

TEMPERATURE MONITORING IDENTIFIES DEVELOPING ISSUE ON VACUUM PUMP



AVT Reliability® supports production performance through condition-based maintenance strategies enabled by Machine Sentry®. Routine monitoring of critical bottling line equipment helps identify early warning signs of failure and reduce unplanned downtime.

THE CHALLENGE

Vacuum-level filling machines rely on creating a tight seal at the bottle rim to generate suction, allowing liquid to flow from a holding tank into the bottle.

A failure in the vacuum system results in poor fill levels, production disruption, and costly downtime. In this case, the vacuum pump serving a high-speed production line began to show signs of degraded performance.

OUR APPROACH

AVT Reliability® delivers monthly condition monitoring services at this site, collecting data from all operational assets using a combination of Machine Sentry® Fixed (MSF) sensors and handheld mobile sensors.

Collected data is analysed remotely by AVT's diagnostic engineers. Any anomalies or trends are flagged, and recommendations are raised via Machine Sentry®, with supporting reports provided to the site maintenance team.

This proactive model ensures early intervention on performance issues before failure occurs.

“ This is a great example of how condition-based maintenance saves time, cost, and disruption. A simple insight avoided a major problem. ”

OUR FINDINGS

During routine condition monitoring, AVT observed a stepped increase in temperature across the vacuum pump on Line 8. While the pump had maintained an average operating temperature of 35°C, by December the temperature had risen to over 69°C.

Interestingly, vibration amplitudes remained low and well below alarm thresholds. However, on inspection, technicians noted an absence of vacuum pressure at the air inlet. A change in bottle type was trialled to improve seal integrity but did not resolve the issue.

AVT raised an Action Note via Machine Sentry® on 18 January 2023 recommending pump replacement. By the following visit, the pump had been replaced. Post-replacement data showed a return to normal temperature levels, averaging 31°C.

THE SOLUTION

Following AVT's recommendation, the vacuum pump was replaced by the site maintenance team.

No further faults were reported, and the new unit returned to a healthy operating temperature range. The issue did not require extended investigation, and no additional component changes were needed.

Continued monitoring has confirmed that the system is now operating within expected parameters.

FOLLOW UP

Had this issue gone undetected, the vacuum pump would likely have failed in service, forcing a shutdown of the production line.

Replacement would then have required emergency maintenance, resulting in significant production loss. Thanks to condition-based monitoring and timely action, the failure was prevented with minimal disruption.

AT A GLANCE

INDUSTRY: Beverage Production

PROCESS: Bottling Hall – Vacuum Filling Line

EQUIPMENT: Vacuum pump

PRODUCTS: Machine Sentry® sensors

SERVICES: Monthly condition monitoring, data analysis, and diagnostics

Need help?

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

