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**Rolling bearings — Parts library —**

**Part 1:**

**Reference dictionary for rolling bearings**

*Roulements — Bibliothèque de composants —*

*Partie 1: Dictionnaire de référence des roulements*



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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

In other circumstances, particularly when there is an urgent market requirement for such documents, a technical committee may decide to publish other types of document:

- an ISO Publicly Available Specification (ISO/PAS) represents an agreement between technical experts in an ISO working group and is accepted for publication if it is approved by more than 50 % of the members of the parent committee casting a vote;
- an ISO Technical Specification (ISO/TS) represents an agreement between the members of a technical committee and is accepted for publication if it is approved by 2/3 of the members of the committee casting a vote.

An ISO/PAS or ISO/TS is reviewed after three years in order to decide whether it will be confirmed for a further three years, revised to become an International Standard, or withdrawn. If the ISO/PAS or ISO/TS is confirmed, it is reviewed again after a further three years, at which time it must either be transformed into an International Standard or be withdrawn.

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.

ISO 23768-1 was prepared by Technical Committee ISO/TC 4, *Rolling bearings*.

ISO 23768 consists of the following parts, under the general title *Rolling bearings — Parts library*:

- *Part 1: Reference dictionary for rolling bearings* [Technical Specification]

The intent is that a reference dictionary for linear motion rolling bearings will form the subject of a part 2 and a reference dictionary for spherical plain bearings will form the subject of a part 3.

## Introduction

This part of ISO 23768 defines the means to achieve an electronic representation of rolling bearing data by providing a reference dictionary needed to describe various data about rolling bearings. This part of ISO 23768 is intended to facilitate the use, manipulation and exchange of rolling bearing data for manufacturing, distribution and usage.

Rolling bearing data consist of entities of the rolling bearing application domain together with their descriptive properties and domains of values. Descriptive properties specified by this part of ISO 23768 include, but are not limited to, geometrical and dimensional data, identification and designation data, miscellaneous and spare part data, material data.

Each entity, property or domain of values defines an entry of the rolling bearing reference dictionary. The rolling bearing reference dictionary constitutes the formal and computer-sensible representation of the rolling bearing data. Each rolling bearing datum is associated with a computer-sensible and human-readable definition, and with a computer-sensible identification. Identification of a dictionary entry allows for unambiguous reference from any application. Definitions and identifications of dictionary entries consist of instances of the EXPRESS entity data types defined in the common dictionary schema, resulting from a joint effort between ISO/TC 184/SC 4/WG 2 and IEC SC 3D, or in its extensions defined in the logical series of parts of ISO 13584.

This part of ISO 23768 is intended for use, among others, by manufacturers, rolling bearing vendors or producers, and developers of manufacturing software. This part of ISO 23768 is intended to allow or improve several capabilities, including:

- the provision of a common set of definitions for use in describing rolling bearings,
- the integration and sharing of rolling bearing data between software applications,
- direct import of vendor rolling bearing data into customer databases or applications, and
- a reduction of the level of effort required for manufacturers to maintain accurate and current rolling bearing information from multiple sources and for multiple applications.

Some of the definitions of classes and properties of rolling bearings are taken from International Standards on rolling bearings and from Reference [11].



# Rolling bearings — Parts library —

## Part 1:

## Reference dictionary for rolling bearings

### 1 Scope

This part of ISO 23768 specifies a reference dictionary for all rolling bearings described in the various International Standards relevant to rolling bearings, together with their descriptive properties and domains of values.

This part of ISO 23768 specifies a reference dictionary that contains:

- a definition of a general class of bearings intended to be further extended by reference dictionaries specifying bearings in other International Standards;
- definitions and identifications of the classes of rolling bearings as they are described in the various International Standards relevant to rolling bearings, with associated classification scheme;
- definitions and identifications of data element types that represent properties of rolling bearings;
- definitions and identifications of domains of values that prove useful for describing the above-mentioned data element types.

Each class, property or domain of values of this application domain constitutes an entry of the reference dictionary defined in this part of ISO 23768. It is associated with a computer-sensible and a human-readable definition, and with a computer-sensible identification. Identification of a dictionary entry allows for unambiguous reference from any application.

Definitions and identifications of dictionary entries are defined by means of standard data, which consist of instances of the EXPRESS entity data types defined in the common dictionary schema, resulting from a joint effort between ISO/TC 184/SC 4/WG 2 and IEC SC 3D, and in their extensions defined in ISO 13584-24 and ISO 13584-25.

The following are within the scope of this part of ISO 23768:

- standard data that represent the classes of rolling bearings;
- standard data that represent the properties of rolling bearings;
- standard data that represent domains of values used for properties of rolling bearings.

