



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

GB/T 24610.3-2019

**Rolling bearings -- Measuring methods for vibration -- Part 3:
Radial spherical and tapered roller bearings with cylindrical
bore and outside surface**

Issued on: October 18, 2019

Implemented on: May 1, 2020

Issued by: SAMR; SAC

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Foreword

GB/T 24610 "Measurement method for rolling bearing vibration" is divided into 4 parts.

--- Part 1.Basics;

--- Part 2.Radial ball bearings with cylindrical holes and cylindrical outer surfaces;

--- Part 3.Spherical roller bearings and tapered roller bearings with cylindrical bore and cylindrical outer surface;

--- Part 4.Cylindrical roller bearings with cylindrical bore and cylindrical outer surface.

This part is the third part of GB/T 24610.

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

This section replaces GB/T 24610.3-2009 "Method for measuring vibration of rolling bearings-Part 3.With cylindrical holes and cylindrical appearance Compared with GB/T 24610.3-2009, the main technical changes are as follows.

- Modified the lower cut-off frequency of the low frequency band with a rotation frequency of 900min-1 (see Table 2, Table 2 of the.2009 edition);
- Added "Example of frequency range of non-set rotation frequency" table (see Table 3);
- Change "peak measurement" to "measurement of pulses and sharp pulses" (see 5.3, 5.3 of the.2009 edition);
- Modified the illustration of the sensor setting position and the schematic diagram of the double-row tapered roller bearing (see Figure 2, Figure 2 of the.2009 edition);
- Deleted the "requirements for operators" (see 6.4 of the.2009 version).

This section uses the translation method equivalent to ISO 15242-3..2017 `` Rolling bearing vibration measurement methods Part 3.With cylindrical holes Spherical roller bearings and tapered roller bearings. " The Chinese documents that have a consistent correspondence with the international documents referenced normatively in this section are as follows.

- GB/T 1800.2-2009 Geometrical Product Specifications (GPS) Limits and Fits Part 2.Standard Tolerance Grades and Hole and shaft limit deviation table (ISO 286-2.1988, MOD)
- GB/T 2298-2010 Vocabulary for mechanical vibration, shock and condition monitoring (ISO 2041..2009, IDT)
- GB/T 4199-2003 Tolerance definition of rolling bearings (ISO 1132-1..2000, MOD)
- GB/T 6930-2002 Vocabulary for rolling bearings (ISO 5593..1997, IDT)
- GB/T 24610.1-2019 Rolling bearing vibration measurement method Part 1.Basics (ISO 15242-1..2015, IDT)

This section is proposed by China Machinery Industry Federation.

This part is under the jurisdiction of the National Rolling Bearing Standardization Technical Committee (SAC/TC98).

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The previous versions of the standards replaced by this section are.

--- GB/T 24610.3-2009.

introduction

The vibration of a rolling bearing is an important operating characteristic. Vibration can affect the performance of a mechanical system with bearings. When vibration is propagated to the environment in which the operating mechanical system is located, it can cause audible noise, which can lead to system damage and even health problems.

The vibration of a rolling bearing during rotation is a complex physical phenomenon related to the operating conditions. Single set of shafts measured under a set of conditions. The bearing vibration value does not necessarily represent the vibration value under different conditions or when the bearing becomes a part of a larger component. Assessed The sound generated by the mechanical system of the bearing is more complicated. It is also affected by the interface conditions, the position and orientation of the sensing device, and the sound of the system.

Impact of the learning environment. Air noise-GB/T 24610 (all parts) is defined as any unpleasant, undesired sound.

Because the term "unpleasant, undesired" has a subjective nature, its evaluation is more complicated. It can be considered that the structural vibration of the bearing is Eventually the driving source for air noise. GB/T 24610 (all parts) only includes vibration measurement of selected bearing structures method.

Bearing vibration can be evaluated using any of a number of methods, with different evaluation methods using different types of sensors and test conditions.

No set of values characterizing bearing vibrations can evaluate bearing vibration performance under all possible conditions of use. Eventually, also It should be based on known bearing types, conditions of use, and vibration testing purposes (e.g.

To choose the most suitable test method. Therefore, the scope of application of bearing vibration standards is not universal. However, some methods have established It has established a very wide scope of application and is considered a standard method.

This section details the assessment of the vibration of spherical roller bearings and tapered

roller bearings with cylindrical bores and cylindrical outer surfaces on a test device.

Moving method.

Method for measuring vibration of rolling bearings Part 3. Cylindrical holes and cylindrical outer surfaces Spherical roller bearings and tapered roller bearings

1 Scope This part of GB/T 24610 specifies the double-row spherical roller bearings with contact angle not greater than 45° under the established test conditions and Vibration measurement methods for single and double row tapered roller bearings.

This section applies to double-row spherical roller bearings with cylindrical bores and cylindrical outer surfaces, as well as single- and double-row tapered roller bearings.

2 Normative references The following documents are essential for the application of this document. For dated references, only the dated version applies to this article Pieces. For undated references, the latest version (including all amendments) applies to this document.

ISO 286-2 Geometric Product Specifications (GPS) Linear Dimensional Tolerance ISO Code System Part 2. Standard Tolerance Classes and Hole and shaft limit deviation table [Geometrical product specifications (GPS) -ISO code system for tolerances on linear sizes-Part 2. Tables of standard tolerance grades and limit deviations for holes and shafts]

ISO 1132-1 Rolling bearing tolerances-Part 1. Terms and definitions Terms and definitions)

ISO 2041 Vocabulary for Mechanical Vibration, Shock and Condition Monitoring (Mechanical vibration, shock and condition monitoring-Vocabulary)

ISO 5593 rolling bearing vocabulary (Rolling bearings-Vocabulary)

ISO 15242-1..2015 Rolling bearing vibration measurement methods-Part 1. Basics (Rolling bearings-Measuring methods for vibration-Part 1. Fundamentals)

3 terms and definitions Terms and definitions defined in ISO 1132-1, ISO 2041, ISO 5593 and ISO 15242-1 apply to this document.

4 Measurement procedure

4.1 Rotation frequency The setting value of the rotation frequency is 900 min^{-1} (15 s^{-1}), and the deviation is 1-2%.

After negotiation between the manufacturer and the user, other rotation frequencies and deviations can also be used. For smaller bearings, for example, Higher rotation frequency in order to obtain a proper vibration signal. Conversely, for bearings with larger dimensions, a lower rotation frequency can be used.

To avoid possible damage to rollers, ribs and raceways.

4.2 Bearing axial load The axial load shall be applied to the bearing. The set values are specified in Table 1.