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R 104

BALL AND ROLLER BEARINGS
BOUNDARY DIMENSIONS

1st EDITION

April 1959

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BRIEF HISTORY

The ISO Recommendation R 104, *Ball and Rollers Bearings - Boundary Dimensions*, was drawn up by Technical Committee ISO/TC 4, *Ball and Roller Bearings*, the Secretariat of which is held by the Sveriges Standardiseringskommission (SIS).

The proposals drawn up by the ISO/TC 4 Secretariat for the subject-matter of this ISO Recommendation were discussed by the Technical Committee during its fourth meeting, held in Madrid, in May 1955, and during its fifth meeting, held in Vienna, in September 1956; they were adopted as a Draft ISO Recommendation.

On 15 November 1957, the Draft ISO Recommendation (No 154) was distributed to all the ISO Member Bodies and was approved by the following Member Bodies:

Austria	India	Spain
Bulgaria	Italy	Sweden
Burma	Japan	Switzerland
Canada	Netherlands	Union of South-Africa
Finland	New Zealand	United Kingdom
France	Poland	U.S.A.
Germany	Portugal	U.S.S.R.
Hungary	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 April 1959, to accept it as an ISO RECOMMENDATION.

ISO Recommendation R 104 April 1959

BALL AND ROLLER BEARINGS
BOUNDARY DIMENSIONS

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1. RADIAL BEARINGS

(except tapered roller bearings)

INTERMEDIATE BOUNDARY DIMENSIONS

Symbols

d = Bearing bore diameter

D = Bearing outside diameter

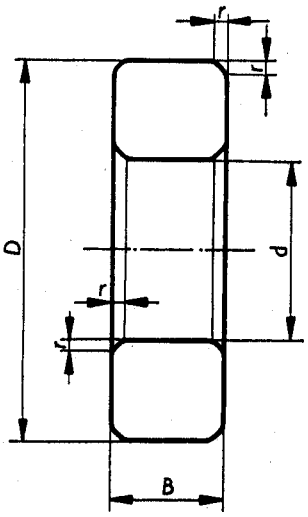
B = Bearing width (inner and outer rings)

r = Inner and outer ring chamfer dimension (height and width)

$r_{min.}$ = Minimum chamfer dimension indicating the maximum shaft or housing fillet radius which the bearing corner will clear

$r_{max.}$ = Maximum chamfer dimension indicating the minimum shaft or housing shoulder which the bearing face must contact

$r_{nominal}$ = Nominal chamfer dimension



1.1 Diameter series 8

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					
									min.	max.	nominal	min.	max.	nominal
22	34	4	7	—	10	—	16	22	0.3	0.8	0.5	0.3	0.8	0.5
28	40	4	7	—	10	—	16	22	0.3	0.8	0.5	0.3	0.8	0.5
32	44	4	7	—	10	—	16	22	0.3	0.8	0.5	0.3	1	0.5

1.2 Diameter series 9

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*					
									min.	max.	nominal	min.	max.	nominal
22	39	7	9	11	13	17	23	30	0.3	0.8	0.5	0.3	1	0.5
28	45	7	9	11	13	17	23	30	0.3	0.8	0.5	0.3	1	0.5
32	52	7	10	13	15	20	27	36	0.3	0.8	0.5	0.6	1.5	1

1.3 Diameter series 0

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*					
									min.	max.	nominal	min.	max.	nominal
22	44	8	12	14	16	22	30	40	0.3	0.8	0.5	0.6	1.5	1
28	52	8	12	15	18	24	32	43	0.3	1	0.5	0.6	1.5	1
32	58	9	13	16	20	26	35	47	0.3	1	0.5	1	2.2	1.5

2. DOUBLE-DIRECTION THRUST BEARINGS WITH FLAT SEATS

BOUNDARY DIMENSIONS

Symbols

d = Maximum shaft shoulder diameter = bore diameter of small-bore washer of corresponding single-direction thrust bearing

d_1 = Bore diameter of centre washer

D = Outside diameter of large-bore washers = maximum outside diameter of centre washer

