



SLOVENSKI STANDARD
SIST ISO 104:2002

01-december-2002

Kotalni ležaji - Aksialni ležaji - Glavne mere, preglednice mer

Rolling bearings -- Thrust bearings -- Boundary dimensions, general plan

Roulements -- Butées -- Dimensions d'encombrement, plan général

Ta slovenski standard je istoveten z: ISO 104:2002

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INTERNATIONAL STANDARD

ISO 104

Third edition
2002-02-01

Rolling bearings — Thrust bearings — Boundary dimensions, general plan

Roulements — Butées — Dimensions d'encombrement, plan général

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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 3.

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 International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 104 was prepared by Technical Committee ISO/TC 4, *Rolling bearings*.

This third edition cancels and replaces the second edition (ISO 104:1994). The changes are editorial in order to bring content, terminology and presentation in line with ISO Directives, Part 3, 1997.

Annex A of this International Standard is for information only.

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Rolling bearings — Thrust bearings — Boundary dimensions, general plan

1 Scope

This International Standard specifies the major boundary dimensions of single-direction and double-direction thrust bearings with flat back faces.

In addition, it gives the minimum bore diameters of housing washers and maximum outside diameters of shaft washers of bearings in dimension series 11, 12, 13, 14, 22, 23 and 24.

Guidelines for the extension of this International Standard for single-direction thrust bearings are given in annex A.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

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

ISO 1132-1:2000, *Rolling bearings — Tolerances — Part 1: Terms and definitions*

ISO 5593:1997, *Rolling bearings — Vocabulary*

ISO 15241:2001, *Rolling bearings — Symbols for quantities*

3 Terms and definitions

For the purposes of this International Standard, the terms and definitions given in ISO 1132-1, ISO 5593 and ISO 15241 apply.

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4 Symbols

B	height of central shaft washer
D	outside diameter of housing washer
D_1	bore diameter of housing washer
$D_{1s \text{ min}}$	smallest single bore diameter of housing washer
d	bore diameter of shaft washer, single-direction bearing
d_1	outside diameter of shaft washer, single-direction bearing
$d_{1s \text{ max}}$	largest single outside diameter of shaft washer
d_2	bore diameter of central shaft washer, double-direction bearing
d_3	outside diameter of central shaft washer, double-direction bearing
$d_{3s \text{ max}}$	largest single outside diameter of central shaft washer
r	back face chamfer dimension of shaft washer (single-direction bearing) and housing washer
$r_{s \text{ min}}$	smallest single back face chamfer dimension of shaft washer (single-direction bearing) and housing washer
r_1	face chamfer dimension of central shaft washer
$r_{1s \text{ min}}$	smallest single face chamfer dimension of central shaft washer
T	bearing height, single-direction bearing
T_1	bearing height, double-direction bearing

5 Boundary dimensions

5.1 General

The symbols shown in Figures 1 and 2 and the values given in Tables 1 to 9 denote nominal dimensions unless specified otherwise.

The corresponding largest single chamfer dimensions to the $r_{s \text{ min}}$ and $r_{1s \text{ min}}$ dimensions in Tables 1 to 9 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 an imaginary circular arc, of radius $r_{s \text{ min}}$, tangential to the washer back face and the bore or outside cylindrical surface of the washer. For the washer face and the bore cylindrical surface, the same applies to $r_{1s \text{ min}}$.

Chamfer dimensions r and r_1 apply only at the corners indicated in Figures 1 and 2. No dimensions are given for other corners, however, they should not be sharp.

5.2 Single-direction thrust bearings

Dimensions represented in Figure 1 shall be as given in Tables 1 to 6.

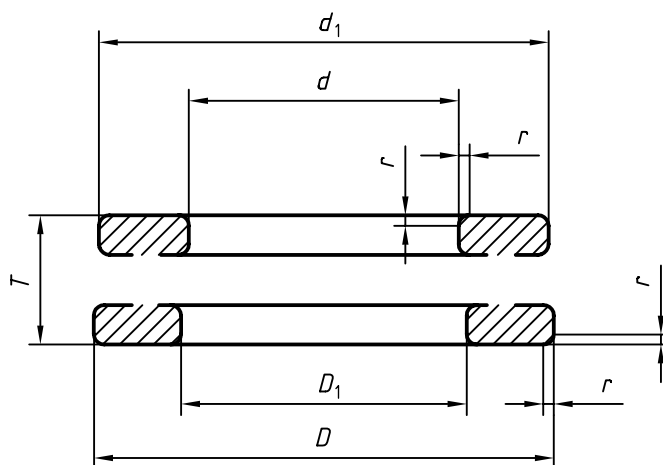


Figure 1 — Single-direction thrust bearing

5.3 Double-direction thrust bearings

Dimensions represented in Figure 2 shall be as given in Tables 7 to 9.

