

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION R 355

PART I

ROLLING BEARINGS

TAPERED ROLLER BEARINGS
BOUNDARY DIMENSIONS

1st EDITION
December 1963

COPYRIGHT RESERVED

The copyright of ISO Recommendations and ISO Standards belongs to ISO Member Bodies. Reproduction of these documents, in any country, may be authorized therefore only by the national standards organization of that country, being a member of ISO.

For each individual country the only valid standard is the national standard of that country.

Printed in Switzerland

Also issued in French and Russian. Copies to be obtained through the national standards organizations.

STANDARDSISO.COM : Click to view the full PDF of ISO/R 355-1:1963

BRIEF HISTORY

The ISO Recommendation R 355, *Tapered Roller 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).

Work on this question by the Technical Committee began in 1949 and led to the presentation of two Draft ISO Recommendations, one concerning Metric Series and the other Inch Series.

In November 1957, the Draft ISO Recommendation concerning the Metric Series (No. 154, chapters 2 and 3), was circulated to all the ISO Member Bodies for enquiry. As the results of this consultation were not considered satisfactory, the Technical Committee presented a second Draft ISO Recommendation, which was circulated to all the Member Bodies in January 1959, and which was approved, subject to a few modifications of an editorial nature, by the following Member Bodies:

Austria	Germany	Spain
Brazil	Hungary	Sweden
Burma	India	Switzerland
Canada	Italy	Republic of
Czechoslovakia	Japan	South Africa
Finland	Poland	United Kingdom
France	Romania	U.S.S.R.

One Member Body opposed the approval of the Draft: U.S.A.

The Draft ISO Recommendation concerning the Inch Series (No. 279), was circulated in May 1959 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:

Australia	Greece	Romania
Austria	Hungary	Spain
Burma	India	Sweden
Canada	Italy	Switzerland
Chile	Japan	United Kingdom
Czechoslovakia	Netherlands	U.S.A.
France	Poland	
Germany	Portugal	

One Member Body opposed the approval of the Draft: U.S.S.R.

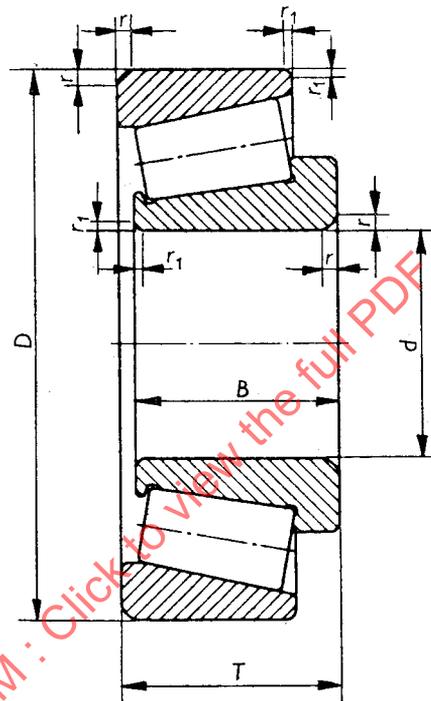
These two combined Draft ISO Recommendations were then submitted by correspondence to the ISO Council, which decided, in December 1963, to accept them as an ISO RECOMMENDATION.

CONTENTS

	Page
1. Metric series	5
1.1 Diameter series 2	
1.1.1 Dimensions in millimetres	6
1.1.2 Dimensions in inches	7
1.2 Diameter series 3	
1.2.1 Dimensions in millimetres	8
1.2.2 Dimensions in inches	9
2. Inch series	10
2.1 Line 1	
2.1.1 Dimensions in inches	11
2.1.2 Dimensions in millimetres	12
2.2 Line 2	
2.2.1 Dimensions in inches	13
2.2.2 Dimensions in millimetres	14
2.3 Line 3	
2.3.1 Dimensions in inches	15
2.3.2 Dimensions in millimetres	16
2.4 Line 4	
2.4.1 Dimensions in inches	17
2.4.2 Dimensions in millimetres	18
2.5 Line 5	
2.5.1 Dimensions in inches	19
2.5.2 Dimensions in millimetres	20

ROLLING BEARINGS
TAPERED ROLLER BEARINGS
BOUNDARY DIMENSIONS

1. METRIC SERIES



d = bearing bore diameter

D = bearing outside diameter

B = inner ring width

T = bearing width * (width over bearing rings)

r = chamfer dimension ** (height and width) on inner and outer ring backfaces

r_1 = chamfer dimension ** (height and width) on inner and outer ring frontfaces

* Attention is called to the fact that the cage may project beyond the bearing width.