H = Bearing height

a = Thickness of centre washer

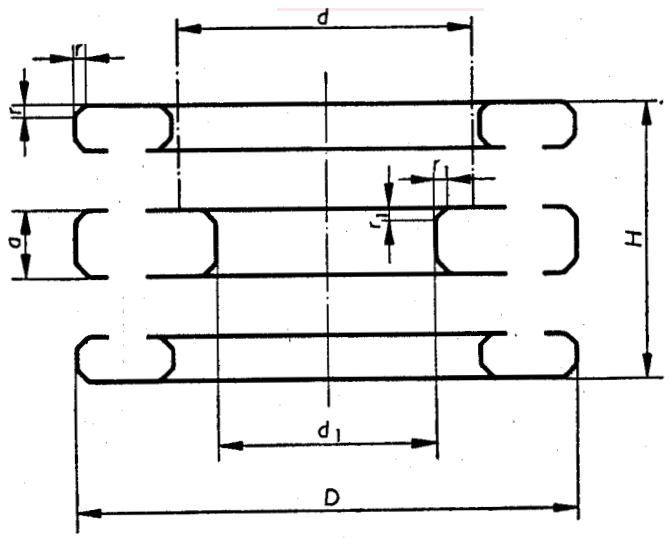
r = Chamfer dimension (height and width) of outside surface of large-bore washers

r_1 = Chamfer dimension (height and width) of bore of centre washer

$r_{min.}$, $r_{1\,min.}$ = Minimum chamfer dimension indicating the maximum shaft or housing fillet radius which the bearing corner will clear

$r_{max.}$, $r_{1\,max.}$ = Maximum chamfer dimension

$r_{nominal}$, $r_{1\,nominal}$ = Nominal chamfer dimension



2.1 Diameter series 2 — Dimension series 22

Dimensions in millimetres

Maximum shaft shoulder diameter d	Bore diameter of centre washer d_1	Outside diameter D	Bearing height H	Thickness of centre washer a	Chamfers * r min.	r max.	r nominal	r_1 min.	r_1 max.	r_1 nominal
15	10	32	22	5	0.6	1.5	1	0.3	1	0.5
20	15	40	26	6	0.6	1.5	1	0.3	1	0.5
25	20	47	28	7	0.6	1.5	1	0.3	1	0.5
30	25	52	29	7	0.6	1.5	1	0.3	1	0.5
35	30	62	34	8	1	2.2	1.5	0.3	1	0.5
40	30	68	36	9	1	2.2	1.5	0.6	1.5	1
45	35	73	37	9	1	2.2	1.5	0.6	1.5	1
50	40	78	39	9	1	2.2	1.5	0.6	1.5	1
55	45	90	45	10	1	2.2	1.5	0.6	1.5	1
60	50	95	46	10	1	2.2	1.5	0.6	1.5	1
65	55	100	47	10	1	2.2	1.5	0.6	1.5	1
70	55	105	47	10	1	2.2	1.5	1	2.2	1.5
75	60	110	47	10	1	2.2	1.5	1	2.2	1.5
80	65	115	48	10	1	2.2	1.5	1	2.2	1.5
85	70	125	55	12	1	2.2	1.5	1	2.2	1.5
90	75	135	62	14	1	2.7	2	1	2.2	1.5
100	85	150	67	15	1	2.7	2	1	2.2	1.5

2.2 Diameter series 3 — Dimension series 23

Dimensions in millimetres

Maximum shaft shoulder diameter d	Bore diameter of centre washer d_1	Outside diameter D	Bearing height H	Thickness of centre washer a	Chamfers * r min.	r max.	r nominal	r_1 min.	r_1 max.	r_1 nominal
25	20	52	34	8	1	2.2	1.5	0.3	1	0.5
30	25	60	38	9	1	2.2	1.5	0.3	1	0.5
35	30	68	44	10	1	2.2	1.5	0.3	1	0.5
40	30	78	49	12	1	2.2	1.5	0.6	1.5	1
45	35	85	52	12	1	2.2	1.5	0.6	1.5	1
50	40	95	58	14	1	2.7	2	0.6	1.5	1
55	45	105	64	15	1	2.7	2	0.6	1.5	1
60	50	110	64	15	1	2.7	2	0.6	1.5	1
65	55	115	65	15	1	2.7	2	0.6	1.5	1
70	55	125	72	16	1	2.7	2	1	2.2	1.5
75	60	135	79	18	1.5	3.5	2.5	1	2.2	1.5
80	65	140	79	18	1.5	3.5	2.5	1	2.2	1.5
85	70	150	87	19	1.5	3.5	2.5	1	2.2	1.5
90	75	155	88	19	1.5	3.5	2.5	1	2.2	1.5
100	85	170	97	21	1.5	3.5	2.5	1	2.2	1.5

* Chamfer dimensions do not control the shape of the bearing corner.