

BS ISO 15:2011



BSI Standards Publication

Rolling bearings — Radial bearings — Boundary dimensions, general plan

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National foreword

This British Standard is the UK implementation of ISO 15:2011. It supersedes BS ISO 15:1998 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee MCE/7, Rolling bearings.

A list of organizations represented on this committee can be obtained on request to its secretary.

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ISBN 978 0 580 69098 3

ICS 21.100.20

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 March 2011.

Amendments issued since publication

Date	Text affected
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INTERNATIONAL STANDARD

BS ISO 15:2011

ISO
15

Third edition
2011-03-01

Rolling bearings — Radial bearings — Boundary dimensions, general plan

*Roulements — Roulements radiaux — Dimensions d'encombrement,
plan général*



Reference number
ISO 15:2011(E)

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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 15 was prepared by Technical Committee ISO/TC 4, *Rolling bearings*.

This third edition cancels and replaces the second edition (ISO 15:1998), of which it constitutes a minor revision, mainly to update references and terminology.

Introduction

The object of the general plan (this International Standard) is to restrict the number of radial bearing sizes enough to ensure economic production, yet to provide a sufficient number of sizes to satisfy present and future needs of bearing users.

These needs are comprehensive and varying. Therefore, the general plan needs to embrace a wide range of numerically determined sizes and proportions and can even be extended according to the guidelines given in Annex A.

Tapered roller bearings, insert bearings and some types of needle roller bearings and instrument precision bearings standardized by ISO do not conform to this International Standard because the dimensions given are not found to be optimal for the bearings in question.

Rolling bearings — Radial bearings — Boundary dimensions, general plan

1 Scope

This International Standard specifies preferred boundary dimensions for radial bearings of the diameter series 7, 8, 9, 0, 1, 2, 3 and 4.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 464, *Rolling bearings — Radial bearings with locating snap ring — Dimensions and tolerances*

ISO 582, *Rolling bearings — Chamfer dimensions — Maximum values*

ISO 5593, *Rolling bearings — Vocabulary*

ISO 12043, *Rolling bearings — Single-row cylindrical roller bearings — Chamfer dimensions for loose rib and non-rib sides*

ISO 12044, *Rolling bearings — Single-row angular contact ball bearings — Chamfer dimensions for outer ring non-thrust side*

ISO 15241, *Rolling bearings — Symbols for quantities*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 5593 apply.

4 Symbols

For the purposes of this document, the symbols given in ISO 15241 and the following apply.

The symbols shown in Figure 1 and given in Tables 1 to 8 denote nominal dimensions, unless specified otherwise.

B	bearing width
D	bearing outside diameter
d	bearing bore diameter
r	chamfer dimension
$r_{s \min}$	smallest single chamfer dimension

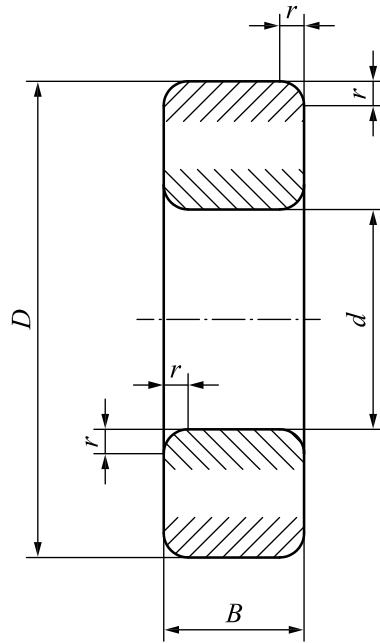


Figure 1 — Radial bearing

5 Boundary dimensions

Boundary dimensions for radial bearings of the diameter series 7, 8, 9, 0, 1, 2, 3 and 4 are given in Tables 1 to 8.

The chamfer dimensions given in Tables 1 to 8 do not always apply to:

- the groove side of bearing rings with snap ring groove; these are specified in ISO 464;
- the loose rib and the non-rib sides of cylindrical roller bearing rings; the exceptions are specified in ISO 12043;
- the non-thrust side of angular contact bearing outer rings; these are specified in ISO 12044.

Chamfer dimension, r , applies at the corners indicated in Figure 1 and is specified with $r_{s\ min}$ in Tables 1 to 8.

The chamfer dimensions for inner rings of bearings with tapered bore may be smaller than those shown in Tables 1 to 8.

The corresponding largest single chamfer dimensions to the $r_{s\ min}$ dimensions in Tables 1 to 8 are given in ISO 582.