** Nominal chamfer dimensions do not control the shape of the bearing corner.

1.1 Diameter series 2

1.1.1 Dimensions in millimetres

Bore diameter d	Outside diameter D	Dimension series				Chamfer	
		02		22		r nominal	r_1 nominal
		Inner ring width B	Bearing width T	Inner ring width B	Bearing width T		
10	30	9	9.7	14	14.7	1	0.3
12	32	10	10.75	14	14.75	1	0.3
15	35	11	11.75	14	14.75	1	0.3
17	40	12	13.25	16	17.25	1.5	0.5
20	47	14	15.25	18	19.25	1.5	0.5
22	50	14	15.25	18	19.25	1.5	0.5
25	52	15	16.25	18	19.25	1.5	0.5
28	58	16	17.25	19	20.25	1.5	0.5
30	62	16	17.25	20	21.25	1.5	0.5
32	65	17	18.25	21	22.25	1.5	0.5
35	72	17	18.25	23	24.25	2	0.8
40	80	18	19.75	23	24.75	2	0.8
45	85	19	20.75	23	24.75	2	0.8
50	90	20	21.75	23	24.75	2	0.8
55	100	21	22.75	25	26.75	2.5	0.8
60	110	22	23.75	28	29.75	2.5	0.8
65	120	23	24.75	31	32.75	2.5	0.8
70	125	24	26.25	31	33.25	2.5	0.8
75	130	25	27.25	31	33.25	2.5	0.8
80	140	26	28.25	33	35.25	3	1
85	150	28	30.5	36	38.5	3	1
90	160	30	32.5	40	42.5	3	1
95	170	32	34.5	43	45.5	3.5	1.2
100	180	34	37	46	49	3.5	1.2
105	190	36	39	50	53	3.5	1.2
110	200	38	41	53	56	3.5	1.2
120	215	—	—	58	61.5	3.5	1.2
130	230	—	—	64	67.75	4	1.5
140	250	—	—	68	71.75	4	1.5
150	270	—	—	73	77	4	1.5

1.1.2 Dimensions in inches

Bore diameter d	Outside diameter D	Dimension series				Chamfer	
		02		22		r nominal	r_1 nominal
		Inner ring width B	Bearing width T	Inner ring width B	Bearing width T		
0.39370	1.18110	0.3543	0.3819	0.5512	0.5787	0.039	0.012
0.47244	1.25984	0.3937	0.4232	0.5512	0.5807	0.039	0.012
0.59055	1.37795	0.4331	0.4626	0.5512	0.5807	0.039	0.012
0.66929	1.57480	0.4724	0.5217	0.6299	0.6791	0.059	0.020
0.78740	1.85039	0.5512	0.6004	0.7087	0.7579	0.059	0.020
0.86614	1.96850	0.5512	0.6004	0.7087	0.7579	0.059	0.020
0.98425	2.04724	0.5906	0.6398	0.7087	0.7579	0.059	0.020
1.10236	2.28346	0.6299	0.6791	0.7480	0.7972	0.059	0.020
1.18110	2.44094	0.6299	0.6791	0.7874	0.8366	0.059	0.020
1.25984	2.55906	0.6693	0.7185	0.8268	0.8760	0.059	0.020
1.37795	2.83465	0.6693	0.7185	0.9055	0.9547	0.079	0.031
1.57480	3.14961	0.7087	0.7776	0.9055	0.9744	0.079	0.031
1.77165	3.34646	0.7480	0.8169	0.9055	0.9744	0.079	0.031
1.96850	3.54331	0.7874	0.8563	0.9055	0.9744	0.079	0.031
2.16535	3.93701	0.8268	0.8957	0.9843	1.0531	0.098	0.031
2.36220	4.33071	0.8661	0.9350	1.1024	1.1713	0.098	0.031
2.55906	4.72441	0.9055	0.9744	1.2205	1.2894	0.098	0.031
2.75591	4.92126	0.9449	1.0335	1.2205	1.3091	0.098	0.031
2.95276	5.11811	0.9843	1.0728	1.2205	1.3091	0.098	0.031
3.14961	5.51181	1.0236	1.1122	1.2992	1.3878	0.118	0.039
3.34646	5.90551	1.1024	1.2008	1.4173	1.5157	0.118	0.039
3.54331	6.29921	1.1811	1.2795	1.5748	1.6732	0.118	0.039
3.74016	6.69291	1.2598	1.3583	1.6929	1.7913	0.138	0.047
3.93701	7.08661	1.3386	1.4567	1.8110	1.9291	0.138	0.047
4.13356	7.48031	1.4173	1.5354	1.9685	2.0866	0.138	0.047
4.33071	7.87402	1.4961	1.6142	2.0866	2.2047	0.138	0.047
4.72441	8.46457	—	—	2.2835	2.4213	0.138	0.047
5.11811	9.05512	—	—	2.5197	2.6673	0.157	0.059
5.51181	9.84252	—	—	2.6772	2.8248	0.157	0.059
5.90551	10.62992	—	—	2.8740	3.0315	0.157	0.059

