

RMD's hot box detection system in operation

During the first half of 2025, RMD developed, on behalf of a customer, a system for hot box detection and continuous temperature monitoring of axlebox bearings. RMD has now installed the first system in one of the locomotives used by SSAB's shunting operator VÄTE Trafik in Borlänge and Oxelösund. All locomotives used for the assignment will soon be equipped with the system. The work is expected to be completed by the end of October.

VÄTE Trafik's SM42-6Dg locomotives are now being fitted with smart bolts with temperature sensors from RMD's partner Strainlabs. The sensors are connected to the PMU units already installed on the locomotives. The temperature data is analyzed by the PMUs and then visualized in a customized version of RMD's application MyTrain. The system makes it possible to continuously monitor temperatures and deviations. The driver gets a clear overview through a visual interface, while measurement data can also be stored for analysis.

Why is this important?

Hot box failures in freight rail are a known cause of derailments. To protect the network, hot box detection is currently carried out at a number of fixed geographical sites across the country. Trafikverket operates around 110 "detector sites" in total, but they are spread out across Sweden's 14,000 km rail network. This means that damage can remain undetected for a long time.

RMD's hot box detection system can be installed on all types of locomotives and wagons and continuously monitors temperature in real time. This makes it possible for the driver to take immediate action if a problem occurs.

Benefits for operators

For freight operators, the system reduces the risk of sudden service disruptions and related delays. Early indications of deviations enable more efficient maintenance planning, which lowers costs and increases operational reliability. Continuous data collection also provides a stronger basis for both daily operations and long-term maintenance planning.

Benefits for an entire industry

In 2025, the insurance partner of "Tåg företagen" initiated work to revise the *Risk Management Program* that has been in place since 2007. The idea is that members who implement risk-preventive technology will be offered lower premiums, as fewer incidents and damages benefit the entire industry. Lower risk costs could also serve as an incentive driving the digitalization of Sweden's railways.

RMD expands its product portfolio

The hot box detection system is available for sale. Each installation can be configured with its own thresholds and alarm levels, providing flexible and reliable monitoring. The system can be easily installed on all types of freight cars and locomotives.