

Specification for

Rolling bearings: boundary dimensions for radial bearings

[ISO title: Rolling bearings — Radial bearings — Boundary dimensions — General plan]

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Ball and Roller Bearing Manufacturers' Association	Society of British Aerospace Companies Limited
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This British Standard, having been prepared under the direction of the Mechanical Engineering Standards Committee, was published under the authority of the Board of BSI and comes into effect on 31 May 1982

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National foreword

This British Standard has been prepared under the direction of the Mechanical Engineering Standards Committee and is one of a series implementing corresponding International Standards in the development of which the United Kingdom has played an active part. It is identical with ISO 15:1981 “*Rolling bearings — Radial bearings — Boundary dimensions — General plan including Addendum 1 published in 1985*,” prepared by Technical Committee ISO/TC 4, Rolling bearings, of the International Organization for Standardization (ISO).

The standard provides a general plan for boundary dimensions of radial bearings in diameter series 7, 8, 9, 0, 1, 2, 3 and 4, the “diameter series” reference relating to different combinations of nominal bore diameters and nominal outside diameters. Series 7 provides the lightest radial sectioned bearings and, at the other extreme, series 4 provides the heaviest. For each combination of bore and outside diameter, there is a selection of bearing widths and the complete boundary dimensions of a bearing are identified by “dimension series” references, e.g. 00, 10, 20, 30, 40, 50 and 60. The right-hand numeral of each pair is the “diameter series” (0) and the other numeral indicates width series of bearings, advancing from narrow bearings to very wide bearings.

Due account of the international agreement contained in this standard was taken during the preparation of BS 292 “*Rolling bearings: ball bearings, cylindrical and spherical roller bearings*” Part 1:1982 “*Specification for dimensions of ball bearings, cylindrical and spherical roller bearings (metric series)*”. All the bearings given in BS 292-1 comply with dimension series which form part of the general plan for boundary dimensions covered by this standard.

Terminology and conventions. The text of the International Standard has been approved as suitable for publication as a British Standard without deviation. Some terminology and certain conventions are not identical with those used in British Standards; attention is drawn especially to the following.

The comma has been used as a decimal marker. In British Standards it is current practice to use a full point on the baseline as the decimal marker.

Wherever the words “International Standard” appear, referring to this standard, they should be read as “British Standard”.

Cross-references

International Standards	Corresponding British Standards
ISO 3:1973	BS 2045:1965 <i>Preferred numbers</i> (Technically equivalent)
ISO 582:1979	BS 5988:1980 <i>Specification for minimum and maximum chamfer dimensions of metric series rolling bearings</i> (Identical)

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 16, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

0 Introduction

The object of the general plan is to restrict the number of radial bearing sizes enough to ensure economic production and yet to provide a sufficient number of sizes to satisfy present and future needs of bearing users. These needs are very comprehensive and varying. Therefore the plan has to embrace a wide range of numerically determined sizes and proportions and may even be extended by ISO in accordance with the rules given in the Annex.

1 Scope and field of application

This International Standard lays down preferred boundary dimensions for radial bearings.

The tapered roller bearings, insert bearings and some types of needle roller bearings standardized by ISO do not conform with this general plan since the dimensions given were not found optimal for the bearings in question.

As all bearings of the dimensions given in the general plan may not be in production at any particular time, it is advisable for users to approach bearing manufacturers during the early stages of design for information regarding availability of the bearings.

The chamfer dimensions given in Table 1 to Table 8 do not necessarily apply to

- a) the groove side of bearing rings with snap ring groove;
- b) the non-rib side of thin cylindrical roller bearing rings;
- c) the non-thrust side of angular contact bearing rings;
- d) inner rings of bearings with tapered bore.

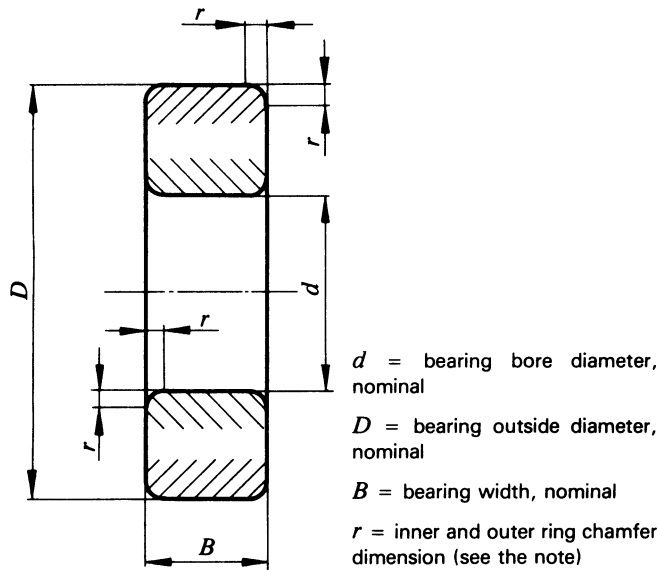
The general plan does not contain any recommendations pertaining to the internal design of bearings.