1.2 Diameter series 3

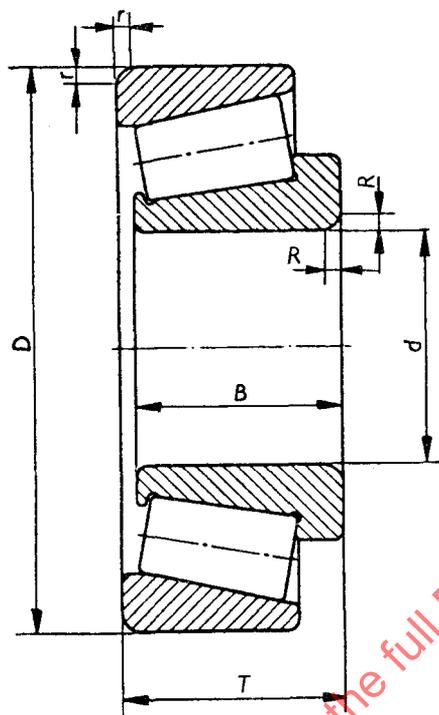
1.2.1 Dimensions in millimetres

Bore diameter d	Outside diameter D	Dimension series				Chamfer	
		03		23		r nominal	r_1 nominal
		Inner ring width B	Bearing width T	Inner ring width B	Bearing width T		
10	35	11	11.9	17	17.9	1	0.3
12	37	12	12.9	17	17.9	1.5	0.5
15	42	13	14.25	17	18.25	1.5	0.5
17	47	14	15.25	19	20.25	1.5	0.5
20	52	15	16.25	21	22.25	2	0.8
22	56	16	17.25	21	22.25	2	0.8
25	62	17	18.25	24	25.25	2	0.8
28	68	18	19.75	24	25.75	2	0.8
30	72	19	20.75	27	28.75	2	0.8
32	75	20	21.75	28	29.75	2	0.8
35	80	21	22.75	31	32.75	2.5	0.8
40	90	23	25.25	33	35.25	2.5	0.8
45	100	25	27.25	36	38.25	2.5	0.8
50	110	27	29.25	40	42.25	3	1
55	120	29	31.5	43	45.5	3	1
60	130	31	33.5	46	48.5	3.5	1.2
65	140	33	36	48	51	3.5	1.2
70	150	35	38	51	54	3.5	1.2
75	160	37	40	55	58	3.5	1.2
80	170	39	42.5	58	61.5	3.5	1.2
85	180	41	44.5	60	63.5	4	1.5
90	190	43	46.5	64	67.5	4	1.5
95	200	45	49.5	67	71.5	4	1.5
100	215	—	—	73	77.5	4	1.5
105	225	—	—	77	81.5	4	1.5
110	240	—	—	80	84.5	4	1.5
120	260	—	—	86	90.5	4	1.5
130	280	—	—	93	98.75	5	2
140	300	—	—	102	107.75	5	2
150	320	—	—	108	114	5	2

