Rolling Bearings

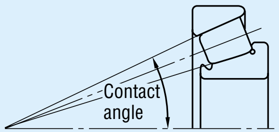
Tapered Roller Bearings

TAPERED ROLLER BEARINGS

The index for inch design tapered roller bearings is in Appendix 14 (Page C26).

Four-Row Tapered Roller Bearings are described on pages B330 to B335.

DESIGN, TYPES, AND FEATURES

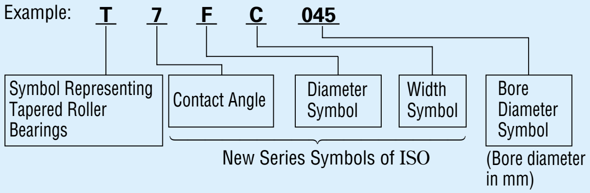


Tapered roller bearings are designed so the apices of the cones formed by the raceways of the cone and cup and the conical rollers all coincide at one point on the axis of the bearing. When a radial load is imposed, an axial force component occurs; therefore, it is necessary to use two bearings in opposition or some other multiple arrangement.

For metric-design medium-angle and steep-angle tapered roller bearings, the respective contact angle symbol C or D is added after the bore number. For normal-angle tapered roller bearings, no contact angle symbol is used. Medium-angle tapered roller bearings are primarily used for the pinion shafts of differential gears of automobiles.

Among those with high load capacity(HR series), some bearings have the basic number suffixed by J to conform to the specifications of ISO for the cup back face raceway diameter, cup width, and contact angle. Therefore, the cone assembly and cup of bearings with the same basic number suffixed by J are internationally interchangeable.

Among metric-design tapered roller bearings specified by ISO 355, there are those having new dimensions that are different than the dimension series 3XX used in the past. Part of them are listed in the bearing tables. They conform to the specifications of ISO for the smaller end diameter of the cup and contact angle. The cone and cup assemblies are internationally interchangeable. The bearing number formulation, which is different than that for past metric design, is as follows:



Besides metric design tapered roller bearings, there are also inch design bearings. For the cone assemblies and cups of inch design bearings, except four-row tapered roller bearings, the bearing numbers are approximately formulated as follows:

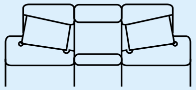
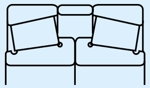
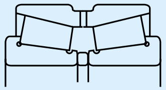
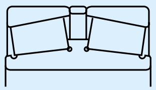
Example: LM 1 19 49

- LM — Load Limit Symbol
- 1 — Contact Angle Symbol
- 19 — Series No.
- 49 — Design No.
- Additional Symbol

For tapered roller bearings, besides single-row bearings, there are also various combinations of bearings.

The cages of tapered roller bearings are usually pressed steel.

Table 1 Design and Featured of Combinations of Tapered Roller Bearings

Figure	Arrangement	Examples of Bearing No.	Features
	Back-to-back	HR30210JDB+KLR10	Two standard bearings are combined. The bearing clearances are adjusted by cone spacers or cup spacers. The cones and cups and spacers are marked with serial numbers and mating marks. Components with the same serial number can be assembled referring to the matching symbols.
	Face-to-face	HR30210JDF+KR	
	KBE Type	100KBE31+L	The KBE type is a back-to-back arrangement of bearings with the cup and spacer integrated, and the KH type is a face-to-face arrangement in which the cones are integrated. Since the bearing clearance is adjusted using spacers, it is necessary for components to have the same serial number for assembly with reference to matching symbols.
	KH Type	110KH31+K	

TOLERANCES AND RUNNING ACCURACY

METRIC DESIGN TAPERED ROLLER BEARINGS .... Table 8.3 (Pages A64 to A67)

INCH DESIGN TAPERED ROLLER BEARINGS .... Table 8.4 (Pages A68 and A69)

Among inch design tapered roller bearings, there are those to which the following precision classes apply. For more details, please consult with NSK.

(1) J line bearings(in the bearing tables, bearings preceeded by ▲)

Table 2 Tolerances for Cones(CLASS K)

Units : μm

Nominal Bore Diameter d (mm)		Δ_{dmp}		V_{dp}	V_{dmp}	K_{ia}
over	incl	high	low	max	max	max
10	18	0	−12	12	9	15
18	30	0	−12	12	9	18
30	50	0	−12	12	9	20
50	80	0	−15	15	11	25
80	120	0	−20	20	15	30
120	180	0	−25	25	19	35
180	250	0	−30	30	23	50
250	315	0	−35	35	26	60
315	400	0	−40	40	30	70

Table 3 Tolerances for Cups(CALSS K)

Units : μm

Nominal Outside Diameter D (mm)		Δ_{Dmp}		V_{Dp}	V_{Dmp}	K_{ea}
over	incl	high	low	max	max	max
18	30	0	−12	12	9	18
30	50	0	−14	14	11	20
50	80	0	−16	16	12	25
80	120	0	−18	18	14	35
120	150	0	−20	20	15	40
150	180	0	−25	25	19	45
180	250	0	−30	30	23	50
250	315	0	−35	35	26	60
315	400	0	−40	40	30	70
400	500	0	−45	45	34	80

Table 4 Tolerances for Effective Widths of Cone Assemblies and Cups, and Overall Width (CLASS K)

Units : μm

Nominal Bore Diameter d (mm)		Effective Width Deviation of Cone Assembly Δ_{T1s}		Effective Width Deviation of Cup Δ_{T2s}		Overall Width Deviation Δ_{Ts}	
over	incl	high	low	high	low	high	low
10	80	+100	0	+100	0	+200	0
80	120	+100	−100	+100	−100	+200	−200
120	315	+150	−150	+200	−100	+350	−250
315	400	+200	−200	+200	−200	+400	−400

(2) Bearings for Front Axles of Automobiles

(In the bearing tables, those preceded by t)

Table 5 Tolerances for Bore Diameter and Overall Width

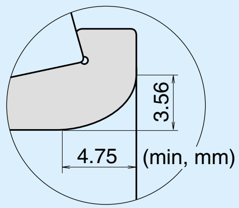
Units : μm

Nominal Bore Diameter d				Bore Diameter Deviation Δ_{ds}		Overall Width Deviation Δ_{Ts}	
over (mm)	over 1/25.4	incl (mm)	incl 1/25.4	hig	hlow	hig	hlow
—		76.200	3.0000	+20	0	+356	0

The tolerances for outside diameter and those for radial runout of the cones and cups conform to Table 8.4.2 (Pages A68 and A69).

(3) Special Chamfer Dimensions

For bearings marked "spec." in the column of r in the bearing tables, the chamfer dimension of the cone back-face side is as shown on the following figure.



RECOMMENDED FITS

METRIC DESIGN TAPERED ROLLER BEARINGS ········ Table 9.2 (Page A84)
Table 9.4 (Page A85)

INCH DESIGN TAPERED ROLLER BEARINGS ········ Table 9.6 (Page A86)
Table 9.7 (Page A87)

INTERNAL CLEARANCE

METRIC DESIGN TAPERED ROLLER BEARINGS (Matched and Double-Row) ········ Table 9.16 (Page A93)

INCH DESIGN TAPERED ROLLER BEARINGS (Matched and Double-Row) ········ Table 9.16 (Page A93)

DIMENSIONS RELATED TO MOUNTING

The dimensions related to mounting tapered roller bearings are listed in the bearing tables. Since the cages protrude from the ring faces of tapered roller bearings, please use care when designing shafts and housings.

When heavy axial loads are imposed, the shaft shoulder dimensions and strength must be sufficient to support the cone rib.

PERMISSIBLE MISALIGNMENT

The permissible misalignment angle for tapered roller bearings is approximately 0.0009 radian (3′).

LIMITING SPEEDS

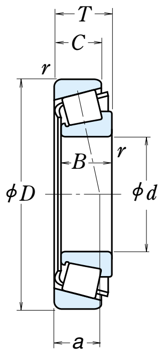
The limiting speeds listed in the bearing tables should be adjusted depending on the bearing load conditions. Also, higher speeds are attainable by making changes in the lubrication method, cage design, etc. Refer to Page A37 for detailed information.