Table 1 — Diameter series 7

Dimensions in millimetres

<i>d</i>	<i>D</i>	Dimension series				<i>r</i> _s min
		17	27	37	47	
		<i>B</i>				
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	1,8	2,3	—	0,08
3	6	2	2,5	3	—	0,08
4	7	2	2,5	3	—	0,08
5	8	2	2,5	3	—	0,08
6	10	2,5	3	3,5	—	0,1
7	11	2,5	3	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	7	0,2
22	30	4	—	5	7	0,2
25	32	4	—	5	7	0,2
28	35	4	—	5	7	0,2
30	37	4	—	5	7	0,2
32	40	4	—	6	8	0,2
35	44	5	—	7	9	0,3
40	50	6	—	8	10	0,3
45	55	6	—	8	10	0,3
50	62	6	—	10	12	0,3
55	68	7	—	10	13	0,3
60	75	7	—	12	15	0,3
65	80	7	—	12	15	0,3
70	85	7	—	12	15	0,3
75	90	7	—	12	15	0,3
80	95	7	—	12	15	0,3
85	105	10	—	15	—	0,6
90	110	10	—	15	—	0,6
95	115	10	—	15	—	0,6
100	120	10	—	15	—	0,6
105	125	10	—	15	—	0,6
110	135	13	—	19	—	1
120	145	13	—	19	—	1
130	160	16	—	23	—	1
140	170	16	—	23	—	1
150	180	16	—	23	—	1
160	190	16	—	23	—	1
170	200	16	—	23	—	1
180	215	18	—	26	—	1,1
190	230	20	—	30	—	1,1
200	240	20	—	30	—	1,1

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

Table 2 (continued)

Dimensions in millimetres

<i>d</i>	<i>D</i>	Dimension series								
		08	18	28	38	48	58	68	08	18 to 68
		<i>B</i>							<i>r_s min</i>	
190	240	16	24	30	37	50	67	90	1	1,5
200	250	16	24	30	37	50	67	90	1	1,5
220	270	16	24	30	37	50	67	90	1	1,5
240	300	19	28	36	45	60	80	109	1	2
260	320	19	28	36	45	60	80	109	1	2
280	350	22	33	42	52	69	95	125	1,1	2
300	380	25	38	48	60	80	109	145	1,5	2,1
320	400	25	38	48	60	80	109	145	1,5	2,1
340	420	25	38	48	60	80	109	145	1,5	2,1
360	440	25	38	48	60	80	109	145	1,5	2,1
380	480	31	46	60	75	100	136	180	2	2,1
400	500	31	46	60	75	100	136	180	2	2,1
420	520	31	46	60	75	100	136	180	2	2,1
440	540	31	46	60	75	100	136	180	2	2,1
460	580	37	56	72	90	118	160	218	2,1	3
480	600	37	56	72	90	118	160	218	2,1	3
500	620	37	56	72	90	118	160	218	2,1	3
530	650	37	56	72	90	118	160	218	2,1	3
560	680	37	56	72	90	118	160	218	2,1	3
600	730	42	60	78	98	128	175	236	3	3
630	780	48	69	88	112	150	200	272	3	4
670	820	48	69	88	112	150	200	272	3	4
710	870	50	74	95	118	160	218	290	4	4
750	920	54	78	100	128	170	230	308	4	5
800	980	57	82	106	136	180	243	325	4	5
850	1 030	57	82	106	136	180	243	325	4	5
900	1 090	60	85	112	140	190	258	345	5	5
950	1 150	63	90	118	150	200	272	355	5	5
1 000	1 220	71	100	128	165	218	300	400	5	6
1 060	1 280	71	100	128	165	218	300	400	5	6
1 120	1 360	78	106	140	180	243	325	438	5	6
1 180	1 420	78	106	140	180	243	325	438	5	6
1 250	1 500	80	112	145	185	250	335	450	6	6
1 320	1 600	88	122	165	206	280	375	500	6	6
1 400	1 700	95	132	175	224	300	400	545	6	7,5
1 500	1 820	—	140	185	243	315	—	—	—	7,5
1 600	1 950	—	155	200	265	345	—	—	—	7,5
1 700	2 060	—	160	206	272	355	—	—	—	7,5
1 800	2 180	—	165	218	290	375	—	—	—	9,5
1 900	2 300	—	175	230	300	400	—	—	—	9,5
2 000	2 430	—	190	250	325	425	—	—	—	9,5

