

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION

R 15

PART I

ROLLING BEARINGS RADIAL BEARINGS BOUNDARY DIMENSIONS

GENERAL PLAN
Diameter Series 8, 9, 0, 1, 2, 3 and 4

2nd EDITION
December 1968

This second edition supersedes section 1 of ISO Recommendation R 15 - 1955
and section 1 of ISO Recommendation R 104 - 1959.

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BRIEF HISTORY

The ISO Recommendation R 15, Part I, *Rolling bearings – Radial bearings – Boundary dimensions – General plan – Diameter Series 8, 9, 0, 1, 2, 3 and 4*, was drawn up by Technical Committee ISO/TC 4, *Rolling bearings*, the Secretariat of which is held by the Sveriges Standardiseringskommission (SIS).

This ISO Recommendation cancels and replaces section 1 of ISO Recommendation R 15-1955, *Ball and roller bearings*, and section 1 of ISO Recommendation R 104-1959, *Ball and roller bearings – Boundary dimensions*.

Work on this question by the Technical Committee began in 1955 and led, in 1963, to the adoption of a Draft ISO Recommendation.

In April 1964, this Draft ISO Recommendation (No. 358) was circulated to all the ISO Member Bodies for enquiry. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies:

Argentina	Hungary	Spain
Australia	India	Sweden
Austria	Israel	Switzerland
Canada	Italy	Turkey
Chile	Japan	United Kingdom
Colombia	Korea, Rep. of	U.S.A.
Czechoslovakia	Netherlands	U.S.S.R.
France	Poland	Yugoslavia
Germany	Portugal	
Greece	Romania	

No Member Body opposed the approval of the Draft.

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in November 1967, to accept it as an ISO Recommendation.

The validity of the vote was however called into question, owing to the fact that the text placed before the Council included two new widths which had not been submitted to all ISO Member Bodies for prior approval. Acceptance of the Draft was therefore rescinded.

When voting on the two new values in May 1968, a majority of the Member Bodies approved them. No negative ballot was recorded.

The Draft ISO Recommendation was then re-submitted by correspondence to the ISO Council, which decided, in December 1968, to accept the document as an ISO RECOMMENDATION.

PART I

**ROLLING BEARINGS
RADIAL BEARINGS
BOUNDARY DIMENSIONS**

GENERAL PLAN

Diameter Series 8, 9, 0, 1, 2, 3 and 4

INTRODUCTION

1. The object of the General Plan is to reduce 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 general rules given in section 3.
2. The General Plan is to be considered as a guide for national standardizing organizations. National standards can with advantage cover a restricted range of sizes, but refer to this ISO Recommendation as the rational source of any extension. Especially when standardizing sizes of particular bearing types, national organizations should consider their standards very carefully with a view to keeping the number of bearing sizes as small as is compatible with a good overall national economy, excluding sizes not manufactured and not required for the time being.

Bearing manufacturers should select from the national standard the sizes and proportions appropriate to the bearing type and to the purpose under consideration.

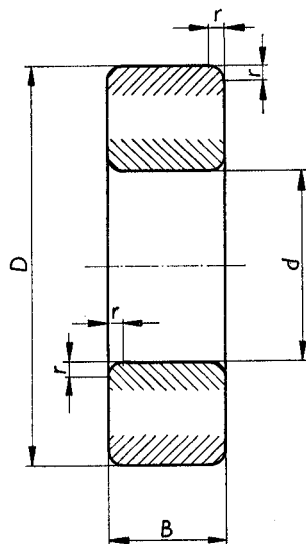
Bearing users should select bearing types and sizes from the manufacturers specifications, giving preference to bearings whose dimensions conform to the national standard. As all bearings may not be in current production at any particular time, it is advisable for user designers to approach bearing manufacturers during the early stages of design for information regarding the availability of the bearings.

3. The General Plan comprises
 - (a) numerically determined nominal boundary dimensions (see section 2, Tables 1 to 7);
 - (b) general rules for the extension of the Plan (see section 3).

The General Plan does not contain any directions pertaining to the internal design of bearings or any indication as to their availability.

4. The chamfer dimensions given in Tables 1 to 7 do not necessarily apply to
- (a) the groove side of bearing rings with snap ring groove,
 - (b) the flangeless 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.
5. This ISO Recommendation does not apply to tapered roller-bearings.

1. SYMBOLS



- d = bearing bore diameter
- D = bearing outside diameter
- B = bearing width (individual inner and outer rings)
- r = inner and outer ring chamfer dimension
- $r_{nominal}$ = nominal chamfer dimension*

* Nominal chamfer dimensions do not control the shape of the bearing corner, i.e. the profile of the bearing corners created by the chamfering or rounding off.