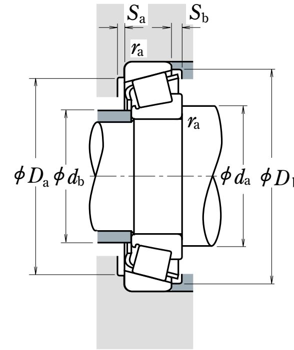
PRECAUTIONS FOR USE OF TAPERED ROLLER BEARINGS

1. If the load on tapered roller bearings becomes too small, or if the ratio of the axial and radial loads for matched bearings exceeds 'e'(e is listed in the bearing tables)during operation, slippage between the rollers and raceways occurs, which may result in smearing. Especially with large bearings since the weight of the rollers and cage is high. If such load conditions are expected, please contact NSK for selection of the bearings.

2. Confirm the dimension of "Abutment and Fillet Dimensions" of D_a, D_b, S_a, S_b at the time of the HR series adoption.

Bore Diameter 15 – 28 mm





Dynamic Equivalent Load

$P = XF_r + YF_a$

$F_a/F_r \leq e$		$F_a/F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Static Equivalent Load

$P_0 = 0.5F_r + Y_0F_a$

When $F_r > 0.5F_r + Y_0F_a$, use $P_0 = F_r$

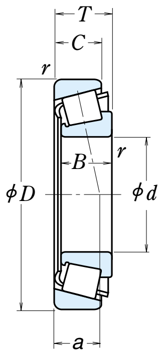
The values of e, Y_1, and Y_0 are given in the table below.

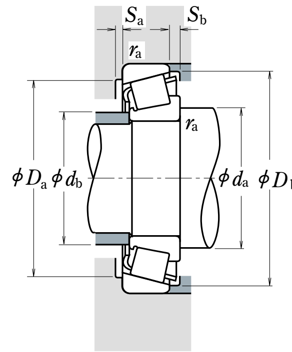
Boundary Dimensions (mm) d	D	T	B	C	Cone r min	Cup r min	Basic Load Ratings (N) C_r	(N) C_{0r}	{kgf} C_r	{kgf} C_{0r}	Limiting Speeds (min⁻¹) Grease	Oil	Bearing Numbers	ISO355 Dimension Series approx	Abutment and Fillet Dimensions (mm) d_a min	d_b max	D_a max	D_a min	D_b min	S_a min	S_b min	Cone r_a max	Cup r_a max	Eff. Load Centers (mm) a	Constant e	Axial Load Factors Y_1	Y_0	Mass (kg) approx
15	35	11.75	11	10	0.6	0.6	14 800	13 200	1 510	1 350	11 000	15 000	**30202**	—	23	19	30	30	33	2	1.5	0.6	0.6	8.2	0.32	1.9	1.0	0.053
	42	14.25	13	11	1	1	23 600	21 100	2 400	2 160	9 500	13 000	**HR 30302 J**	2FB	24	22	36	36	38.5	2	3	1	1	9.5	0.29	2.1	1.2	0.098
17	40	13.25	12	11	1	1	20 100	19 900	2 050	2 030	9 500	13 000	**HR 30203 J**	2DB	26	23	34	34	37.5	2	2	1	1	9.7	0.35	1.7	0.96	0.079
	40	17.25	16	14	1	1	27 100	28 000	2 770	2 860	9 500	13 000	**HR 32203 J**	2DD	26	22	34	34	37	2	3	1	1	11.2	0.31	1.9	1.1	0.103
	47	15.25	14	12	1	1	29 200	26 700	2 980	2 720	8 500	12 000	**HR 30303 J**	2FB	26	24	41	40	43	2	3	1	1	10.4	0.29	2.1	1.2	0.134
	47	15.25	14	10.5	1	1	22 000	20 300	2 240	2 070	8 000	11 000	**30303 D**	—	29	23	41	34	44	2	4.5	1	1	15.4	0.81	0.74	0.41	0.129
	47	20.25	19	16	1	1	37 500	36 500	3 800	3 750	8 500	11 000	**HR 32303 J**	2FD	28	23	41	39	43	2	4	1	1	12.5	0.29	2.1	1.2	0.178
20	42	15	15	12	0.6	0.6	24 600	27 400	2 510	2 800	9 000	12 000	**HR 32004 XJ**	3CC	28	24	37	35	40	3	3	0.6	0.6	10.6	0.37	1.6	0.88	0.097
	47	15.25	14	12	1	1	27 900	28 500	2 850	2 900	8 000	11 000	**HR 30204 J**	2DB	29	27	41	40	44	2	3	1	1	11.0	0.35	1.7	0.96	0.127
	47	15.25	14	12	0.3	1	23 900	24 000	2 430	2 450	8 000	11 000	**HR 30204 C-A-**	—	29	26	41	37	44	2	3	0.3	1	13.0	0.55	1.1	0.60	0.126
	47	19.25	18	15	1	1	35 500	37 500	3 650	3 850	8 500	11 000	**HR 32204 J**	2DD	29	25	41	38	44.5	3	4	1	1	12.6	0.33	1.8	1.0	0.161
	47	19.25	18	15	1	1	31 500	33 500	3 200	3 400	8 000	11 000	**HR 32204 CJ**	5DD	29	25	41	36	44	2	4	1	1	14.5	0.52	1.2	0.64	0.166
	52	16.25	15	13	1.5	1.5	35 000	33 500	3 550	3 400	7 500	10 000	**HR 30304 J**	2FB	31	27	44	44	47.5	2	3	1.5	1.5	11.6	0.30	2.0	1.1	0.172
	52	16.25	15	12	1.5	1.5	25 300	24 500	2 580	2 490	7 100	10 000	**30304 D**	—	34	26	43	37	49	2	4	1.5	1.5	16.7	0.81	0.74	0.41	0.168
	52	22.25	21	18	1.5	1.5	45 500	47 500	4 650	4 850	8 000	11 000	**HR 32304 J**	2FD	33	26	43	42	48	3	4	1.5	1.5	13.9	0.30	2.0	1.1	0.241