Table 3 — Diameter series 9

Dimensions in millimetres

<i>d</i>	<i>D</i>	Dimension series									
		09	19	29	39	49	59	69	09	19 to 39	49 to 69
		<i>B</i>							<i>r</i> 's min		
1	4	—	1,6	—	2,3	—	—	—	—	0,1	—
1,5	5	—	2	—	2,6	—	—	—	—	0,15	—
2	6	—	2,3	—	3	—	—	—	—	0,15	—
2,5	7	—	2,5	—	3,5	—	—	—	—	0,15	—
3	8	—	3	—	4	—	—	—	—	0,15	—
4	11	—	4	—	5	—	—	—	—	0,15	—
5	13	—	4	—	6	10	—	—	—	0,2	0,15
6	15	—	5	—	7	10	—	—	—	0,2	0,15
7	17	—	5	—	7	10	—	—	—	0,3	0,15
8	19	—	6	—	9	11	—	—	—	0,3	0,2
9	20	—	6	—	9	11	—	—	—	0,3	0,3
10	22	—	6	8	10	13	16	22	—	0,3	0,3
12	24	—	6	8	10	13	16	22	—	0,3	0,3
15	28	—	7	8,5	10	13	18	23	—	0,3	0,3
17	30	—	7	8,5	10	13	18	23	—	0,3	0,3
20	37	7	9	11	13	17	23	30	0,3	0,3	0,3
22	39	7	9	11	13	17	23	30	0,3	0,3	0,3
25	42	7	9	11	13	17	23	30	0,3	0,3	0,3
28	45	7	9	11	13	17	23	30	0,3	0,3	0,3
30	47	7	9	11	13	17	23	30	0,3	0,3	0,3
32	52	7	10	13	15	20	27	36	0,3	0,6	0,6
35	55	7	10	13	15	20	27	36	0,3	0,6	0,6
40	62	8	12	14	16	22	30	40	0,3	0,6	0,6
45	68	8	12	14	16	22	30	40	0,3	0,6	0,6
50	72	8	12	14	16	22	30	40	0,3	0,6	0,6
55	80	9	13	16	19	25	34	45	0,3	1	1
60	85	9	13	16	19	25	34	45	0,3	1	1
65	90	9	13	16	19	25	34	45	0,3	1	1
70	100	10	16	19	23	30	40	54	0,6	1	1
75	105	10	16	19	23	30	40	54	0,6	1	1
80	110	10	16	19	23	30	40	54	0,6	1	1
85	120	11	18	22	26	35	46	63	0,6	1,1	1,1
90	125	11	18	22	26	35	46	63	0,6	1,1	1,1
95	130	11	18	22	26	35	46	63	0,6	1,1	1,1
100	140	13	20	24	30	40	54	71	0,6	1,1	1,1
105	145	13	20	24	30	40	54	71	0,6	1,1	1,1
110	150	13	20	24	30	40	54	71	0,6	1,1	1,1
120	165	14	22	27	34	45	60	80	0,6	1,1	1,1
130	180	16	24	30	37	50	67	90	1	1,5	1,5
140	190	16	24	30	37	50	67	90	1	1,5	1,5
150	210	19	28	36	45	60	80	109	1	2	2
160	220	19	28	36	45	60	80	109	1	2	2
170	230	19	28	36	45	60	80	109	1	2	2
180	250	22	33	42	52	69	95	125	1,1	2	2

Table 3 (continued)

Dimensions in millimetres

<i>d</i>	<i>D</i>	Dimension series									
		09	19	29	39	49	59	69	09	19 to 39	49 to 69
		<i>B</i>							<i>r</i> 's min		
190	260	22	33	42	52	69	95	125	1,1	2	2
200	280	25	38	48	60	80	109	145	1,5	2,1	2,1
220	300	25	38	48	60	80	109	145	1,5	2,1	2,1
240	320	25	38	48	60	80	109	145	1,5	2,1	2,1
260	360	31	46	60	75	100	136	180	2	2,1	2,1
280	380	31	46	60	75	100	136	180	2	2,1	2,1
300	420	37	56	72	90	118	160	218	2,1	3	3
320	440	37	56	72	90	118	160	218	2,1	3	3
340	460	37	56	72	90	118	160	218	2,1	3	3
360	480	37	56	72	90	118	160	218	2,1	3	3
380	520	44	65	82	106	140	190	250	3	4	4
400	540	44	65	82	106	140	190	250	3	4	4
420	560	44	65	82	106	140	190	250	3	4	4
440	600	50	74	95	118	160	218	290	4	4	4
460	620	50	74	95	118	160	218	290	4	4	4
480	650	54	78	100	128	170	230	308	4	5	5
500	670	54	78	100	128	170	230	308	4	5	5
530	710	57	82	106	136	180	243	325	4	5	5
560	750	60	85	112	140	190	258	345	5	5	5
600	800	63	90	118	150	200	272	355	5	5	5
630	850	71	100	128	165	218	300	400	5	6	6
670	900	73	103	136	170	230	308	412	5	6	6
710	950	78	106	140	180	243	325	438	5	6	6
750	1 000	80	112	145	185	250	335	450	6	6	6
800	1 060	82	115	150	195	258	355	462	6	6	6
850	1 120	85	118	155	200	272	365	488	6	6	6
900	1 180	88	122	165	206	280	375	500	6	6	6
950	1 250	95	132	175	224	300	400	545	6	7,5	7,5
1 000	1 320	103	140	185	236	315	438	580	6	7,5	7,5
1 060	1 400	109	150	195	250	335	462	615	7,5	7,5	7,5
1 120	1 460	109	150	195	250	335	462	615	7,5	7,5	7,5
1 180	1 540	115	160	206	272	355	488	650	7,5	7,5	7,5
1 250	1 630	122	170	218	280	375	515	690	7,5	7,5	7,5
1 320	1 720	128	175	230	300	400	545	710	7,5	7,5	7,5
1 400	1 820	—	185	243	315	425	—	—	—	9,5	9,5
1 500	1 950	—	195	258	335	450	—	—	—	9,5	9,5
1 600	2 060	—	200	265	345	462	—	—	—	9,5	9,5
1 700	2 180	—	212	280	355	475	—	—	—	9,5	9,5
1 800	2 300	—	218	290	375	500	—	—	—	12	12
1 900	2 430	—	230	308	400	530	—	—	—	12	12

