

# 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 Acceptance of the Draft was therefore rescinded.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.

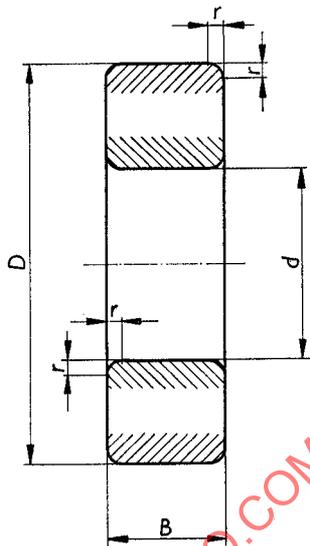
Bearing users should select bearing types and sizes from the manufacturers specifications, giving preference to bearings whose dimensions conform to the national standard. As all bearings may not be in current production at any particular time, it is advisable for user designers to approach bearing manufacturers 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 $d$	Outside diameter $D$	Dimension series								
		08	18	28	38	48	58	68	08	18-68
		Width $B$							Chamfer $r_{\text{nominal}}$	
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> <sub>nominal</sub>	
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

## 2.2 Diameter series 9

TABLE 2

Dimensions in millimetres

Bore diameter $d$	Outside diameter $D$	Dimension series								
		09	19	29	39	49	59	69	09	19-69
		Width $B$							Chamfer $r_{\text{nominal}}$	
1	4	—	1.6	—	2.3	—	—	—	—	0.2
1.5	5	—	2	—	2.6	—	—	—	—	0.3
2	6	—	2.3	—	3	—	—	—	—	0.3
2.5	7	—	2.5	—	3.5	—	—	—	—	0.3
3	8	—	3	—	4	—	—	—	—	0.3
4	11	—	4	—	5	—	—	—	—	0.3
5	13	—	4	—	6	10	—	—	—	0.4
6	15	—	5	—	7	10	—	—	—	0.4
7	17	—	5	—	7	10	—	—	—	0.5
8	19	—	6	—	9	11	—	—	—	0.5
9	20	—	6	—	9	11	—	—	—	0.5
10	22	—	6	8	10	13	16	22	—	0.5
12	24	—	6	8	10	13	16	22	—	0.5
15	28	—	7	8.5	10	13	18	23	—	0.5
17	30	—	7	8.5	10	13	18	23	—	0.5
20	37	7	9	11	13	17	23	30	0.5	0.5
22	39	7	9	11	13	17	23	30	0.5	0.5
25	42	7	9	11	13	17	23	30	0.5	0.5
28	45	7	9	11	13	17	23	30	0.5	0.5
30	47	7	9	11	13	17	23	30	0.5	0.5
32	52	7	10	13	15	20	27	36	0.5	1
35	55	7	10	13	15	20	27	36	0.5	1
40	62	8	12	14	16	22	30	40	0.5	1
45	68	8	12	14	16	22	30	40	0.5	1
50	72	8	12	14	16	22	30	40	0.5	1
55	80	9	13	16	19	25	34	45	0.5	1.5
60	85	9	13	16	19	25	34	45	0.5	1.5
65	90	9	13	16	19	25	34	45	0.5	1.5
70	100	10	16	19	23	30	40	54	1	1.5
75	105	10	16	19	23	30	40	54	1	1.5
80	110	10	16	19	23	30	40	54	1	1.5
85	120	11	18	22	26	35	46	63	1	2
90	125	11	18	22	26	35	46	63	1	2
95	130	11	18	22	26	35	46	63	1	2
100	140	13	20	24	30	40	54	71	1	2
105	145	13	20	24	30	40	54	71	1	2
110	150	13	20	24	30	40	54	71	1	2
120	165	14	22	27	34	45	60	80	1	2
130	180	16	24	30	37	50	67	90	1.5	2.5
140	190	16	24	30	37	50	67	90	1.5	2.5
150	210	19	28	36	45	60	80	109	1.5	3
160	220	19	28	36	45	60	80	109	1.5	3
170	230	19	28	36	45	60	80	109	1.5	3
180	250	22	33	42	52	69	95	125	2	3

TABLE 2 (concluded)