22	44	15	15	11.5	0.6	0.6	25 600	29 400	2 610	3 000	8 500	11 000	**HR 320/22 XJ**	3CC	30	27	39	37	42	3	3.5	0.6	0.6	11.1	0.40	1.5	0.83	0.103
	50	15.25	14	12	1	1	29 200	30 500	2 980	3 150	7 500	10 000	**HR 302/22**	—	31	29	44	42	47	2	3	1	1	11.6	0.37	1.6	0.90	0.139
	50	15.25	14	12	1	1	27 200	29 500	2 780	3 000	7 500	10 000	**HR 302/22 C**	—	31	29	44	40	47	2	3	1	1	13.0	0.49	1.2	0.67	0.144
	50	19.25	18	15	1	1	36 500	40 500	3 750	4 100	7 500	11 000	**HR 322/22**	—	31	28	44	41	47	2	4	1	1	13.5	0.37	1.6	0.89	0.18
	50	19.25	18	15	1	1	33 500	39 500	3 400	4 000	7 500	10 000	**HR 322/22 C**	—	31	29	44	39	48	2	4	1	1	15.2	0.51	1.2	0.65	0.185
	56	17.25	16	14	1.5	1.5	37 000	36 500	3 750	3 750	7 100	9 500	**HR 303/22**	—	33	30	47	46	50	2	3	1.5	1.5	12.4	0.32	1.9	1.0	0.208
	56	17.25	16	13	1.5	1.5	34 500	34 000	3 500	3 500	6 700	9 500	**HR 303/22 C**	—	33	30	47	44	52.5	3	4	1.5	1.5	15.9	0.59	1.0	0.56	0.207
25	47	15	15	11.5	0.6	0.6	27 400	33 000	2 800	3 400	8 000	11 000	**HR 32005 XJ**	4CC	33	30	42	40	45	3	3.5	0.6	0.6	11.8	0.43	1.4	0.77	0.116
	47	17	17	14	0.6	0.6	31 000	38 000	3 150	3 900	8 000	11 000	**HR 33005 J**	2CE	33	29	42	41	44	3	3	0.6	0.6	11.0	0.29	2.1	1.1	0.131
	52	16.25	15	13	1	1	32 000	35 000	3 300	3 550	7 100	10 000	**HR 30205 J**	3CC	34	31	46	44	48.5	2	3	1	1	12.7	0.37	1.6	0.88	0.157
	52	16.25	15	12	1	1	28 100	31 500	2 860	3 200	9 700	9 500	**HR 30205 C**	—	34	32	46	43	49.5	2	4	1	1	14.4	0.53	1.1	0.62	0.155
	52	19.25	18	16	1	1	40 000	45 000	4 050	4 600	7 100	10 000	**HR 32205 J**	2CD	34	30	46	44	50	2	3	1	1	13.5	0.36	1.7	0.92	0.189
	52	19.25	18	15	1	1	35 000	42 000	3 550	4 250	7 100	9 500	**HR 32205 C**	—	34	30	46	40	50	2	4	1	1	15.8	0.53	1.1	0.62	0.19
	52	22	22	18	1	1	47 500	56 500	4 850	5 750	7 500	10 000	**HR 33205 J**	2DE	34	29	46	43	49.5	4	4	1	1	14.1	0.35	1.7	0.94	0.221
	62	18.25	17	15	1.5	1.5	47 500	46 000	4 850	4 700	6 300	8 500	**HR 30305 J**	2FB	36	34	54	54	57	2	3	1.5	1.5	13.2	0.30	2.0	1.1	0.27
	62	18.25	17	14	1.5	1.5	42 000	45 000	4 300	4 550	6 000	8 500	**HR 30305 C**	—	36	35	53	49	58.5	3	4	1.5	1.5	16.4	0.55	1.1	0.60	0.276
	62	18.25	17	13	1.5	1.5	38 000	40 500	3 900	4 100	5 600	8 000	**HR 30305 DJ**	(7FB)	39	34	53	47	59	2	5	1.5	1.5	19.9	0.83	0.73	0.40	0.265
	62	18.25	17	13	1.5	1.5	38 000	40 500	3 900	4 100	5 600	8 000	**HR 31305 J**	7FB	39	33	53	47	59	3	5	1.5	1.5	19.9	0.83	0.73	0.40	0.265
	62	25.25	24	20	1.5	1.5	62 500	66 000	6 400	6 750	6 300	8 500	**HR 32305 J**	2FD	38	32	53	51	57	3	5	1.5	1.5	15.6	0.30	2.0	1.1	0.376
28	52	16	16	12	1	1	32 000	39 000	3 300	3 950	7 100	9 500	**HR 320/28 XJ**	4CC	37	33	46	44	50	3	4	1	1	12.8	0.43	1.4	0.77	0.146
	58	17.25	16	14	1	1	39 500	41 500	4 050	4 200	6 300	9 000	**HR 302/28**	—	37	34	52	50	55	2	3	1	1	13.2	0.35	1.7	0.93	0.203
	58	17.25	16	12	1	1	34 000	38 500	3 450	3 900	6 300	8 500	**HR 302/28 C**	—	37	34	52	48	54	2	5	1	1	16.9	0.64	0.94	0.52	0.198
	58	20.25	19	16	1	1	47 500	54 000	4 850	5 500	6 300	9 000	**HR 322/28**	—	37	34	52	49	55	2	4	1	1	14.6	0.37	1.6	0.89	0.243
	58	20.25	19	16	1	1	42 000	49 500	4 300	5 050	6 300	9 000	**HR 322/28 CJ**	5DD	37	33	52	45	55	2	4	1	1	16.8	0.56	1.1	0.59	0.251
	68	19.75	18	15	1.5	1.5	55 000	55 500	5 650	5 650	6 000	8 000	**HR 303/28**	—	39	37	59	58	61	2	4.5	1.5	1.5	14.5	0.31	1.9	1.1	0.341
	68	19.75	18	14	1.5	1.5	49 500	50 500	5 000	5 150	5 600	7 500	**HR 303/28 C**	—	39	38	59	57	63	3	5.5	1.5	1.5	17.4	0.52	1.2	0.64	0.335

