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Rolling bearings — Cylindrical roller bearings

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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 for 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 1533:1993** is replaced with this Standard.

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Rolling bearings — Cylindrical roller bearings

Introduction

This Japanese Industrial Standard was established in 1951 and has gone through eight revisions up to the present. The last revision was made in 1993, and the revision at this time is for responding to the subsequent revision of the standards cited as normative references and to the changes in rules for the layout and drafting of JIS standards.

No corresponding International Standard has been established at this point.

1 Scope

This Standard specifies the single row and double row cylindrical roller bearings (hereafter referred to as “bearings”).

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated below shall be applied.

JIS B 0104 *Rolling bearings — Vocabulary*

JIS B 0124 *Rolling bearings — Symbols for quantities*

JIS B 1511 *Rolling bearings — General code*

JIS B 1512-1 *Rolling bearings — Boundary dimensions — Part 1 : Radial bearings*

JIS B 1513 *Rolling bearings — Designation*

JIS B 1514-1 *Rolling bearings — Tolerances of bearings — Part 1 : Radial bearings*

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

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

JIS B 1515-2 *Rolling bearings — Tolerances — Part 2 : Measuring and gauging principles and methods*

JIS B 1516 *Marking on rolling bearings and packages*

JIS B 1520 *Rolling bearings — Radial internal clearance*

JIS G 4805 *High carbon chromium bearing steels*

JIS Z 2245 *Rockwell hardness test — Test method*

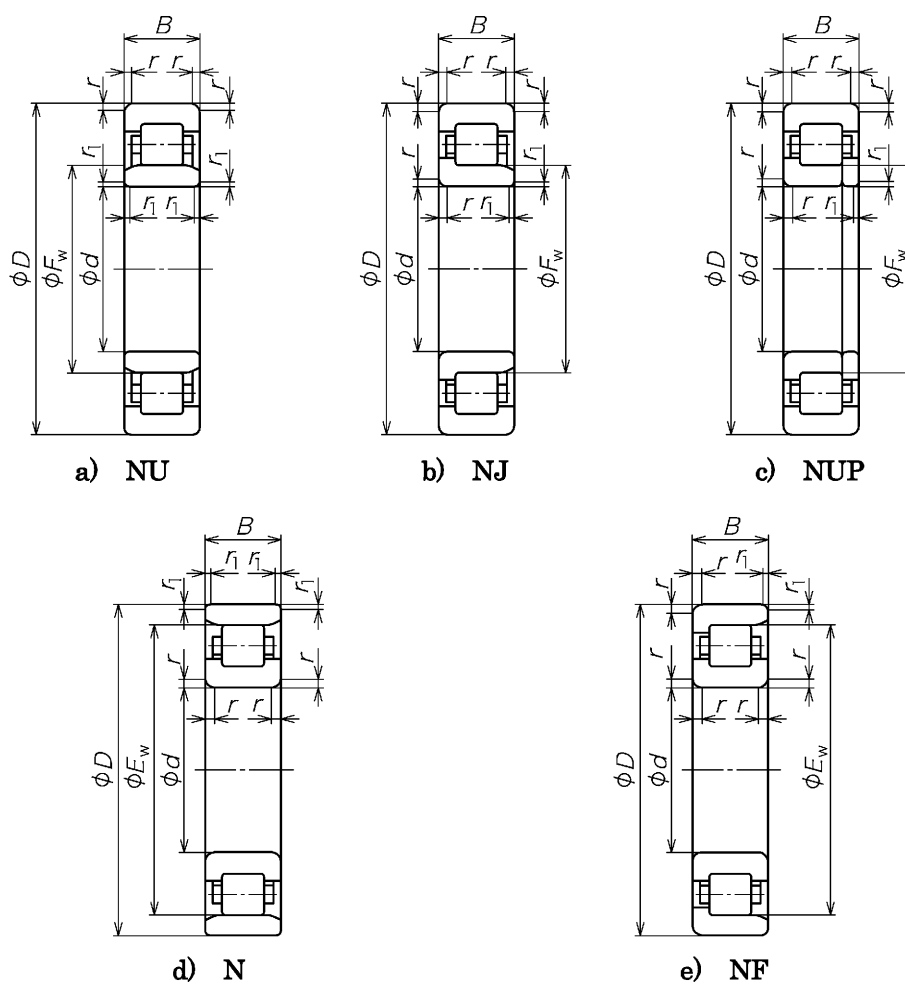
3 Terms and definitions

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

4 Quantity symbols

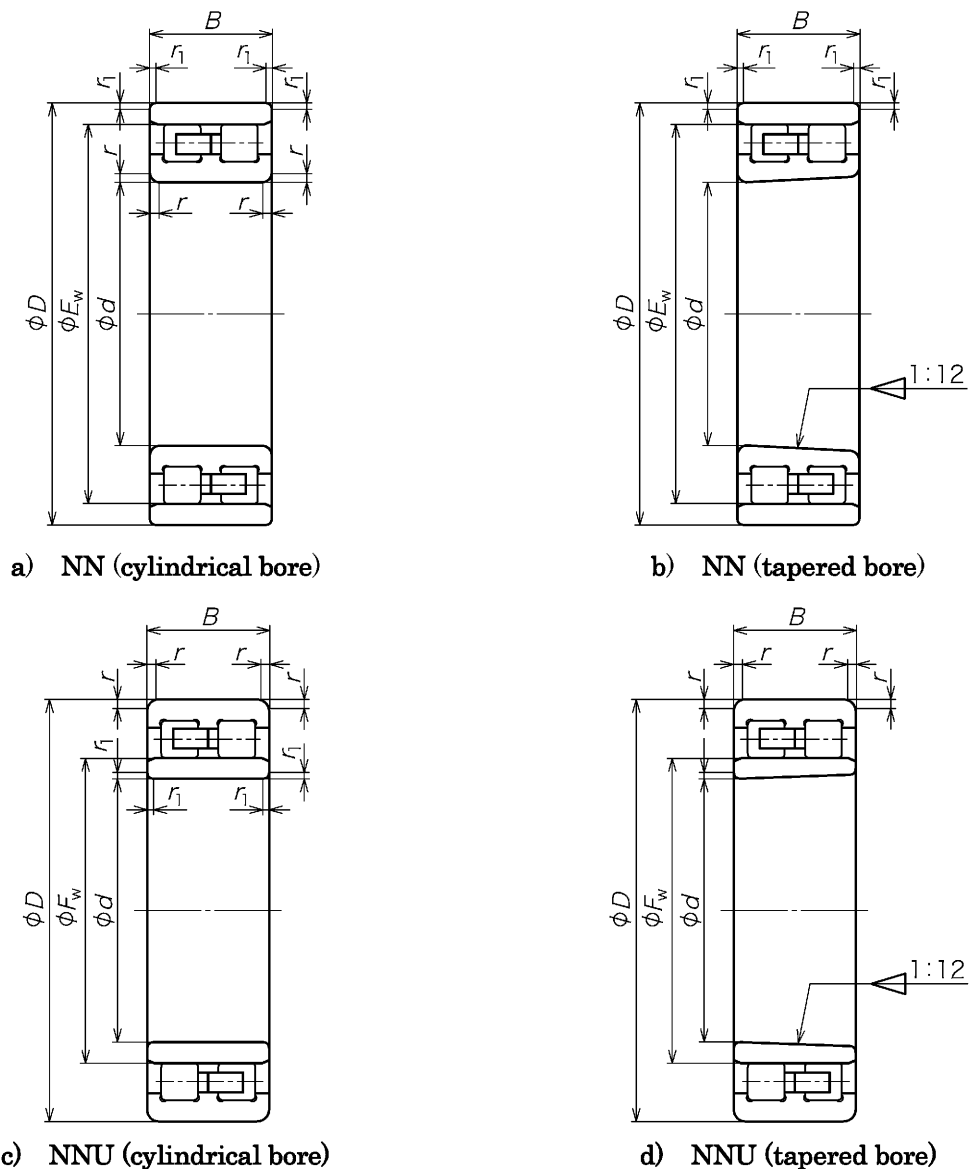
For the purpose of this Standard, the quantity symbols given in **JIS B 0124** and the following apply (see figure 1 and figure 2).

