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**Rolling bearings — Radial bearings  
— Dimensional and geometrical  
tolerances**

*Roulements — Roulements radiaux — Tolérances dimensionnelle et  
géométrique*



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## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 4, *Rolling bearings*, Subcommittee SC 4, *Tolerances, tolerance definitions and symbols (including GPS)*.

This fifth edition cancels and replaces the fourth edition (ISO 492:2002), which has been technically revised.

## Introduction

This International Standard is a machine element geometry standard as defined in the geometrical product specification (GPS) system as presented in master plan of ISO/TR 14638.<sup>[12]</sup>

The fundamental rules of ISO/GPS given in ISO 8015<sup>[8]</sup> apply to this International Standard and the default decision rules given in ISO 14253-1<sup>[10]</sup> apply to the specifications made in accordance with this International Standard, unless otherwise indicated.

The connection between functional requirements, measuring technique and measuring uncertainty is always intended to be considered. The traditionally used measuring technique is described in ISO 1132-2.<sup>[5]</sup> For measurement uncertainty it is intended that ISO 14253-2<sup>[11]</sup> should be considered.



# Rolling bearings — Radial bearings — Dimensional and geometrical tolerances

## 1 Scope

This International Standard specifies dimensional and geometrical characteristics, limit deviations from nominal sizes, and tolerance values to define the interface (except chamfers) of radial rolling bearings. Nominal boundary dimensions are defined in ISO 15, ISO 355[2] and ISO 8443[9].

This International Standard does not apply to certain radial bearings of particular types (e.g. needle roller bearings) or for particular fields of application (e.g. airframe bearings and instrument precision bearings). Tolerances for such bearings are given in the relevant International Standards.

Chamfer dimension limits are given in ISO 582.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 15, *Rolling bearings — Radial bearings — Boundary dimensions, general plan*

ISO 582, *Rolling bearings — Chamfer dimensions — Maximum values*

ISO 1101, *Geometrical product specifications (GPS) — Geometrical tolerancing — Tolerances of form, orientation, location and run-out*

ISO 5593, *Rolling bearings — Vocabulary*

ISO 14405-1, *Geometrical product specifications (GPS) — Dimensional tolerancing — Part 1: Linear sizes*

ISO/TS 17863, *Geometrical product specification (GPS) — Geometrical tolerancing of moveable assemblies*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 1101, ISO 5593, ISO 14405-1, and ISO/TS 17863 apply.

## 4 Symbols

To express that the ISO/GPS system, ISO 8015[8], is applied, the dimensional and geometrical characteristics shall be included in the technical product documentation (for example, on the drawing). The dimensional and geometrical specifications, associated to these characteristics are described in [Table 1](#) and [Figures 1](#) to [17](#).

Descriptions for symbols are in accordance with GPS terminology; relationships with traditional terms are described in [Annex A](#).

A tolerance value associated to a characteristic is symbolised by  $t$  followed by the symbol for the characteristic, for example  $t_{VB_s}$ .

In this International Standard, the ISO default specification operator for size is in accordance with ISO 14405-1, i.e. the two-point size is valid. Some specification modifiers are described in [Annex D](#).