Table 4 — Diameter series 0

Dimensions in millimetres

<i>d</i>	<i>D</i>	Dimension series									
		00	10	20	30	40	50	60	00	10 to 60	
		<i>B</i>							<i>r</i> 's min		
1,5	6	—	2,5	—	3	—	—	—	—	—	0,15
2	7	—	2,8	—	3,5	—	—	—	—	—	0,15
2,5	8	—	2,8	—	4	—	—	—	—	—	0,15
3	9	—	3	—	5	—	—	—	—	—	0,15
4	12	—	4	—	6	—	—	—	—	—	0,2
5	14	—	5	—	7	—	—	—	—	—	0,2
6	17	—	6	—	9	—	—	—	—	—	0,3
7	19	—	6	8	10	—	—	—	—	—	0,3
8	22	—	7	9	11	14	19	25	—	—	0,3
9	24	—	7	10	12	15	20	27	—	—	0,3
10	26	—	8	10	12	16	21	29	—	—	0,3
12	28	7	8	10	12	16	21	29	0,3	—	0,3
15	32	8	9	11	13	17	23	30	0,3	—	0,3
17	35	8	10	12	14	18	24	32	0,3	—	0,3
20	42	8	12	14	16	22	30	40	0,3	—	0,6
22	44	8	12	14	16	22	30	40	0,3	—	0,6
25	47	8	12	14	16	22	30	40	0,3	—	0,6
28	52	8	12	15	18	24	32	43	0,3	—	0,6
30	55	9	13	16	19	25	34	45	0,3	—	1
32	58	9	13	16	20	26	35	47	0,3	—	1
35	62	9	14	17	20	27	36	48	0,3	—	1
40	68	9	15	18	21	28	38	50	0,3	—	1
45	75	10	16	19	23	30	40	54	0,6	—	1
50	80	10	16	19	23	30	40	54	0,6	—	1
55	90	11	18	22	26	35	46	63	0,6	—	1,1
60	95	11	18	22	26	35	46	63	0,6	—	1,1
65	100	11	18	22	26	35	46	63	0,6	—	1,1
70	110	13	20	24	30	40	54	71	0,6	—	1,1
75	115	13	20	24	30	40	54	71	0,6	—	1,1
80	125	14	22	27	34	45	60	80	0,6	—	1,1
85	130	14	22	27	34	45	60	80	0,6	—	1,1
90	140	16	24	30	37	50	67	90	1	—	1,5
95	145	16	24	30	37	50	67	90	1	—	1,5
100	150	16	24	30	37	50	67	90	1	—	1,5
105	160	18	26	33	41	56	75	100	1	—	2
110	170	19	28	36	45	60	80	109	1	—	2
120	180	19	28	36	46	60	80	109	1	—	2
130	200	22	33	42	52	69	95	125	1,1	—	2
140	210	22	33	42	53	69	95	125	1,1	—	2
150	225	24	35	45	56	75	100	136	1,1	—	2,1
160	240	25	38	48	60	80	109	145	1,5	—	2,1
170	260	28	42	54	67	90	122	160	1,5	—	2,1
180	280	31	46	60	74	100	136	180	2	—	2,1

Table 4 (continued)

Dimensions in millimetres

<i>d</i>	<i>D</i>	Dimension series								
		00	10	20	30	40	50	60	00	10 to 60
		<i>B</i>							<i>r</i> _s min	
190	290	31	46	60	75	100	136	180	2	2,1
200	310	34	51	66	82	109	150	200	2	2,1
220	340	37	56	72	90	118	160	218	2,1	3
240	360	37	56	72	92	118	160	218	2,1	3
260	400	44	65	82	104	140	190	250	3	4
280	420	44	65	82	106	140	190	250	3	4
300	460	50	74	95	118	160	218	290	4	4
320	480	50	74	95	121	160	218	290	4	4
340	520	57	82	106	133	180	243	325	4	5
360	540	57	82	106	134	180	243	325	4	5
380	560	57	82	106	135	180	243	325	4	5
400	600	63	90	118	148	200	272	355	5	5
420	620	63	90	118	150	200	272	355	5	5
440	650	67	94	122	157	212	280	375	5	6
460	680	71	100	128	163	218	300	400	5	6
480	700	71	100	128	165	218	300	400	5	6
500	720	71	100	128	167	218	300	400	5	6
530	780	80	112	145	185	250	335	450	6	6
560	820	82	115	150	195	258	355	462	6	6
600	870	85	118	155	200	272	365	488	6	6
630	920	92	128	170	212	290	388	515	6	7,5
670	980	100	136	180	230	308	425	560	6	7,5
710	1 030	103	140	185	236	315	438	580	6	7,5
750	1 090	109	150	195	250	335	462	615	7,5	7,5
800	1 150	112	155	200	258	345	475	630	7,5	7,5
850	1 220	118	165	212	272	365	500	670	7,5	7,5
900	1 280	122	170	218	280	375	515	690	7,5	7,5
950	1 360	132	180	236	300	412	560	730	7,5	7,5
1 000	1 420	136	185	243	308	412	560	750	7,5	7,5
1 060	1 500	140	195	250	325	438	600	800	9,5	9,5
1 120	1 580	145	200	265	345	462	615	825	9,5	9,5
1 180	1 660	155	212	272	355	475	650	875	9,5	9,5
1 250	1 750	—	218	290	375	500	—	—	—	9,5
1 320	1 850	—	230	300	400	530	—	—	—	12
1 400	1 950	—	243	315	412	545	—	—	—	12
1 500	2 120	—	272	355	462	615	—	—	—	12
1 600	2 240	—	280	365	475	630	—	—	—	12
1 700	2 360	—	290	375	500	650	—	—	—	15
1 800	2 500	—	308	400	530	690	—	—	—	15