B	: bearing width
D	: bearing outside diameter
d	: bearing bore diameter
E_w	: roller complement outside diameter
E_{ws}	: roller complement single outside diameter
F_w	: roller complement bore diameter
F_{ws}	: roller complement single bore diameter
r	: chamfer dimensions, on the side with rib, of inner ring and outer ring
$r_{s\ min}$	: smallest single chamfer dimension, on the side with rib, of inner ring and outer ring
r_1	: chamfer dimension, on the side without rib, of inner ring and outer ring, chamfer dimensions of loose rib
$r_{1s\ min}$	: smallest single chamfer dimension, on the side without rib, of inner ring and outer ring, smallest single chamfer dimension of loose rib
ΔE_{ws}	: deviation of single outside diameter of roller complement
ΔF_{ws}	: deviation of single bore diameter of roller complement



NOTE : Figures are examples of structure.

Figure 1 Cylindrical roller bearing (single row)



NOTE : Figures are examples of structure.

Figure 2 Cylindrical roller bearing (double row)

5 Types

The types of bearings shall be as given in table 1. The single row and double row cylindrical roller bearings shall be as shown in figure 1 and figure 2, respectively.

The separate thrust collars to be assembled with NJ type bearings shall be as specified in Annex A. The bearing type symbol after assembling NJ type bearings and separate thrust collars shall be NH.

Table 1 Types of bearing

Type of bearing	Structure and shape			Figure	
NU	Single row	Inner ring without rib		Outer ring with double ribs	Figure 1 a)
NJ		Inner ring with single rib			Figure 1 b)
NUP		Inner ring with single rib and loose rib			Figure 1 c)
N		Inner ring with double ribs		Outer ring without rib	Figure 1 d)
NF				Outer ring with single rib	Figure 1 e)
NN	Double row	Inner rings with double ribs	Cylindrical bore	Outer ring without rib	Figure 2 a)
			Tapered bore		Figure 2 b)
NNU		Inner rings without rib	Cylindrical bore	Outer ring with double ribs	Figure 2 c)
			Tapered bore		Figure 2 d)
NOTE : Sub-units constituting the bearings can either be interchangeable bearings with interchangeability, or non-interchangeable bearings with no interchangeability.					

6 Designation

Designation of bearings shall be in accordance with table 2 and table 3.

Composition and supplementary numbers of bearing designations shall be in accordance with **JIS B 1513**.

7 Boundary dimensions

The boundary dimensions of bearings shall be as given in table 2 and table 3. Unless otherwise specified, the values in table 2 and table 3 shall be expressed by nominal dimensions.

The chamfer dimensions r and r_1 shall be applied to the locations shown in figure 1 and figure 2, and these dimensions shall be specified by smallest single chamfer dimensions $r_{s \min}$ and $r_{1s \min}$, respectively. Although other parts than r and r_1 as shown in figure 1 and figure 2, including tapered bore of a tapered bore bearing, are not given specified chamfer dimensions, they are still required to be free from sharp corners. The maximum value of single chamfer dimension corresponding to $r_{s \min}$ shown in table 2 and table 3 and $r_{1s \min}$ shown in table 2 shall be in accordance with **JIS B 1514-3**.

The deviation of a single bore diameter Δ_{Fws} and the deviation of a single outside diameter Δ_{Ews} of the roller complements of the bearing with interchangeable sub-unit shall be as given in table 4.

The dimensions in table 2 are determined from boundary dimensions specified in **JIS B 1512-1**, and are of bearing types NU, NJ, NUP, N and NF, of dimension series 10, 02,