The following are outside of the scope of this part of ISO 23768:

- methodology for structuring parts families used for specifying standard data defined in this part of ISO 23768;
- an implementation method by which the standard data defined in this part of ISO 23768 can be exchanged.

NOTE 1 The structure of the physical file used for exchanging the standard data defined in this part of ISO 23768 is specified in ISO 10303-21. This physical file containing all the standard data for rolling bearings is also provided as Annex E.

NOTE 2 The physical file used for exchanging the standard data is compliant with ISO 13584-42:1998.

NOTE 3 It is intended to provide an OntoML-based (XML) representation of the standard data when ISO 13584-32 (OntoML) is published.

## 2 Normative references

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

ISO 199, *Rolling bearings — Thrust bearings — Tolerances*

ISO 286-1, *Geometrical product specifications (GPS) — ISO code system for tolerances on linear sizes — Part 1: Basis of tolerances, deviations and fits*

ISO 492, *Rolling bearings — Radial bearings — Tolerances*

ISO 1132-1, *Rolling bearings — Tolerances — Part 1: Terms and definitions*

ISO 1998-1, *Petroleum industry — Terminology — Part 1: Raw materials and products*

ISO 3096, *Rolling bearings — Needle rollers — Dimensions and tolerances*

ISO 4378-1, *Plain bearings — Terms, definitions, classification and symbols — Part 1: Design, bearing materials and their properties*

ISO 5593:1997, *Rolling bearings — Vocabulary*

ISO 7063, *Rolling bearings — Needle roller bearing track rollers — Boundary dimensions and tolerances*

ISO 9628, *Rolling bearings — Insert bearings and eccentric locking collars — Boundary dimensions and tolerances*

ISO 10303-1, *Industrial automation systems and integration — Product data representation and exchange — Part 1: Overview and fundamental principles*

ISO 10303-11, *Industrial automation systems and integration — Product data representation and exchange — Part 11: Description methods: The EXPRESS language reference manual*

ISO 10303-21, *Industrial automation systems and integration — Product data representation and exchange — Part 21: Implementation methods: Clear text encoding of the exchange structure*

ISO 13584-1, *Industrial automation systems and integration — Parts library — Part 1: Overview and fundamental principles*

ISO 13584-24, *Industrial automation systems and integration — Parts library — Part 24: Logical resource: Logical model of supplier library*

ISO 13584-25, *Industrial automation systems and integration — Parts library — Part 25: Logical resource: Logical model of supplier library with aggregate values and explicit content*



ISO 13584-42:1998<sup>1)</sup>, *Industrial automation systems and integration — Parts library — Part 42: Description methodology: Methodology for structuring parts families*

ISO 13584-511, *Industrial automation systems and integration — Parts library — Part 511: Mechanical systems and components for general use — Reference dictionary for fasteners*

ISO 21107, *Rolling bearings and spherical plain bearings — Search structure for electronic media — Characteristics and performance criteria identified by attribute vocabulary*

ISO/IEC 8824-1, *Information technology — Abstract Syntax Notation One (ASN.1): Specification of basic notation — Part 1*

ISO/IEC Guide 77-2, *Guide for specification of product properties and classes — Part 2: Technical principles and guidance*

IEC 61360-2, *Standard data element types with associated classification scheme for electric components — Part 2: EXPRESS dictionary schema*

### 3 Terms, definitions and abbreviated terms

For the purposes of this document, the terms and definitions given in ISO 286-1, ISO 1998-1, ISO 3096, ISO 4378-1, ISO 5593, ISO 10303-1, ISO 10303-11, ISO 13584-1, ISO 13584-24, ISO 13584-42 and ISO/IEC Guide 77-2 and the following apply.

#### 3.1 Terms and definitions

##### 3.1.1

##### **applicable property**

##### **AP**

property that is defined for some family of parts and that shall apply to any part that belongs to this family of parts

[ISO 13584-24:2003, definition 3.3.]

**EXAMPLE** For a roller bearing generic family of parts, the bore diameter is an applicable property: this characteristic applies to any bearing.

##### 3.1.2

##### **basic semantic unit**

##### **BSU**

entity that provides an absolute and universal identification of certain objects of the application domain

**EXAMPLE** Classes, data element types.

**NOTE** Adapted from ISO 13584-42:1998, definition 3.4.1.

##### 3.1.3

##### **characteristic of a part**

##### **part characteristic**

constant property, characteristic of a part, of which the value is fixed once the part is defined

[ISO 13584-24:2003, definition 3.12]

**NOTE** Changing the value of a characteristic of a part means changing the part.

**EXAMPLE** For a rolling bearing, the bore diameter and the outside diameter are part characteristics.

1) Withdrawn. (Replaced by ISO 13584-42:2010)