INTERNATIONAL STANDARD ISO 2264

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Rolling bearings — Bearings with spherical outside surface and extended inner ring width

First edition 1972-08-15

UDC 621.822.6

Ref. No. ISO 2264-1972 (E)

Descriptors : rolling bearings, ball bearings, dimensional tolerances.

Price based on 6 pages

FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up has the right to be represented on that Committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 2264 was drawn up by Technical Committee ISO/TC 4, *Rolling bearings.*

It was approved in September 1971 by the Member Bodies of the following countries :

Australia	Hungary	Spain
Austria	India	Sweden
Belgium	Ireland	Switzerland
Canada	Italy	Thailand
Czechoslovakia	Korea, Rep. of	Turkey
Egypt, Arab Rep. of	Netherlands	United Kingdom
France	Romania	U.S.S.R.
Germany	South Africa, Rep. of	

The Member Body of the following country expressed disapproval of the document on technical grounds :

Japan

Printed in Switzerland

Rolling bearings — Bearings with spherical outside surface and extended inner ring width

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the characteristics, boundary dimensions and bearing bore tolerances of rolling bearings with spherical outside surface and extended inner ring width.

These bearings have the inner ring extended on one or both sides and are fixed on the shaft for example by an eccentric locking collar or by set screws either in a concentric collar around the inner ring or directly in the inner ring.

The bearings on one shaft are as a rule mounted in two or more separate housings, which are not always perfectly aligned. The outer ring has a spherical outside surface so that the bearing may be mounted in a housing with a matching spherical seat to provide correct initial alignment.

2 REFERENCE

ISO/R 15, Part I, *Rolling bearings — Radial bearings — Boundary dimensions — General plan — Diameter series 8, 9, 0, 1, 2, 3 and 4.*

3 CHARACTERISTICS

3.1 Bore diameter

Each bearing size is made with one bore in millimetres and one or several bores in inches. The non-preferred inch bores, which are shown in parentheses in Tables 1, 2 and 3, should be avoided wherever possible.

Contrary to general rolling bearing practice the bore tolerance is on the plus side of the nominal bore diameter, in order that the bearing may be slipped over standard shafting.

3.2 Outer diameter

The outer diameter for bearings according to this International Standard corresponds (in respect of the metric bore diameter) to diameter series 2 of ISO/R 15, Part I.

3.3 Inner ring width and locking devices

The inner ring width does not conform to the requirements of ISO/R 15. It is determined by the requirements of space for sealing and locking devices and by the axial extension of shaft support considered suitable for various applications.

Where the locking device extends axially beyond the inner ring, the width over the locking device, called the overall width, and the location with respect to the outer ring centreline of the side surfaces limiting the overall width, are important dimensions and are therefore given in this International Standard.

Three overall widths are recommended. They are designated wide, intermediate and narrow overall widths. Each of the Figures 1 to 4 shows one example only of locking device design.

3.4 Outer ring width

For bearings with spherical outside surface the width of the outer ring is not important provided the range of width is known so that assembly slots in the housing may be properly dimensioned. Therefore, this International Standard gives outer ring widths which range from a minimum that conforms to dimension series 02 in ISO/R 15 to a maximum that provides sufficient space for various seals and lubrication holes.

3.5 Relubrication

Depending on the application, these bearings are supplied with or without means for relubrication, for example one or several small radial holes drilled through the outer ring. The exact design or location of such means is not given in this International Standard. It gives only the width and location of the zone which any relubrication means in the outer ring should intersect in such a way that lubricant will satisfactorily feed into the bearing from a housing bore groove covering this zone.

4 BOUNDARY DIMENSIONS

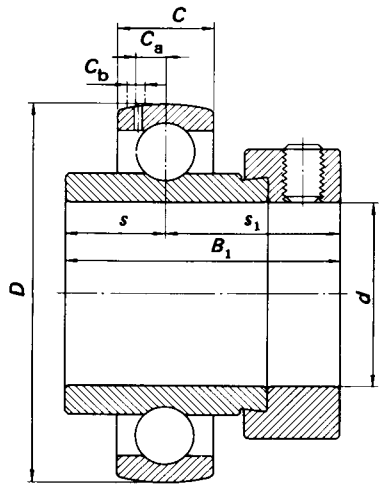

FIGURE 1 — **Bearing with eccentric locking collar — Wide overall width**

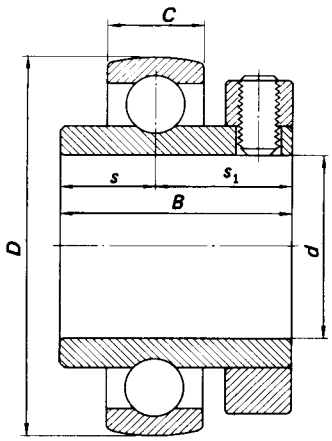

FIGURE 2 — **Bearing with concentric locking collar around the inner ring — Intermediate overall width**

