CONDITION-BASED MONITORING

Application for the manufacturing industry and industrial energy systems -
Preventive maintenance using AI methods

SUMMARY

The online monitoring of operating resources such as lubricant will be carried out by means of sensor equipment and the intelligent evaluation of machine data. The quality of the operating resources will be monitored and wear models will be developed. This will enable maintenance to be carried out preventively on the basis of analyses.

CURRENT SITUATION

Installations for generating electricity and heat run largely unstaffed and can be monitored by remote control. The maintenance of operating resources is currently organized predominantly according to a maintenance schedule and on a reactive basis.

PROJECT DESCRIPTION

This project is examining technologies for
• assessing the quality of the operating resources (lubricant)
• supplying and processing the sensor and machine data.
Maintenance can be changed to condition-based maintenance if a suitable data connection and sensor equipment are available.

REFERENCES

www.fir.rwth-aachen.de
www.zeppelin-powersystems.com/de

SOLUTION

Oil values are evaluated automatically and continuously. The oil quality is assessed automatically by comparison with the other operating parameters. The oil wear is predictable, and irregularities in the operation of the installation can be detected by way of the oil condition. Preventive measures can be carried out on the basis of the automated analyses so that the installations are never operated with an inadequate oil quality. Key technologies here are AI methods and suitable sensor equipment.

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INDUSTRY 4.0 FEATURES

The replacement of classic maintenance schedules with condition-based maintenance and predictive maintenance approaches and technologies is made possible by suitable sensor equipment and AI technologies. This enhances the operating safety of installations and optimizes costs.

STANDARDIZATION APPROACHES

Industry standards are a prerequisite for standardized sensor and remote connection, a global online application, and a uniform data format for evaluating and analyzing data across different installations. The administration shell, standardized semantic descriptions and uniform infrastructures are helpful and necessary to this end.