Table 5 — Diameter series 1

Dimensions in millimetres

<i>d</i>	<i>D</i>	Dimension series									
		01	11	21	31	41	51	61	01	11 to 61	
		<i>B</i>							<i>r</i> 's min		
5	15	—	—	—	7	—	—	—	—	—	0,3
6	18	—	—	8	10	—	—	—	—	—	0,3
7	21	—	—	9	11	14	19	25	—	—	0,3
8	23	—	—	10	12	15	20	27	—	—	0,3
9	25	—	—	10	12	16	21	29	—	—	0,3
10	28	—	—	12	14	18	24	32	—	—	0,3
12	30	—	—	12	14	18	24	32	—	—	0,3
15	33	—	—	12	14	18	24	32	—	—	0,3
17	37	—	—	13	15	20	27	36	—	—	0,6
20	44	—	—	15	18	24	32	43	—	—	0,6
22	47	—	—	16	19	25	34	45	—	—	1
25	50	—	—	16	19	25	34	45	—	—	1
28	55	—	—	17	20	27	36	48	—	—	1
30	58	—	—	18	21	28	38	50	—	—	1
32	62	—	—	19	23	30	40	54	—	—	1
35	68	—	—	21	25	33	43	60	—	—	1,1
40	75	—	—	22	26	35	46	63	—	—	1,1
45	80	—	—	22	26	35	46	63	—	—	1,1
50	85	—	—	22	26	35	46	63	—	—	1,1
55	95	—	—	24	30	40	54	71	—	—	1,1
60	100	—	—	24	30	40	54	71	—	—	1,1
65	110	—	—	27	34	45	60	80	—	—	1,5
70	115	—	—	27	34	45	60	80	—	—	1,5
75	125	—	—	30	37	50	67	90	—	—	1,5
80	130	—	—	30	37	50	67	90	—	—	1,5
85	140	—	—	31	41	56	75	100	—	—	1,5
90	150	—	—	33	45	60	80	109	—	—	2
95	160	—	—	39	52	65	88	118	—	—	2
100	165	21	30	39	52	65	88	118	1,1	—	2
105	175	22	33	42	56	69	95	125	1,1	—	2
110	180	22	33	42	56	69	95	125	1,1	—	2
120	200	25	38	48	62	80	109	145	1,5	—	2
130	210	25	38	48	64	80	109	145	1,5	—	2
140	225	27	40	50	68	85	115	155	1,5	—	2,1
150	250	31	46	60	80	100	136	180	2	—	2,1
160	270	34	51	66	86	109	150	200	2	—	2,1
170	280	34	51	66	88	109	150	200	2	—	2,1
180	300	37	56	72	96	118	160	218	2,1	—	3
190	320	42	60	78	104	128	175	236	3	—	3
200	340	44	65	82	112	140	190	250	3	—	3
220	370	48	69	88	120	150	200	272	3	—	4
240	400	50	74	95	128	160	218	290	4	—	4
260	440	57	82	106	144	180	243	325	4	—	4
280	460	57	82	106	146	180	243	325	4	—	5
300	500	63	90	118	160	200	272	355	5	—	5

Table 5 (continued)