Dimensions in millimetres

Bore diameter <i>d</i>	Outside diameter <i>D</i>	Dimension series								
		09	19	29	39	49	59	69	09	19-69
		Width <i>B</i>							Chamfer <i>r</i> <sub>nominal</sub>	
190	260	22	33	42	52	69	95	125	2	3
200	280	25	38	48	60	80	109	145	2.5	3.5
220	300	25	38	48	60	80	109	145	2.5	3.5
240	320	25	38	48	60	80	109	145	2.5	3.5
260	360	31	46	60	75	100	136	180	3	3.5
280	380	31	46	60	75	100	136	180	3	3.5
300	420	37	56	72	90	118	160	218	3.5	4
320	440	37	56	72	90	118	160	218	3.5	4
340	460	37	56	72	90	118	160	218	3.5	4
360	480	37	56	72	90	118	160	218	3.5	4
380	520	44	65	82	106	140	190	250	4	5
400	540	44	65	82	106	140	190	250	4	5
420	560	44	65	82	106	140	190	250	4	5
440	600	50	74	95	118	160	218	290	5	5
460	620	50	74	95	118	160	218	290	5	5
480	650	54	78	100	128	170	230	308	5	6
500	670	54	78	100	128	170	230	308	5	6
530	710	57	82	106	136	180	243	325	5	6
560	750	60	85	112	140	190	258	345	6	6
600	800	63	90	118	150	200	272	355	6	6
630	850	71	100	128	165	218	300	400	6	8
670	900	73	103	136	170	230	308	412	6	8
710	950	78	106	140	180	243	325	438	6	8
750	1000	80	112	145	185	250	335	450	8	8
800	1060	82	115	150	195	258	355	462	8	8
850	1120	85	118	155	200	272	365	488	8	8
900	1180	88	122	165	206	280	375	500	8	8
950	1250	95	132	175	224	300	400	545	8	10
1000	1320	103	140	185	236	315	438	580	8	10
1060	1400	109	150	195	250	335	462	615	10	10
1120	1460	109	150	195	250	335	462	615	10	10
1180	1540	115	160	206	272	355	488	650	10	10
1250	1630	122	170	218	280	375	515	690	10	10
1320	1720	128	175	230	300	400	545	710	10	10
1400	1820	—	185	243	315	425	—	—	—	12
1500	1950	—	195	258	335	450	—	—	—	12
1600	2060	—	200	265	345	462	—	—	—	12
1700	2180	—	212	280	355	475	—	—	—	12
1800	2300	—	218	290	375	500	—	—	—	15
1900	2430	—	230	308	400	530	—	—	—	15

## 2.3 Diameter series 0

TABLE 3

Dimensions in millimetres

Bore diameter $d$	Outside diameter $D$	Dimension series								
		00	10	20	30	40	50	60	00	10-60
		Width $B$							Chamfer $r_{\text{nominal}}$	
1.5	6	—	2.5	—	3	—	—	—	—	0.3
2	7	—	2.8	—	3.5	—	—	—	—	0.3
2.5	8	—	2.8	—	4	—	—	—	—	0.3
3	9	—	3	—	5	—	—	—	—	0.3
4	12	—	4	—	6	—	—	—	—	0.4
5	14	—	5	—	7	—	—	—	—	0.4
6	17	—	6	—	9	—	—	—	—	0.5
7	19	—	6	8	10	—	—	—	—	0.5
8	22	—	7	9	11	14	19	25	—	0.5
9	24	—	7	10	12	15	20	27	—	0.5
10	26	—	8	10	12	16	21	29	—	0.5
12	28	7	8	10	12	16	21	29	0.5	0.5
15	32	8	9	11	13	17	23	30	0.5	0.5
17	35	8	10	12	14	18	24	32	0.5	0.5
20	42	8	12	14	16	22	30	40	0.5	1
22	44	8	12	14	16	22	30	40	0.5	1
25	47	8	12	14	16	22	30	40	0.5	1
28	52	8	12	15	18	24	32	43	0.5	1
30	55	9	13	16	19	25	34	45	0.5	1.5
32	58	9	13	16	20	26	35	47	0.5	1.5
35	62	9	14	17	20	27	36	48	0.5	1.5
40	68	9	15	18	21	28	38	50	0.5	1.5
45	75	10	16	19	23	30	40	54	1	1.5
50	80	10	16	19	23	30	40	54	1	1.5
55	90	11	18	22	26	35	46	63	1	2
60	95	11	18	22	26	35	46	63	1	2
65	100	11	18	22	26	35	46	63	1	2
70	110	13	20	24	30	40	54	71	1	2
75	115	13	20	24	30	40	54	71	1	2
80	125	14	22	27	34	45	60	80	1	2
85	130	14	22	27	34	45	60	80	1	2
90	140	16	24	30	37	50	67	90	1.5	2.5
95	145	16	24	30	37	50	67	90	1.5	2.5
100	150	16	24	30	37	50	67	90	1.5	2.5
105	160	18	26	33	41	56	75	100	1.5	3
110	170	19	28	36	45	60	80	109	1.5	3
120	180	19	28	36	46	60	80	109	1.5	3
130	200	22	33	42	52	69	95	125	2	3
140	210	22	33	42	53	69	95	125	2	3
150	225	24	35	45	56	75	100	136	2	3.5
160	240	25	38	48	60	80	109	145	2.5	3.5
170	260	28	42	54	67	90	122	160	2.5	3.5
180	280	31	46	60	74	100	136	180	3	3.5

