

Schaeffler Global Technology Solutions

Steel and non-ferrous metals

Condition Monitoring of Saw Gearboxes Increases Availability

The customer is a leading manufacturer of hot and cold rolled welded steel pipes and hot rolled steel strips. The company has different types of pipe finishing facilities, such as galvanizing, cutting, beveling, threading and flanging. The current market situation forces the customer to reduce costs, also in maintenance.

Challenge for Schaeffler

The cutting saws of two different lines are driven by a gear motor system that at the same time drives a cutting disc. The saw drive supports the dynamic forces of the process. Due to the operating conditions it is exposed to an increased danger of wear and damage. The complete equipment is fitted on a monorail guidance system. The customer's own maintenance detected that the saw gearbox of line 1 was damaged in one of the gear speed. In the saw gearbox of line 2 some ruptures in the shield were identified. Thus, the company looked for a partner that could provide methods to monitor the damage progress.

Schaeffler Solution

To get a better understanding of the saw's gearbox condition, Schaeffler Iberia recommended the customer to monitor the equipment with a condition monitoring device. Schaeffler experts presented the FAG Detector III to the customer, created measuring routes and trained the maintenance staff. The FAG Detector III is an offline vibration measuring device able to measure machine vibrations on predetermined measuring points. By calculating characteristic values it provides important machine information. These helped the customer to ensure that line 1 operated without failures until the next planned downtime and line 2 until the receipt of a required replacement part.



Technical information about the Plant

Welded steel piping line

Continuous cutting saws:

Line 1 and line 2

Construction year:

2006

Manufacturer:

Oto Mills

Measuring speed:

160–180 RPM

Linear acceleration:

Variable

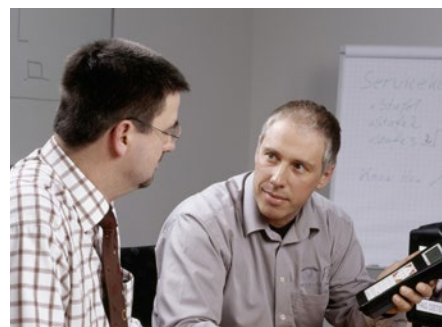




Measurements with FAG Detector III



Tape for the production of welded tubes



FAG Detector III training

Customer Benefit

Thanks to the condition-based monitoring the customer has increased its machine productivity. This way the service life was extended, the maintenance plan was optimized and wrong diagnoses as well as consequential damages and follow up costs were avoided.

Costs per production loss Three days of unplanned downtime:	3 x € 24 000
Employee costs per unplanned downtime and short term investements for new gearbox:	2 x € 35 800
Total costs:	€ 143 600
Costs for condition monitoring measurements (including support from Schaeffler experts, Detector III rental rate):	€ 6 000
Cost savings in case of only one avoided downtime:	€ 137 600

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

What's special

Schaeffler Iberia introduced at the customer's plant a new maintenance strategy and trained the customer's staff. Thus, the maintenance staff has obtained a better understanding of the machinery in the process lines. By the gained improvements also stock planning could be optimized and procurement costs were reduced.