Dimensions in millimetres

<i>d</i>	<i>D</i>	Dimension series								
		01	11	21	31	41	51	61	01	11 to 61
		<i>B</i>							<i>r_s min</i>	
320	540	71	100	128	176	218	300	400	5	5
340	580	78	106	140	190	243	325	438	5	5
360	600	78	106	140	192	243	325	438	5	5
380	620	78	106	140	194	243	325	438	5	5
400	650	80	112	145	200	250	335	450	6	6
420	700	88	122	165	224	280	375	500	6	6
440	720	88	122	165	226	280	375	500	6	6
460	760	95	132	175	240	300	400	545	6	7,5
480	790	100	136	180	248	308	425	560	6	7,5
500	830	106	145	190	264	325	450	600	7,5	7,5
530	870	109	150	195	272	335	462	615	7,5	7,5
560	920	115	160	206	280	355	488	650	7,5	7,5
600	980	122	170	218	300	375	515	690	7,5	7,5
630	1 030	128	175	230	315	400	545	710	7,5	7,5
670	1 090	136	185	243	336	412	560	750	7,5	7,5
710	1 150	140	195	250	345	438	600	800	9,5	9,5
750	1 220	150	206	272	365	475	630	—	9,5	9,5
800	1 280	155	212	272	375	475	650	—	9,5	9,5
850	1 360	165	224	290	400	500	690	—	12	12
900	1 420	165	230	300	412	515	710	—	12	12
950	1 500	175	243	315	438	545	750	—	12	12
1 000	1 580	185	258	335	462	580	775	—	12	12
1 060	1 660	190	265	345	475	600	800	—	12	15
1 120	1 750	—	280	365	475	630	—	—	—	15
1 180	1 850	—	290	388	500	670	—	—	—	15
1 250	1 950	—	308	400	530	710	—	—	—	15
1 320	2 060	—	325	425	560	750	—	—	—	15
1 400	2 180	—	345	450	580	775	—	—	—	19
1 500	2 300	—	355	462	600	800	—	—	—	19

Table 6 — Diameter series 2

Dimensions in millimetres

<i>d</i>	<i>D</i>	Dimension series									
		82	02	12	22	32	42	52	62	82	02 to 62
		<i>B</i>								<i>r_s min</i>	
3	10	2,5	4	—	—	5	—	—	—	0,1	0,15
4	13	3	5	—	—	7	—	—	—	0,15	0,2
5	16	3,5	5	—	—	8	—	—	—	0,15	0,3
6	19	4	6	—	—	10	—	18	23	0,2	0,3
7	22	5	7	—	—	11	—	20	27	0,3	0,3
8	24	5	8	—	—	12	—	21	29	0,3	0,3
9	26	6	8	—	—	13	—	23	30	0,3	0,3
10	30	7	9	—	14	14,3	—	27	36	0,3	0,6
12	32	7	10	—	14	15,9	—	27	36	0,3	0,6
15	35	8	11	—	14	15,9	20	27	36	0,3	0,6
17	40	8	12	—	16	17,5	22	30	40	0,3	0,6
20	47	9	14	—	18	20,6	27	36	48	0,3	1
22	50	9	14	—	18	20,6	27	36	48	0,3	1
25	52	10	15	—	18	20,6	27	36	48	0,3	1
28	58	10	16	—	19	23	30	40	54	0,6	1
30	62	10	16	—	20	23,8	32	43	58	0,6	1
32	65	11	17	—	21	25	33	43	60	0,6	1
35	72	12	17	—	23	27	37	50	67	0,6	1,1
40	80	13	18	—	23	30,2	40	54	71	0,6	1,1
45	85	13	19	—	23	30,2	40	54	71	0,6	1,1
50	90	13	20	—	23	30,2	40	54	71	0,6	1,1
55	100	14	21	—	25	33,3	45	60	80	0,6	1,5
60	110	16	22	—	28	36,5	50	67	90	1	1,5
65	120	18	23	—	31	38,1	56	75	100	1	1,5
70	125	18	24	—	31	39,7	56	75	100	1	1,5
75	130	18	25	—	31	41,3	56	75	100	1	1,5
80	140	19	26	—	33	44,4	60	80	109	1	2
85	150	21	28	—	36	49,2	65	88	118	1,1	2
90	160	22	30	—	40	52,4	69	95	125	1,1	2
95	170	24	32	—	43	55,6	75	100	136	1,1	2,1
100	180	25	34	—	46	60,3	80	109	145	1,5	2,1
105	190	27	36	—	50	65,1	85	115	155	1,5	2,1
110	200	28	38	—	53	69,8	90	122	160	1,5	2,1
120	215	—	40	42	58	76	95	128	170	—	2,1
130	230	—	40	46	64	80	100	136	180	—	3
140	250	—	42	50	68	88	109	150	200	—	3
150	270	—	45	54	73	96	118	160	218	—	3
160	290	—	48	58	80	104	128	175	236	—	3
170	310	—	52	62	86	110	140	190	250	—	4
180	320	—	52	62	86	112	140	190	250	—	4
190	340	—	55	65	92	120	150	200	272	—	4
200	360	—	58	70	98	128	160	218	290	—	4
220	400	—	65	78	108	144	180	243	325	—	4
240	440	—	72	85	120	160	200	272	355	—	4
260	480	—	80	90	130	174	218	300	400	—	5

Table 6 (continued)

