SCHAEFFLER

Schaeffler Global Technology Solutions

Pulp and paper

Vibration Diagnosis for Failure Detection on a Paper Machine

The customer is a Spanish cardboard manufacturer with an annual production capacity of 80 000 tons and sales of 25 million euros. The following example takes place in its plant in Northern Spain that employs about 100 people.

Challenge for Schaeffler

A high plant availability is a key factor for profitable business in paper mills. Unplanned shutdowns cause expensive losses due to production stoppages. In the plant in Northern Spain the customer experienced about four unplanned shutdowns each year. These were caused by unexpected bearing failures in the second press of the wet section. Although the customer had already contacted several companies for help in the past, it had not been possible to solve the problem so far. Thus, he contacted Schaeffler Iberia for support.

Schaeffler Solution

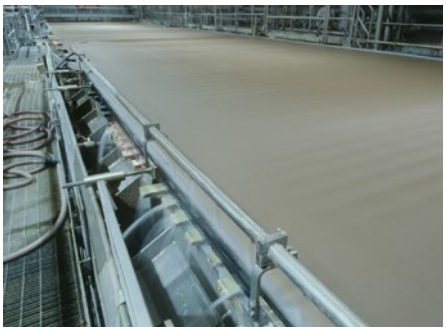
Schaeffler Iberia recommended the customer to monitor its paper machine with the help of condition monitoring. First, Schaeffler monitored the bearing vibrations of the relevant press using an offline vibration measuring device. In the second step an FAG DTECT X1 was installed on the paper machine. This online system monitored the bearings continuously for a duration of six weeks. The subsequent data analysis revealed that the gearbox had absorbed the axial loads of the machine what had caused bearing damage in the gearbox. With this information the customer was able to take appropriate measures and solve the problem.

Technical Information about the Plant
Location:
Northern Spain
Production capacity:
80 000 t/a

LuK INA FAG

Online monitoring system FAG DTECT X1

Service experts disussing data diagnosis



Wet section in paper production

Customer Benefit

By avoiding the average four unplanned shutdowns per year, the cardboard manufacturer realizes significant savings.

Expenses of preventative maintenance:	
Previous average annual costs Replacement parts: Costs due to production losses:	 € 13 900 € 90 000
Total Costs:	**€ 103 900**
Costs with Schaeffler solution FAG DTECT X1 rent for 6 weeks and Schaeffler expert consultancy in the fields of installation and data analysis:	 € 4 000
Replacement parts:	€ 2 300
Total Costs:	**€ 6 300**
Total savings:	**€ 97 600**

What's special

By monitoring the paper machine with the help of the FAG DTECT X1 for a short period the customer supported by Schaeffler could identify and solve a problem that slowed him for years. Customers, who decide to monitor their machines with an online system not only for a short term but on permanent basis, can even extend their availability. By the early alerting it is possible to schedule repairs in accordance with the maintenance plans and increase the plant availability in the long run.

Technical Information about the Solution
Online monitoring system:
8 channel FAG DTECT X1 with an external multiplexer
Settings und specific values:
• Configurations: 16 • Frequency windows: 12 • Speed tracking of frequency windows • Envelope detection
Monitored equipment:
Bearings of the second press of the wet section
Sensor position:
2 sensors at the front drive side of the press and 3 sensors at the drive side of the press

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