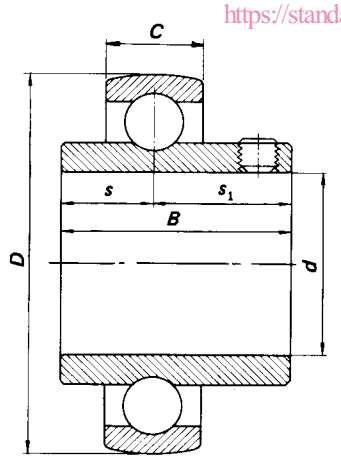

FIGURE 3 — **Bearing with set screws in the inner ring — Intermediate overall width**

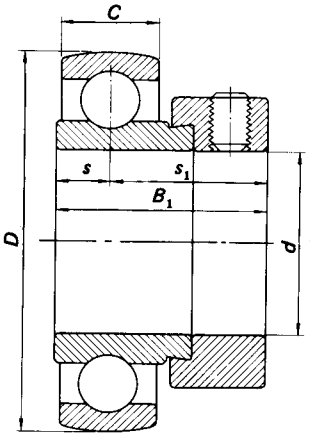

FIGURE 4 — **Bearing with eccentric locking collar — Narrow overall width**

NOTES

1 The relubrication means in the outer ring, if used, shall be located on the side of the centreline opposite the inner ring locking device, in the zone defined by the dimensions C_a and C_b (see Figure 1) in such a way that lubricant will satisfactorily feed into the bearing from a housing bore groove covering this zone.

2 The Figures are drawn schematically and sealing devices are not shown. The symbols shown in the Figures and used in Tables, 1, 2 and 3 denote nominal dimensions.

TABLE 1 — **Bearings with extended inner ring width — Diameter series 2 — Wide overall width — Axially extending locking device (Figure 1)**

Bore diameter d		D	B_1		s		s_1		C		C_a [1]	C_b [1]
									min.	max.		
mm	in	mm	mm	in	mm	in	mm	in	mm	mm	mm	mm
(12.700)	(1/2)											
(14.288)	(9/16)											
15.875	5/8	40	37.3	1.471	13.9	0.549	23.4	0.922	12	13	3.4	2
17												
(17.462)	(11/16)											
19.050	3/4	47	43.7	1.721	17.1	0.672	26.6	1.049	14	17	3.7	2
20												
(20.638)	(13/16)											
22.225	7/8											
(23.812)	(15/16)	52	44.4	1.750	17.5	0.688	26.9	1.062	15	17	3.9	2.5
25												
25.400	1											
(26.988)	(1 1/16)											
28.575	1 1/8											
30		62	48.4	1.907	18.3	0.719	30.1	1.188	16	19	5	2.5
30.162	1 3/16											
(31.750)	(1 1/4)											
31.750	1 1/4											
(33.338)	(1 5/16)											
34.925	1 3/8	72	51.1	2.015	18.8	0.742	32.3	1.273	17	20	5.7	3
35												
36.512	1 7/16											
38.100	1 1/2											
(39.688)	(1 9/16)	80	56.3	2.219	21.4	0.844	34.9	1.375	18	21	6.2	3
40												
(41.275)	(1 5/8)											
42.862	1 11/16	85	56.3	2.219	21.4	0.844	34.9	1.375	19	22	6.4	3
44.450	1 3/4											
45												
(46.038)	(1 13/16)											
(47.625)	(1 7/8)											
49.212	1 15/16	90	62.7	2.469	24.6	0.969	38.1	1.500	20	24	6.5	3.5
50												
(50.800)	(2)											
50.800	2											
(52.388)	(2 1/16)											
(53.975)	(2 1/8)	100	71.4	2.813	27.8	1.094	43.6	1.719	21	25	7	3.5
55												
55.562	2 3/16											
57.150	2 1/4											
(58.738)	(2 5/16)											
60		110	77.8	3.063	31	1.219	46.8	1.844	22	27	7.6	4
(60.325)	(2 3/8)											
61.912	2 7/16											

1) See Note 1 on page 2.

TABLE 2 — **Bearings with extended inner ring width — Diameter series 2 — Intermediate overall width — Locking device not extending axially (Figures 2 and 3)**

