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

GB/T 13824-2015

Replacing GB/T 13824-1992

**Mechanical vibration of rotating and reciprocating machinery --
Requirements for instruments for measuring vibration severity**

旋转与往复式机器的机械振动 对振动烈度测量仪的要求

(English Translation)

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Foreword

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

This standard replaces GB/T 13824-1992 "vibration intensity measuring instrument requirements," compared with the GB/T 13824-1992, major repair Changed as follows.

--- Filter is defined as a standard third-order Butterworth filter.

--- Standard covers the frequency range in excess of 10Hz ~ 1000Hz.

And this standard normative international documents cited correspondence between the consistency of the following documents.

--- GB/T 2298-2010 Mechanical vibration, shock and condition monitoring vocabulary (ISO 2041:2009, IDT) this standard uses the translation method identical with ISO 2954:2012 "Mechanical vibration of rotating and reciprocating machinery vibration intensity measuring instrument Requirements "(in English).

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

--- The original text of the "2sigma expanded uncertainty" with "expanded uncertainty (k = 2)" instead.

This standard by the national mechanical vibration, shock and condition monitoring Standardization Technical Committee (SAC/TC53) and focal points.

This standard was drafted. Shanghai Measurement and Testing Technology Research Institute, Jiangsu Donghua Testing Technology Co., Ltd., the state-owned plant four thousand three hundred and eighty Jiaying Branch, Shaanxi Province Institute of Metrology, Beijing Institute of Metrology detection.

1 Scope

This standard specifies the machine housing, especially given the uncertainty of the machine to monitor trends made repeated measurements does not exceed the predetermined value, Vibration intensity measuring instrument shall meet the requirements.

This standard applies to direct display or recording unit of measure is defined as the rms vibration velocity (rms) of the instrument.

Note 1: Appendix A gives the True RMS method to check the display to retain this approach is mainly aimed not based on modern analog to digital conversion and RMS values
count Operators instruments, but the method is also applicable based on this instrument.

Note 2: In the specified frequency range, these instruments can also be used for other occasions, similar to the measurement accuracy of such structures, tunnels, bridges and other vibration speed Measuring degree may also include phase measurement options.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

GB/T 6075.1-2012 mechanical vibration measurement and evaluation of machine vibration on non-rotating parts - Part 1. General (ISO 10816-1:1995, IDT) GB/T 6075.6-2002 Measurement and Evaluation of the machine on the non-rotating member of the mechanical vibrations - Part 6. power greater than 100kW Reciprocating machines (idt ISO 10816-6:1995) ISO 2041 Mechanical vibration, shock and condition monitoring vocabulary (Mechanicalvibration-Evaluationofmachine vibrationbymeasurementsnon-rotating)

3 Terms and Definitions

Terms and definitions ISO 2041 defined adapt to this document.

4 Measurement parameters

Table 1 shows the measured parameter non-rotating member of mechanical vibrations to describe.

Measurement parameters for broadband and discrete frequency components of the signal

can be integral and differential conversion (see GB/T 6075.1-2012 Appendix A).

Measured maximum vibration amplitude is called vibration intensity. The vibration intensity can be given intensity level (see GB/T 6075.6-

2012 Table 1).

Note: Previously, vibration intensity usually only refers 10Hz ~ 1000Hz bandwidth rms vibration velocity. This standard provides for having such restrictions Equipment requirements, but also allows the use in other frequency ranges.

Measuring instrument should be able to measure the parameters given in Table 1, or at least be able to measure the vibration velocity in the frequency range 5.3 are defined Square root.

If the measurement filter obtained from the magnitude of the discrete frequency points wideband bandpass filter should have the appropriate bandwidth. You can also