SCHAEFFLER

Schaeffler Global Technology Solutions

Steel and non-ferrous metals

Increased Gearbox Availability in a Welded Steel Plant

The customer is a leading manufacturer of hot strip and cold formed welded steel pipe. The company produces a number of different pipe finishes, such as: galvanizing, cutting, beveling, threading and flanging. The current market situation is forcing the customer to reduce costs in several areas, including maintenance.

Challenge for Schaeffler

The main gearboxes in the pipe rolling mills' transmission systems are constantly subjected to the dynamic forces produced in the rolling process. These operating conditions make the gearboxes susceptible to wear and damage. In the past, these gearboxes where serviced on a preventive maintenance basis. This included regular inspections of four randomly chosen gearboxes, corresponding to about 10% of the total number of gearboxes. The data was used to obtain a sample overview of the condition of all gearboxes. Apart from the high costs of each inspection, this procedure involves the risk of failures and unplanned shutdowns as only fully functional gearboxes may be inspected instead of damaged ones.

Schaeffler Solution

Schaeffler Iberia presented the FAG Detector III to the mill operator. The customer liked the unique price performance ratio offered by this offline condition monitoring device. So he decided to buy it and use it to check the gearboxes' condition. Schaeffler Iberia supported the customer's maintenance personnel in creating measuring routes for monitoring all 45 gearboxes. Moreover, the personnel was trained in using the device and the analysis software. The twelf main gearboxes are now monitored monthly whereas the reduction gearboxes are checked once a year.

Technical Information about the Plant
Welded steel pipe lines
Manufacturing process steps of main and reduction gearboxes:
Forming, finishing, calibrating and infeed in the loop tower
Manufacturer:
Oto Mills
Rolling speed:
Variable

LUK INA FAG

Condition monitoring measurement

FAG Detector III

Data transfer to the PC

Customer Benefit

The FAG Detector III is a effective solution to the customer's problem, allowing the company to monitor all 45 gearboxes. The subsequent data analysis shows if any gearboxes have to be examined more closely. In this way the danger of unexpected shutdowns has been reduced enormously, and at a very favorable price.

Previous annual monitoring costs Costs of monitoring only 4 gearboxes:	€ 6 000
Assumed costs of monitoring all 45 gearboxes:	€ 60 000
Annual monitoring costs with FAG Detector III Costs of monitoring all 45 gearboxes:	€ 7 000
Annual costs savings (direct comparison of both methods)	**€ 53 000**

What's special

The acquisition of the FAG Detector III was only one of several measures taken in the process of introducing a new maintenance strategy at the customer's plant. All measures have increased the availability of the pipe rolling mill significantly and enabled the personnel to obtain a better understanding of the machinery.

Technical Information about the Solution

FAG Detector III functions used by the customer:

- Monitoring functions:
  - ISO 10816
  - Frequency selective condition monitoring of rolling bearings
  - Gearbox condition
  - Rolling bearing condition
- Measuring routes
- In-depth diagnosis on the basis of time signals and frequency spectra
- Free PC software

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