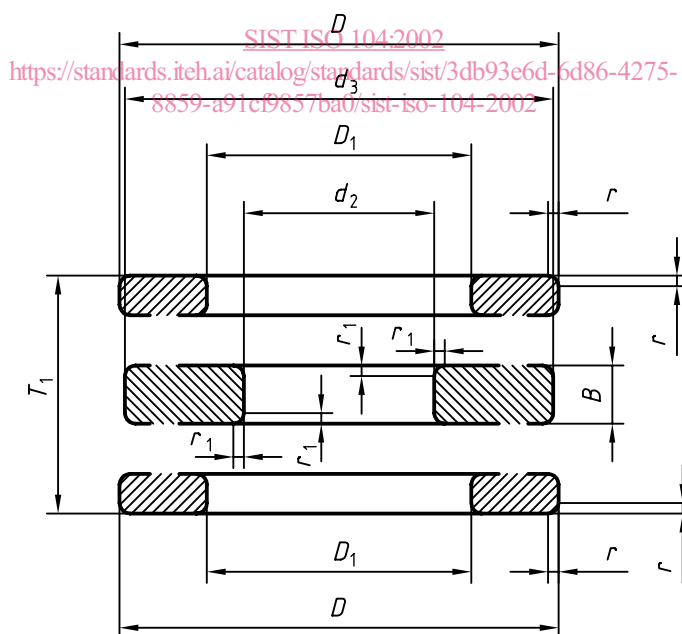


Figure 2 — Double-direction thrust bearing

Table 1 — Single-direction bearings — Diameter series 0

Dimensions in millimetres						Dimensions in millimetres					
<i>d</i>	<i>D</i>	<i>r</i> ' _{s min}	Dimension series			<i>d</i>	<i>D</i>	<i>r</i> ' _{s min}	Dimension series		
			70	90	10				70	90	10
			<i>T</i>						<i>T</i>		
4	12	0,3	4	—	6	460	500	1	18	24	30
6	16	0,3	5	—	7	480	520	1	18	24	30
8	18	0,3	5	—	7	500	540	1	18	24	30
10	20	0,3	5	—	7	530	580	1,1	23	30	38
12	22	0,3	5	—	7	560	610	1,1	23	30	38
15	26	0,3	5	—	7	600	650	1,1	23	30	38
17	28	0,3	5	—	7	630	680	1,1	23	30	38
20	32	0,3	6	—	8	670	730	1,5	27	36	45
25	37	0,3	6	—	8	710	780	1,5	32	42	53
30	42	0,3	6	—	8	750	820	1,5	32	42	53
35	47	0,3	6	—	8	800	870	1,5	32	42	53
40	52	0,3	6	—	9	850	920	1,5	32	42	53
45	60	0,3	7	—	10	900	980	2	36	48	63
50	65	0,3	7	—	10	950	1 030	2	36	48	63
55	70	0,3	7	—	10	1 000	1 090	2,1	41	54	70
60	75	0,3	7	—	10	1 060	1 150	2,1	41	54	70
65	80	0,3	7	—	10	1 120	1 220	2,1	45	60	80
70	85	0,3	7	—	10	1 180	1 280	2,1	45	60	80
75	90	0,3	7	—	10	1 250	1 360	3	50	67	85
80	95	0,3	7	—	10	1 320	1 440	3	—	—	95
85	100	0,3	7	—	10	1 400	1 520	3	—	—	95
90	105	0,3	7	—	10	1 500	1 630	4	—	—	105
100	120	0,6	9	—	14	1 600	1 730	4	—	—	105
110	130	0,6	9	—	14	1 700	1 840	4	—	—	112
120	140	0,6	9	—	14	1 800	1 950	4	—	—	120
130	150	0,6	9	—	14	1 900	2 060	5	—	—	130
140	160	0,6	9	—	14	2 000	2 160	5	—	—	130
150	170	0,6	9	—	14	2 120	2 300	5	—	—	140
160	180	0,6	9	—	14	2 240	2 430	5	—	—	150
170	190	0,6	9	—	14	2 360	2 550	5	—	—	150
180	200	0,6	9	—	14	2 500	2 700	5	—	—	160
190	215	1	11	—	17						
200	225	1	11	—	17						
220	250	1	14	—	22						
240	270	1	14	—	22						
260	290	1	14	—	22						
280	310	1	14	—	22						
300	340	1	18	24	30						
320	360	1	18	24	30						
340	380	1	18	24	30						
360	400	1	18	24	30						
380	420	1	18	24	30						
400	440	1	18	24	30						
420	460	1	18	24	30						
440	480	1	18	24	30						

