



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

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**Condition monitoring and diagnostics of machines - Data
interpretation and diagnostics techniques - Part 2: Data-driven
applications**

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Foreword

GB/T 22394 "Machine Condition Monitoring and Diagnosis Data Interpretation and Diagnosis Technology" is divided into the following 3 parts.

---Part 1. General Provisions;

---Part 2.Data-driven applications;

---Part 3.Application based on knowledge.

This part is Part 2 of GB/T 22394.

This section was drafted in accordance with the rules given in GB/T 1.1-2009.

The translation method used in this part is equivalent to the ISO 13379-2.2015 "Machine Condition Monitoring and Diagnosis Data Interpretation and Diagnosis Technology No.

Part 2.Data Driven Applications.

The Chinese documents that have a consistent correspondence with the international documents cited in this section are as follows.

---GB/T 20921-2007 Machine Condition Monitoring and Diagnosis Vocabulary (ISO 13372.2004, IDT).

---GB/T 22394.1-2005 Machine condition monitoring and diagnosis data interpretation and diagnosis technology Part 1.General (ISO 13379-1.2012, IDT).

This part is proposed and managed by the National Mechanical Vibration, Shock and Condition Monitoring Standardization Technical Committee (SAC/TC53).

Drafting organizations of this section. North China Electric Power University, Xi'an Thermal Power Research Institute Co., Ltd., Zhengzhou Machinery Research Institute Co., Ltd.

Introduction

This part of GB/T 22394 gives a general process that can be used to determine the state of the machine relative to a series of baseline parameters. Relative to baseline

Value changes and comparison with alarm conditions are used to indicate abnormal conditions and generate alarms. Such a process is usually called condition monitoring. In addition,

To help determine the appropriate treatment measures, the process of identifying the cause of the abnormal state is usually called diagnosis.

Machine condition monitoring and diagnosis data interpretation and diagnosis

Technology Part 2.Data Driven Applications

1 Scope

This part of GB/T 22394 gives the process of implementing data-driven monitoring and diagnostic methods to help professionals, especially monitoring

The professional staff of the center conduct analysis work.

Although some steps have been embedded in the existing tools, in order to better use it, it is still necessary to pay attention to the following steps.

- The selection of assets, critical failures and available process parameters;
- Data cleaning and resampling;
- Model development;
- Model initialization and adjustment;
- Model performance evaluation;
- Diagnostic process.

The implementation of these steps does not require comprehensive knowledge of statistical methods, but requires the ability to first establish a training model and apply the model to monitoring

And the ability of the diagnostic process.

Implement data-driven monitoring model training on machines in normal working conditions. The principle of fault monitoring is to combine the observed data with the estimated data

According to comparison. The difference between the observed value of the parameter and the expected value (called residual) indicates that there is an abnormality, which may be related to the equipment or instrument.

related.

Implement data-driven diagnostic model training on machines in normal working and faulty states. The principle of the diagnostic method is not to detect

The deviation of the parameters is to identify the fault by comparing the observed conditions with the faults learned in the training phase. Commonly used techniques

The technique is pattern recognition and pattern classification.

The data can be taken from the historical data of the distributed control system (DCS), or from a specific monitoring system.

2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this article

Pieces. For undated reference documents, the latest version (including all amendments) is applicable to this document.

ISO 13372 Machine Condition Monitoring and Diagnostic Vocabulary
(Condition monitoring and diagnostic of machines-Vocabulary)

ISO 13379-1 Machine Condition Monitoring and Diagnosis Data Interpretation and
Diagnosis Technology Part 1. General (Condition
monitoring and diagnostic of machine-Data interpretation and diagnostic techniques-Part
1. General guidelines)

3 Terms and definitions

The terms and definitions defined by ISO 13372 and ISO 13379-1 apply to this document.