

JIS

JAPANESE INDUSTRIAL STANDARD

Rolling bearings — General code

JIS B 1511—1993

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In the event of any doubt arising,
the original Standard in Japanese is to be final authority.

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1. Scope This Japanese Industrial Standard specifies the system of the Japanese Industrial Standards related to the rolling bearings (hereafter, referred to as "bearings") and the fundamental and common matters related to the bearings.

Remarks: The standards cited in this Standard are given in Attached Table 1.

2. Definitions For the purpose of this Standard, main definitions in JIS B 0104 apply.

3. Standards related to bearings The Japanese Industrial Standards related to the bearings shall be classified in accordance with the following, and be given in Attached Table 2.

- (1) Common standards The standards which specify the common matters related to the bearings.
- (2) Individual standards The standards which specify the requirements of the bearings to be used generally.
- (3) Parts standards The standards which specify the requirements of bearing parts (see Attached Table 7) to be used generally.
- (4) Accessory standards The standards which specify the requirements of bearing accessories (see Attached Tables 8 and 9) to be used generally.

4. Fundamental matters related to bearings

4.1 Types The types of the bearings shall be classified as given in the following, according as the directions of loads capable of being loaded and the kinds of rolling elements. The main types of the bearings are given in Attached Tables 3 to 6.

- (1) Radial ball bearings (see Attached Table 3)
- (2) Radial roller bearings (see Attached Table 4)
- (3) Thrust ball bearings (see Attached Table 5)
- (4) Thrust roller bearings (see Attached Table 6)

Remarks: The sectional diagrams given in Attached Tables 3 to 6 are the examples of structure.

4.2 Boundary dimensions The boundary dimensions defining the outlines of the bearings should preferably be selected from the dimensions specified in JIS B 1512.

4.3 Tolerance classes and tolerances As for tolerances and permissible values of the dimensions and rotation precision of bearings, any one of tolerance classes as 0 (normal), 6X, 6, 5, 4 or 2 specified in JIS B 1514 should preferably be applied.

4.4 Radial internal clearances As for values of the radial internal clearances of the radial bearings, any one of C2 clearance, ordinary clearance, C3 clearance, C4 clearance or C5 clearance specified in JIS B 1520 should preferably be applied.

4.5 Designations The designations of bearings should preferably be in accordance with the system specified in JIS B 1513.

4.6 Markings The marked information and marking method for the bearings and packages thereof should preferably be in accordance with the prescriptions of JIS B 1516.

4.7 Principal parts The fundamental matters of the principal parts constituting the bearings shall be in accordance with the following:

- (1) Bearing rings, bearing washers and loose ribs The materials of bearing rings, bearing washers and loose ribs of bearings shall be the materials specified in JIS G 4805 or ISO 683-17, or the alloy steels capable of obtaining the qualities equal to or superior to these. The hardnesses of the bearing rings and bearing washers shall be 57HRC to 65HRC. However, the lower limit of the hardness of the bearing rings and bearing washers processed with dimension stabilizing treatment shall be 55HRC.
- (2) Rolling elements It should be preferable to use the steel balls specified in JIS B 1501 for the ball bearings, and the rollers specified in JIS B 1506 for the roller bearings. The materials of steel balls and rollers shall be the materials specified in JIS G 4805 or ISO 683-17, or the alloy steel capable of obtaining the qualities equal to or superior to these.

Remarks: The qualities mean the fatigue strength, abrasion resistance, cleanliness, and uniformity of structure.

5. Common matters related to bearings

5.1 Terms and quantity symbols The terms and quantity symbols related to the bearings shall be in accordance with the following:

- (1) The terms related to the bearings shall be in accordance with the prescriptions of JIS B 0104.
- (2) The quantity symbols related to the bearings shall be in accordance with the prescriptions of JIS B 0124.

5.2 Method of graphical representation The method of graphical representation should preferably be in accordance with the prescriptions of JIS B 0005.

5.3 Measuring methods The measuring methods of the bearings shall be in accordance with the following:

- (1) The measuring methods and measuring conditions of the bearings on dimensions, rotation precision, radial internal clearances and hardnesses shall be in accordance with the prescriptions of JIS B 1515.
- (2) The measuring method of the sound pressure levels of the bearings shall be in accordance with the prescriptions of JIS B 1548.

5.4 Calculating methods of load ratings and rating lives The calculating methods of the load ratings and rating lives of the bearings shall be in accordance with the following:

- (1) The calculating methods of the basic dynamic load ratings and basic rating lives of the bearings shall be in accordance with the prescriptions of JIS B 1518.
- (2) The calculating methods of the basic static load ratings of the bearings shall be in accordance with the prescriptions of JIS B 1519.

5.5 Mounting dimensions and fits of bearings The general standards of the dimensions and fits related to mounting of the bearings at the bearing seatings and neighboring portions thereof of the shafts and housings should preferably be in accordance with the prescriptions of JIS B 1566.

5.6 Packagings The packaging materials, packaging containers and packaging methods of the bearings should preferably be in accordance with the prescriptions of JIS B 1517.

Attached Table 1. Cited standards

Standard number	Title of standard
JIS B 0005	Drawing office practice for rolling bearings
JIS B 0104	Rolling bearings — Vocabulary
JIS B 0124	Rolling bearings — Symbols for quantities
JIS B 1501	Steel balls for ball bearings
JIS B 1506	Rollers for roller bearings
JIS B 1512	Boundary dimensions for rolling bearings
JIS B 1513	Designation for rolling bearings
JIS B 1514	Tolerances for rolling bearings
JIS B 1515	Measuring methods for rolling bearings
JIS B 1516	Marking on rolling bearings and packages
JIS B 1517	Packaging of rolling bearings
JIS B 1518	Dynamic load ratings and rating life for rolling bearings
JIS B 1519	Static load ratings for rolling bearings

Attached Table 1. (cont'd)

Standard number	Title of standard
JIS B 1520	Radial internal clearance of rolling bearings
JIS B 1548	Measuring method of sound pressure levels of ball and roller bearings
JIS B 1566	Mounting dimensions and fits for rolling bearings
JIS G 4805	High carbon chromium bearing steels
ISO 683-17	Heat-treated steels, alloy steels and free-cutting steels — Part 17: Ball and roller bearing steels

Attached Table 2. Japanese Industrial Standards related to bearings

Division of standard	Standard number	Title of standard	Corresponding or related ISO standards (Informative reference)
General code	JIS B 1511	Rolling bearings — General code	
Common standards	JIS B 0005	Drawing office practice for rolling bearings	ISO 8826-1
	JIS B 0104	Rolling bearings — Vocabulary	ISO 5593
	JIS B 0124	Rolling bearings — Symbols for quantities	
	JIS B 1512	Boundary dimensions for rolling bearings	ISO 15, 104, 355, 464, 8443
	JIS B 1513	Designation for rolling bearings	ISO 10317
	JIS B 1514	Tolerances for rolling bearings	ISO 199, 492, 582
	JIS B 1515	Measuring methods for rolling bearings	ISO/TR 9274
	JIS B 1516	Marking on rolling bearings and packages	
	JIS B 1517	Packaging of rolling bearings	
	JIS B 1518	Dynamic load ratings and rating life for rolling bearings	ISO 281, TR 8646
	JIS B 1519	Static load ratings for rolling bearings	ISO 76, TR 10657
	JIS B 1520	Radial internal clearance of rolling bearings	ISO 5753
	JIS B 1548	Measuring method of sound pressure levels of ball and roller bearings	