TABLE 3 (concluded)

Dimensions in millimetres

Bore diameter <i>d</i>	Outside diameter <i>D</i>	Dimension series								
		00	10	20	30	40	50	60	00	10-60
		Width <i>B</i>							Chamfer <i>r</i> <sub>nominal</sub>	
190	290	31	46	60	75	100	136	180	3	3.5
200	310	34	51	66	82	109	150	200	3	3.5
220	340	37	56	72	90	118	160	218	3.5	4
240	360	37	56	72	92	118	160	218	3.5	4
260	400	44	65	82	104	140	190	250	4	5
280	420	44	65	82	106	140	190	250	4	5
300	460	50	74	95	118	160	218	290	5	5
320	480	50	74	95	121	160	218	290	5	5
340	520	57	82	106	133	180	243	325	5	6
360	540	57	82	106	134	180	243	325	5	6
380	560	57	82	106	135	180	243	325	5	6
400	600	63	90	118	148	200	272	355	6	6
420	620	63	90	118	150	200	272	355	6	6
440	650	67	94	122	157	212	280	375	6	8
460	680	71	100	128	163	218	300	400	6	8
480	700	71	100	128	165	218	300	400	6	8
500	720	71	100	128	167	218	300	400	6	8
530	780	80	112	145	185	250	335	450	8	8
560	820	82	115	150	195	258	355	462	8	8
600	870	85	118	155	200	272	365	488	8	8
630	920	92	128	170	212	290	388	515	8	10
670	980	100	136	180	230	308	425	560	8	10
710	1030	103	140	185	236	315	438	580	8	10
750	1090	109	150	195	250	335	462	615	10	10
800	1150	112	155	200	258	345	475	630	10	10
850	1220	118	165	212	272	365	500	670	10	10
900	1280	122	170	218	280	375	515	690	10	10
950	1360	132	180	236	300	412	560	730	10	10
1000	1420	136	185	243	308	412	560	750	10	10
1060	1500	140	195	250	325	438	600	800	12	12
1120	1580	145	200	265	345	462	615	825	12	12
1180	1660	155	212	272	355	475	650	875	12	12
1250	1750	—	218	290	375	500	—	—	—	12
1320	1850	—	230	300	400	530	—	—	—	15
1400	1950	—	243	315	412	545	—	—	—	15
1500	2120	—	272	355	462	615	—	—	—	15
1600	2240	—	280	365	475	630	—	—	—	15
1700	2360	—	290	375	500	650	—	—	—	18
1800	2500	—	308	400	530	690	—	—	—	18

