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**NATIONAL STANDARD OF THE
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GB/T 25769-2010

**Rolling bearings - Measuring methods for radial internal
clearance**

滚动轴承 径向游隙的测量方法

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1 Scope

GB/T 25769-2010 is the Chinese national standard on rolling bearings - measuring methods for radial internal clearance, in the field of mechanical systems and components. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 23 December 2010 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 1 June 2011. Classification: ICS 21.100.20, CCS J11. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This Standard specifies the measuring methods for the radial internal clearance of deep groove ball bearing, self-aligning ball bearing, cylindrical roller bearing, needle roller bearing and self-aligning roller bearing. This Standard is applicable to the measurement of the radial internal clearance of rolling bearing (hereinafter referred to as "bearing").

2 Normative References

The following normative documents contain the provisions which, through reference in this text, constitute the provisions of this Standard. For dated references, the subsequent amendments (excluding corrigendum) or revisions of these publications do not apply.

However, all parties who reach an agreement according to this Standard are encouraged to study whether the latest edition is applicable. For undated references, the latest edition applies.

GB/T 4199-2003 Rolling Bearings - Tolerances - Definitions (ISO 1132-1:2000, MOD)

GB/T 4662-2003 Rolling Bearings - Static Load Ratings (ISO 76:1987, IDT)

JB/T 8788-1998 Feeler Gauge

JJF 1089-2002 Calibration Specification for Instruments for Measuring Radial Clearance of Rolling Bearing

3 Measuring Principles of Radial Internal Clearance

3.1 The bearing radial internal clearance is measured by fixing one ring and applying loads which are able to obtain stable measured value on the other unfixed ring. Then do some reciprocating motion in the diameter direction.

3.2 Place the measuring head at the middle of unfixed ring and read the movement value of the unfixed ring at every angular position (approximately uniformly distributed, at least three) along the load direction; its arithmetic mean (subtracting the increment of bearing radial internal clearance caused by measuring load) is the measured value of bearing radial internal clearance.

4 Preparation before Measurement

Prior to measurement, the bearing shall be cleaned up. The grease and/or antirust which are/is adherent to the bearing and may affect the measuring results shall be removed and low viscosity oil lubrication shall be adopted. Certain structure of pre-lubricated, sealing or shield bearing may affect the measuring accuracy. In order to eliminate difference, for capped bearing, measurement shall be conducted before closing.

Note: After measurement, bearing shall be protected against rust immediately.

5 General Specification for Measuring Apparatus

The design and application conditions of radial internal clearance measuring apparatus shall meet the definitions related to the bearing radial internal clearance in GB/T 4199-2003; the technical requirements and standards shall meet those specified in JJF 1089-2002.

6 Measurement of Radial Internal Clearance of Deep

Groove Ball Bearing When measuring this kind of bearing, the ball shall be dropped to the groove bottom.

6.1.1 Measuring without load apparatus (see Figure 1)

6.1.1.1 Prior to measuring, select suitable mandrel according to the dimension of bearing; fix the inner ring of measured bearing on the end face of mandrel; adjust the measuring load value (not greater than 5 N) and measuring head position to make every part of apparatus be under normal condition.

6.1.1.2 During the measurement, make the measured bearing be under normal measurement condition; rotate the inner ring for at least one complete circle and alternately apply upper and lower measuring loads; the difference of average value of the upper and lower positions read out from the apparatus is the measured value of internal clearance. different angular positions. The arithmetic mean of measured value for the several times is the measured value of bearing radial internal clearance.

6.2.8 Because the radial internal clearance specified for bearing is the value under the no-load state, in order to compensate the deformation that may be caused by the effect of load in the measuring process, the measured value shall be corrected.

Note: If the pointer of indicator cannot clearly read out the maximum and minimum readings, the cause may be that the washer is too thin.

6.2.9 When measuring large and heavy bearing, the flat washer shall be put between the platform and the two rings of bearing.

6.3 Miscellaneous The radial internal clearance of double row deep groove ball bearing shall be measured in accordance with the methods specified in

6.1 and 6.2; the measuring point shall be located at the middle of outer ring width.

7 Measurement of Radial Internal Clearance of

Self-aligning Ball Bearing This kind of bearing shall be measured according to the methods specified in

8 Measurement of Radial Internal Clearance of

Cylindrical Roller and Needle Roller Bearings When measuring these two kinds of bearings, any one of the following three measuring methods may be adopted; if there is a dispute, the measured value of no-load internal clearance instrument shall prevail.

8.1 Measuring with special apparatus The measurement shall be in accordance with the method specified in 6.1. When measuring the needle roller bearing, the needle roller axis shall be parallel to the raceway generatrix. When measuring the cylindrical roller bearing, the elastic deformation caused by measuring load may not be considered.