Remarks The suffix C represents medium-angle tapered roller bearings. Since they are designed for specific applications, please consult NSK when using bearings with suffix C.

SINGLE-ROW TAPERED ROLLER BEARINGS

Bore Diameter 30 – 35 mm





Dynamic Equivalent Load

$P = XF_r + YF_a$

$F_a/F_r \leqq e$		$F_a/F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Static Equivalent Load

$P_0 = 0.5F_r + Y_0F_a$

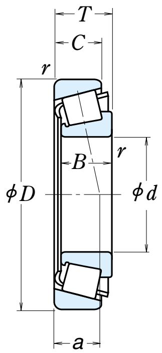
When $F_r > 0.5F_r + Y_0F_a$, use $P_0 = F_r$

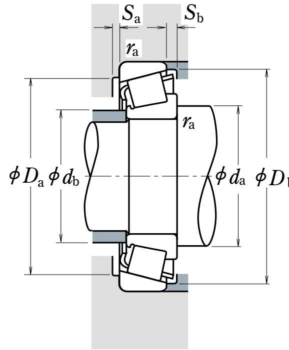
The values of e, Y_1, and Y_0 are given in the table below.

Boundary Dimensions (mm)							Basic Load Ratings (N)		{kgf}		Limiting Speeds (min⁻¹)		Bearing Numbers	ISO355 Dimension Series approx	Abutment and Fillet Dimensions (mm)									Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg)
d	D	T	B	C	Cone r min	Cup r min	C_r	C_{0r}	C_r	C_{0r}	Grease	Oil			d_a min	d_b max	D_a max	D_a min	D_b min	S_a min	S_b min	Cone r_a max	Cup r_a max	a	e	Y_1	Y_0	approx
30	47	12	12	9	0.3	0.3	17 600	24 400	1 800	2 490	7 500	10 000	**HR 32906 J**	2BD	34	34	44	42	44	3	3	0.3	0.3	9.2	0.32	1.9	1.0	0.074
	55	17	17	13	1	1	36 000	44 500	3 700	4 550	6 700	9 000	**HR 32006 XJ**	4CC	39	35	49	47	53	3	4	1	1	13.5	0.43	1.4	0.77	0.172
	55	20	20	16	1	1	42 000	54 000	4 250	5 500	6 700	9 000	**HR 33006 J**	2CE	39	35	49	48	52	3	4	1	1	13.1	0.29	2.1	1.1	0.208
	62	17.25	16	14	1	1	43 000	47 500	4 400	4 850	6 000	8 000	**HR 30206 J**	3DB	39	37	56	52	58	2	3	1	1	13.9	0.37	1.6	0.88	0.238
	62	17.25	16	12	1	1	35 500	37 000	3 650	3 800	5 600	7 500	**HR 30206 C**	—	39	36	56	49	59	2	5	1	1	17.8	0.68	0.88	0.49	0.221
	62	21.25	20	17	1	1	52 000	60 000	5 300	6 150	6 000	8 500	**HR 32206 J**	3DC	39	36	56	51	58.5	2	4	1	1	15.4	0.37	1.6	0.88	0.297
	62	21.25	20	16	1	1	48 000	56 000	4 900	5 750	6 000	8 000	**HR 32206 C**	—	39	35	56	48	59	2	5	1	1	17.8	0.55	1.1	0.60	0.293
	62	25	25	19.5	1	1	66 500	79 500	6 800	8 100	6 000	8 000	**HR 33206 J**	2DE	39	35	56	52	59.5	5	5.5	1	1	16.1	0.34	1.8	0.97	0.355
	72	20.75	19	16	1.5	1.5	59 500	60 000	6 050	6 100	5 300	7 500	**HR 30306 J**	2FB	41	40	63	62	66	3	4.5	1.5	1.5	15.1	0.32	1.9	1.1	0.403
	72	20.75	19	14	1.5	1.5	56 500	55 500	5 800	5 650	5 300	7 100	**HR 30306 C**	—	41	38	63	59	67	3	6.5	1.5	1.5	18.5	0.55	1.1	0.60	0.383
	72	20.75	19	14	1.5	1.5	49 000	52 500	5 000	5 350	4 800	6 700	**HR 30306 DJ**	(7FB)	44	40	63	55	68	3	6.5	1.5	1.5	23.1	0.83	0.73	0.40	0.393
	72	20.75	19	14	1.5	1.5	49 000	52 500	5 000	5 350	4 800	6 800	**HR 31306 J**	7FB	44	40	63	55	68	3	6.5	1.5	1.5	23.1	0.83	0.73	0.40	0.393
	72	28.75	27	23	1.5	1.5	80 000	88 500	8 150	9 000	5 600	7 500	**HR 32306 J**	2FD	43	38	63	59	66	3	5.5	1.5	1.5	18.0	0.32	1.9	1.1	0.57
	72	28.75	27	23	1.5	1.5	76 000	86 500	7 750	8 800	5 600	7 500	**HR 32306 CJ**	5FD	43	36	63	54	68	3	5.5	1.5	1.5	22.0	0.55	1.1	0.60	0.583
32	58	17	17	13	1	1	37 500	47 000	3 800	4 800	6 300	8 500	**HR 320/32 XJ**	4CC	41	37	52	49	55	3	4	1	1	14.2	0.45	1.3	0.73	0.191
	58	21	20	16	1	1	41 000	50 000	4 150	5 100	6 300	8 500	**330/32**	—	41	37	52	50	55	2	4	1	1	13.8	0.31	1.9	1.1	0.225
	65	18.25	17	15	1	1	48 500	54 000	4 950	5 500	5 600	8 000	**HR 302/32**	—	41	39	59	56	61	3	3	1	1	14.7	0.37	1.6	0.88	0.277
	65	18.25	17	14	1	1	45 500	52 500	4 650	5 350	5 600	7 500	**HR 302/32 C**	—	41	39	59	54	62	3	4	1	1	16.9	0.55	1.1	0.60	0.273
	65	22.25	21	18	1	1	56 000	65 000	5 700	6 650	6 000	8 000	**HR 322/32**	—	41	38	59	54	61	3	4	1	1	15.9	0.37	1.6	0.88	0.336
	65	22.25	21	17	1	1	49 500	60 000	5 050	6 100	5 600	7 500	**HR 322/32 C**	—	41	39	59	51	62	3	5	1	1	20.2	0.59	1.0	0.56	0.335
	65	26	26	20.5	1	1	70 000	86 500	7 150	8 850	5 600	8 000	**HR 332/32 J**	2DE	41	38	59	55	62	5	5.5	1	1	17.0	0.35	1.7	0.95	0.40
	75	21.75	20	17	1.5	1.5	56 000	56 000	5 700	5 700	5 300	7 100	**303/32**	—	44	42	66	64	68	3	4.5	1.5	1.5	15.9	0.33	1.8	1.0	0.435
35	55	14	14	11.5	0.6	0.6	27 400	39 000	2 790	3 950	6 300	8 500	**HR 32907 J**	2BD	43	40	50	50	52.5	3	2.5	0.6	0.6	10.7	0.29	2.1	1.1	0.123
	62	18	18	14	1	1	43 500	55 500	4 400	5 650	5 600	8 000	**HR 32007 XJ**	4CC	44	40	56	54	60	4	4	1	1	15.0	0.45	1.3	0.73	0.229
	62	21	21	17	1	1	49 000	65 000	4 950	6 650	5 600	8 000	**HR 33007 J**	2CE	44	40	56	55	59	4	4	1	1	14.1	0.31	2.0	1.1	0.267
	72	18.25	17	15	1.5	1.5	54 000	59 500	5 500	6 050	5 300	7 100	**HR 30207 J**	3DB	46	43	63	62	67	3	3	1.5	1.5	15.0	0.37	1.6	0.88	0.34
	72	18.25	17	13	1.5	1.5	47 000	54 500	4 750	5 550	5 000	6 700	**HR 30207 C**	—	46	44	63	59	68	3	5	1.5	1.5	19.6	0.66	0.91	0.50	0.331
	72	24.25	23	19	1.5	1.5	70 500	83 500	7 150	8 550	5 300	7 100	**HR 32207 J**	3DC	46	42	63	61	67.5	3	5	1.5	1.5	17.9	0.37	1.6	0.88	0.456
	72	24.25	23	18	1.5	1.5	60 500	71 500	6 200	7 300	5 000	7 100	**HR 32207 C**	—	46	42	63	58	68.5	3	6	1.5	1.5	20.6	0.55	1.1	0.60	0.442
	72	28	28	22	1.5	1.5	86 500	108 000	8 850	11 100	5 300	7 100	**HR 33207 J**	2DE	46	41	63	61	68	5	6	1.5	1.5	18.3	0.35	1.7	0.93	0.54
	80	22.75	21	18	2	1.5	76 000	79 000	7 750	8 050	4 800	6 700	**HR 30307 J**	2FB	47	45	71	69	74	3	4.5	2	1.5	16.7	0.32	1.9	1.1	0.538
	80	22.75	21	16	2	1.5	68 000	70 500	6 900	7 200	4 800	6 300	**HR 30307 C**	—	47	44	71	65	74	3	6.5	2	1.5	20.3	0.55	1.1	0.60	0.518
	80	22.75	21	15	2	1.5	62 000	68 000	6 350	6 950	4 300	6 000	**HR 30307 DJ**	7FB	51	44	71	62	77	3	7.5	2	1.5	25.2	0.83	0.73	0.40	0.519
	80	22.75	21	15	2	1.5	62 000	68 000	6 350	6 950	4 300	6 000	**HR 31307 J**	7FB	51	44	71	62	77	3	7.5	2	1.5	25.2	0.83	0.73	0.40	0.52
	80	32.75	31	25	2	1.5	99 000	111 000	10 100	11 300	5 000	6 700	**HR 32307 J**	2FE	49	43	71	66	74	3	7.5	2	1.5	20.7	0.32	1.9	1.1	0.765

Remarks The suffix C represents medium-angle tapered roller bearings. Since they are designed for specific applications, please consult NSK when using bearings with suffix C.

Bore Diameter 40 – 50 mm





Dynamic Equivalent Load

$P = XF_r + YF_a$

$F_a/F_r \leq e$		$F_a/F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Static Equivalent Load

$P_0 = 0.5F_r + Y_0F_a$

When $F_r > 0.5F_r + Y_0F_a$, use $P_0 = F_r$

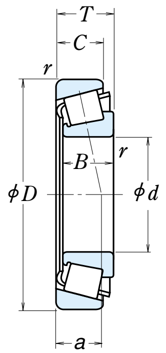
The values of e, Y_1, and Y_0 are given in the table below.

