

SKF Reliability Systems



Condition monitoring services

Engineering solutions

Proactive Reliability Maintenance (PRM)

Integrated Maintenance Solutions (IMS)

Maintenance services

Refurbishment services

Training courses

SKF condition monitoring technology averts plant failure at major UK paper mill

Iggesund Paperboard reports that its investment in SKF condition monitoring equipment has proven invaluable, by providing advance warning of the imminent failure of a critical large size bearing.

At Iggesund Paperboard's plant in Workington, Cumbria, the company's No. 2 board machine (BM2) produces coated carton paperboard for the packaging and pharmaceutical industries. The machine is over 200m long and includes a massive 'Machine Glaze' (MG) cylinder with a diameter of 6.1m, weighing 165 tonnes. As a result of this sheer size, any mechanical problems, such as a faulty bearing, can lead to lengthy and expensive shutdowns.

With so much at stake, condition monitoring practices, using the SKF Microlog and PRISM⁴ software, have been progressively introduced throughout the plant. The software has recently been upgraded to SKF Machine AnalystTM, which further optimizes the performance

of plant machinery diagnostics. SKF Machine Analyst is the core platform in a family of reliability software applications that together form the 'SKF Machine Suite' platform.

The value of such a structured approach to condition monitoring was demonstrated when Iggesund technicians detected a developing problem within a main support bearing in the MG cylinder, during routine condition monitoring on BM2. SKF's monitoring equipment provided a timely forewarning that enabled a planned repair to be undertaken during a scheduled plant shutdown. This resulted in huge savings in unscheduled downtime and production losses.

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Had the bearing failed completely, the resulting damage to the plant would have been catastrophic. It has been estimated that the machine may have had to be shut down for six months.

Offending bearing

After the fault was identified, the offending bearing was closely monitored on a daily basis, with the team observing a trend in which the vibration levels remained above the normal amplitude, as previously recorded, but varied with the speed of the machine.

The offending bearing was then removed during a planned shutdown and it was found that the inner bearing raceway had two noticeable cracks.

Damage to rotating equipment can be the result of many factors, such as wear and surface distress, and cracks in bearings are generally seen as being secondary damage. SKF believe that the Iggesund condition monitoring team picked up such a secondary crack, which was caused by the stresses imposed by an earlier event.

Valued protection

Although the team at Iggesund successfully detected and analyzed an inner-race defect in the MG cylinder bearing, procedures have now been introduced to enable even earlier detection of this type of problem.

In the future, Iggesund engineers plan to use a fully automated condition monitoring system. This system uses a dedicated computer link-up to continuously monitor all crucial rotating components throughout what is regarded as an extremely complex manufacturing process. Data will be taken and automatically entered into each component's profile. This procedure will provide an instant comparison between the current measurement and previously recorded data. This information will then be stored for historical analysis of the machine, showing at a glance any deviation from normal performance.

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