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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

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**Condition monitoring and diagnostics of machines - Vibration
condition monitoring - Part 5: Diagnostic techniques for fans
and blowers**

机器状态监测与诊断 振动状态监测 第5部分：风机和鼓风机的诊断技术
(English Translation)

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document is Part 5 of GB/T 19873 "Machine Condition Monitoring and Diagnosis - Vibration Condition Monitoring". GB/T 19873 has been issued.

The following parts were laid out.

---Part 1: General Provisions;

---Part 2: Vibration Data Processing, Analysis, and Description;

---Part 5: Diagnostic Techniques for Fans and Blowers this document is equivalent to ISO 13373-5:2020 "Machine condition monitoring and diagnostics - Vibration condition monitoring - Part 5: Fans and blowers".

Diagnostic techniques for machines.

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed and is under the jurisdiction of the National Technical Committee on Standardization of Mechanical Vibration, Shock and Condition Monitoring (SAC/TC53).

Introduction

GB/T 19873 "Machine Condition Monitoring and Diagnosis - Vibration Condition Monitoring" aims to provide guidelines for using vibration to monitor the health status of machines.

The general methods and guidelines for testing and fault diagnosis are proposed to consist of the following parts.

---Part 1: General Provisions. The purpose is to define the general principles for providing vibration measurement and data acquisition functions for monitoring the vibration condition of machines.

---Part 2: Vibration Data Processing, Analysis, and Description. The aim is to provide a basis for accurately monitoring the vibration status of rotating machinery and implementing diagnostic methods.

This section recommends methods for processing and describing vibration data, as well as for analyzing vibration signals.

---Part 3: Vibration Diagnosis Guidelines. The purpose is to provide guidelines for general procedures to be considered when diagnosing vibration faults in rotating machinery.

---Part 4: Diagnostic Techniques for Gas Turbines and Steam Turbines Using Oil Film Bearings. The aim is to provide diagnostic techniques for various types of gas turbines and steam turbines using oil film bearings.

Guidelines for specific procedures to be considered when performing vibration diagnosis on bearings in gas turbines and steam turbines.

---Part 5: Diagnostic Techniques for Fans and Blowers. The purpose is to provide diagnostic techniques for various types of fans and blowers.

The specific methods to be considered.

---Part 7: Diagnostic Techniques for Hydropower and Pumped Storage Power Plant Units. The aim is to provide diagnostic techniques for hydropower and pumped storage power

plants (hydropower and pumped storage power plants).

Specific procedural guidelines to consider when performing vibration diagnosis on various types of generator sets (electric power generator sets).

---Part 8: Industrial Pump Diagnostic Techniques. The aim is to provide specific considerations for vibration diagnosis of various types of industrial pumps.

Body procedure guide.

---Part 9: Diagnostic Techniques for Electric Motors. The aim is to provide procedures to be considered when performing vibration diagnosis on various types of electric motors.

---Part 10: Diagnostic Techniques for Generators Using Oil Film Bearings. The aim is to provide diagnostic techniques for cylindrical magnetic poles using oil film bearings.

The procedures, guidelines, and requirements to be followed when performing vibration diagnosis on 2-pole and 4-pole generators.

---Part 11: Gearbox Diagnostic Techniques. The aim is to provide guidance for diagnosing gearbox vibrations.

This document provides guidelines for the procedures to be considered when performing vibration diagnostics on fans and blowers. It is applicable to vibration professionals and engineers.

This includes training instructors and technicians, and providing them with useful diagnostic tools. These tools include the use of diagnostic flowcharts, process tables, and fault tables.

The material described in the document outlines the most basic, logical, and intelligent steps that should be taken when diagnosing problems related to these specific types of machines.

ISO 17359 indicates that diagnosis.

---It can be synchronized with monitoring from the very beginning.

This document only discusses the former, namely, diagnosis after an anomaly is detected. Furthermore, this document primarily focuses on flowcharts and process tables, as well as...

Fault tables are used as diagnostic tools because they are the most suitable tools for use by practitioners, engineers, and technicians in the field.

The flowchart and diagnostic process table approach provides field personnel with a structured procedure for fault diagnosis and root cause analysis. This process...

A step-by-step procedure should guide practitioners in diagnosing abnormal machine vibrations in order to find possible root causes of the abnormality.

The fault table lists the most common faults in machinery and their manifestations in vibration data. When used in conjunction with a flowchart, this...

These forms help identify mechanical failures.

When dealing with a mechanical problem that exhibits high or unstable vibration signals, a thorough and systematic fault diagnosis approach is recommended.

This document, in conjunction with ISO 13373-3, provides analysts with guidance on selecting appropriate measurement tools, analytical tools, and their use.

This objective was achieved through a guide and a series of progressively recommended procedures for diagnosing problems related to various types of fans and blowers.

Machine condition monitoring and diagnosis, vibration condition monitoring Part 5: Diagnostic Techniques for Fans and Blowers

1 Scope

This document describes specific methods for vibration diagnosis of various types of fans and blowers.

This document is intended for use by condition monitoring professionals, engineers, and technicians, and provides practical vibration-based progressive fault diagnosis.

Diagnostic methods. In addition, this document provides a series of machine and component types and examples of associated fault symptoms.

The methods presented in this document are based on established best practices and were developed collaboratively by experienced users, but it also acknowledges the possibility of other approaches.

Method. The recommended approach for a specific diagnosis depends on individual circumstances and the level of confidence in the fault diagnosis (e.g., whether this machine has been previously diagnosed).

(Through correct and identical diagnostics), the experience of practitioners, the type and severity of the fault, and safety and business considerations. This document is neither possible nor feasible.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies.