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**Condition monitoring and diagnostics of machines -
Approaches for performance diagnosis
(English Translation)**

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document is equivalent to ISO 18129:2015 "Machine condition monitoring and diagnostic performance diagnostic methods".

Introduction

In response to high energy costs, the need to reduce emissions and the increasing demand for flexibility, ensuring and verifying the highest efficiency of machines and systems has become a it's a constant quest to be an owner and operator.

Machines, units or industrial facilities (equipment) complete their tasks through energy conversion or energy transmission processes. These energy conversion and energy the efficiency of the transport process characterizes the performance of the equipment or related process. Good performance also means high efficiency and low loss.

If the process includes thermal processes, especially thermal cycle processes, performance monitoring may become very complicated.

To this end, performance monitoring and diagnostic systems are increasingly being used. Using modern information systems to monitor machines, units or complete sets of industrial equipment by monitoring the operation of a facility, it is possible to detect and identify possibilities for improving its performance, characterized by efficiency.

The benefit of performance monitoring and diagnostics is that it provides information about the current performance status of the equipment (e.g., measured characteristic values and expected characteristic values).

This information is essential to avoid suboptimal operating conditions, performance degradation processes, and to ensure early detection and quantification of degradation processes (e.g. erosion, corrosion).

basis.

In addition to condition monitoring, performance monitoring is often used.

The goals of performance monitoring and diagnostics are to.

- Improve energy conversion efficiency by optimizing operation;
- Reduce emissions;
- Quantify the degradation process;

- Identify faulty instruments;
- Detection of defective equipment;
- Improve machine availability;
- Improve efficiency, thereby reducing energy consumption and emission costs;
- Improve internal reporting and communications by increasing transparency and adding calculations to well-defined characteristic values.

The results of performance monitoring and diagnostics are used to.

--- The operator changes the operating conditions of the machine when it is determined that the operation is not optimal;

---Maintenance personnel repair and improve machines or equipment to eliminate found faults/deterioration.

Machine Condition Monitoring and Diagnosis Performance Diagnosis Methods

1 Scope

This document describes how to perform performance monitoring and diagnosis on machines, units, and complete industrial facilities (equipment), usually covering the entire life cycle of the machine.

Life cycle.

This document aims to.

- Introduction to terminology related to machine performance monitoring and diagnosis;
- Describe the types of performance monitoring and diagnostic programs and their advantages;
- Provide installation guidance for performance monitoring and diagnostic systems;
- Outline the methods and requirements for carrying out machine performance monitoring and diagnosis;
- Provide information on data interpretation, evaluation criteria and reporting requirements.

This document contains test methods for determining the accuracy of performance monitoring and diagnostic systems and procedures (including benchmarking equipment performance).

Try providing input).

2 Normative references

The contents of the following documents constitute essential clauses of the document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to this document.

Vocabulary

Note: GB/T 20921-2007 Machine condition monitoring and diagnostic vocabulary (ISO 13372:2004, IDT) ISO 13379-1 Machine condition monitoring and diagnosis Data interpretation and diagnostic techniques Part 1: General eral guidelines) Note. GB/T 22394.1-2015 Machine condition monitoring and diagnosis Data interpretation and diagnostic technology Part 1: General (ISO 13379-1:2012, IDT) General guidelines) Note. GB/T 22393-2015 General Guidelines for Machine Condition Monitoring and Diagnosis (ISO 17359:2011, IDT)

3 Terms and definitions

For the purpose of this document, the terms and definitions defined in ISO 13372, ISO 13379-1 and ISO 17359 and the following apply.

Performance

The behavior, characteristics, and efficiency of a machine during a process, measured and calculated from one or more parameters, such as power, flow, quantity, efficiency or speed, which alone or together provide the necessary information.

[Source. ISO 13372:2012, 2.3]

Note 1 to entry. Performance is a measure of energy conversion processes, primarily thermodynamic processes.