Table 2 — Single-direction bearings — Diameter series 1

Dimensions in millimetres								Dimensions in millimetres									
<i>d</i>	<i>D</i>	<i>r_s min</i>	Dimension series					<i>d_{1s} max</i>	<i>D_{1s} min</i>	<i>d</i>	<i>D</i>	<i>r_s min</i>	Dimension series				
			71	91	11		71						91	11			
			<i>T</i>		<i>d_{1s} max</i>	<i>D_{1s} min</i>	<i>T</i>						<i>d_{1s} max</i>	<i>D_{1s} min</i>			
10	24	0,3	6	—	9	24	11	530	640	3	50	67	85	635	534		
12	26	0,3	6	—	9	26	13	560	670	3	50	67	85	665	564		
15	28	0,3	6	—	9	28	16	600	710	3	50	67	85	705	604		
17	30	0,3	6	—	9	30	18	630	750	3	54	73	95	745	634		
20	35	0,3	7	—	10	35	21	670	800	4	58	78	105	795	674		
25	42	0,6	8	—	11	42	26	710	850	4	63	85	112	845	714		
30	47	0,6	8	—	11	47	32	750	900	4	67	90	120	895	755		
35	52	0,6	8	—	12	52	37	800	950	4	67	90	120	945	805		
40	60	0,6	9	—	13	60	42	850	1 000	4	67	90	120	995	855		
45	65	0,6	9	—	14	65	47	900	1 060	5	73	95	130	1 055	905		
50	70	0,6	9	—	14	70	52	950	1 120	5	78	103	135	1 115	955		
55	78	0,6	10	—	16	78	57	1 000	1 180	5	82	109	140	1 175	1 005		
60	85	1	11	—	17	85	62	1 060	1 250	5	85	115	150	1 245	1 065		
65	90	1	11	—	18	90	67	1 120	1 320	5	90	122	160	1 315	1 125		
70	95	1	11	—	18	95	72	1 180	1 400	6	100	132	175	1 395	1 185		
75	100	1	11	—	19	100	77	1 250	1 460	6	—	—	175	1 455	1 255		
80	105	1	11	—	19	105	82	1 320	1 540	6	—	—	175	1 535	1 325		
85	110	1	11	—	19	110	87	1 400	1 630	6	—	—	180	1 620	1 410		
90	120	1	14	—	22	120	92	1 500	1 750	6	—	—	195	1 740	1 510		
100	135	1	16	21	25	135	102	1 600	1 850	6	—	—	195	1 840	1 610		
110	145	1	16	21	25	145	112	1 700	1 970	7,5	—	—	212	1 960	1 710		
120	155	1	16	21	25	155	122	1 800	2 080	7,5	—	—	220	2 070	1 810		
130	170	1	18	24	30	170	132	1 900	2 180	7,5	—	—	220	2 170	1 910		
140	180	1	18	24	31	178	142	2 000	2 300	7,5	—	—	236	2 290	2 010		
150	190	1	18	24	31	188	152	2 120	2 430	7,5	—	—	243	2 420	2 130		
160	200	1	18	24	31	198	162	2 240	2 570	9,5	—	—	258	2 560	2 250		
170	215	1,1	20	27	34	213	172	2 360	2 700	9,5	—	—	265	2 690	2 370		
180	225	1,1	20	27	34	222	183	2 500	2 850	9,5	—	—	272	2 840	2 510		
190	240	1,1	23	30	37	237	193										
200	250	1,1	23	30	37	247	203										
220	270	1,1	23	30	37	267	223										
240	300	1,5	27	36	45	297	243										
260	320	1,5	27	36	45	317	263										
280	350	1,5	32	42	53	347	283										
300	380	2	36	48	62	376	304										
320	400	2	36	48	63	396	324										
340	420	2	36	48	64	416	344										
360	440	2	36	48	65	436	364										
380	460	2	36	48	65	456	384										
400	480	2	36	48	65	476	404										
420	500	2	36	48	65	495	424										
440	540	2,1	45	60	80	535	444										
460	560	2,1	45	60	80	555	464										
480	580	2,1	45	60	80	575	484										
500	600	2,1	45	60	80	595	504										