

Schaeffler Global Technology Solutions

Kitchen Systems

Reliable Process Monitoring during Stainless Steel Sink Manufacture

The customer produces sinks and drop-in basins from stainless steel and is one of the world market leaders in its sector.

Challenge for Schaeffler

The process of manufacturing sink frames involves both robots and a variety of pressing production lines, which all work together very closely. The availability of all machine parts is decisive in ensuring a high level of process reliability and productivity. For this reason, the company wanted to stop using offline vibration measurement and introduce a permanent monitoring solution for the drive motors used in the hydraulic pumps that operate the presses.

Schaeffler Solution

An FAG SmartCheck was installed at the base of each drive motor and monitors the two bearings that it contains using specially-developed bearing configurations. Due to the vibrations that occur in the process, measurements can only be made while the system is at a standstill and the pumps are taken out of the oil circuit. For this purpose, the FAG SmartCheck receives a digital signal from the control system that controls the time at which the measurement is made. When there is an alarm status in the systems, this is transmitted to the control system via an analog output signal, and the status is displayed in the system visualization of the customer's own maintenance management system. Schaeffler took care of the system design – from consultation through to the selection and procurement of the components. The customer's maintenance employees then carried out the installation and configuration.



Technical Information about the Plant

Number of pressing lines:

5

Power:

75-200 kW

Automation:

5 robots

Pressure of the hydraulic pumps:

250-300 bar





Fully automated pressing line



FAG SmartCheck at the base of one of the drive motors



The customer-specific visualization allows the operator to monitor the system easily

Customer Benefit

Using the FAG SmartCheck is a further step towards optimizing the automation of its frame production process and increasing its productivity. Thanks to the permanent monitoring of the motor bearings, unplanned downtimes are prevented and any maintenance measures that are required can be planned. What is more, the compact monitoring system also allows comprehensive statements to be made about the machine's condition, which in turn contribute to both process optimization and a reduction in lifecycle costs. The cooperation between Schaeffler and the customer is characterized by the fact that the kitchen systems manufacturer largely makes use of the expertise that is already available in-house but that Schaeffler's team of experts is always on hand when needed, e.g. when assistance is required during an in-depth data analysis.

What's special

Even in fully automated production processes, it is a common problem that online monitoring is still not implemented for smaller and sometimes redundant systems due to the lack of cost effectiveness. With the FAG SmartCheck, it is now possible to close this gap and thereby increase the overall level of efficiency. The example illustrated here can also be transferred to other production processes that involve pressing and utilize similar bearing supports.

Technical Information about the Solution

Number of monitoring systems:

24 FAG SmartCheck

Power supply:

PoE (Power over Ethernet)

Additional signals:

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Monitored assemblies:

- Motors
- Pumps

Monitored components:

- Bearings
- Gear teeth

Monitored operating parameters:

- Temperature
- Speed

Diagnostic methods:

- Speed
- Acceleration
- Envelope curve

Status display:

System visualization in the customer's own maintenance management system