

## Schaeffler Global Technology Solutions

### Industrial

#### Schaeffler Technologies AG & Co. KG, Germany

#### Safeguarding of Hardening Lines

Schaeffler AG is a leading manufacturer of rolling bearings worldwide and a renowned supplier to the automotive industry. This globally active company and its 76 000 employees generated sales of approximately 11.1 billion euros in 2012. The Industrial division supplies products and services from the INA and FAG brands for over 60 different sectors.

#### Challenge for Schaeffler

Heat treatment processes are used on metallic materials to improve the component characteristics for specific applications. In addition to dimensional stability, the component strength and degree of hardness are significant factors. Particularly high requirements are placed on heat treatment processes. Roller hearth furnaces from Wienstroth are used for heat treatment at Schaeffler in Schweinfurt. These are in operation 24/7 and must run without malfunctions. An unplanned shutdown would lead to downtimes and compromises in quality.

#### Schaeffler Solution

Schaeffler's maintenance department decided to use Schaeffler's own systems for checking the hardening facilities. The bearings in the different fans are monitored for vibration with the FAG DTECT X1<sub>s</sub>. The data is forwarded for analysis to a central computer by the system and used for preventative measures and recommendations on how to proceed. Changes in the imbalance and incipient damage to the fan bearings were detected in a very short time. This meant that measures could be initiated directly. Due to this success, all the other hardening lines from Wienstroth, which are used at Schaeffler in Schweinfurt, were also equipped with these systems.



#### Technical Information about the Plant

#### Hardening facilities from Wienstroth

#### Diameter range:

6 – 1280 mm

#### Work processes

- Hardening of rollers, outer and inner rings of all conventional rolling bearing steels
- Martensite and bainite treatment

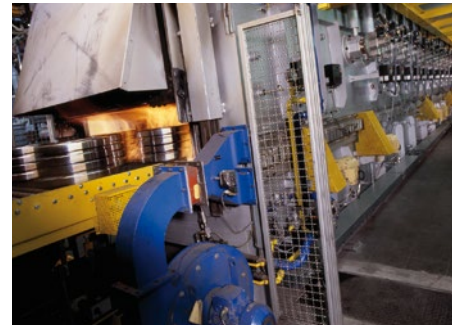




FAG DTECT X1<sub>s</sub> for online vibration monitoring of machines and systems



Roller hearth furnace at Schaeffler in Schweinfurt



Roller hearth furnaces are suitable for hardening all conventional rolling bearing steels

### Customer Benefit

Permanent monitoring enables bearing damage to be detected at an early stage and unplanned downtimes to be largely prevented. Maintenance can mainly be carried out during planned maintenance intervals. This results in increased process reliability and quality as well as reduced maintenance costs.

### What's special

The relatively high level of background noise during the heat treatment process makes precise analysis and relevant adjustment of alarm limits very difficult. Schaeffler has succeeded in matching the concept to the relevant application thereby facilitating reliable monitoring. This application can also be transferred to machinery in other industrial sectors.

### Technical Information about the Solution

#### Online monitoring system:

8-channel FAG DTECT X1<sub>s</sub>

#### Sensors:

8 ICP accelerometers

#### Housing:

IP66

#### Communication:

Internal company network

#### Additional signals:

Speed signal