CASE STUDY

wisper

Wisper CMS/ Wisper On-premises Case Study

A Stainless-Steel Coil Manufacturer

- **Wisper CMS** has assisted customers in establishing and improving **the predictive maintenance system**, ensuring the availability of key production equipment and **achieving the designed annual production capacity** of 2 million tons of high-alloy steel materials.
- During more than two years of the system's operation, **Wisper CMS** has identified over a dozen **potential equipment failure** issues, preventing the occurrence of unexpected downtime and losses of up to **1 million AUD**, as well as avoiding corelated **safety issues**.
- The **automatic diagnosis report** makes equipment maintenance more efficient and easier. The number of maintenance personnel is reduced, allowing more time to allocated on more critical maintenance tasks. The maintenance cost is reduced by **at least 30%** compared to the traditional operation and maintenance mode.

Case Background

- Client's corporate has a global footprint, encompassing both the upstream and downstream segments of the nickel iron industry. The core product of this project is high-alloy steel materials, with the core production line being cold rolling.
- The cold rolling process involves numerous tension rollers and various gearbox bearing equipment. The traditional operation and maintenance mode relies on manual inspections and regular maintenance, sometime these may lead to unexpected shutdown incidents caused by equipment failures.
- In addition, with the rising labour cost and challenges in talent sourcing, maintaining the key equipment of the production line in optimal condition has become an increasingly challenging.

Wisper Deployment

A total of **358** measurement points (mostly wireless, some wired) have been deployed for this customer. This case study will focus on the monitoring of client's **tension roller**, a critical component in steel rolling, commonly used in paper, packaging, logistics, and textile industries.

Monitoring Setup:
9 measurement points across the tension roller's:

- Motor drive end
- Motor non-drive end
- First shaft input & output end
- Second shaft input end
- Third shaft output end
- Fourth shaft input end
- Fifth shaft input & output end

have been deployed. This configuration ensures sufficient data for automatic diagnostics and performance evaluation.

A picture of the tension roller

Fault Detection and Correction Verification

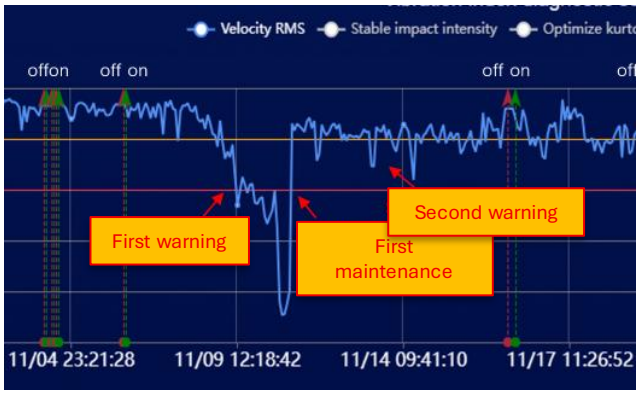
9th Nov. 2023
First Warning: Initial Detection and preliminary maintenance

On the 9th of November 2023, the **Wisper CMS detected the root mean square speed indicators at the non-drive ends of the motor were abnormal.** It was determined to be caused by **looseness of the coupling and misalignment of the rotor.** Immediately, a diagnostic report was triggered and sent the alert to the maintenance team with a recommendation for close monitoring.

12th Nov. 2023
Second Warning: Risk Escalating

On the 11th of November 2023, after the customer **arranged for a maintenance**, the equipment's status returned from the warning state to the **operational state**.

Later on the 12th, based on the spectrum analysis, the **Wisper CMS** determined that there are still potential faults in the device. **It triggered a diagnostic report again** to remind the customer to pay attention to the device status and **tracked the device issues in the weekly report**.



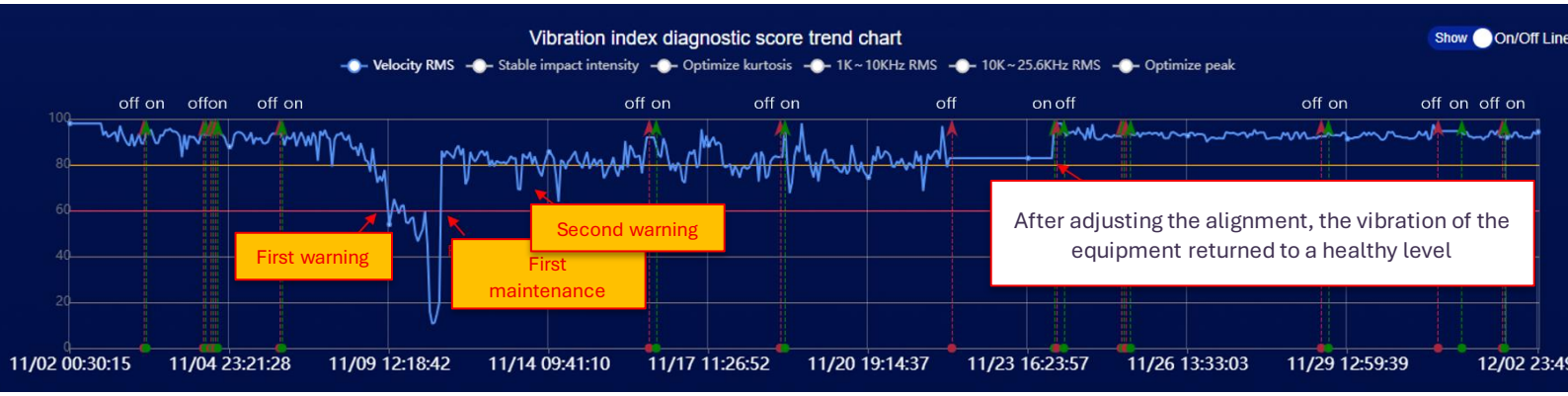
Product health score trend with first and second warnings

Maintenance response

Upon receiving the second warning alerts, the on-site maintenance team conducted a **scheduled** shutdown and inspection, which was aligned with altered and optimized production plans.

Post-Repair Verification

On the 22nd of November 2023, based on the diagnosis report and the actual production situation, client's technician carried out maintenance and repair on the tension roller. They discovered that **the fault was caused by the poor alignment of the motor**. After adjusting the alignment, the vibration of the equipment returned to a healthy level.



Product health trend chart shows the tension roller operating normally after reparation

Conclusion

Highlights of the total outcomes for the customer in 2+ years:

- **Prevented 17 potential equipment failures**, reducing economic losses more than **AUD 1.0 million** and avoiding unplanned **production downtime**.
- Over **2+ years of operation**, the system has reduced maintenance costs by **30% percent – significantly reduce compared to traditional maintenance.**

37

Pieces of equipment

358

Monitoring points

17

Potential downtimes turned into planned maintenance

1+ million

Reducing economic losses

You can find more case study from our website.

Feel free to contact us for a live demo – Email: info@infinode.io