

Abstract 1

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Optimized MTBM with model based online diagnostics

Monitoring systems based on empirical or mathematical models have recently gained much popularity due to the ever increasing availability of computing power. Unlike traditional monitoring systems, that monitor the violation of some warning or alarm limits, such systems enable the detection of smallest deviations from a reference condition. Hence they are the ideal tool for wear monitoring and predictive maintenance. Other advantages are robustness under varying or transient operating conditions and virtually no limits on technical processes suited for monitoring. Drawbacks of monitoring systems based on empirical models are the need of a large number of measurements required for model training and the lack of quantitative information about ongoing wear processes. To overcome these disadvantages, empirical and conventional thermodynamic compressor modelling technologies have been merged. This results in a diagnostic system, that provides accurate information about the severity of a worn compared to a fully functional component and which is operational after just a short training period.