

Schaeffler Global Technology Solutions

Industrial

Schaeffler Technologies AG & Co. KG, Germany

Monitoring of main spindle and rotary table bearings of grinding machines

Schaeffler 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. Schaeffler also produces large-size bearings for heavy industry at its Schweinfurt location, for example, for the wind power, steel and paper sector.

Challenge for Schaeffler

Manufacturing processes and machine tools for manufacturing large-size bearings are subject to the highest quality requirements. High availability and performance of the machines are an absolute must. The components of production machinery such as main spindle and rotary table bearings are monitored for vibration in order to meet these requirements and prevent unplanned shutdowns.

Schaeffler Solution

The grinding department at the Schweinfurt location chose Schaeffler's own online system FAG DTECT X1_s for automatic monitoring of main spindle bearings. The measurement data is automatically recorded at defined time intervals. The intervals can be adjusted via input screens at any time. In addition, measurements can be started manually if irregularities occur. The data is automatically forwarded to a server where the measurements are evaluated. Relevant measures can be implemented immediately in an alarm situation.



Technical Information about the Plant

Grinding machine

NOVA PGE 200/460

Ring diameter:

250-460 mm

Surfaces to be machined on ring:

- Outside diameter of outer ring
- Outside diameter of inner ring

Cutting speeds:

adjusted cutting speed





Online monitoring system FAG DTECT X1_s



NOVA PGE 200/460 grinding machine



Monitoring of main spindles by FAG DTECT X1_s

Customer Benefit

Bearing damage is detected at an early stage by means of vibration diagnosis with the FAG DTECT X1_s and can be rectified during planned maintenance intervals. Unplanned shutdowns are mostly prevented and the quality of the production line is always maintained.

What's special

Undesirable interference signals occur during the grinding process. For this reason, automatic detection of incipient bearing damage is very difficult and it is almost impossible to make a statement about the condition of components. FAG monitoring systems can record measurement data at the correct time and immediately provide it for an analysis of components via the interface to the machine control system.

Technical Information about the Solution

Schaeffler monitoring system:

Schaeffler multi-channel system:

8-channel FAG DTECT X1_s

Sensors:

8 ICP accelerometers

Housing:

IP66

Communication:

Com-Server

Additional signals:

Speed signal