1.2.2 Dimensions in inches

Bore diameter d	Outside diameter D	Dimension series				Chamfer	
		03		23		r nominal	r_1 nominal
		Inner ring width B	Bearing width T	Inner ring width B	Bearing width T		
0.39370	1.37795	0.4331	0.4635	0.6693	0.7047	0.039	0.012
0.47244	1.45669	0.4724	0.5079	0.6693	0.7047	0.059	0.020
0.59055	1.65354	0.5118	0.5610	0.6693	0.7185	0.059	0.020
0.66929	1.85039	0.5512	0.6004	0.7480	0.7972	0.059	0.020
0.78740	2.04724	0.5906	0.6398	0.8268	0.8760	0.079	0.031
0.86614	2.20472	0.6299	0.6791	0.8268	0.8760	0.079	0.031
0.98425	2.44094	0.6693	0.7185	0.9449	0.9941	0.079	0.031
1.10236	2.67717	0.7087	0.7776	0.9449	1.0138	0.079	0.031
1.18110	2.83465	0.7480	0.8169	1.0630	1.1319	0.079	0.031
1.25984	2.95276	0.7874	0.8563	1.1024	1.1713	0.079	0.031
1.37795	3.14961	0.8268	0.8957	1.2205	1.2894	0.098	0.031
1.57480	3.54331	0.9055	0.9941	1.2992	1.3878	0.098	0.031
1.77165	3.93701	0.9843	1.0728	1.4173	1.5059	0.098	0.031
1.96850	4.33071	1.0630	1.1516	1.5748	1.6634	0.118	0.039
2.16535	4.72441	1.1417	1.2402	1.6929	1.7913	0.118	0.039
2.36220	5.11811	1.2205	1.3189	1.8110	1.9094	0.138	0.047
2.55906	5.51181	1.2992	1.4173	1.8898	2.0079	0.138	0.047
2.75591	5.90551	1.3780	1.4961	2.0079	2.1260	0.138	0.047
2.95276	6.29921	1.4567	1.5748	2.1654	2.2835	0.138	0.047
3.14961	6.69291	1.5354	1.6732	2.2835	2.4213	0.138	0.047
3.34646	7.08661	1.6142	1.7520	2.3622	2.5000	0.157	0.059
3.54331	7.48031	1.6929	1.8307	2.5197	2.6575	0.157	0.059
3.74016	7.87402	1.7717	1.9488	2.6378	2.8150	0.157	0.059
3.93701	8.46457	—	—	2.8740	3.0512	0.157	0.059
4.13356	8.85827	—	—	3.0315	3.2087	0.157	0.059
4.33071	9.44882	—	—	3.1496	3.3268	0.157	0.059
4.72441	10.23622	—	—	3.3858	3.5630	0.157	0.059
5.11811	11.02362	—	—	3.6614	3.8878	0.197	0.079
5.51181	11.81102	—	—	4.0157	4.2421	0.197	0.079
5.90551	12.59843	—	—	4.2520	4.4882	0.197	0.079

2. INCH SERIES



d = bearing bore diameter

D = bearing outside diameter

B = inner ring width

T = bearing width * (width over bearing rings)

R = chamfer dimension ** (height and width) on inner ring backface

r = chamfer dimension ** (height and width) on outer ring backface

* Attention is called to the fact that the cage may project beyond the bearing width.

** Chamfer dimensions do not control the shape of the bearing corner (see, however, definition of "Low limit" in the relevant ISO Recommendation).

2.1 Line 1

2.1.1 Dimensions in inches

Bore diameter d	Outside diameter D	Inner ring width B	Bearing width T	Chamfer	
				$R_{\min.}^*$	$r_{\min.}^{**}$
0.625	1.4380	0.4375	0.4375	0.062	0.062
0.750	1.6250	0.4391	0.4687	0.040	0.046
0.875	1.8750	0.5625	0.5625	0.062	0.062
1.000	1.9687	0.5614	0.5625	0.040	0.062
1.125	2.1875	0.5625	0.5625	0.062	0.062
1.250	2.3280	0.6600	0.6250	0.140	0.046
1.375	2.5625	0.7200	0.7100	0.140	0.046
1.500	2.7170	0.7500	0.7100	0.078	0.062
1.750	2.8750	0.7188	0.7188	0.062	0.062
2.000	3.1875	0.7188	0.7188	0.062	0.062
2.250	3.5000	0.7188	0.7500	0.062	0.062
2.500	3.7500	0.7500	0.8125	0.062	0.062
2.750	4.2500	0.9688	0.9688	0.062	0.062
3.000	4.5625	1.0625	1.0625	0.062	0.062
3.500	5.1250	1.1250	1.1250	0.093	0.093
4.000	5.7500	1.2500	1.2500	0.093	0.093
4.500	6.5625	1.4375	1.4375	0.125	0.125
5.000	7.1875	1.5000	1.5625	0.140	0.125
5.500	7.8750	1.5625	1.6250	0.140	0.125
6.000	8.3750	1.6250	1.6250	0.140	0.125

* R_{\min} = minimum chamfer dimension indicating the maximum shaft fillet radius, which the bearing corner will clear.