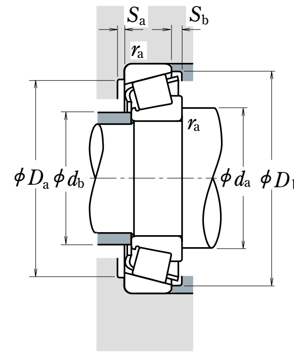
Boundary Dimensions (mm)							Basic Load Ratings (N)		{kgf}		Limiting Speeds (min^{-1})	
d	D	T	B	C	Cone r min	Cup r min	C_r	C_{0r}	C_r	C_{0r}	Grease	Oil
40	62	15	15	12	0.6	0.6	34 000	47 000	3 450	4 800	5 600	7 500
	68	19	19	14.5	1	1	53 000	71 000	5 400	7 250	5 300	7 100
	68	22	22	18	1	1	59 000	81 500	6 000	8 300	5 300	7 100
	75	26	26	20.5	1.5	1.5	78 500	101 000	8 000	10 300	4 800	6 700
	80	19.75	18	16	1.5	1.5	63 500	70 000	6 450	7 150	4 800	6 300
	80	24.75	23	19	1.5	1.5	77 000	90 500	7 900	9 200	4 800	6 300
	80	24.75	23	19	1.5	1.5	74 000	90 500	7 550	9 200	4 500	6 300
	80	32	32	25	1.5	1.5	107 000	137 000	10 900	14 000	4 800	6 300
	90	25.25	23	20	2	1.5	90 500	101 000	9 250	10 300	4 300	5 600
	90	25.25	23	18	2	1.5	84 500	93 500	8 600	9 500	4 300	5 600
	90	25.25	23	17	2	1.5	80 000	89 500	8 150	9 150	3 800	5 300
	90	25.25	23	17	2	1.5	80 000	89 500	8 150	9 150	3 800	5 300
	90	35.25	33	27	2	1.5	120 000	145 000	12 200	14 800	4 300	6 000
45	68	15	15	12	0.6	0.6	34 500	50 500	3 550	5 150	5 000	6 700
	75	20	20	15.5	1	1	60 000	83 000	6 150	8 450	4 500	6 300
	75	24	24	19	1	1	69 000	99 000	7 050	10 100	4 800	6 300
	80	26	26	20.5	1.5	1.5	84 000	113 000	8 550	11 600	4 500	6 000
	85	20.75	19	16	1.5	1.5	68 500	79 500	6 950	8 100	4 300	6 000
	85	24.75	23	19	1.5	1.5	83 000	102 000	8 500	10 400	4 300	6 000
	85	24.75	23	19	1.5	1.5	75 500	95 500	7 700	9 750	4 300	5 600
	85	32	32	25	1.5	1.5	111 000	147 000	11 300	15 000	4 300	6 000
	95	29	26.5	20	2.5	2.5	88 500	109 000	9 050	11 100	3 600	5 000
	95	36	35	30	2.5	2.5	139 000	174 000	14 200	17 800	4 000	5 300
	100	27.25	25	22	2	1.5	112 000	127 000	11 400	12 900	3 800	5 300
	100	27.25	25	18	2	1.5	95 500	109 000	9 750	11 100	3 400	4 800
	100	27.25	25	18	2	1.5	95 500	109 000	9 750	11 100	3 400	4 800
	100	38.25	36	30	2	1.5	144 000	177 000	14 700	18 000	3 800	5 300
50	100	36	35	30	2.5	2.5	144 000	185 000	14 600	18 800	3 800	5 000
	72	15	15	12	0.6	0.6	36 000	54 000	3 650	5 500	4 500	6 300
	80	20	20	15.5	1	1	61 000	87 000	6 250	8 900	4 300	6 000
	80	24	24	19	1	1	70 500	104 000	7 150	10 600	4 300	6 000
	85	26	26	20	1.5	1.5	89 000	126 000	9 100	12 800	4 300	5 600
	90	21.75	20	17	1.5	1.5	76 000	91 500	7 750	9 300	4 000	5 300
	90	24.75	23	19	1.5	1.5	87 500	109 000	8 900	11 100	4 000	5 300
	90	24.75	23	18	1.5	1.5	77 500	102 000	7 900	10 400	3 800	5 300
	90	32	32	24.5	1.5	1.5	118 000	165 000	12 100	16 800	4 000	5 300
	105	32	29	22	3	3	109 000	133 000	11 100	13 600	3 200	4 500
	110	29.25	27	23	2.5	2	130 000	148 000	13 300	15 100	3 400	4 800
	110	29.25	27	19	2.5	2	114 000	132 000	11 700	13 400	3 200	4 300
	110	29.25	27	19	2.5	2	114 000	132 000	11 700	13 400	3 200	4 300
	110	42.25	40	33	2.5	2	176 000	220 000	17 900	22 400	3 600	4 800
	110	42.25	40	33	2.5	2	164 000	218 000	16 800	22 200	3 400	4 800

Remarks The suffix C represents medium-angle tapered roller bearings. Since they are designed for specific applications, please consult NSK when using bearings with suffix C.

Bearing Numbers	ISO355 Dimension Series approx	Abutment and Fillet Dimensions (mm)									Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg)
		d_a min	d_b max	D_a max	D_a min	D_b min	S_a min	S_b min	Cone r_a max	Cup r_a max	a	e	Y_1	Y_0	approx
HR 32908 J	2BC	48	44	57	57	59	3	3	0.6	0.6	11.5	0.29	2.1	1.1	0.161
HR 32008 XJ	3CD	49	45	62	60	65.5	4	4.5	1	1	15.0	0.38	1.6	0.87	0.28
HR 33008 J	2BE	49	45	62	61	65	4	4	1	1	14.6	0.28	2.1	1.2	0.322
HR 33108 J	2CE	51	46	66	65	71	4	5.5	1.5	1.5	18.0	0.36	1.7	0.93	0.503
HR 30208 J	3DB	51	48	71	69	75	3	3.5	1.5	1.5	16.6	0.37	1.6	0.88	0.437
HR 32208 J	3DC	51	48	71	68	75	3	5.5	1.5	1.5	18.9	0.37	1.6	0.88	0.548
HR 32208 CJ	5DC	51	47	71	65	76	3	5.5	1.5	1.5	21.9	0.55	1.1	0.60	0.558
HR 33208 J	2DE	51	46	71	67	76	5	7	1.5	1.5	20.8	0.36	1.7	0.92	0.744
HR 30308 J	2FB	52	52	81	76	82	3	5	2	1.5	19.5	0.35	1.7	0.96	0.758
HR 30308 C	—	52	50	81	72	84	3	7	2	1.5	22.7	0.53	1.1	0.62	0.735
HR 30308 DJ	7FB	56	50	81	70	87	3	8	2	1.5	28.7	0.83	0.73	0.40	0.728
HR 31308 J	7FB	56	50	81	70	87	3	8	2	1.5	28.7	0.83	0.73	0.40	0.728
HR 32308 J	2FD	54	50	81	73	82	3	8	2	1.5	23.4	0.35	1.7	0.96	1.05
HR 32909 J	2BC	53	50	63	62	64	3	3	0.6	0.6	12.3	0.32	1.9	1.0	0.187
HR 32009 XJ	3CC	54	51	69	67	72	4	4.5	1	1	16.6	0.39	1.5	0.84	0.354
HR 33009 J	2CE	54	51	69	67	71	4	5	1	1	16.3	0.29	2.0	1.1	0.414
HR 33109 J	3CE	56	51	71	69	77	4	5.5	1.5	1.5	19.1	0.38	1.6	0.86	0.552
HR 30209 J	3DB	56	53	76	74	80	3	4.5	1.5	1.5	18.3	0.41	1.5	0.81	0.488
HR 32209 J	3DC	56	53	76	73	81	3	5.5	1.5	1.5	20.1	0.41	1.5	0.81	0.602
HR 32209 CJ	5DC	56	52	76	70	82	3	5.5	1.5	1.5	23.6	0.59	1.0	0.56	0.603
HR 33209 J	3DE	56	51	76	72	81	5	7	1.5	1.5	22.0	0.39	1.6	0.86	0.817
T 7 FC045	7FC	60	53	83	71	91	3	9	2	2	32.1	0.87	0.69	0.38	0.918
T 2 ED045	2ED	60	54	83	79	89	5	6	2	2	23.5	0.32	1.9	1.02	1.22
HR 30309 J	2FB	57	58	91	86	93	3	5	2	1.5	21.1	0.35	1.7	0.96	1.01
HR 30309 DJ	7FB	61	57	91	79	96	3	9	2	1.5	31.5	0.83	0.73	0.40	0.957
HR 31309 J	7FB	61	57	91	79	96	3	9	2	1.5	31.5	0.83	0.73	0.40	0.947
HR 32309 J	2FD	59	56	91	82	93	3	8	2	1.5	25.0	0.35	1.7	0.96	1.42
T 2 ED050	2ED	65	59	88	83	94	6	6	2	2	24.2	0.34	1.8	0.96	1.3
HR 32910 J	2BC	58	54	67	66	69	3	3	0.6	0.6	13.5	0.34	1.8	0.97	0.193
HR 32010 XJ	3CC	59	56	74	71	77	4	4.5	1	1	17.9	0.42	1.4	0.78	0.38
HR 33010 J	2CE	59	55	74	71	76	4	5	1	1	17.4	0.32	1.9	1.0	0.452
HR 33110 J	3CE	61	56	76	74	82	4	6	1.5	1.5	20.3	0.41	1.5	0.8	0.597
HR 30210 J	3DB	61	58	81	79	85	3	4.5	1.5	1.5	19.6	0.42	1.4	0.79	0.557
HR 32210 J	3DC	61	57	81	78	86	3	5.5	1.5	1.5	21.0	0.42	1.4	0.79	0.642
HR 32210 CJ	5DC	61	58	81	76	87	3	6.5	1.5	1.5	24.6	0.59	1.0	0.56	0.655
HR 33210 J	3DE	61	56	81	76	87	5	7.5	1.5	1.5	23.2	0.41	1.5	0.80	0.867
T 7 FC050	7FC	74	59	91	78	100	5	10	2.5	2.5	36.4	0.87	0.69	0.38	1.22
HR 30310 J	2FB	65	65	100	95	102	3	6	2	2	23.1	0.35	1.7	0.96	1.28
HR 30310 DJ	7FB	70	62	100	87	105	3	10	2	2	34.2	0.83	0.73	0.40	1.26
HR 31310 J	7FB	70	62	100	87	105	3	10	2	2	34.2	0.83	0.73	0.40	1.26
HR 32310 J	2FD	68	62	100	91	102	3	9	2	2	27.9	0.35	1.7	0.96	1.88
HR 32310 CJ	5FD	68	59	100	82	103	3	9	2	2	32.8	0.55	1.1	0.60	1.93