2. NUMERICALLY DETERMINED BOUNDARY DIMENSIONS

2.1 Diameter series 8

TABLE 1

Dimensions in millimetres

Bore diameter <i>d</i>	Outside diameter <i>D</i>	Dimension series								
		08	18	28	38	48	58	68	08	18-68
		Width <i>B</i>							Chamfer <i>r</i> _{nominal}	
0.6	2.5	—	1	—	1.4	—	—	—	—	0.15
1	3	—	1	—	1.5	—	—	—	—	0.15
1.5	4	—	1.2	—	2	—	—	—	—	0.2
2	5	—	1.5	—	2.3	—	—	—	—	0.2
2.5	6	—	1.8	—	2.6	—	—	—	—	0.3
3	7	—	2	—	3	—	—	—	—	0.3
4	9	—	2.5	3.5	4	—	—	—	—	0.3
5	11	—	3	4	5	—	—	—	—	0.3
6	13	—	3.5	5	6	—	—	—	—	0.3
7	14	—	3.5	5	6	—	—	—	—	0.3
8	16	—	4	5	6	8	—	—	—	0.4
9	17	—	4	5	6	8	—	—	—	0.4
10	19	—	5	6	7	9	—	—	—	0.5
12	21	—	5	6	7	9	—	—	—	0.5
15	24	—	5	6	7	9	—	—	—	0.5
17	26	—	5	6	7	9	—	—	—	0.5
20	32	4	7	8	10	12	16	22	0.5	0.5
22	34	4	7	—	10	—	16	22	0.5	0.5
25	37	4	7	8	10	12	16	22	0.5	0.5
28	40	4	7	—	10	—	16	22	0.5	0.5
30	42	4	7	8	10	12	16	22	0.5	0.5
32	44	4	7	—	10	—	16	22	0.5	0.5
35	47	4	7	8	10	12	16	22	0.5	0.5
40	52	4	7	8	10	12	16	22	0.5	0.5
45	58	4	7	8	10	13	18	23	0.5	0.5
50	65	5	7	10	12	15	20	27	0.5	0.5
55	72	7	9	11	13	17	23	30	0.5	0.5
60	78	7	10	12	14	18	24	32	0.5	0.5
65	85	7	10	13	15	20	27	36	0.5	1
70	90	8	10	13	15	20	27	36	0.5	1
75	95	8	10	13	15	20	27	36	0.5	1
80	100	8	10	13	15	20	27	36	0.5	1
85	110	9	13	16	19	25	34	45	0.5	1.5
90	115	9	13	16	19	25	34	45	0.5	1.5
95	120	9	13	16	19	25	34	45	0.5	1.5
100	125	9	13	16	19	25	34	45	0.5	1.5
105	130	9	13	16	19	25	34	45	0.5	1.5
110	140	10	16	19	23	30	40	54	1	1.5
120	150	10	16	19	23	30	40	54	1	1.5
130	165	11	18	22	26	35	46	63	1	2
140	175	11	18	22	26	35	46	63	1	2
150	190	13	20	24	30	40	54	71	1	2
160	200	13	20	24	30	40	54	71	1	2
170	215	14	22	27	34	45	60	80	1	2
180	225	14	22	27	34	45	60	80	1	2

TABLE 1 (concluded)

Dimensions in millimetres

Bore diameter <i>d</i>	Outside diameter <i>D</i>	Dimension series								
		08	18	28	38	48	58	68	08	18-68
		Width <i>B</i>							Chamfer <i>r</i> _{nominal}	
190	240	16	24	30	37	50	67	90	1.5	2.5
200	250	16	24	30	37	50	67	90	1.5	2.5
220	270	16	24	30	37	50	67	90	1.5	2.5
240	300	19	28	36	45	60	80	109	1.5	3
260	320	19	28	36	45	60	80	109	1.5	3
280	350	22	33	42	52	69	95	125	2	3
300	380	25	38	48	60	80	109	145	2.5	3.5
320	400	25	38	48	60	80	109	145	2.5	3.5
340	420	25	38	48	60	80	109	145	2.5	3.5
360	440	25	38	48	60	80	109	145	2.5	3.5
380	480	31	46	60	75	100	136	180	3	3.5
400	500	31	46	60	75	100	136	180	3	3.5
420	520	31	46	60	75	100	136	180	3	3.5
440	540	31	46	60	75	100	136	180	3	3.5
460	580	37	56	72	90	118	160	218	3.5	4
480	600	37	56	72	90	118	160	218	3.5	4
500	620	37	56	72	90	118	160	218	3.5	4
530	650	37	56	72	90	118	160	218	3.5	4
560	680	37	56	72	90	118	160	218	3.5	4
600	730	42	60	78	98	128	175	236	4	4
630	780	48	69	88	112	150	200	272	4	5
670	820	48	69	88	112	150	200	272	4	5
710	870	50	74	95	118	160	218	290	5	5
750	920	54	78	100	128	170	230	308	5	6
800	980	57	82	106	136	180	243	325	5	6
850	1030	57	82	106	136	180	243	325	5	6
900	1090	60	85	112	140	190	258	345	6	6
950	1150	63	90	118	150	200	272	355	6	6
1000	1220	71	100	128	165	218	300	400	6	8
1060	1280	71	100	128	165	218	300	400	6	8
1120	1360	78	106	140	180	243	325	438	6	8
1180	1420	78	106	140	180	243	325	438	6	8
1250	1500	80	112	145	185	250	335	450	8	8
1320	1600	88	122	165	206	280	375	500	8	8
1400	1700	95	132	175	224	300	400	545	8	10
1500	1820	—	140	185	243	315	—	—	—	10
1600	1950	—	155	200	265	345	—	—	—	10
1700	2060	—	160	206	272	355	—	—	—	10
1800	2180	—	165	218	290	375	—	—	—	12
1900	2300	—	175	230	300	400	—	—	—	12
2000	2430	—	190	250	325	425	—	—	—	12