

Schaeffler Global Technology Solutions

Raw material extraction and processing

Spaleck GmbH and Co. KG, Germany

Reliable diagnosis of damage in vibrating screens

The company Spaleck has more than 50 years' experience in the field of conveying and separation equipment. The product range includes oscillating conveyors, screening machines and customer-specific solutions. In the field of recycling, Spaleck is one of the leading suppliers in the sector.

Challenge for Schaeffler

Vibrating screens are central to the production process. Any unplanned stoppage of this equipment, and the associated loss of production, incurs considerable costs for the operator. In order to increase the availability of its own vibrating screens and thus the availability of the equipment to its customers, Spaleck set out to find a reliable monitoring solution. The aim was to allow early detection of bearing damage and prevent touchdown of the screen, for example as a result of spring breakage.

Schaeffler Solution

Schaeffler installed the FAG SmartCheck on the end of one shaft in a vibrating screen. This detects radial or axial vibrations depending on the mounting of the sensor. FAG SmartCheck analyses the overall vibration state in accordance with DIN ISO 10816 as well as the key values for bearing and spring breakage monitoring that are particularly relevant to this application. If the permissible vibration values are exceeded, an alarm is triggered. The reason for this alarm can be easily tracked down with the aid of FAG SmartCheck. The alarm notification can be initiated directly on the vibrating screen or at the control panel, alternatively in the machine controller. It is also possible to transmit the data to a remote location such as an external service provider for detailed diagnosis (remote monitoring).



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Förder- und Separiertechnik

Technical information on the vibrating screens

The type of vibratory motion is a significant factor in achieving the optimum conveying and screening results. A distinction is therefore made between two essential designs:

- linear vibrating screens
- rotary vibrating screens



FAG SmartCheck is a small, compact device



FAG SmartCheck in use on a vibrating screen



Vibrating screens are central to the production process

Customer Benefit

FAG SmartCheck proved reliable under the aggressive conditions that predominate in the field of vibrating screens. Thanks to the intelligent measuring system, it was possible to reliably detect the most important vibrating screen characteristics and ensure equipment availability. Depending on the particular production facilities, the costs incurred by stoppage of a vibrating screen can run to thousands of euros per hour. A special characteristic is that the measurement system detected bearing damage on the opposing end of the shaft in a vibrating screen and achieved this when the vibrating screen was either empty or filled. This should be emphasised in particular, since vibrating screens generate continuously high vibration levels during operation. Determining bearing-specific vibration levels from these vibrations is something that can only be achieved by a very small number of systems, which are normally extremely expensive.

What's special

In addition to reliable, highly precise monitoring, the FAG SmartCheck was also impressive for its ease of operation and commissioning. For monitoring, it was only necessary to fit one system on the vibrating screen. Other applications that can be monitored using FAG SmartCheck include vacuum pumps and screw compressors.

Technical Information about the Solution

Monitoring system applied:

FAG SmartCheck

Vibration sensor applied:

High resolution piezo sensor

Operating temperature monitored:

- Bearing temperature
- Ambient temperature
- Speed
- Load

Diagnostic methods:

- Time signal
- Envelope curve
- Speed and frequency monitoring
- Spectrum and trend analysis