Bore diameter d		D	B		s		s_1		C min.	C max.	C_a [1]	C_b [1]
mm	in	mm	mm	in	mm	in	mm	in	mm	mm	mm	mm
(12.700)	(1/2)											
(14.288)	(9/16)											
15.875	5/8	40	27.4	1.078	11.5	0.453	15.9	0.625	12	13	3.4	2
17												
(17.462)	(11/16)											
19.050	3/4	47	31	1.219	12.7	0.500	18.3	0.719	14	17	3.7	2
20												
(20.638)	(13/16)											
22.225	7/8											
(23.812)	(15/16)	52	34.1	1.343	14.3	0.562	19.8	0.781	15	17	3.9	2.5
25												
25.400	1											
(26.988)	(1 1/16)											
28.575	1 1/8											
30		62	38.1	1.500	15.9	0.625	22.2	0.875	16	19	5	2.5
30.162	1 3/16											
(31.750)	(1 1/4)											
31.750	1 1/4											
(33.338)	(1 5/16)											
34.925	1 3/8	72	42.9	1.688	17.5	0.688	25.4	1.000	17	20	5.7	3
35												
36.512	1 7/16											
38.100	1 1/2											
(39.688)	(1 9/16)	80	49.2	1.938	19	0.750	30.2	1.188	18	21	6.2	3
40												
(41.275)	(1 5/8)											
42.862	1 11/16	85	49.2	1.938	19	0.750	30.2	1.188	19	22	6.4	3
44.450	1 3/4											
45												
(46.038)	(1 13/16)											
(47.625)	(1 7/8)											
49.212	1 15/16	90	51.6	2.031	19	0.750	32.6	1.281	20	24	6.5	3.5
50												
(50.800)	(2)											
50.800	2											
(52.388)	(2 1/16)											
(53.975)	(2 1/8)	100	55.6	2.187	22.2	0.875	33.4	1.312	21	25	7	3.5
55												
55.562	2 3/16											
57.150	2 1/4											
(58.738)	(2 5/16)											
60		110	65.1	2.562	25.4	1.000	39.7	1.562	22	27	7.6	4
(60.325)	(2 3/8)											
61.912	2 7/16											

1) See Note 1 on page 2.

TABLE 3 — **Bearings with extended inner ring width — Diameter series 2 — Narrow overall width — Axially extending locking device (Figure 4)**

Bore diameter d		D	B_1		s		s_1		C		C_a [1]	C_b [1]
									min.	max.		
mm	in	mm	mm	in	mm	in	mm	in	mm	mm	mm	mm
(12.700)	(1/2)											
(14.288)	(9/16)											
15.875	5/8	40	28.6	1.125	6.5	0.256	22.1	0.869	12	13	3.4	2
17												
(17.462)	(11/16)											
19.050	3/4	47	31	1.219	7.5	0.295	23.5	0.924	14	15	3.7	2
20												
(20.638)	(13/16)											
22.225	7/8											
(23.812)	(15/16)	52	31	1.219	7.5	0.295	23.5	0.924	15	15	3.9	2.5
25												
25.400	1											
(26.988)	(1 1/16)											
28.575	1 1/8											
30		62	35.7	1.406	9	0.354	26.7	1.052	16	18	5	2.5
30.162	1 3/16											
31.750	1 1/4											
(31.750)	(1 1/4)											
(33.338)	(1 5/16)											
34.925	1 3/8	72	38.9	1.531	9.5	0.374	29.4	1.157	17	19	5.7	3
35												
36.512	1 7/16											
38.100	1 1/2											
(39.688)	(1 9/16)	80	43.7	1.719	11	0.433	32.7	1.286	18	22	6.2	3
40												
(41.275)	(1 5/8)											
42.862	1 11/16	85	43.7	1.719	11	0.433	32.7	1.286	19	22	6.4	3
44.450	1 3/4											
45												
(46.038)	(1 13/16)											
(47.625)	(1 7/8)											
49.212	1 15/16	90	43.7	1.719	11	0.433	32.7	1.286	20	22	6.5	3.5
50												
50.800	2											
(50.800)	(2)											
(52.388)	(2 1/16)											
(53.975)	(2 1/8)	100	48.4	1.906	12	0.472	36.4	1.434	21	25	7	3.5
55												
55.562	2 3/16											
(57.150)	(2 1/4)											
(58.738)	(2 5/16)											
60		110	53.1	2.093	13.5	0.531	39.6	1.562	22	27	7.6	4
(60.325)	(2 3/8)											
61.912	2 7/16											

1) See Note 1 on page 2.

5 BEARING BORE TOLERANCES

Symbols

d = nominal bore diameter

Δ_{ds} = deviation of a single bore diameter

Δ_{dm} = mean bore diameter deviation

TABLE 4

d				Δ_{dm}		Δ_{ds}		Δ_{dm}		Δ_{ds}	
mm		in		μm				0.000 1 in			
over	incl.	over	incl.	high	low	high	low	high	low	high	low
10	18	0.393 7	0.708 7	+ 13	0	+ 16	− 3	+ 5	0	+ 6	− 1
18	31.750	0.708 7	1.250 0	+ 13	0	+ 16	− 3	+ 5	0	+ 6	− 1
31.750	50.800	1.250 0	2.000 0	+ 13	0	+ 18	− 5	+ 5	0	+ 7	− 2
50.800	80	2.000 0	3.149 6	+ 15	0	+ 20	− 5	+ 6	0	+ 8	− 2