Bore Diameter 55 – 65 mm





Dynamic Equivalent Load

$P = XF_r + YF_a$

$F_a/F_r \leq e$		$F_a/F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Static Equivalent Load

$P_0 = 0.5F_r + Y_0F_a$

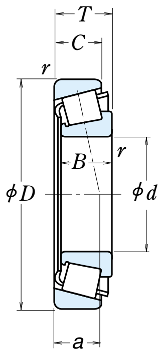
When $F_r > 0.5F_r + Y_0F_a$, use $P_0 = F_r$

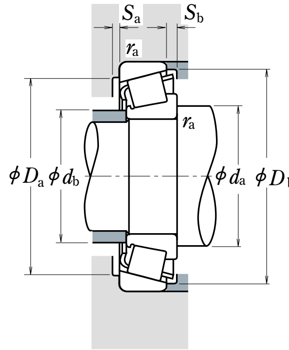
The values of e, Y_1, and Y_0 are given in the table below.

Boundary Dimensions (mm)							Basic Load Ratings (N)		{kgf}		Limiting Speeds (min⁻¹)		Bearing Numbers	ISO355 Dimension Series approx	Abutment and Fillet Dimensions (mm)									Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg)
d	D	T	B	C	Cone r min	Cup r min	C_r	C_{0r}	C_r	C_{0r}	Grease	Oil			d_a min	d_b max	D_a max	D_a min	D_b min	S_a min	S_b min	Cone r_a max	Cup r_a max	a	e	Y_1	Y_0	approx
55	80	17	17	14	1	1	45 500	74 500	4 600	7 600	4 300	5 600	**HR 32911 J**	2BC	64	60	74	73	76	4	3	1	1	14.6	0.31	1.9	1.1	0.282
	90	23	23	17.5	1.5	1.5	81 500	117 000	8 300	11 900	3 800	5 300	**HR 32011 XJ**	3CC	66	62	81	80	86	4	5.5	1.5	1.5	19.7	0.41	1.5	0.81	0.568
	90	27	27	21	1.5	1.5	91 500	138 000	9 300	14 000	3 800	5 300	**HR 33011 J**	2CE	66	62	81	80	86	5	6	1.5	1.5	19.2	0.31	1.9	1.1	0.657
	95	30	30	23	1.5	1.5	112 000	158 000	11 500	16 100	3 800	5 000	**HR 33111 J**	3CE	66	62	86	82	91	5	7	1.5	1.5	22.4	0.37	1.6	0.88	0.877
	100	22.75	21	18	2	1.5	94 500	113 000	9 650	11 500	3 600	5 000	**HR 30211 J**	3DB	67	64	91	89	94	4	4.5	2	1.5	20.9	0.41	1.5	0.81	0.736
	100	26.75	25	21	2	1.5	110 000	137 000	11 200	14 000	3 600	5 000	**HR 32211 J**	3DC	67	63	91	87	95	4	5.5	2	1.5	22.7	0.41	1.5	0.81	0.859
	100	35	35	27	2	1.5	141 000	193 000	14 400	19 700	3 600	5 000	**HR 33211 J**	3DE	67	62	91	86	96	6	8	2	1.5	25.2	0.40	1.5	0.83	1.18
	115	34	31	23.5	3	3	126 000	164 000	12 800	16 700	3 000	4 300	**T 7 FC055**	7FC	73	66	101	86	109	4	10.5	2.5	2.5	39.0	0.87	0.69	0.38	1.58
	120	31.5	29	25	2.5	2	150 000	171 000	15 200	17 500	3 200	4 300	**HR 30311 J**	2FB	70	71	110	104	111	4	6.5	2	2	24.6	0.35	1.7	0.96	1.63
	120	31.5	29	21	2.5	2	131 000	153 000	13 400	15 600	2 800	4 000	**HR 30311 DJ**	7FB	75	67	110	94	114	4	10.5	2	2	37.0	0.83	0.73	0.40	1.58
	120	31.5	29	21	2.5	2	131 000	153 000	13 400	15 600	2 800	4 000	**HR 31311 J**	7FB	75	67	110	94	114	4	10.5	2	2	37.0	0.83	0.73	0.40	1.58
	120	45.5	43	35	2.5	2	204 000	258 000	20 800	26 300	3 200	4 300	**HR 32311 J**	2FD	73	67	110	99	111	4	10.5	2	2	29.9	0.35	1.7	0.96	2.39
	120	45.5	43	35	2.5	2	195 000	262 000	19 900	26 700	3 200	4 300	**HR 32311 CJ**	5FD	73	65	110	91	112	4	10.5	2	2	35.8	0.55	1.1	0.60	2.47
60	85	17	17	14	1	1	49 000	84 500	5 000	8 650	3 800	5 300	**HR 32912 J**	2BC	69	65	79	78	81	4	3	1	1	15.5	0.33	1.8	1.0	0.306
	95	23	23	17.5	1.5	1.5	85 500	127 000	8 700	12 900	3 600	5 000	**HR 32012 XJ**	4CC	71	66	86	85	91	4	5.5	1.5	1.5	20.9	0.43	1.4	0.77	0.608
	95	27	27	21	1.5	1.5	96 000	150 000	9 800	15 300	3 600	5 000	**HR 33012 J**	2CE	71	66	86	85	90	5	6	1.5	1.5	20.0	0.33	1.8	1.0	0.713
	100	30	30	23	1.5	1.5	115 000	166 000	11 700	16 900	3 400	4 800	**HR 33112 J**	3CE	71	68	91	88	96	5	7	1.5	1.5	23.6	0.40	1.5	0.83	0.91
	110	23.75	22	19	2	1.5	104 000	123 000	10 600	12 500	3 400	4 500	**HR 30212 J**	3EB	72	69	101	96	103	4	4.5	2	1.5	22.0	0.41	1.5	0.81	0.930
	110	29.75	28	24	2	1.5	131 000	167 000	13 400	17 000	3 400	4 500	**HR 32212 J**	3EC	72	68	101	95	104	4	5.5	2	1.5	24.1	0.41	1.5	0.81	1.18
	110	38	38	29	2	1.5	166 000	231 000	16 900	23 600	3 400	4 500	**HR 33212 J**	3EE	72	68	101	94	105	6	9	2	1.5	27.6	0.40	1.5	0.82	1.56
	125	37	33.5	26	3	3	151 000	197 000	15 400	20 100	2 800	3 800	**T 7 FC060**	7FC	78	72	111	94	119	4	11	2.5	2.5	41.3	0.82	0.73	0.40	2.03
	130	33.5	31	26	3	2.5	174 000	201 000	17 700	20 500	3 000	4 000	**HR 30312 J**	2FB	78	77	118	112	120	4	7.5	2.5	2	26.0	0.35	1.7	0.96	2.03
	130	33.5	31	22	3	2.5	151 000	177 000	15 400	18 100	2 600	3 800	**HR 30312 DJ**	7FB	84	74	118	103	125	4	11.5	2.5	2	40.3	0.83	0.73	0.40	1.98
	130	33.5	31	22	3	2.5	151 000	177 000	15 400	18 100	2 600	3 800	**HR 31312 J**	7FB	84	74	118	103	125	4	11.5	2.5	2	40.3	0.83	0.73	0.40	1.98
	130	48.5	46	37	3	2.5	233 000	295 000	23 700	30 000	3 000	4 000	**HR 32312 J**	2FD	81	74	118	107	120	4	11.5	2.5	2	31.4	0.35	1.7	0.96	2.96
	130	48.5	46	35	3	2.5	196 000	249 000	20 000	25 400	2 800	3 800	**32312 C**	—	81	74	116	102	125	4	13.5	2.5	2	39.9	0.58	1.0	0.57	2.86
65	90	17	17	14	1	1	49 000	86 500	5 000	8 800	3 600	5 000	**HR 32913 J**	2BC	74	70	84	82	86	4	3	1	1	16.8	0.35	1.7	0.93	0.323
	100	23	23	17.5	1.5	1.5	86 500	132 000	8 800	13 500	3 400	4 500	**HR 32013 XJ**	4CC	76	71	91	90	97	4	5.5	1.5	1.5	22.4	0.46	1.3	0.72	0.646
	100	27	27	21	1.5	1.5	97 500	156 000	9 950	15 900	3 400	4 500	**HR 33013 J**	2CE	76	71	91	90	96	5	6	1.5	1.5	21.1	0.35	1.7	0.95	0.76
	110	34	34	26.5	1.5	1.5	148 000	218 000	15 100	22 200	3 200	4 300	**HR 33113 J**	3DE	76	73	101	96	106	6	7.5	1.5	1.5	26.0	0.39	1.5	0.85	1.32
	120	24.75	23	20	2	1.5	122 000	151 000	12 500	15 400	3 000	4 000	**HR 30213 J**	3EB	77	78	111	106	113	4	4.5	2	1.5	23.8	0.41	1.5	0.81	1.18
	120	32.75	31	27	2	1.5	157 000	202 000	16 000	20 600	3 000	4 000	**HR 32213 J**	3EC	77	75	111	104	115	4	5.5	2	1.5	27.1	0.41	1.5	0.81	1.55
	120	41	41	32	2	1.5	202 000	282 000	20 600	28 800	3 000	4 000	**HR 33213 J**	3EE	77	74	111	102	115	6	9	2	1.5	29.2	0.39	1.5	0.85	2.04
	140	36	33	28	3	2.5	200 000	233 000	20 400	23 800	2 600	3 600	**HR 30313 J**	2GB	83	83	128	121	130	4	8	2.5	2	27.9	0.35	1.7	0.96	2.51
	140	36	33	23	3	2.5	173 000	205 000	17 700	20 900	2 400	3 400	**HR 30313 DJ**	7GB	89	80	128	111	133	4	13	2.5	2	43.2	0.83	0.73	0.40	2.43
	140	36	33	23	3	2.5	173 000	205 000	17 700	20 900	2 400	3 400	**HR 31313 J**	7GB	89	80	128	111	133	4	13	2.5	2	43.2	0.83	0.73	0.40	2.43
	140	51	48	39	3	2.5	267 000	340 000	27 300	35 000	2 800	3 800	**HR 32313 J**	2GD	86	80	128	116	130	4	12	2.5	2	34.0	0.35	1.7	0.96	3.6

