VEMS for Wheel Tread

Automated wheel tread measurement for 360-degree wheel health.

Wheel inspection is an essential yet time-consuming task; inspecting the entire tread on a stationary train is particularly challenging. The Vehicle Equipment Measurement System (VEMS) for wheel tread has been developed to provide roll-by measurements, detailed reports and reliable data for predictive maintenance. It is the only solution on the market that enables complete, precise and automated wheel tread measurement.

How Does It Work?

VEMS for wheel tread uses a measuring station that can be quickly and easily installed at the depot or other suitable location.

Using dynamic, 360-degree, contact-free tracking, a digital twin of the entire tread surface is generated. As the train passes through the system, the tread is automatically analyzed for defects – such as flats, cavities and out-of-round – and exceptions are reported for action. Trending on tread degradation ensures accurate predictive maintenance intervention before in-service limits are exceeded. Color defect maps enable the visualization of the complete tread surface condition. All data is stored in the VEMS Data Management System and can be used for trend analyses and predictive maintenance in Siemens Railigent®.

An option is available to provide a complete panoramic image of the tread. This allows wheel surface defects to be reviewed and assists in the corrective action requirements. Additionally, degradation can be tracked and maintenance improvements can be driven by further insight into the components' wear characteristics.

Benefits at a Glance

- No inspection downtime due to roll-by design
- More frequent and accurate measurements increase safety
- Trend analysis for predictive maintenance
- Identification of wheel defects
- Higher track availability thanks to track damage prevention

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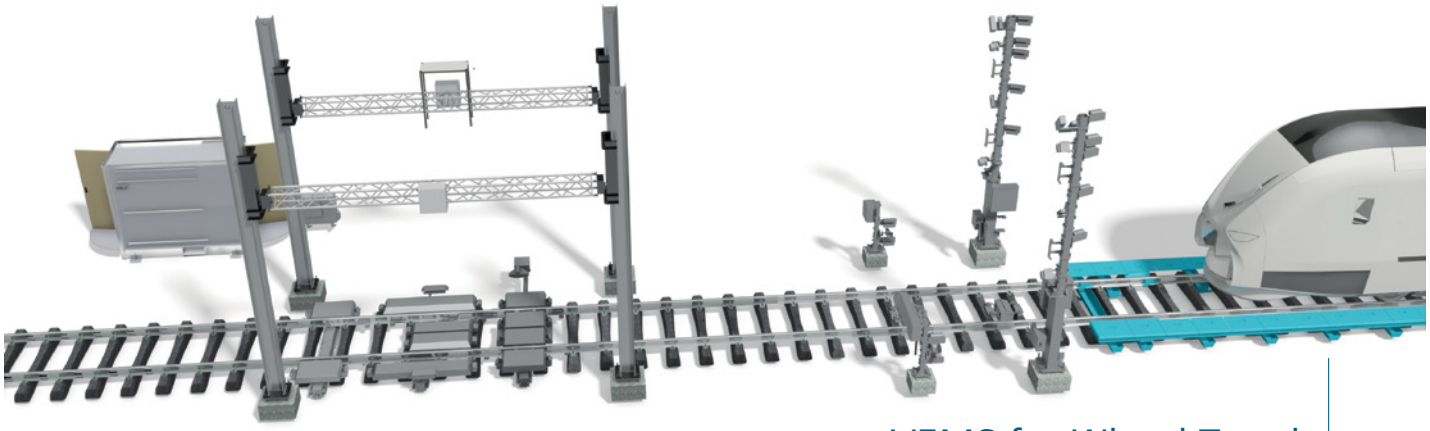

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One out of many vehicle equipment measurement systems

Comprehensive Report System

VEMS for wheel tread creates detailed reports without any user intervention. Measuring a train's wheels manually could take up to two hours of work – and significantly longer for out-of-round. VEMS for wheel tread provides complete analyses of all wheels in only 2–3 minutes. As the data is stored in the VEMS Data Management System, long-term trends can be analyzed in Siemens Railigent®. This facilitates predictive maintenance management, helping to boost and secure the fleet's overall availability.

Putting It into Practice

Until now, wheel tread inspections involved a great deal of effort and maintenance downtime. VEMS for wheel tread not only drastically reduces hours wasted on manual measurement, it also generates data that enables predictive maintenance.

Thanks to automated measurements, tread data can be collected without any additional effort. This frequent and accurate data not only reveals the actual state of the wheels – it also lets operators identify wear trends and plan necessary maintenance measures well in advance.

Making Best Use of Employees' Time

Thameslink, a 68-station route in the British railway system, was looking for a way to identify and assess the extent of any damage incurred to any wheel tread, e.g. wheel flats or cavities. We included the Wheel Load Detection System in VEMS for wheel tread in order to measure wheel impacts as the vehicles roll over the sensors. Ian Macleod, Fleet delivery manager at Siemens PLC, is convinced: "Significantly less time is spent inspecting wheelsets, since non-conforming defects can be identified by the wheel load system. That saved time is redeployed on more value-adding tasks in our maintenance regime."

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