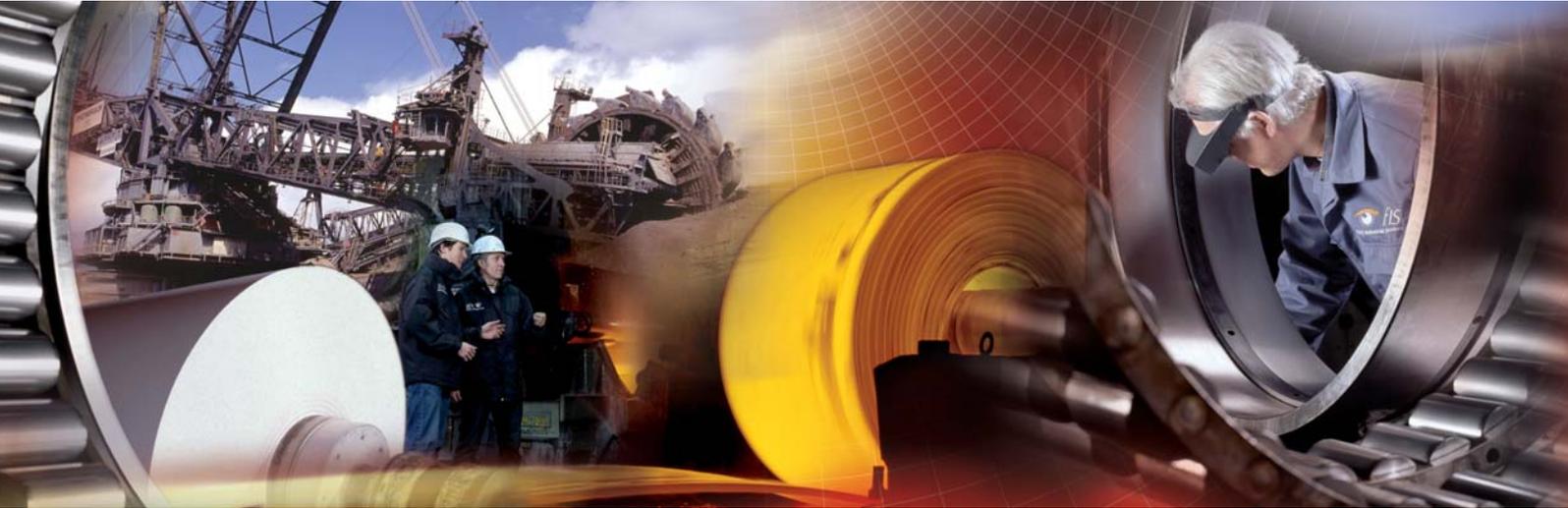


# Smart Performance Program



## Assuring the quality of spindles with FAG Detector III

**Industry: Production Machinery**

**Customer: Makra GmbH, Forst-Baden (Germany)**

MAKRA – Manfred Kratzmeier GmbH – designs and builds special machine tools and clamping devices in accordance with customers' specifications. Since the firm was founded in 1982, MAKRA has gained a reputation as a supplier of high quality products. However, being a modern company, MAKRA defines quality not only as providing the specified product features but as a factor that contributes to fulfill customers' expectations in all areas.

The procedures and manufacturing processes are permanently checked with the objective of constantly improving the quality of the company's products.

### Challenge for Schaeffler

MAKRA is planning to check each of its high precision spindles prior to delivery to ensure their high quality. A second check is scheduled after the products are mounted at the customer's. Additional measurements are performed periodically within the regular maintenance intervals.



#### Technical Information about the Monitored Drilling Spindles

<b>Speed:</b>	Up to 4000 RPM
<b>Spindle bearings:</b>	GMN

## Schaeffler Solution

FAG Industrial Services (F'IS) experts presented the FAG Detector III to the customer. With the help of this mobile and handy condition monitoring device, various types of measurement can be performed on spindles, for example the examination if a spindle has been mounted correctly. At the customer's plant, the personnel was trained in the correct use of the measuring device and in the determination of the optimal measuring points. Afterwards, various configurations for different measuring points and whole measuring routes were generated on a PC. Finally, the participants were shown how to generate individual measuring reports for MAKRA's customers.

## Customer Benefit

With the condition-based monitoring of its high-precision spindles, MAKRA GmbH has introduced a new form of quality control. It permits a full documentation of the condition of a spindle's bearings and ensures that bearings are mounted correctly. A check prior to delivery shows whether the customer's products are free from defects and meet the relevant quality specifications. In this way, defective spindles can be rejected in good time, and the necessity of costly defect elimination measures can be avoided. The cyclic measurements during operation ensure a regular quality control. In the past, MAKRA customers often were able to tell that a bearing was damaged only when their products' dimensions were no longer within the specified tolerances. Today, MAKRA experts can point out this kind of problem to them in good time, when they perform their after sales service.

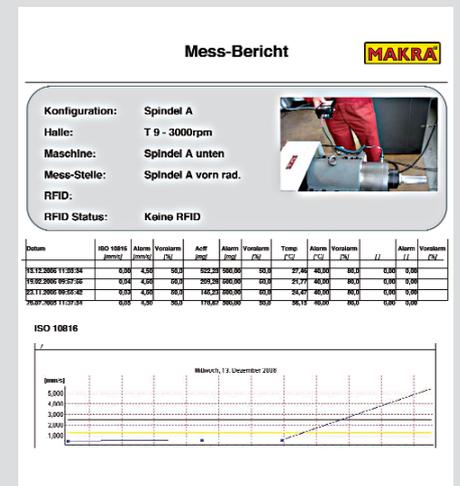
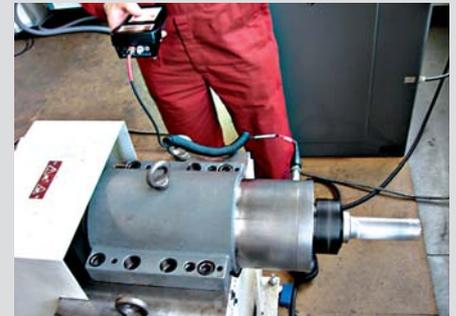
## What's special

All the spindle inspections carried out are documented. For this purpose MAKRA uses the FAG Detector III report generation assistant, that creates a condition record for each new or repaired spindle. A copy of this condition record is supplied to the customer and a further copy is archived by MAKRA, giving maximum transparency.

### Technical Information about the Solution

#### FAG Detector III functions used by the customer:

- Monitoring functions
  - ISO 10816
  - Calculation of broadband characteristic values from raw signal and demodulated spectra
  - Analysis options for more in-depth machine diagnosis
- Measuring report assistant for generating customer-specific measuring reports



Contact details for worldwide contact persons as well as further **Smart Performance Solutions** can be found on our homepage [www.smartperformanceprogram.com](http://www.smartperformanceprogram.com)