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Rolling bearings—Radial bearings
with locating snap ring—
Dimensions, geometrical product
specifications (GPS) and tolerance
values

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In the event of any doubts arising as to the contents,
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Foreword

This Japanese Industrial Standard has been revised by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by The Japan Bearing Industrial Association (JBIA) with a draft being attached, based on the provision of Article 12, paragraph (1) of the Industrial Standardization Act applied mutatis mutandis pursuant to the provision of Article 16 of the said Act. This edition replaces the previous edition (**JIS B 1509**:2005), which has been technically revised.

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NOTE Based on Article 9 of the Supplementary Provisions to the Unfair Competition Prevention Act etc., any submission of proposal, or employment of procedures such as deliberation by the Japanese Industrial Standards Committee under the previous Industrial Standardization Act shall be deemed to have been conducted pursuant to the provision of Article 12, paragraph (1) of the revised Industrial Standardization Act.

Rolling bearings—Radial bearings with locating snap ring—Dimensions, geometrical product specifications (GPS) and tolerance values

Introduction

This Japanese Industrial Standard has been prepared based on **ISO 464:2015**, Edition 3, with some modifications of the technical contents, such as adding provisions not specified in the corresponding International Standard in line with the actual conditions in Japan.

Descriptions with the vertical lines on both sides and dotted underlines, and Annex JA are unique to **JIS** and not given in the corresponding International Standard. A list of modifications with the explanations is given in Annex JB.

1 Scope

This Standard specifies the snap ring groove dimensions and tolerance values, chamfer dimensions on the snap ring groove side of the outer ring, and the dimensions of locating snap ring (hereafter referred to as snap rings) and tolerance values for radial bearings in the dimension series 18 and 19 and the diameter series 0, 2, 3, and 4 (except dimension series 00, 82, and 83), as specified in **JIS B 1512-1**^[1].

NOTE 1 The International Standard corresponding to this Standard and the symbol of degree of correspondence are as follows.

ISO 464:2015 *Rolling bearings—Radial bearings with locating snap ring—Dimensions, geometrical product specifications (GPS) and tolerance values* (MOD)

In addition, 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 21-1**.

NOTE 2 An example of the design of housing components is given in Annex A, an example of drawing indications for specification for a snap ring groove in Annex B, and specifications of snap ring for rolling bearing unique to **JIS** in Annex JA, for reference.

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 be applied and the revisions (including amendments) made thereafter shall not be applied. For those without the indication of the year, the most recent editions (including amendments) shall be applied.

JIS B 0104 *Rolling bearings—Vocabulary*

NOTE Corresponding International Standard: ISO 5593 *Rolling bearings—Vocabulary*

JIS B 0124 *Rolling bearings—Symbols for quantities*

NOTE Corresponding International Standard: ISO 15241 *Rolling bearings—Symbols for physical quantities*

JIS B 0420-1 *Geometrical product specifications (GPS)—Dimensional tolerancing—Part 1: Linear sizes*

NOTE Corresponding International Standard: ISO 14405-1 *Geometrical product specifications (GPS)—Dimensional tolerancing—Part 1: Linear sizes*

JIS B 1514-3 *Rolling bearings—Tolerances of bearings—Part 3: Chamfer dimensions—Maximum values*

NOTE Corresponding International Standard: ISO 582 *Rolling bearings—Chamfer dimensions—Maximum values*

ISO 1101:2012 *Geometrical product specifications (GPS)—Geometrical tolerancing—Tolerances of form, orientation, location and run-out*

NOTE The International Standard **ISO 464** corresponding to this Standard was revised in 2015. The latest version of **ISO 1101** at the time of the revision was **ISO 1101:2012**.

3 Terms and definitions

For the purpose of this Standard, the terms and definitions given in **JIS B 0104**, **JIS B 0420-1** and **ISO 1101:2012** apply.

4 Symbols

See Figures 1 to 3 and Table 1.