** r_{\min} = minimum chamfer dimension indicating the maximum housing fillet radius, which the bearing corner will clear.

2.1.2 Dimensions in millimetres

Bore diameter d	Outside diameter D	Inner ring width B	Bearing width T	Chamfer	
				$R_{\min.}^*$	$r_{\min.}^{**}$
15.875	36.525	11.11	11.11	1.57	1.57
19.050	41.275	11.15	11.90	1.02	1.17
22.225	47.625	14.29	14.29	1.57	1.57
25.400	50.005	14.26	14.29	1.02	1.57
28.575	55.562	14.29	14.29	1.57	1.57
31.750	59.131	16.76	15.88	3.56	1.17
34.925	65.088	18.29	18.03	3.56	1.17
38.100	69.012	19.05	18.03	1.98	1.57
44.450	73.025	18.26	18.26	1.57	1.57
50.800	80.962	18.26	18.26	1.57	1.57
57.150	88.900	18.26	19.05	1.57	1.57
63.500	95.250	19.05	20.64	1.57	1.57
69.850	107.950	24.61	24.61	1.57	1.57
76.200	115.888	26.99	26.99	1.57	1.57
88.900	130.175	28.58	28.58	2.36	2.36
101.600	146.050	31.75	31.75	2.36	2.36
114.300	166.688	36.51	36.51	3.18	3.18
127.000	182.562	38.10	39.69	3.56	3.18
139.700	200.025	39.69	41.28	3.56	3.18
152.400	212.725	41.28	41.28	3.56	3.18

* $R_{\min.}$ = minimum chamfer dimension indicating the maximum shaft fillet radius, which the bearing corner will clear.

** $r_{\min.}$ = minimum chamfer dimension indicating the maximum housing fillet radius, which the bearing corner will clear.

2.2 Line 2

2.2.1 Dimensions in inches

Bore diameter <i>d</i>	Outside diameter <i>D</i>	Inner ring width <i>B</i>	Bearing width <i>T</i>	Chamfer	
				<i>R</i> _{min.*}	<i>r</i> _{min.**}
0.625	1.6250	0.5780	0.5625	0.046	0.078
0.750	1.7810	0.6550	0.6100	0.046	0.046
0.875	2.0625	0.7940	0.7625	0.062	0.062
1.000	2.2400	0.7810	0.7625	0.031	0.046
1.125	2.4410	0.8125	0.8125	0.140	0.046
1.250	2.6875	0.9375	0.8750	0.140	0.062
1.375	2.8750	0.9688	0.9375	0.140	0.093
1.500	3.0000	1.0100	0.9375	0.140	0.125
1.750	3.2700	1.0000	0.9375	0.140	0.125
2.000	3.6718	1.1930	1.1875	0.140	0.125
2.250	4.1250	1.1542	1.1875	0.140	0.125
2.500	4.4375	1.1830	1.1875	0.140	0.125
2.750	5.0000	1.4240	1.4375	0.140	0.125
3.000	5.5115	1.4212	1.4375	0.140	0.125
3.500	6.0000	1.4300	1.5625	0.140	0.125
4.000	6.6250	1.6250	1.6250	0.140	0.125
4.500	7.2500	1.6250	1.6250	0.140	0.125
5.000	8.0000	1.8125	1.8125	0.140	0.125
5.500	8.5000	1.8750	1.8750	0.140	0.125
6.000	9.1250	1.8125	1.8750	0.140	0.125

* *R*_{min.} = minimum chamfer dimension indicating the maximum shaft fillet radius, which the bearing corner will clear.

** *r*_{min.} = minimum chamfer dimension indicating the maximum housing fillet radius, which the bearing corner will clear.

2.2.2 Dimensions in millimetres

Bore diameter d	Outside diameter D	Inner ring width B	Bearing width T	Chamfer	
				$R_{\min.}$ *	$r_{\min.}$ **
15.875	41.275	14.68	14.29	1.17	1.98
19.050	45.237	16.64	15.49	1.17	1.17
22.225	52.388	20.17	19.37	1.57	1.57
25.400	56.896	19.84	19.37	0.79	1.17
28.575	62.001	20.64	20.64	3.56	1.17
31.750	68.262	23.81	22.22	3.56	1.57
34.925	73.025	24.61	23.81	3.56	2.36
38.100	76.200	25.65	23.81	3.56	3.18
44.450	83.058	25.40	23.81	3.56	3.18
50.800	93.264	30.30	30.16	3.56	3.18
57.150	104.775	29.32	30.16	3.56	3.18
63.500	112.712	30.05	30.16	3.56	3.18
69.850	127.000	36.17	36.51	3.56	3.18
76.200	139.992	36.10	36.51	3.56	3.18
88.900	152.400	36.32	39.69	3.56	3.18
101.600	168.275	41.28	41.28	3.56	3.18
114.300	184.150	41.28	41.28	3.56	3.18
127.000	203.200	46.04	46.04	3.56	3.18
139.700	215.900	47.62	47.62	3.56	3.18
152.400	231.775	46.04	47.62	3.56	3.18

