

Chapter 12

Bearings

SUMMARY

Roller bearings have been subject to extensive world standardization efforts. Ball and cylindrical roller bearings are the most prevalent bearing types in countries using the metric system. The secretariat for the Technical Committee ISO/TC4 Rolling Bearings is held by Sweden. Its first recommendation, R15 for radial bearings boundary dimensions, was issued in 1955, and the second edition of this important standard¹ received worldwide approval in 1968. The largest ball and cylindrical roller bearing manufacturing companies in the world have adhered to the ISO recommendation, so that today a number of bearing types, produced by different manufacturing companies, can be interchanged.

The American National Standards Institute (ANSI), representing the USA position on an international level, and the American Bearing Manufacturers Association, Inc. (ABMA), are responsible for rolling element bearing standardization in the USA. These standards are published as ANSI/ABMA standards and are available from either of the above organizations.

ANSI/ABMA 20 describes metric design radial ball, cylindrical roller, and spherical roller bearings conforming to the basic boundary plans, which contain radial bearing parameters from the following international standards:

- ISO 15 (boundary dimensions)
- ISO 464 (snap rings and grooves)
- ISO 492 (tolerances)
- ISO 582 (chamfer dimensions)
- ISO 5753 (radial clearances)

Thrust bearings of ball cylindrical roller, and spherical roller types are specified in ANSI/ABMA 24.1, which covers thrust bearing parameters from the following international standards:

- ISO 104 (boundary dimensions)
- ISO 199 (thrust ball bearing tolerances)
- ISO 582 (for chamfer dimensions)

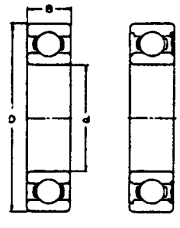
A commitment to the customary inch measuring system has caused slow progress in the world standardization of such bearing types as needle and tapered roller bearings.

The secretariat for ISO/TC123 - Plain Bearings is held by Russia, where several standards have been issued on the subject, as shown on p. 539. self-aligning bushings would fall in the category of TC 123. However, the Russians have no interest in this matter. Self-aligning bushings will be covered by TC4/SC7. Subcommittee 7 is handled by Germany.

Self-aligning bushings are now covered in the three-part standard ISO 6124, as shown on p. 542.

¹For information about the term "standard" as used in this book, please see p.12.

TABLE 12-5A WORLD BALL AND THRUST BEARING STANDARDS - DEEP GROOVE BALL BEARINGS - SINGLE ROW

STANDARDS		FIGURE	DIMENSIONS										
			BEARING TYPE BC - DIMENSION SERIES 10										
			DESIGNATION	d	D	B	r	DESIGNATION	d	D	B	r	
ISO 15			10 BC10	10	26	8	0.3	60 BC10	60	95	18	1.1	
USA ANSI/ABMA 20			12 BC10	12	28	8	0.3	65 BC10	65	100	18	1.1	
JAPAN JIS B1521			15 BC10	15	32	9	0.3	70 BC10	70	110	20	1.1	
GERMANY DIN 625			17 BC10	17	35	10	0.3	75 BC10	75	115	20	1.1	
FRANCE NF E22-300			20 BC10	20	42	12	0.6	80 BC10	80	125	22	1.1	
UK BS 292			25 BC10	25	47	12	0.6	85 BC10	85	130	22	1.1	
ITALY UNI 4473			30 BC10	30	55	13	1	90 BC10	90	140	24	1.5	
AUSTRALIA AS			35 BC10	35	62	14	1	95 BC10	95	145	24	1.5	
NOTES:				40 BC10	40	68	15	1	100 BC10	100	150	24	1.5
1. Bearing codes are according to the previous ISO/R300 standard and ANSI/ABMA 20.				45 BC10	45	75	16	1	105 BC10	105	160	26	2
2. The radii shown are $r_{s \min}$ as specified in ISO 15.				50 BC10	50	80	16	1	110 BC10	110	170	28	2
				55 BC10	55	90	18	1.1	120 BC10	120	180	28	2

mm