Dimensions in millimetres

<i>d</i>	<i>D</i>	Dimension series									
		82	02	12	22	32	42	52	62	82	02 to 62
		<i>B</i>									
280	500	—	80	90	130	176	218	300	400	—	5
300	540	—	85	98	140	192	243	325	438	—	5
320	580	—	92	105	150	208	258	355	462	—	5
340	620	—	92	118	165	224	280	375	500	—	6
360	650	—	95	122	170	232	290	388	515	—	6
380	680	—	95	132	175	240	300	400	545	—	6
400	720	—	103	140	185	256	315	438	580	—	6
420	760	—	109	150	195	272	335	462	615	—	7,5
440	790	—	112	155	200	280	345	475	630	—	7,5
460	830	—	118	165	212	296	365	500	670	—	7,5
480	870	—	125	170	224	310	388	530	710	—	7,5
500	920	—	136	185	243	336	412	560	750	—	7,5
530	980	—	145	200	258	355	450	600	—	—	9,5
560	1 030	—	150	206	272	365	475	630	—	—	9,5
600	1 090	—	155	212	280	388	488	670	—	—	9,5
630	1 150	—	165	230	300	412	515	710	—	—	12
670	1 220	—	175	243	315	438	545	750	—	—	12
710	1 280	—	180	250	325	450	560	775	—	—	12
750	1 360	—	195	265	345	475	615	825	—	—	15
800	1 420	—	200	272	355	488	615	—	—	—	15
850	1 500	—	206	280	375	515	650	—	—	—	15
900	1 580	—	218	300	388	515	670	—	—	—	15
950	1 660	—	230	315	412	530	710	—	—	—	15
1 000	1 750	—	243	330	425	560	750	—	—	—	15

Table 7 — Diameter series 3

Dimensions in millimetres

<i>d</i>	<i>D</i>	Dimension series						
		83	03	13	23	33	83	03 to 33
		<i>B</i>					<i>r</i> 's min	
3	13	—	5	—	—	7	—	0,2
4	16	—	5	—	—	9	—	0,3
5	19	—	6	—	—	10	—	0,3
6	22	—	7	—	11	13	—	0,3
7	26	—	9	—	13	15	—	0,3
8	28	—	9	—	13	15	—	0,3
9	30	—	10	—	14	16	—	0,6
10	35	9	11	—	17	19	0,3	0,6
12	37	9	12	—	17	19	0,3	1
15	42	9	13	—	17	19	0,3	1
17	47	10	14	—	19	22,2	0,6	1
20	52	10	15	—	21	22,2	0,6	1,1
22	56	11	16	—	21	25	0,6	1,1
25	62	12	17	—	24	25,4	0,6	1,1
28	68	13	18	—	24	30	0,6	1,1
30	72	13	19	—	27	30,2	0,6	1,1
32	75	14	20	—	28	32	0,6	1,1
35	80	14	21	—	31	34,9	0,6	1,5
40	90	16	23	—	33	36,5	1	1,5
45	100	17	25	—	36	39,7	1	1,5
50	110	19	27	—	40	44,4	1	2
55	120	21	29	—	43	49,2	1,1	2
60	130	22	31	—	46	54	1,1	2,1
65	140	24	33	—	48	58,7	1,1	2,1
70	150	25	35	—	51	63,5	1,5	2,1
75	160	27	37	—	55	68,3	1,5	2,1
80	170	28	39	—	58	68,3	1,5	2,1
85	180	30	41	—	60	73	2	3
90	190	30	43	—	64	73	2	3
95	200	33	45	—	67	77,8	2	3
100	215	36	47	51	73	82,6	2,1	3
105	225	37	49	53	77	87,3	2,1	3
110	240	42	50	57	80	92,1	3	3
120	260	44	55	62	86	106	3	3
130	280	48	58	66	93	112	3	4

Table 7 (continued)

Dimensions in millimetres

<i>d</i>	<i>D</i>	Dimension series						
		83	03	13	23	33	83	03 to 33
		<i>B</i>					<i>r</i> 's min	
140	300	50	62	70	102	118	4	4
150	320	—	65	75	108	128	—	4
160	340	—	68	79	114	136	—	4
170	360	—	72	84	120	140	—	4
180	380	—	75	88	126	150	—	4
190	400	—	78	92	132	155	—	5
200	420	—	80	97	138	165	—	5
220	460	—	88	106	145	180	—	5
240	500	—	95	114	155	195	—	5
260	540	—	102	123	165	206	—	6
280	580	—	108	132	175	224	—	6
300	620	—	109	140	185	236	—	7,5
320	670	—	112	155	200	258	—	7,5
340	710	—	118	165	212	272	—	7,5
360	750	—	125	170	224	290	—	7,5
380	780	—	128	175	230	300	—	7,5
400	820	—	136	185	243	308	—	7,5
420	850	—	136	190	250	315	—	9,5
440	900	—	145	200	265	345	—	9,5
460	950	—	155	212	280	365	—	9,5
480	980	—	160	218	290	375	—	9,5
500	1 030	—	170	230	300	388	—	12
530	1 090	—	180	243	325	412	—	12
560	1 150	—	190	258	335	438	—	12
600	1 220	—	200	272	355	462	—	15
630	1 280	—	206	280	375	488	—	15
670	1 360	—	218	300	400	515	—	15
710	1 420	—	224	308	412	530	—	15
750	1 500	—	236	325	438	560	—	15
800	1 600	—	258	355	462	600	—	15
850	1 700	—	272	375	488	630	—	19
900	1 780	—	280	388	500	650	—	19
950	1 850	—	290	400	515	670	—	19
1 000	1 950	—	300	412	545	710	—	19

