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Australian Standard®

Rolling bearings—Dynamic load ratings and rating life

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PREFACE

This Standard was prepared by the Standards Australia Committee on Rolling Bearings to supersede AS 2729—1984, *Rolling Bearings—Dynamic load ratings and rating life— Calculation method*. It is identical with and has been reproduced from ISO 281:1990, *Rolling bearings—Dynamic load ratings and rating life*.

Under arrangements made between Standards Australia and the international Standards bodies, ISO and IEC, as well as certain other Standards organizations, users of this Australian Standard are advised of the following:

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Statements expressed in mandatory terms in notes to tables are deemed to be requirements of this Standard.

For the purposes of this Australian Standard, the ISO text should be modified as follows:

(i) *Decimal marker* Substitute a full point for a comma as a decimal marker.

(ii) *References* Replace references to other publications by references to Australian Standards as follows:

Reference to International Standard		*Australian Standard*	
ISO		AS	
76	Rolling bearings—Static load ratings	4171	Rolling bearings—Static load ratings
5593	Rolling bearings—Vocabulary	4172	Rolling bearings—Vocabulary

CONTENTS

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Rolling bearings—Dynamic load ratings and rating life

1 Scope

This International Standard specifies methods of calculating the basic dynamic load rating of rolling bearings within the size ranges shown in the relevant ISO publications, manufactured from contemporary, commonly used, good quality hardened steel in accordance with good manufacturing practice and basically of conventional design as regards the shape of rolling contact surfaces.

This International Standard also specifies methods of calculating the basic rating life, which is the life associated with 90% reliability, with commonly used material and manufacturing quality, and with conventional operating conditions. In addition, it specifies methods of calculating adjusted rating life, in which various reliabilities, special bearing properties and specific operating conditions are taken into account by means of life adjustment factors.

This International Standard is not applicable to designs where the rolling elements operate directly on a shaft or housing surface, unless that surface is equivalent in all respects to the bearing ring (or washer) raceway it replaces.

Double row radial bearings and double direction thrust bearings are, when referred to in this International Standard, presumed to be symmetrical.

Further limitations concerning particular types of bearings are included in the relevant clauses.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 76: 1987, *Rolling bearings — Static load ratings*.

ISO 5593: 1984, *Rolling bearings — Vocabulary*.

3 Definitions

For the purposes of this International Standard, the definitions given in ISO 5593, together with the following, apply.

3.1 life: For an individual rolling bearing, the number of revolutions which one of the bearing rings (or washers) makes in relation to the other ring (or washer) before the first evidence of fatigue develops in the material of one of the rings (or washers) or rolling elements.

3.2 reliability (in the context of bearing life): For a group of apparently identical rolling bearings, operating under the same conditions, the percentage of the group that is expected to attain or exceed a specified life.

The reliability of an individual rolling bearing is the probability that the bearing will attain or exceed a specified life.

3.3 basic rating life: For an individual rolling bearing, or a group of apparently identical rolling bearings operating under the same conditions, the life associated with 90% reliability, with contemporary, commonly used material and manufacturing quality, and under conventional operating conditions.

3.4 adjusted rating life: The rating life obtained by adjustment of the basic rating life for a desired reliability level, special bearing properties and specific operating conditions.

3.5 basic dynamic radial load rating: That constant stationary radial load which a rolling bearing could theoretically endure for a basic rating life of one million revolutions.

In the case of a single row angular contact bearing, the radial load rating refers to the radial component of that load which causes a purely radial displacement of the bearing rings in relation to each other.

3.6 basic dynamic axial load rating: That constant centric axial load which a rolling bearing could theoretically endure for a basic rating life of one million revolutions.

3.7 dynamic equivalent radial load: That constant stationary radial load under the influence of which a rolling bearing would have the same life as it will attain under the actual load conditions.