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

GB/T 42049-2022

**Airframe rolling bearings - Characteristics, boundary
dimensions, tolerances, static load ratings**

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4.1 Symbols

foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1. Structure and Drafting Rules of Standardization Documents" drafted.

This document is revised and adopted ISO 1002.1983 "Bearing Characteristics, Dimensions, Tolerances and Static Load Ratings of Rolling Bearing Body".

Compared with ISO 1002.1983, this document makes the following structural adjustments.

- Added "Terms and Definitions" chapter (see Chapter 3);
- The title of Chapter 4 is changed to "Symbols and Diagrams", and the content is split into 4.1 "Symbols" and 4.2 "Schematic Diagrams";
- Adjust the content of Chapter 11 to Chapter 6, the content of the original Chapter 6 is moved to Chapter 7, and the other chapters are analogous;
- For ease of use, some tables have been split, the title of the table has been added, and the number of the table has been rearranged (see Chapter 6 and Table A.1).

The technical differences between this document and ISO 1002.1983 and their reasons are as follows.

- Changed the scope of this document and deleted the description of the source of metric dimensions (see Chapter 1);
- Replaced ISO 15 (see Chapter 9) with the normatively cited GB/T 273.3 to adapt to my country's technical conditions and increase the operability action;
- Replaced ISO 1132 (see Chapter 3) with the normatively cited GB/T 4199 to adapt to the technical conditions of our country and increase the operability

action;

- Changed the requirements for basic characteristics (see Chapter 5);
- Changed the system of dimensions and load values to meet the requirements of my country's units of measurement (see Chapter 6, Chapter 8 and A.2);
- Added a reference to the table (see Chapter 6);
- Changed the coating requirements (see Chapter 8);
- Changed the requirements for external dimensions, increased the requirements for dimensional tolerances after plating, and increased the description of the source of metric dimensions (see Chapter 9);
- Changed the requirements for the basic static load rating, deleted the reference to ISO 76, and added the content of the allowable load (see Chapter 11).

The following editorial changes have been made to this document.

- Added the title of the figure (see Chapter 4);
- Delete the unused symbols V_{dp} and VD_p (see ISO 1002.1983 Chapter 3);
- Rearranged the order of symbols, and the supplementary description of the chamfer dimension symbols is changed to Note (see Chapter 4);
- Deleted the note for grease and seal material (see ISO 1002.1983 Chapter 4);
- Delete the note on the role of the wide inner ring (see ISO 1002.1983 Chapter 4);
- Delete the notes in the table that duplicate the content in the text (see ISO 1002.1983 Chapter 10);
- Delete the notes for sealed bearings and dust-proof bearings (see ISO 1002.1983 Chapter 5);
- Delete the note on angular displacement (see ISO 1002.1983 Chapter 8);
- Removed repeated symbols (see A.2 in ISO 1002.1983).

Please note that some content of this document may be patented. The issuing agency of this document assumes no responsibility for identifying patents.

1 Scope

This document specifies the characteristics, dimensions, tolerances and static load ratings of rolling bearings (excluding tapered roller bearings) for aircraft airframes.

Require.

This document applies to the aircraft body, including control surfaces, increased lift surfaces, doors and related mechanical structures for rolling bearing design.

This document does not apply to bearings for engines, auxiliary power units, accessories and instrumentation.

For bearings not included in this document, the possibility of their successful application on the aircraft body is not excluded.

2 Normative references

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, dated citations

documents, only the version corresponding to that date applies to this document; for undated references, the latest edition (including all amendments) applies to this document.

GB/T 273.3 Overall Plan for Rolling Bearing Dimensions Part 3.Radial Bearings (GB/T 273.3-2020, ISO 15.

2017, IDT)

GB/T 4199 Rolling Bearing Tolerance Definition (GB/T 4199-2000, ISO 1132-1.2000, MOD)

3 Terms and Definitions

Terms and definitions defined in GB/T 4199 apply to this document.

4.1 Symbols

The following symbols apply to this document.

B --- Nominal width of inner ring.

C---Nominal width of outer ring.

C_{0r} --- radial basic static load rating.

C₁ --- nominal width of outer ring flange.

C_{1s} ---Single width of outer ring flange.

D --- Nominal outer diameter.

d --- Nominal inner diameter.

Kea --- radial runout of the outer ring of the complete set of bearings.

Kia --- radial runout of the inner ring of the complete set of bearings.

r ---Nominal chamfer size of outer ring.

rs ---Single chamfer size of outer ring.

r1 ---Nominal chamfer size of inner ring.

r1s ---Single chamfer size of inner ring.

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