## 2.4 Diameter series 1

TABLE 4

Dimensions in millimetres

Bore diameter $d$	Outside diameter $D$	Dimension series						
		01	11	21	31	41	01	11-41
		Width $B$					Chamfer $r_{\text{nominal}}$	
100	165	21	30	39	52	65	2	3
105	175	22	33	42	56	69	2	3
110	180	22	33	42	56	69	2	3
120	200	25	38	48	62	80	2.5	3
130	210	25	38	48	64	80	2.5	3
140	225	27	40	50	68	85	2.5	3.5
150	250	31	46	60	80	100	3	3.5
160	270	34	51	66	86	109	3	3.5
170	280	34	51	66	88	109	3	3.5
180	300	37	56	72	96	118	3.5	4
190	320	42	60	78	104	128	4	4
200	340	44	65	82	112	140	4	4
220	370	48	69	88	120	150	4	5
240	400	50	74	95	128	160	5	5
260	440	57	82	106	144	180	5	5
280	460	57	82	106	146	180	5	6
300	500	63	90	118	160	200	6	6
320	540	71	100	128	176	218	6	6
340	580	78	106	140	190	243	6	6
360	600	78	106	140	192	243	6	6
380	620	78	106	140	194	243	6	6
400	650	80	112	145	200	250	8	8
420	700	88	122	165	224	280	8	8
440	720	88	122	165	226	280	8	8
460	760	95	132	175	240	300	8	10
480	790	100	136	180	248	308	8	10
500	830	106	145	190	264	325	10	10
530	870	109	150	195	272	335	10	10
560	920	115	160	206	280	355	10	10
600	980	122	170	218	300	375	10	10
630	1030	128	175	230	315	400	10	10
670	1090	136	185	243	336	412	10	10
710	1150	140	195	250	345	438	12	12
750	1220	150	206	272	365	475	12	12
800	1280	155	212	272	375	475	12	12
850	1360	165	224	290	400	500	15	15
900	1420	165	230	300	412	515	15	15
950	1500	175	243	315	438	545	15	15
1000	1580	185	258	335	462	580	15	15
1060	1660	190	265	345	475	600	15	18
1120	1750	—	280	365	475	630	—	18
1180	1850	—	290	388	500	670	—	18
1250	1950	—	308	400	530	710	—	18
1320	2060	—	325	425	560	750	—	18
1400	2180	—	345	450	580	775	—	22
1500	2300	—	355	462	600	800	—	22

## 2.5 Diameter series 2

TABLE 5

Dimensions in millimetres

Bore diameter <i>d</i>	Outside diameter <i>D</i>	Dimension series							
		82	02	12	22	32	42	82	02-42
		Width <i>B</i>						Chamfer <i>r</i> <sub>nominal</sub>	
3	10	2.5	4	—	—	5	—	0.2	0.3
4	13	3	5	—	—	7	—	0.3	0.4
5	16	3.5	5	—	—	8	—	0.3	0.5
6	19	4	6	—	—	10	—	0.4	0.5
7	22	5	7	—	—	11	—	0.5	0.5
8	24	5	8	—	—	12	—	0.5	0.5
9	26	6	8	—	—	13	—	0.5	1
10	30	7	9	—	14	14.3	—	0.5	1
12	32	7	10	—	14	15.9	—	0.5	1
15	35	8	11	—	14	15.9	20	0.5	1
17	40	8	12	—	16	17.5	22	0.5	1
20	47	9	14	—	18	20.6	27	0.5	1.5
22	50	9	14	—	18	20.6	27	0.5	1.5
25	52	10	15	—	18	20.6	27	0.5	1.5
28	58	10	16	—	19	23	30	1	1.5
30	62	10	16	—	20	23.8	32	1	1.5
32	65	11	17	—	21	25	33	1	1.5
35	72	12	17	—	23	27	37	1	2
40	80	13	18	—	23	30.2	40	1	2
45	85	13	19	—	23	30.2	40	1	2
50	90	13	20	—	23	30.2	40	1	2
55	100	14	21	—	25	33.3	45	1	2.5
60	110	16	22	—	28	36.5	50	1.5	2.5
65	120	18	23	—	31	38.1	56	1.5	2.5
70	125	18	24	—	31	39.7	56	1.5	2.5
75	130	18	25	—	31	41.3	56	1.5	2.5
80	140	19	26	—	33	44.4	60	1.5	3
85	150	21	28	—	36	49.2	65	2	3
90	160	22	30	—	40	52.4	69	2	3
95	170	24	32	—	43	55.6	75	2	3.5
100	180	25	34	—	46	60.3	80	2.5	3.5
105	190	27	36	—	50	65.1	85	2.5	3.5
110	200	28	38	—	53	69.8	90	2.5	3.5
120	215	—	40	42	58	76	95	—	3.5
130	230	—	40	46	64	80	100	—	4

