substitutes for raw materials and fuel.

Internet: <http://www.spenner-zement.de>

Contractor

FAG Industrial Services GmbH (FIS), headquartered at Herzogenrath near Aachen, offers its services, service products and training with regard to maintenance on a manufacturer-independent basis. Core skills are within the steel and aluminium sectors, paper industry, mining and raw material processing, wind energy and other industrial fields. FIS thus supports customers to save maintenance costs, optimize machine availability and avoid unexpected machine downtime. FIS takes responsibility for the Schaeffler Group's worldwide service business regarding the INA and FAG brands. In 2005, the Schaeffler Group employed a workforce of about 60,000 at 180 locations worldwide and generated sales of € 8 billion.

Internet: <http://www.fis-services.com>

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Maintain 2006

The 2nd International Trade Fair for Industrial Maintenance will be staged from October 17th to 19th, 2006 at the M,O,C, trade fair centre in Munich. As MAINTAIN is the only specialized international trade fair for industrial maintenance in the world, it gives visitors a look at the latest trends in all sectors and furnishes them with information about state-of-the-art solutions that can be used to repair, maintain, inspect and improve their production facilities. For decision-makers and experts, that makes it the most important business gathering that deals with all aspects of industrial maintenance. Special fora on maintenance as a core factor for production and up-to-date information on MAINTAIN's web pages add to the event itself.

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