



EARLY DETECTION OF FAN BEARING FAILURE PREVENTS PRODUCTION DISRUPTION

Working to achieve a reliable and predictable plant operation through condition-based maintenance, supported by the Machine Sentry® platform.

THE PROBLEM

The asset under review was a supply fan unit serving multiple critical production areas within a pharmaceutical manufacturing facility. The fan plays a key role in maintaining airflow and environmental conditions required for safe and compliant operation.

Failure of this asset would have resulted in disruption to production processes and restricted access to key areas of the site. Due to its criticality, early fault detection and planned intervention were essential to avoid unplanned downtime.

OUR APPROACH

AVT Reliability® has supported the site with a structured condition monitoring programme since 2021. Monthly vibration data is collected from both the motor and fan using the Machine Sentry® mobile sensor, connected to permanently installed sensors via a BNC interface.

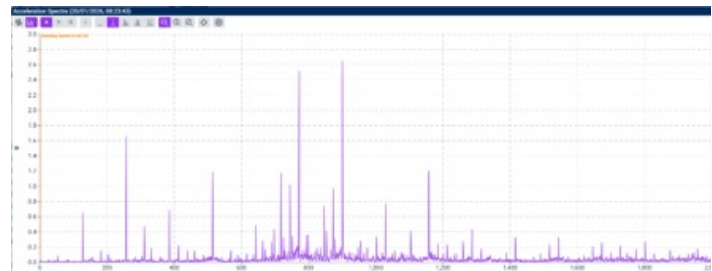
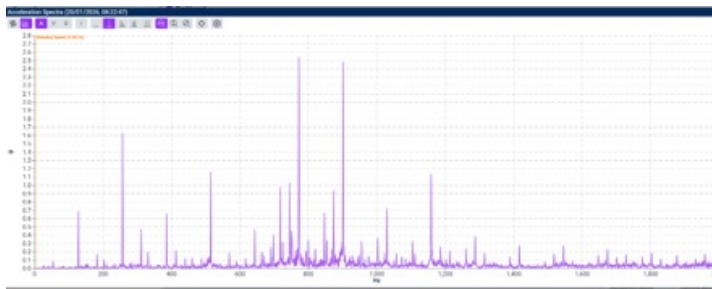
This approach enables safe, repeatable data collection and the development of a consistent baseline for each asset. Over time, this baseline allows AVT engineers to identify subtle changes in condition and detect developing faults at an early stage.

OUR FINDINGS

During a routine condition monitoring survey, AVT engineers identified abnormal noise from the asset. Vibration analysis confirmed an increase in overall and peak acceleration levels across both fan bearings.

Trend data showed a clear step change, and further spectral analysis identified bearing wear and fault frequencies consistent with outer race deterioration.

The findings were discussed with the site team, and an action note was raised. Due to ongoing production demands, it was agreed that corrective work would be scheduled during the next available planned shutdown.



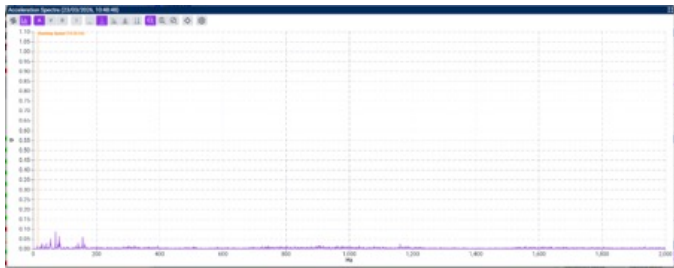
“By identifying the issue early, the site was able to plan the repair around production demands. That’s the real value of condition monitoring, control and confidence.”

- AVT Reliability Engineer

OUR SOLUTION

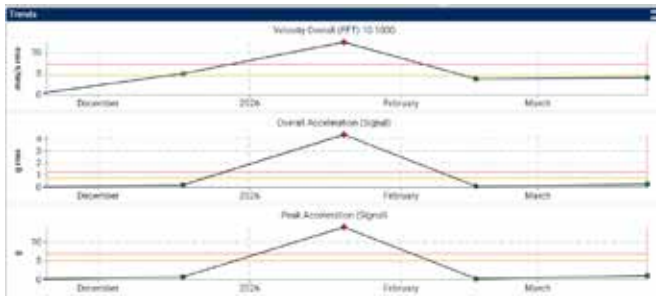
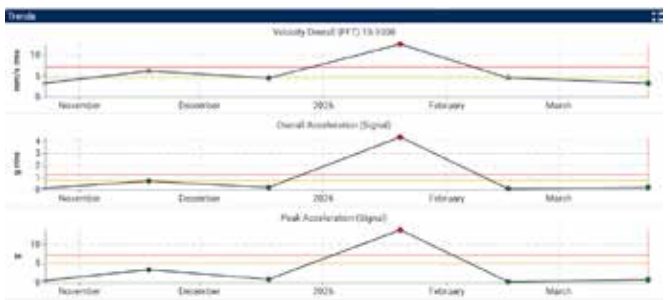
A planned overhaul was scheduled, and the fan bearings were replaced during a controlled shutdown period. This allowed the work to be completed without impacting production.

Post-repair vibration data showed a significant reduction in acceleration levels, confirming that the fault had been successfully resolved and the asset returned to normal operating condition.



FOLLOW UP

During the subsequent monitoring visit, AVT engineers confirmed that vibration levels had returned to within acceptable limits, transitioning from “Unacceptable” to “Good” based on ISO 10816 severity guidelines.



Inspection of the removed bearings confirmed visible wear on the outer race, validating the original diagnosis.

Early detection allowed the site to plan maintenance effectively, avoiding potential bearing seizure, secondary damage to the fan and motor, and unplanned production downtime.

Need advice? Contact our experts

AVT Reliability Ltd Head Office
Unit 2, Easter Court, Europa Boulevard
Warrington, Cheshire, WA5 7ZB

W: avtreliability.com
T: +44 (0)161 486 3737 | E: enquiries@avtreliability.com