2 References

ISO 3, *Preferred numbers — Series of preferred numbers*.

ISO 582, *Rolling bearings — Metric series — Chamfer dimension limits*.

3 Symbols



NOTE The values for inner and outer ring chamfer dimensions given in the plan are minimum limits, $r_{s\ min}$. The corresponding maximum limits are given in ISO 582.
The exact shape of the chamfer surface is not specified, but its contour in an axial plane shall not be allowed to project beyond the imaginary circular arc of radius $r_{s\ min}$, tangential to the ring face and the bore or outside cylindrical surface of the ring.

4 Boundary dimensions

Table 1 — Diameter series 7

Dimensions in millimetres

d	D	Dimension series		
		17	37	17 and 37
		B		$r_{s\ min}$
0,6	2	0,8	—	0,05
1	2,5	1	—	0,05
1,5	3	1	1,8	0,05
2	4	1,2	2	0,05
2,5	5	1,5	2,3	0,08
3	6	2	3	0,08
4	7	2	3	0,08
5	8	2	3	0,08
6	10	2,5	3,5	0,1
7	11	2,5	3,5	0,1
8	12	2,5	3,5	0,1
9	14	3	4,5	0,1
10	15	3	4,5	0,1
12	18	4	5	0,2
15	21	4	5	0,2
17	23	4	5	0,2
20	27	4	5	0,2
25	32	4	5	0,2
30	37	4	5	0,2

Table 2 — Diameter series 8

Dimensions in millimetres

<i>d</i>	<i>D</i>	Dimension series								
		08	18	28	38	48	58	68	08	18-68
		<i>B</i>								<i>r_s min</i>
0,6	2,5	—	1	—	1,4	—	—	—	—	0,05
1	3	—	1	—	1,5	—	—	—	—	0,05
1,5	4	—	1,2	—	2	—	—	—	—	0,05
2	5	—	1,5	—	2,3	—	—	—	—	0,08
2,5	6	—	1,8	—	2,6	—	—	—	—	0,08
3	7	—	2	—	3	—	—	—	—	0,1
4	9	—	2,5	3,5	4	—	—	—	—	0,1
5	11	—	3	4	5	—	—	—	—	0,15
6	13	—	3,5	5	6	—	—	—	—	0,15
7	14	—	3,5	5	6	—	—	—	—	0,15
8	16	—	4	5	6	8	—	—	—	0,2
9	17	—	4	5	6	8	—	—	—	0,2
10	19	—	5	6	7	9	—	—	—	0,3
12	21	—	5	6	7	9	—	—	—	0,3
15	24	—	5	6	7	9	—	—	—	0,3
17	26	—	5	6	7	9	—	—	—	0,3
20	32	4	7	8	10	12	16	22	0,3	0,3
22	34	4	7	—	10	—	16	22	0,3	0,3
25	37	4	7	8	10	12	16	22	0,3	0,3
28	40	4	7	—	10	—	16	22	0,3	0,3
30	42	4	7	8	10	12	16	22	0,3	0,3
32	44	4	7	—	10	—	16	22	0,3	0,3
35	47	4	7	8	10	12	16	22	0,3	0,3
40	52	4	7	8	10	12	16	22	0,3	0,3
45	58	4	7	8	10	13	18	23	0,3	0,3
50	65	5	7	10	12	15	20	27	0,3	0,3
55	72	7	9	11	13	17	23	30	0,3	0,3
60	78	7	10	12	14	18	24	32	0,3	0,3
65	85	7	10	13	15	20	27	36	0,3	0,6
70	90	8	10	13	15	20	27	36	0,3	0,6
75	95	8	10	13	15	20	27	36	0,3	0,6
80	100	8	10	13	15	20	27	36	0,3	0,6
85	110	9	13	16	19	25	34	45	0,3	1
90	115	9	13	16	19	25	34	45	0,3	1
95	120	9	13	16	19	25	34	45	0,3	1
100	125	9	13	16	19	25	34	45	0,3	1
105	130	9	13	16	19	25	34	45	0,3	1
110	140	10	16	19	23	30	40	54	0,6	1
120	150	10	16	19	23	30	40	54	0,6	1
130	165	11	18	22	26	35	46	63	0,6	1,1
140	175	11	18	22	26	35	46	63	0,6	1,1
150	190	13	20	24	30	40	54	71	0,6	1,1
160	200	13	20	24	30	40	54	71	0,6	1,1
170	215	14	22	27	34	45	60	80	0,6	1,1
180	225	14	22	27	34	45	60	80	0,6	1,1