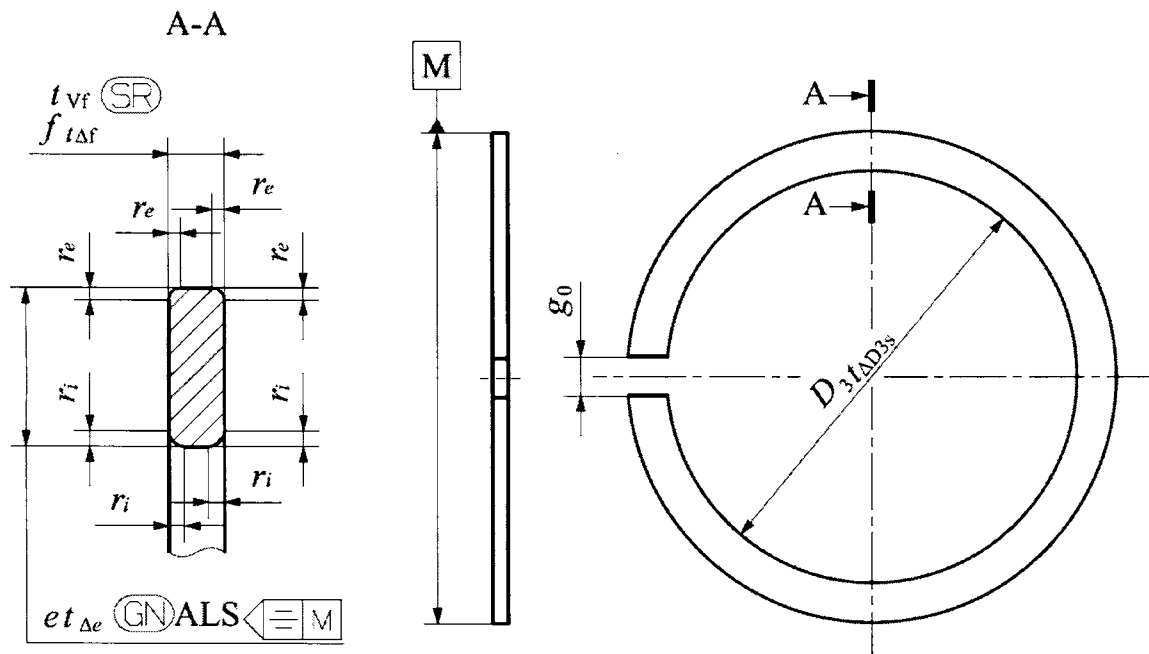


Figure 1 Snap ring

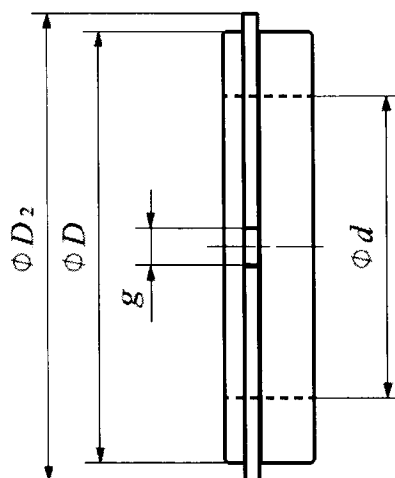
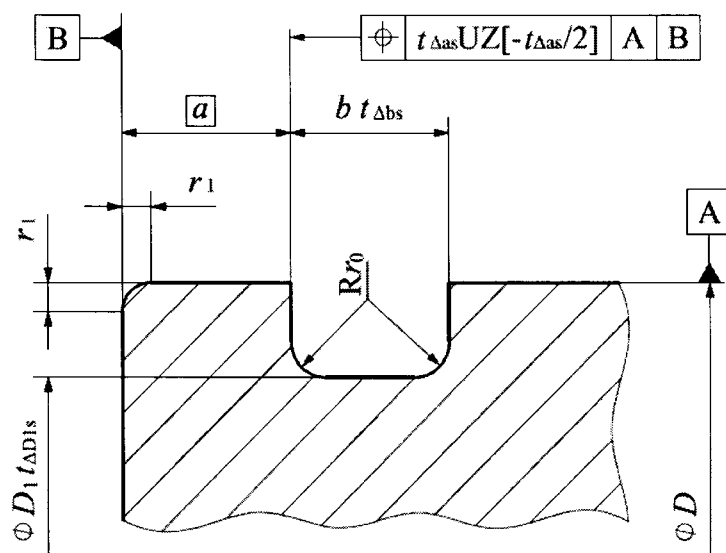


Figure 2 Radial bearing with snap ring



NOTE Regarding UZ, refer to ISO 1101:2012, 10.2.

Figure 3 Snap ring groove and chamfer

To express that the ISO/geometrical product specification (GPS) system is applied, dimensional characteristics and the tolerance values, and geometrical characteristics and the tolerance values shall be included in the technical product documentation (for example, on the drawing). The dimensional and geometrical specifications associated to them are described in Table 1 and Figures 1 to 3.

A tolerance value associated to a characteristic shall be expressed by the symbol for quantities t (slanted text) followed by the symbol of characteristic, for example $t_{\Delta as}$.

In this Standard, the default specification operator for size shall be in accordance with JIS B 0420-1, i.e. the two-point size is valid.

NOTE The default specification operator is specified by ISO Standards, JISs or company standards as default specification relating to tolerance characteristics.

In Tables 2 to 5, the symbols U and L are used as follows.

U=upper limit deviation

L=lower limit deviation

An example of a real drawing indication is given in Annex B.

Table 1 Symbols for nominal dimensions, characteristics, and specification modifiers

Symbol for nominal dimension ^{a)}	Symbol for characteristic ^{a)}	GPS symbol and specification modifier ^{b) c)}	Description ^{d)}
a			nominal snap ring groove location distance
	Δa_s		position of snap ring groove face at distance “ a ” with respect to secondary datum B which is constraint by primary datum A
b			nominal snap ring groove width
	Δb_s		deviation of a two-point size of snap ring groove width from its nominal size
D			nominal bearing outside diameter
D_1			nominal snap ring groove diameter
	ΔD_{1s}		deviation of a two-point size of snap ring groove diameter from its nominal size
D_2			nominal outside diameter of snap ring, when mounted
D_3			nominal inside diameter of snap ring, before mounting
	ΔD_{3s}		deviation of a two-point size of inside diameter of snap ring, before mounting, from its nominal size
e			nominal snap ring section height
	Δe		deviation of a minimum circumscribed size of snap ring section height, between two opposite lines, in any longitudinal section, which includes the snap ring outside surface axis, from its nominal size
f			nominal snap ring thickness
	Δf		deviation of a two-point size of snap ring thickness from its nominal size
	V_f		difference between the maximum value and the minimum value of a two-point size of snap ring thickness
g			nominal snap ring gap when mounted
g_0			nominal snap ring gap before mounting
r_0			nominal fillet radius at the bottom of snap ring groove
	$r_{0s \max}$		maximum single fillet radius at the bottom of snap ring groove
r_1			nominal chamfer dimension of outer ring on snap ring groove side
	$r_{1s \min}$		smallest single chamfer dimension of outer ring on snap ring groove side
d			nominal bearing bore diameter
r_i			nominal chamfer dimension on snap ring inside diameter side
	$r_{is \min}$		smallest single chamfer dimension on snap ring inside diameter side
r_e			nominal chamfer dimension on snap ring outside diameter side
	$r_{es \min}$		smallest single chamfer dimension on snap ring outside diameter side