



PREDICTIVE MAINTENANCE
PREVENTS FAILURE ON CRITICAL
SOLVENT PUMP

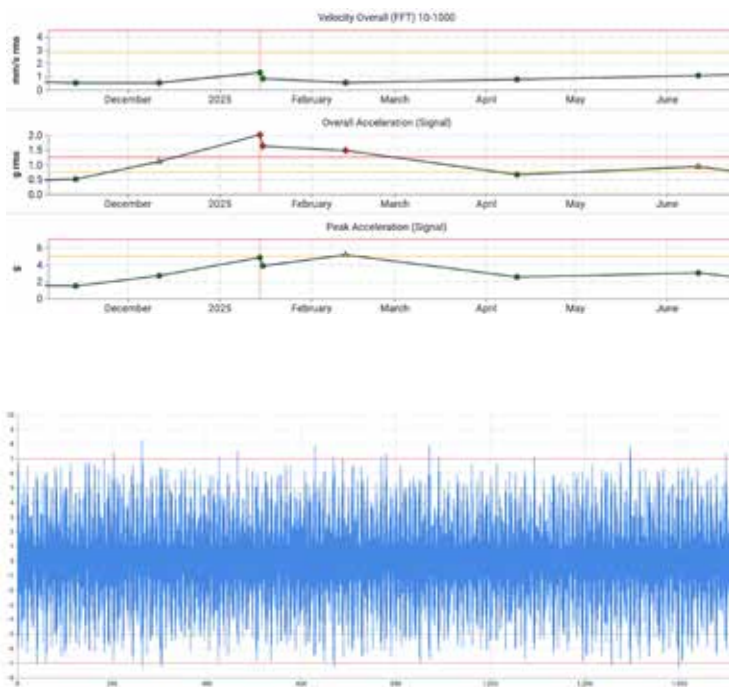
AVT Reliability® supports this pharmaceutical manufacturing site in achieving a more reliable and predictable operation through precision and predictive maintenance. Monthly condition monitoring services help reduce unplanned downtime and enable data-led maintenance decision-making.



THE CHALLENGE

The monitored asset was a solvent supply pump located in an ATEX-classified area. As a critical part of production, any failure would result in an immediate halt in operations, with significant downtime, clean-up, and compliance challenges.

Repairs in ATEX zones are more time-consuming and complex, making proactive intervention essential.



OUR APPROACH

AVT Reliability® has delivered condition monitoring services at this site since 2015. Services include monthly site visits to collect vibration data across a network of monitored assets via Machine Sentry® mobile sensors.

Each asset entry in Machine Sentry® also includes a structured visual inspection checklist, customised by asset type, prompting engineers to carry out additional visual and audible assessments while collecting data.

This blended approach ensures that emerging mechanical issues are detected early, even when vibration symptoms are subtle.

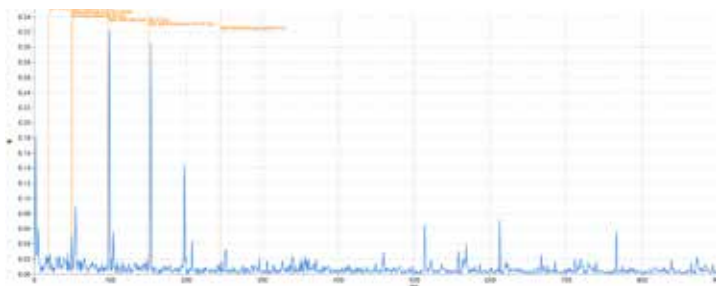
“*Identifying bearing defects early is always important, but even more so in an ATEX zone where unplanned repair is difficult. This was a great example of data-led maintenance in action.*”

OUR FINDINGS

During a routine condition monitoring visit in January 2025, AVT’s engineer observed a noticeable upward trend in vibration acceleration amplitudes at the motor drive-end bearing.

Amplitudes exceeded 8 g, and time waveform analysis revealed a high crest factor with consistent mechanical impacts indicative of a bearing defect.

Spectral data also revealed non-synchronous peaks aligned with bearing fault frequencies. Based on these findings, AVT raised an Action Note and informed the site maintenance team. A work order was created, and the motor was scheduled for inspection and repair.



THE SOLUTION

In response to AVT’s diagnosis, the site maintenance team replaced the motor bearings and conducted a full inspection of the motor. By August 2025, the motor was fully replaced as a precautionary measure. AVT continued to monitor the asset through its normal monthly schedule.

This proactive approach allowed the site to plan repairs during non-disruptive windows and avoid reactive emergency intervention in an ATEX environment.

FOLLOW UP

At the next scheduled AVT site visit, the new motor was operating normally. Post-repair vibration readings showed a significant reduction in acceleration amplitudes, with no remaining signs of bearing wear.

Had the fault gone undetected, the bearing could have failed in service, potentially damaging the pump unit and causing secondary issues. Failure in an ATEX zone would have introduced delays, safety concerns, and production loss. Instead, early detection allowed for efficient, planned maintenance and minimal operational impact.

Taken	Running	Velocity Overall (FFT) 10-1000 mm/s rms	Overall Acceleration (Signal) g rms	Peak Acceleration (Signal) g
13/11/2025, 11:47:27	▶	0.488	0.107	0.446
9/10/2025, 10:41:01	▶	0.234	0.046	0.202
11/9/2025, 10:46:14	▶	0.245	0.044	0.154
12/8/2025, 14:08:24	▶	0.262	0.086	0.336

AT A GLANCE

INDUSTRY: Pharmaceutical Manufacturing
PROCESS: Solvent transfer in production
EQUIPMENT: Solvent supply pump
PRODUCTS: Machine Sentry® sensors
SERVICES: Monthly condition-based maintenance and vibration analysis

Need help?

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