* $R_{\min.}$ = minimum chamfer dimension indicating the maximum shaft fillet radius, which the bearing corner will clear.

** $r_{\min.}$ = minimum chamfer dimension indicating the maximum housing fillet radius, which the bearing corner will clear.

2.3 Line 3

2.3.1 Dimensions in inches

Bore diameter <i>d</i>	Outside diameter <i>D</i>	Inner ring width <i>B</i>	Bearing width <i>T</i>	Chamfer	
				<i>R</i> _{min.*}	<i>r</i> _{min.**}
0.625	1.6875	0.6563	0.6563	0.062	0.062
0.750	1.9687	0.7200	0.6900	0.062	0.046
0.875	2.3125	0.7620	0.7500	0.031	0.046
1.000	2.5000	0.8125	0.8125	0.062	0.046
1.125	2.6875	0.8750	0.8750	0.093	0.093
1.250	2.8750	1.0938	1.1563	0.046	0.125
1.375	3.0000	1.1250	1.1563	0.140	0.125
1.500	3.2500	1.1250	1.1563	0.031	0.125
1.750	3.7500	1.1563	1.1875	0.140	0.125
2.000	4.1250	1.4375	1.4375	0.140	0.125
2.250	4.7500	1.6250	1.6250	0.140	0.125
2.500	5.3750	1.6250	1.6250	0.140	0.125
2.750	5.7500	1.6250	1.6250	0.140	0.125
3.000	6.1250	1.8375	1.7500	0.140	0.125
3.500	6.7500	1.9000	1.8750	0.203	0.125
4.000	7.5000	2.2650	2.2500	0.312	0.125
4.500	8.2500	2.5000	2.4375	0.250	0.125
5.000	9.2500	2.5000	2.5000	0.250	0.125
5.500	10.0000	2.6250	2.6250	0.281	0.125
6.000	10.5000	2.6250	2.6250	0.281	0.125

* *R*_{min.} = minimum chamfer dimension indicating the maximum shaft fillet radius, which the bearing corner will clear.

** *r*_{min.} = minimum chamfer dimension indicating the maximum housing fillet radius, which the bearing corner will clear.

2.3.2 Dimensions in millimetres

Bore diameter d	Outside diameter D	Inner ring width B	Bearing width T	Chamfer	
				$R_{\min.}^*$	$r_{\min.}^{**}$
15.875	42.862	16.67	16.67	1.57	1.57
19.050	50.005	18.29	17.53	1.57	1.17
22.225	58.738	19.35	19.05	0.79	1.17
25.400	63.500	20.64	20.64	1.57	1.17
28.575	68.262	22.22	22.22	2.36	2.36
31.750	73.025	27.78	29.37	1.17	3.18
34.925	76.200	28.58	29.37	3.56	3.18
38.100	82.550	28.58	29.37	0.79	3.18
44.450	95.250	29.37	30.16	3.56	3.18
50.800	104.775	36.51	36.51	3.56	3.18
57.150	120.650	41.28	41.28	3.56	3.18
63.500	136.525	41.28	41.28	3.56	3.18
69.850	146.050	41.28	41.28	3.56	3.18
76.200	155.575	46.67	44.45	3.56	3.18
88.900	171.450	48.26	47.62	5.16	3.18
101.600	190.500	57.53	57.15	7.92	3.18
114.300	209.550	63.50	61.91	6.35	3.18
127.000	234.950	63.50	63.50	6.35	3.18
139.700	254.000	66.68	66.68	7.14	3.18
152.400	266.700	66.68	66.68	7.14	3.18

* $R_{\min.}$ = minimum chamfer dimension indicating the maximum shaft fillet radius, which the bearing corner will clear.

** $r_{\min.}$ = minimum chamfer dimension indicating the maximum housing fillet radius, which the bearing corner will clear.