Table 8 — Diameter series 4

Dimensions in millimetres

<i>d</i>	<i>D</i>	Dimension series		<i>r_s min</i>
		04	24	
		<i>B</i>		
8	30	10	14	0,6
9	32	11	15	0,6
10	37	12	16	0,6
12	42	13	19	1
15	52	15	24	1,1
17	62	17	29	1,1
20	72	19	33	1,1
25	80	21	36	1,5
30	90	23	40	1,5
35	100	25	43	1,5
40	110	27	46	2
45	120	29	50	2
50	130	31	53	2,1
55	140	33	57	2,1
60	150	35	60	2,1
65	160	37	64	2,1
70	180	42	74	3
75	190	45	77	3
80	200	48	80	3
85	210	52	86	4
90	225	54	90	4
95	240	55	95	4
100	250	58	98	4
105	260	60	100	4
110	280	65	108	4
120	310	72	118	5
130	340	78	128	5

Dimensions in millimetres

<i>d</i>	<i>D</i>	Dimension series		<i>r_s min</i>
		04	24	
		<i>B</i>		
140	360	82	132	5
150	380	85	138	5
160	400	88	142	5
170	420	92	145	5
180	440	95	150	6
190	460	98	155	6
200	480	102	160	6
220	540	115	180	6
240	580	122	190	6
260	620	132	206	7,5
280	670	140	224	7,5
300	710	150	236	7,5
320	750	155	250	9,5
340	800	165	265	9,5
360	850	180	280	9,5
380	900	190	300	9,5
400	950	200	315	12
420	980	206	325	12
440	1 030	212	335	12
460	1 060	218	345	12
480	1 120	230	365	15
500	1 150	236	375	15
530	1 220	250	400	15
560	1 280	258	412	15
600	1 360	272	438	15
630	1 420	280	450	15
670	1 500	290	475	15

Annex A (informative)

Guidelines for the extension of this International Standard for radial bearings

A.1 General

For any new dimension not numerically determined in this International Standard, the following guidelines should be used. The equations given for outside diameter and width should not, however, be used for definite determination of the boundary dimension values; they may often need to be modified in order to maintain the continuity of this International Standard to obtain suitable bearing proportions, and to permit the selection of preferred dimensions.

Accordingly, it is intended that any new dimensions be approved by future revisions of this International Standard.

A.2 Bearing bore diameters

Bearing bore diameters, d , of inner rings, above 500 mm, should be selected from the R 40 series of preferred numbers given in ISO 3.

Bearing bore diameters already appearing in this International Standard should be chosen for preference.

A.3 Bearing outside diameters

Bearing outside diameters, D , of outer rings should be calculated, in millimetres, from Equation (A.1):

$$D = d + f_D d^{0,9} \tag{A.1}$$

where the factor, f_D , has the appropriate value given in Table A.1.

Table A.1 — Values of f_D

Diameter series	7	8	9	0	1	2	3	4
f_D	0,34	0,45	0,62	0,84	1,12	1,48	1,92	2,56

Bearing outside diameter dimensions already appearing in this International Standard should be chosen for preference.

New bearing outside diameter dimensions should be rounded as shown in Table A.2.

Table A.2 — Rounding for D

Dimensions in millimetres

D		Rounded to the nearest
$>$	\leq	
—	3	0,5
3	80	1
80	230	5
230	—	10

A.4 Bearing widths

Bearing widths, B , should be calculated, in millimetres, from Equation (A.2):

$$B = 0,5f_B(D - d) \quad (\text{A.2})$$

where the factor, f_B , has the appropriate value given in Table A.3.

Table A.3 — Values of f_B

Width series	0	1	2	3	4	5	6	7
f_B	0,64	0,88	1,15	1,5	2	2,7	3,6	4,8

New bearing width dimensions should be selected from the R 80 series of preferred numbers given in ISO 3 and rounded as shown in Table A.4.

Table A.4 — Rounding for B

Dimensions in millimetres

B		Rounded to the nearest
$>$	\leq	
—	3	0,1
3	4	0,5
4	500	1
500	—	5

A.5 Smallest single chamfer dimension

Smallest single chamfer dimension, $r_{s \min}$, should be selected from the $r_{s \min}$ values listed in Table 1 of ISO 582:1995 and, in principle, be that value which is nearest to, but not larger than the smaller of the two values: 7 % of the bearing width, B , and 7 % of the sectional height $(D - d)/2$.

Bibliography

- [1] ISO 3, *Preferred numbers — Series of preferred numbers*

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