Remarks The suffix C represents medium-angle tapered roller bearings. Since they are designed for specific applications, please consult NSK when using bearings with suffix C.

Bore Diameter 70 – 80 mm





Dynamic Equivalent Load

$P = XF_r + YF_a$

$F_a/F_r \leq e$		$F_a/F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Static Equivalent Load

$P_0 = 0.5F_r + Y_0F_a$

When $F_r > 0.5F_r + Y_0F_a$, use $P_0 = F_r$

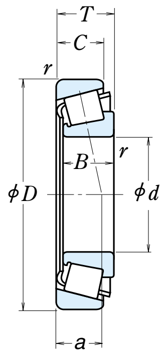
The values of e, Y_1, and Y_0 are given in the table below.

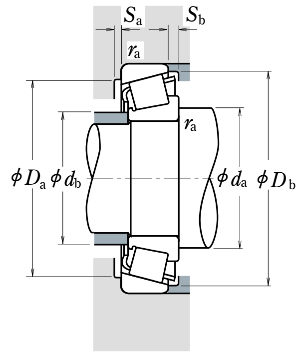
Boundary Dimensions (mm)							Basic Load Ratings (N)		(kgf)		Limiting Speeds (min⁻¹)	
d	D	T	B	C	Cone r min	Cup r min	C_r	C_{0r}	C_r	C_{0r}	Grease	Oil
70	100	20	20	16	1	1	70 000	113 000	7 150	11 500	3 200	4 500
	110	25	25	19	1.5	1.5	104 000	158 000	10 600	16 100	3 200	4 300
	110	31	31	25.5	1.5	1.5	127 000	204 000	12 900	20 800	3 000	4 300
	120	37	37	29	2	1.5	177 000	262 000	18 100	26 700	3 000	4 000
	125	26.25	24	21	2	1.5	132 000	163 000	13 500	16 700	2 800	4 000
	125	33.25	31	27	2	1.5	157 000	205 000	16 100	20 900	2 800	4 000
	125	41	41	32	2	1.5	209 000	299 000	21 300	30 500	2 800	4 000
	140	39	35.5	27	3	3	177 000	229 000	18 000	23 400	2 400	3 400
	150	38	35	30	3	2.5	227 000	268 000	23 200	27 400	2 400	3 400
	150	38	35	25	3	2.5	192 000	229 000	19 600	23 300	2 200	3 200
	150	38	35	25	3	2.5	192 000	229 000	19 600	23 300	2 200	3 200
	150	54	51	42	3	2.5	300 000	390 000	30 500	39 500	2 600	3 400
	150	54	51	42	3	2.5	280 000	390 000	28 600	39 500	2 400	3 400
75	105	20	20	16	1	1	72 500	120 000	7 400	12 300	3 200	4 300
	115	25	25	19	1.5	1.5	109 000	171 000	11 100	17 400	3 000	4 000
	115	31	31	25.5	1.5	1.5	133 000	220 000	13 500	22 500	3 000	4 000
	125	37	37	29	2	2	182 000	275 000	18 600	28 100	2 800	3 800
	130	27.25	25	22	2	1.5	143 000	182 000	14 600	18 500	2 800	3 800
	130	33.25	31	27	2	1.5	165 000	219 000	16 900	22 400	2 800	3 800
	130	41	41	31	2	1.5	215 000	315 000	21 900	32 000	2 800	3 800
	160	40	37	31	3	2.5	253 000	300 000	25 800	30 500	2 400	3 200
	160	40	37	26	3	2.5	211 000	251 000	21 500	25 600	2 200	3 000
	160	40	37	26	3	2.5	211 000	251 000	21 500	25 600	2 200	3 000
	160	58	55	45	3	2.5	340 000	445 000	35 000	45 500	2 400	3 200
	160	58	55	43	3	2.5	310 000	420 000	32 000	43 000	2 200	3 200
80	110	20	20	16	1	1	75 000	128 000	7 650	13 100	3 000	4 000
	125	29	29	22	1.5	1.5	140 000	222 000	14 300	22 700	2 800	3 600
	125	36	36	29.5	1.5	1.5	172 000	282 000	17 500	28 800	2 800	3 600
	130	37	37	29	2	1.5	186 000	289 000	19 000	29 400	2 600	3 600
	140	28.25	26	22	2.5	2	157 000	195 000	16 000	19 900	2 600	3 400
	140	28.25	26	20	2.5	2	147 000	190 000	15 000	19 400	2 400	3 400
	140	35.25	33	28	2.5	2	192 000	254 000	19 600	25 900	2 600	3 400
	140	46	46	35	2.5	2	256 000	385 000	26 200	39 000	2 600	3 400
	170	42.5	39	33	3	2.5	276 000	330 000	28 200	33 500	2 200	3 000
	170	42.5	39	27	3	2.5	235 000	283 000	24 000	28 900	2 000	2 800
	170	42.5	39	27	3	2.5	235 000	283 000	24 000	28 900	2 000	2 800
	170	61.5	58	48	3	2.5	385 000	505 000	39 000	51 500	2 200	3 000
	170	61.5	58	48	3	2.5	365 000	530 000	37 500	54 000	2 200	3 000

Remarks The suffix CA represents medium-angle tapered roller bearings. Since they are designed for specific applications, please consult NSK when using bearings with suffix CA.

