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Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of Economy, Trade and Industry, through deliberations at the Japanese Industrial Standards Committee as the result of proposal of revision of Japanese Industrial Standard submitted by The Japan Bearing Industrial Association (JBIA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law applicable to the case of revision by the provision of Article 14.

Consequently **JIS B 0124:1994** is replaced with this Standard.

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Attention is drawn to the possibility that some parts of this Standard may conflict with a patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have technical properties. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying the patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have the said technical properties.

Rolling bearings — Symbols for quantities

Introduction

This Japanese Industrial Standard has been prepared based on the first edition of **ISO 15241** published in 2001 with some modifications such as changes in terms and addition of normative references that are not given in the corresponding International Standard.

The portions underlined with dots are the matters in which the contents of the corresponding International Standard have been modified. A list of modifications with explanations is given in Annex JA.

1 Scope

This Standard defines the presentation of symbols for physical quantities — dimensions, dimensional tolerances, accuracy, load ratings, life, etc. (hereafter referred to as “symbols”) — in the field of rolling bearings.

NOTE : The International Standard corresponding to this Standard and the symbol of degree of correspondence are as follows :

ISO 15241 : 2001 *Rolling bearings — Symbols for quantities* (MOD)

The symbols which denote the degree of correspondence in the contents between the relevant International Standard and **JIS** are IDT (identical), MOD (modified), and NEQ (not equivalent) according to **ISO/IEC Guide 21**.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. For standards with the year indication, only the editions of the indicated year shall apply but the revisions (including amendments) made thereafter shall not apply. The normative references without the indication of the year shall apply only to the most recent edition (including amendments).

JIS B 0104 *Rolling bearings — Vocabulary*

NOTE : Corresponding International Standard : ISO 5593 : 1997 *Rolling bearings — Vocabulary* (MOD)

JIS B 1515-1 *Rolling bearings — Tolerances — Part 1 : Terms and definitions*

NOTE : Corresponding International Standard : ISO 1132-1 : 2000 *Rolling bearings — Tolerances — Part 1 : Terms and definitions* (IDT)

JIS Z 8201 *Mathematical symbols*

NOTE : Corresponding International Standard : ISO 31-11 : 1992 *Quantities and units — Part 11 : Mathematical signs and symbols for use in the physical sciences and technology* (MOD)

JIS Z 8202-0 *Quantities and units — Part 0 : General principles*

NOTE : Corresponding International Standard : ISO 31-0 : 1992 *Quantities and units — Part 0 : General principles* (IDT)

ISO 281 : 2007 *Rolling bearings — Dynamic load ratings and rating life*

3 Terms and definitions

For the purpose of this Standard, the terms and definitions given in **JIS B 0104** and **JIS B 1515-1** apply...

4 Symbols for quantities

4.1 Principles of symbol system

The following principles have been applied in this Standard.

- Principles of the symbol system are generally in accordance with **JIS Z 8201** and **JIS Z 8202-0**.
- Symbols for physical quantities used in the field of rolling bearings are defined as quantities in physics. Symbols for dimensionless values such as coefficients, factors and parameters are thus also involved. Mathematical variables are also included, e.g. probability (n).
- Subscripts of subscripts should not be adopted ; e.g. the subscript letters " d_{mp} " of $V_{d_{mp}}$ should be printed in the same point size. The form $V_{d_{mp}}$ should not be used (see figure 1).
- Superscripts should not be used.

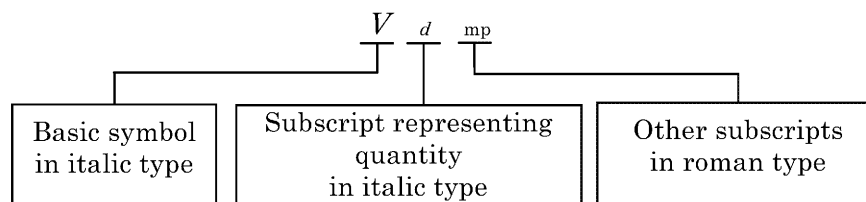


Figure 1 Principle of symbols

4.2 Symbols

The symbols for quantities are shown by basic symbols, which are single letters from the Latin or Greek alphabet or basic symbols with subscripts, composed of one or more letters of the Latin alphabet or Arabic numerals. They are not followed by a full stop.

4.3 Basic symbols

Basic symbols represent physical quantities and may sometimes represent different quantities. The typical basic symbols are shown in table 1.

4.4 Subscripts

Subscripts appended to a basic symbol modify the basic physical quantity with respect to properties, feature part, numbering, etc. The subscripts currently used are shown in table 2. Subscripts representing physical quantities have the same typography as the basic symbols (e.g. V_{dmp} , Δ_{ds}).

4.5 Style of printing symbols

Basic symbols are printed in italic (sloping) type with serifs. Subscripts representing physical quantities are printed in italic type with serifs. Subscripts representing numbers and other symbols are printed in roman (upright) type e.g. e (with respect to outer ring), r (radial), d (with respect to bore). All subscript characters should be of the same point size.

Example 1 In V_{dmp} (variation of mean bore diameter), subscript " d " represents "bore diameter" and is printed in italic type. Subscripts " m " representing "mean" and " p " representing "in a single plane" are printed in roman type. The subscript characters have the same point size.

Example 2 In S_d (perpendicularity of inner ring face with respect to the bore), " d " represents "per bore surface" and is printed in roman type.

4.6 Classification of symbols for quantities

Symbols are classified as follows in tables 3 to 10.

- Dimensions and features for bearings, rings and washers (table 3).
- Dimensions and tolerances for bearings, rings and washers (table 4).
- Running accuracy for bearings, rings and washers (table 5).
- Dimensions and tolerances for subunits (table 6).
- Dimensions and tolerances for rolling elements (table 7).
- Dimensions for shafts and housings (table 8).
- Bearing loads and load ratings (table 9).
- Bearing life (table 10).

5 Definitions of physical quantities

Definitions of physical quantities in this Standard are in accordance with JIS B 0104, JIS B 1515-1, JIS Z 8201, JIS Z 8202-0 and tables 3 to 10.

6 Use of square brackets

In tables 2 to 10, the words to be substituted for those which precede them in order to obtain the different meanings are placed in square brackets, i.e. "[]".

7 Presentation of symbols for physical quantities

The basic symbols are presented in table 1, subscripts in table 2, and symbols used in the field of rolling bearings in tables 3 to 10.