

Revolutionizing Europe's Leading Coffee Production: Enhancing Production Efficiency with ADI OtoSense Smart Motor Sensor



BACKGROUND

A global coffee producer's drive to explore and adopt predictive maintenance solutions opened the doors for ADI's OtoSense Smart Motor Sensor (SMS) solution. Equipment uptime improvement and growing operating margins were really important to the corporate management. This collaborative journey began in 2020 and has grown over the years with better understanding and implementation of predictive maintenance of rotating equipment through OtoSense technology.



CHALLENGE

- Critical motors do not have redundancy leading to unplanned downtimes
- Replacing rotating equipment or obtaining spare parts requires a long lead time, and the equipment itself is very expensive, leading to significant cost impacts in case of failure.

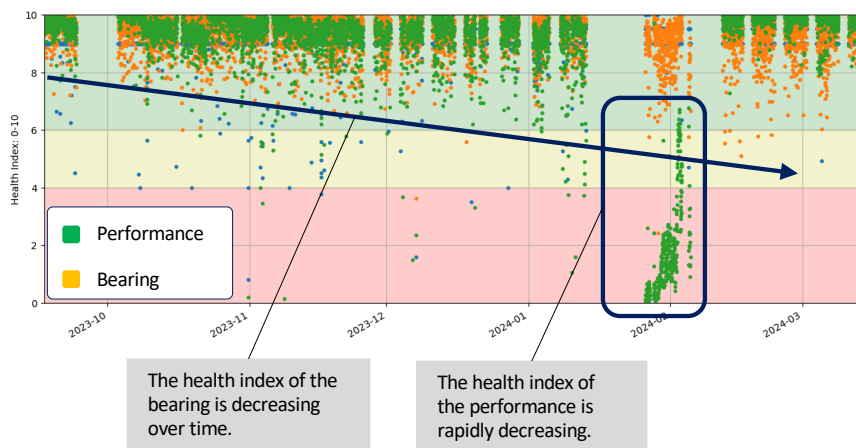
SOLUTION BENEFIT

- Prevention of unexpected downtime, saving significant costs.
- Optimization of "Cost of Ownership" for the critical assets.

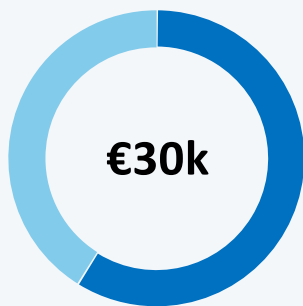
Deployment and Outcome

In key coffee production plants across Europe, 80+ SMS units were deployed. The installation, commissioning, and learning process has been ongoing for two years. ADI OtoSense SMS was deployed in one of the top three factories in terms of annual coffee production, which includes a soluble area for green coffee covering roasting, extraction, evaporation, drying, filling and packaging processes.

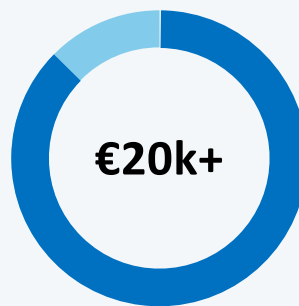
A significant detection of a bearing fault on a critical motor underscored the importance of predictive intelligence systems. The SMS units on the critical ventilation system, driving primary air to dry coffee, identified the fault early. This early detection allowed the maintenance team to act promptly, avoiding costly motor replacement (€30,000) and production downtime (€20,000-30,000 per hour), resulting in substantial cost savings.



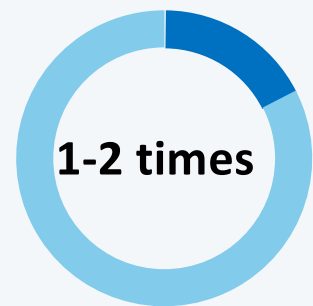
The cost of critical motor.
Replacement expenses
are significant in case of
brokage



**Hourly Cost Impact from
Unscheduled Downtime**



**Annual issue
occurrence frequency**



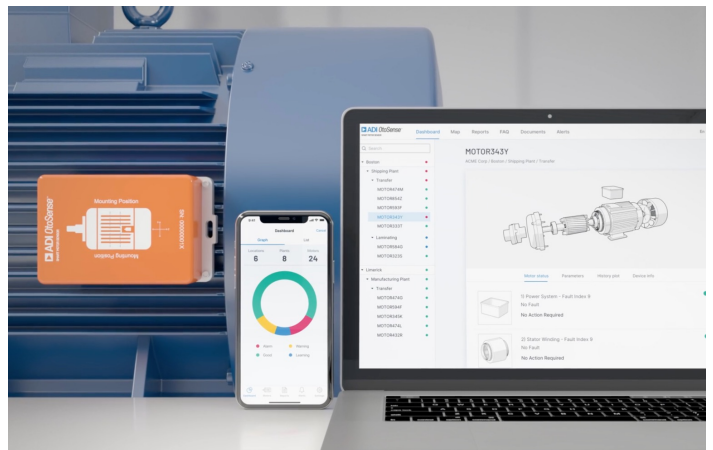


We were thrilled by SMS's ability to promptly identify the issue in the ventilation system. Given the substantial size and high replacement costs of the motors in our production line, along with lengthy lead times, maintaining them properly is essential. SMS has proven to be an ideal solution for this need.

*Maintenance Engineer
A Major Food/Beverage Manufacture*

ADI OtoSense Smart Motor Sensor reduces overall costs:

- Reduces unforeseen downtimes and avoids catastrophic failures
- Extends period between overhauls
- Reduces route-based activities & optimizes maintenance resource allocation
- Supports more efficient spare parts management and stocking
- Facilitates extended equipment service life
- Optimizes motor efficiency
- Improves OEE (Overall Equipment Efficiency)



Benefits of ADI OtoSense Smart Motor Sensor:

1. Advanced diagnostics for prioritized action

- Identifies electrical and mechanical performance degradation
- Supports maintenance prioritization via assessment of severity levels
- Provides repair insights and recommendations

2. Sensing technologies for high quality

- Multi-axis, wide bandwidth vibration sensors monitor mechanical health
- Magnetic field sensors monitor electrical health
- Temperature sensors monitor ambient and motor skin temperature

3. Machine learning creates individualized motor models during operation

- Combines and interprets high quality, sensing data for higher reliability diagnostics
- Creates automated, brand agnostic motor models.
- Customized model for individual motor & the processes in which it is used