TABLE 5 (concluded)

Dimensions in millimetres

Bore diameter <i>d</i>	Outside diameter <i>D</i>	Dimension series							
		82	02	12	22	32	42	82	02-42
		Width <i>B</i>						Chamfer <i>r</i> <sub>nominal</sub>	
140	250	—	42	50	68	88	109	—	4
150	270	—	45	54	73	96	118	—	4
160	290	—	48	58	80	104	128	—	4
170	310	—	52	62	86	110	140	—	5
180	320	—	52	62	86	112	140	—	5
190	340	—	55	65	92	120	150	—	5
200	360	—	58	70	98	128	160	—	5
220	400	—	65	78	108	144	180	—	5
240	440	—	72	85	120	160	200	—	5
260	480	—	80	90	130	174	218	—	6
280	500	—	80	90	130	176	218	—	6
300	540	—	85	98	140	192	243	—	6
320	580	—	92	105	150	208	258	—	6
340	620	—	92	118	165	224	280	—	8
360	650	—	95	122	170	232	290	—	8
380	680	—	95	132	175	240	300	—	8
400	720	—	103	140	185	256	315	—	8
420	760	—	109	150	195	272	335	—	10
440	790	—	112	155	200	280	345	—	10
460	830	—	118	165	212	296	365	—	10
480	870	—	125	170	224	310	388	—	10
500	920	—	136	185	243	336	412	—	10
530	980	—	145	200	258	355	450	—	12
560	1030	—	150	206	272	365	475	—	12
600	1090	—	155	212	280	388	488	—	12
630	1150	—	165	230	300	412	515	—	15
670	1220	—	175	243	315	438	545	—	15
710	1280	—	180	250	325	450	560	—	15
750	1360	—	195	265	345	475	615	—	18
800	1420	—	200	272	355	488	615	—	18
850	1500	—	206	280	375	515	650	—	18
900	1580	—	218	300	388	515	670	—	18
950	1660	—	230	315	412	530	710	—	18
1000	1750	—	243	330	425	560	750	—	18

## 2.6 Diameter series 3

TABLE 6

Dimensions in millimetres

Bore diameter $d$	Outside diameter $D$	Dimension series						
		83	03	13	23	33	83	03-33
		Width $B$					Chamfer $r_{\text{nominal}}$	
3	13	—	5	—	—	7	—	0.5
4	16	—	5	—	—	9	—	0.5
5	19	—	6	—	—	10	—	0.5
6	22	—	7	—	11	13	—	0.5
7	26	—	9	—	13	15	—	0.5
8	28	—	9	—	13	15	—	0.5
9	30	—	10	—	14	16	—	1
10	35	9	11	—	17	19	0.5	1
12	37	9	12	—	17	19	0.5	1.5
15	42	9	13	—	17	19	0.5	1.5
17	47	10	14	—	19	22.2	1	1.5
20	52	10	15	—	21	22.2	1	2
22	56	11	16	—	21	25	1	2
25	62	12	17	—	24	25.4	1	2
28	68	13	18	—	24	30	1	2
30	72	13	19	—	27	30.2	1	2
32	75	14	20	—	28	32	1	2
35	80	14	21	—	31	34.9	1	2.5
40	90	16	23	—	33	36.5	1.5	2.5
45	100	17	25	—	36	39.7	1.5	2.5
50	110	19	27	—	40	44.4	1.5	3
55	120	21	29	—	43	49.2	2	3
60	130	22	31	—	46	54	2	3.5
65	140	24	33	—	48	58.7	2	3.5
70	150	25	35	—	51	63.5	2.5	3.5
75	160	27	37	—	55	68.3	2.5	3.5
80	170	28	39	—	58	68.3	2.5	3.5
85	180	30	41	—	60	73	3	4
90	190	30	43	—	64	73	3	4
95	200	33	45	—	67	77.8	3	4
100	215	36	47	51	73	82.6	3.5	4
105	225	37	49	53	77	87.3	3.5	4
110	240	42	50	57	80	92.1	4	4
120	260	44	55	62	86	106	4	4
130	280	48	58	66	93	112	4	5

