
**Rolling bearings — Radial bearings —
Boundary dimensions, general plan**

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

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ISO 15:1998

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Foreword

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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.

International Standard ISO 15:1997 was prepared by Technical Committee ISO/TC 4, *Rolling bearings*.

This second edition cancels and replaces the first edition (ISO 15:1981), which has been technically revised and extended. Diameter series 7 has been extended and provided with the new dimension series 27 and 47. Diameter series 1 has been extended and provided with the new dimension series 51 and 61. The dimension series 52 and 62 have been added to diameter series 2.

Annexes A and B of this International Standard are for information only.

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Introduction

The object of the general plan 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 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 annex A.

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Rolling bearings — Radial bearings — Boundary dimensions, general plan

1 Scope

This international standard lays down preferred boundary dimensions for radial bearings.

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

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 464:1995, *Rolling bearings — Radial bearings with locating snap ring — Dimensions and tolerances.*

ISO 582:1995, *Rolling bearings — Chamfer dimensions — Maximum values.*

ISO 12043:1995, *Rolling bearings — Single-row cylindrical roller bearings — Chamfer dimensions for loose rib and non-rib sides.*

ISO 12044:1995, *Rolling bearings — Single-row angular contact ball bearings — Chamfer dimensions for outer ring non-thrust side.*

3 Symbols

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

4 Boundary dimensions

The symbols shown in the figures and given in the tables denote nominal dimensions unless specified otherwise.

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 shown in ISO 464;
- the loose rib and the non-rib sides of cylindrical roller bearing rings — the exceptions are shown in ISO 12043;
- the non-thrust side of angular contact bearing outer rings — the exceptions are shown in ISO 12044.

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 $r_{s \text{ min}}$ dimensions in the tables 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 $r_{s \text{ min}}$, tangential to the ring face and the bore or outside cylindrical surface of the ring.

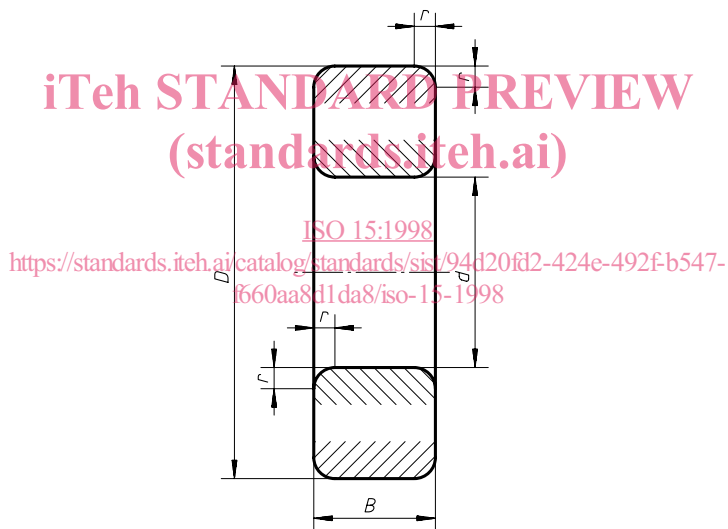


Figure 1 — Radial bearing

Table 1 — Diameter series 7

Dimensions in millimetres

<i>d</i>	<i>D</i>	Dimension series				17 - 47
		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
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

d	D	Dimension series								
		08	18	28	38	48	58	68	08	18 - 68
		B							r _{s min}	
0,6	2,5	—	1	—	1,4	—	—	—	2	0,25
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	8	10	12	16	22	0,3	0,3
25	37	4	7	8	10	12	16	22	0,3	0,3
28	40	4	7	8	10	12	16	22	0,3	0,3
30	42	4	7	8	10	12	16	22	0,3	0,3
32	44	4	7	8	10	12	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
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

Table 2 (concluded)

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>	
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
1 180	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

d	D	Dimension series									
		09	19	29	39	49	59	69	09	19 - 39	49 - 69
		B							r _{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
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 (concluded)

Dimensions in millimetres

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