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

GB/T 19873.2-2009

**Condition monitoring and diagnostics of machines -- Vibration
condition monitoring -- Part 2: Processing, analysis and
presentation of vibration data**

机器状态监测与诊断 振动状态监测 第2部分：振动数据处理、分析与描述
(English Translation)

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Table of Contents

Introduction	
Introduction	
1 Scope	
2 Normative references	
Signal Conditioning	3
3.1 General	
3.2 Analog and digital systems	
3.3 Signal Conditioner	
3.4 Filter	
4 Data processing and analysis	
4.1 General	
4.2 Time Domain Analysis	
4.3 Frequency Domain Analysis	

Foreword

GB/T 19873 "machine condition monitoring and diagnostics of vibration condition monitoring" consists of the following components.

- Part 1. General;
- Part 2. Vibration data processing, analysis and description;
- Part 3. Basic diagnostic techniques.

This part of GB/T 19873 Part 2.

This section identical with ISO 13373-2:2005 "machine condition monitoring and diagnostics of vibration condition monitoring - Part 2. Vibration Data Processing, analysis and description "(in English).

This section is equivalent translation ISO 13373-2:2005.

For ease of use, this section made the following editorial changes.

- With "this Part" instead of "ISO 13373 this section";
- Deleted international standards foreword, preface rewritten this section;
- To ISO 13373-2:2005 references other international standards, have been adopted as

the equivalent of the standard with our standards in place for Corresponding to international standards, is not identical with direct reference to international standards for our standards.

This part of the National mechanical vibration, shock and condition monitoring Standardization Technical Committee (SAC/TC53) and focal points.

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Introduction

This section covers machine vibration condition monitoring in the field, its purpose is to give a dynamic performance monitoring of the machine, to be installed on selected locations Methods and procedures recommended by the vibration sensor to obtain a signal and data processing and analysis.

Broadband vibration measurements provide an overview of machine vibration intensity, when the machine is abnormally can be observed and alert the user to use the machine.

Way further processing and analysis of vibration signals in accordance with the procedures specified in this part, to provide users diagnose machine problems in one or more reasons Diameter, it can be used in a more focused continuous condition monitoring.

Listed.

For a specific machine type and size, GB/T 11348 and GB/T 6075 series of standards for the application of the state of broadband vibration amplitude Monitoring provides guidance. Other documents, such as VDI3839 and VDI3841, provided that can be detected with about guiding the vibration diagnosis Additional information about the machine body problem.

2 Normative references

The following documents contain provisions which, through GB/T 19873 reference in this text, constitute provisions of this part. For dated reference documents Member, all subsequent amendments (not including errata content) or revisions do not apply to this section, however, encouraged to reach under this section Parties to research agreement to use the latest versions of these documents. For undated reference documents, the latest versions apply to this section.

ISO 1683 acoustic sound level of the preferred reference amount

3.1 General

All measurements are generating a vibration and vibration acceleration, velocity and displacement by measuring the instantaneous value of the sensor is proportional to an

analog the resulting electrical signal. This signal can be recorded on a dynamic analyzer for later analysis or display, for example, displayed on an oscilloscope. in order to Get the actual vibration amplitude of the output voltage multiplied by a calibration coefficient, which consists of an amplifier and recorder as well as the sensitivity of the sensor must gain set. Most vibration analysis in the frequency domain, but there are some useful tools include vibration time history.

Figure 1 shows the relationship between the time domain and frequency domain vibration signal. In the figure, combined into four overlapping signal analyzer display

It is displayed in the composite track (black trace). Fourier treatment, analyzers this synthesized signal into four discrete frequencies Components.

Figure 2 is a complex track on the analyzer screen to see a single sensor signal is relatively simple example. In this example,

Only three overlapping signals, shown in Figure 3, in which separate frequencies are shown in Figure 4.

GB/T 19873.2-2009/ISO 13373-2:2005