TABLE 6 (concluded)

Dimensions in millimetres

Bore diameter $d$	Outside diameter $D$	Dimension series						
		83	03	13	23	33	83	03-33
		Width $B$					Chamfer $r_{\text{nominal}}$	
140	300	50	62	70	102	118	5	5
150	320	—	65	75	108	128	—	5
160	340	—	68	79	114	136	—	5
170	360	—	72	84	120	140	—	5
180	380	—	75	88	126	150	—	5
190	400	—	78	92	132	155	—	6
200	420	—	80	97	138	165	—	6
220	460	—	88	106	145	180	—	6
240	500	—	95	114	155	195	—	6
260	540	—	102	123	165	206	—	8
280	580	—	108	132	175	224	—	8
300	620	—	109	140	185	236	—	10
320	670	—	112	155	200	258	—	10
340	710	—	118	165	212	272	—	10
360	750	—	125	170	224	290	—	10
380	780	—	128	175	230	300	—	10
400	820	—	136	185	243	308	—	10
420	850	—	136	190	250	315	—	12
440	900	—	145	200	265	345	—	12
460	950	—	155	212	280	365	—	12
480	980	—	160	218	290	375	—	12
500	1030	—	170	230	300	388	—	15
530	1090	—	180	243	325	412	—	15
560	1150	—	190	258	335	438	—	15
600	1220	—	200	272	355	462	—	18
630	1280	—	206	280	375	488	—	18
670	1360	—	218	300	400	515	—	18
710	1420	—	224	308	412	530	—	18
750	1500	—	236	325	438	560	—	18
800	1600	—	258	355	462	600	—	18
850	1700	—	272	375	488	630	—	22
900	1780	—	280	388	500	650	—	22
950	1850	—	290	400	515	670	—	22
1000	1950	—	300	412	545	710	—	22

## 2.7 Diameter series 4

TABLE 7

Dimensions in millimetres

Bore diameter $d$	Outside diameter $D$	Dimension series			Bore diameter $d$	Outside diameter $D$	Dimension series		
		04	24	04-24			04	24	04-24
		Width $B$		Chamfer $r_{\text{nominal}}$			Width $B$		Chamfer $r_{\text{nominal}}$
8	30	10	14	1	140	360	82	132	6
9	32	11	15	1	150	380	85	138	6
10	37	12	16	1	160	400	88	142	6
12	42	13	19	1.5	170	420	92	145	6
15	52	15	24	2	180	440	95	150	8
17	62	17	29	2	190	460	98	155	8
20	72	19	33	2	200	480	102	160	8
25	80	21	36	2.5	220	540	115	180	8
30	90	23	40	2.5	240	580	122	190	8
35	100	25	43	2.5	260	620	132	206	10
40	110	27	46	3	280	670	140	224	10
45	120	29	50	3	300	710	150	236	10
50	130	31	53	3.5	320	750	155	250	12
55	140	33	57	3.5	340	800	165	265	12
60	150	35	60	3.5	360	850	180	280	12
65	160	37	64	3.5	380	900	190	300	12
70	180	42	74	4	400	950	200	315	15
75	190	45	77	4	420	980	206	325	15
80	200	48	80	4	440	1030	212	335	15
85	210	52	86	5	460	1060	218	345	15
90	225	54	90	5	480	1120	230	365	18
95	240	55	95	5	500	1150	236	375	18
100	250	58	98	5	530	1220	250	400	18
105	260	60	100	5	560	1280	258	412	18
110	280	65	108	5	600	1360	272	438	18
120	310	72	118	6	630	1420	280	450	18
130	340	78	128	6	670	1500	290	475	18