Bearing Numbers	ISO355 Dimension Series approx	Abutment and Fillet Dimensions (mm)									Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg)
		d_a min	d_b max	D_a max	D_a min	D_b min	S_a min	S_b min	Cone r_a max	Cup r_a max	a	e	Y_1	Y_0	approx
HR 32914 J	2BC	79	76	94	93	96	4	4	1	1	17.6	0.32	1.9	1.1	0.494
HR 32014 XJ	4CC	81	77	101	98	105	5	6	1.5	1.5	23.7	0.43	1.4	0.76	0.869
HR 33014 J	2CE	81	78	101	100	105	5	5.5	1.5	1.5	22.2	0.28	2.1	1.2	1.11
HR 33114 J	3DE	82	79	111	104	115	6	8	2	1.5	27.9	0.38	1.6	0.87	1.71
HR 30214 J	3EB	82	81	116	110	118	4	5	2	1.5	25.7	0.42	1.4	0.79	1.3
HR 32214 J	3EC	82	80	116	108	119	4	6	2	1.5	28.6	0.42	1.4	0.79	1.66
HR 33214 J	3EE	82	78	116	107	120	7	9	2	1.5	30.4	0.41	1.5	0.81	2.15
T 7 FC070	7FC	88	79	126	106	133	5	12	2.5	2.5	45.7	0.87	0.69	0.38	2.55
HR 30314 J	2GB	88	89	138	132	140	4	8	2.5	2	29.7	0.35	1.7	0.96	3.03
HR 30314 DJ	7GB	94	85	138	118	142	4	13	2.5	2	45.7	0.83	0.73	0.40	2.94
HR 31314 J	7GB	94	85	138	118	142	4	13	2.5	2	45.7	0.83	0.73	0.40	2.94
HR 32314 J	2GD	91	86	138	124	140	4	12	2.5	2	36.0	0.35	1.7	0.96	4.35
HR 32314 CJ	5GD	91	84	138	115	141	4	12	2.5	2	43.3	0.55	1.1	0.60	4.47
HR 32915 J	2BC	84	81	99	98	101	4	4	1	1	18.7	0.33	1.8	0.99	0.53
HR 32015 XJ	4CC	86	82	106	103	110	5	6	1.5	1.5	25.1	0.46	1.3	0.72	0.925
HR 33015 J	2CE	86	83	106	104	110	6	5.5	1.5	1.5	23.0	0.30	2.0	1.1	1.18
HR 33115 J	3DE	87	83	115	109	120	6	8	2	2	29.1	0.40	1.5	0.83	1.8
HR 30215 J	4DB	87	85	121	115	124	4	5	2	1.5	27.0	0.44	1.4	0.76	1.43
HR 32215 J	4DC	87	84	121	113	125	4	6	2	1.5	29.8	0.44	1.4	0.76	1.72
HR 33215 J	3EE	87	83	121	111	125	7	10	2	1.5	31.6	0.43	1.4	0.77	2.25
HR 30315 J	2GB	93	95	148	141	149	4	9	2.5	2	31.8	0.35	1.7	0.96	3.63
HR 30315 DJ	7GB	99	91	148	129	152	6	14	2.5	2	48.7	0.83	0.73	0.40	3.47
HR 31315 J	7GB	99	91	148	129	152	6	14	2.5	2	48.7	0.83	0.73	0.40	3.47
HR 32315 J	2GD	96	91	148	134	149	4	13	2.5	2	38.9	0.35	1.7	0.96	5.31
32315 CA	—	96	90	148	124	153	4	15	2.5	2	47.7	0.58	1.0	0.57	5.3
HR 32916 J	2BC	89	85	104	102	106	4	4	1	1	19.8	0.35	1.7	0.94	0.56
HR 32016 XJ	3CC	91	89	116	112	120	6	7	1.5	1.5	26.9	0.42	1.4	0.78	1.32
HR 33016 J	2CE	91	88	116	112	119	6	6.5	1.5	1.5	25.5	0.28	2.2	1.2	1.66
HR 33116 J	3DE	82	88	121	113	126	6	8	2	1.5	30.4	0.42	1.4	0.79	1.88
HR 30216 J	3EB	95	91	130	124	132	4	6	2	2	28.1	0.42	1.4	0.79	1.68
30216 CA	—	95	92	130	122	133	4	8	2	2	33.7	0.58	1.0	0.57	1.66
HR 32216 J	3EC	95	90	130	122	134	4	7	2	2	30.6	0.42	1.4	0.79	2.13
HR 33216 J	3EE	95	89	130	119	135	7	11	2	2	34.8	0.43	1.4	0.78	2.93
HR 30316 J	2GB	98	102	158	150	159	4	9.5	2.5	2	34.0	0.35	1.7	0.96	4.27
HR 30316 DJ	7GB	104	97	158	136	159	6	15.5	2.5	2	51.8	0.83	0.73	0.40	4.07
HR 31316 J	7GB	104	97	158	136	159	6	15.5	2.5	2	51.8	0.83	0.73	0.40	4.07
HR 32316 J	2GD	101	98	158	143	159	4	13.5	2.5	2	41.3	0.35	1.7	0.96	6.35
HR 32316 CJ	5GD	101	95	158	132	160	4	13.5	2.5	2	49.2	0.55	1.1	0.60	6.59

Bore Diameter 85 – 100 mm





Dynamic Equivalent Load

$P = XF_r + YF_a$

$F_a/F_r \leq e$		$F_a/F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Static Equivalent Load

$P_0 = 0.5F_r + Y_0F_a$

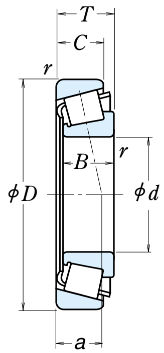
When $F_r > 0.5F_r + Y_0F_a$, use $P_0 = F_r$

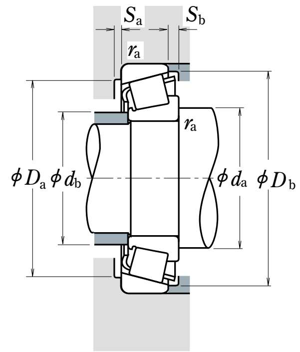
The values of e, Y_1, and Y_0 are given in the table below.

Boundary Dimensions (mm)							Basic Load Ratings (N)		{kgf}		Limiting Speeds (min⁻¹)		Bearing Numbers	ISO355 Dimension Series approx	Abutment and Fillet Dimensions (mm)									Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg)
d	D	T	B	C	r min Cone	r min Cup	C_r	C_{0r}	C_r	C_{0r}	Grease	Oil			d_a min	d_b max	D_a max	D_a min	D_b min	S_a min	S_b min	r_a max Cone	r_a max Cup	a	e	Y_1	Y_0	approx
85	120	23	23	18	1.5	1.5	93 500	157 000	9 550	16 000	2 800	3 800	**HR 32917 J**	2BC	96	92	111	111	115	5	5	1.5	1.5	20.9	0.33	1.8	1.0	0.8
	130	29	29	22	1.5	1.5	143 000	231 000	14 600	23 600	2 600	3 600	**HR 32017 XJ**	4CC	96	94	121	116	125	6	7	1.5	1.5	28.2	0.44	1.4	0.75	1.38
	130	36	36	29.5	1.5	1.5	180 000	305 000	18 400	31 000	2 600	3 600	**HR 33017 J**	2CE	96	94	121	117	125	6	6.5	1.5	1.5	26.5	0.29	2.1	1.1	1.75
	140	41	41	32	2.5	2	230 000	365 000	23 500	37 000	2 400	3 400	**HR 33117 J**	3DE	100	94	130	122	135	7	9	2	2	32.7	0.41	1.5	0.81	2.51
	150	30.5	28	24	2.5	2	184 000	233 000	18 700	23 800	2 400	3 200	**HR 30217 J**	3EB	100	97	140	133	141	5	6.5	2	2	30.3	0.42	1.4	0.79	2.12
	150	30.5	28	22	2.5	2	171 000	226 000	17 500	23 000	2 200	3 200	**30217 CA**	—	100	98	140	131	142	5	8.5	2	2	36.2	0.58	1.0	0.57	2.07
	150	38.5	36	30	2.5	2	210 000	277 000	21 400	28 200	2 200	3 200	**HR 32217 J**	3EC	100	96	140	131	142	5	8.5	2	2	33.8	0.42	1.4	0.79	2.64
	150	49	49	37	2.5	2	281 000	415 000	28 700	42 500	2 400	3 200	**HR 33217 J**	3EE	100	95	140	129	144	7	12	2	2	37.3	0.42	1.4	0.79	3.57
	180	44.5	41	34	4	3	310 000	375 000	31 500	38 000	2 000	2 800	**HR 30317 J**	2GB	106	108	166	157	167	5	10.5	3	2.5	35.7	0.35	1.7	0.96	5.08
	180	44.5	41	28	4	3	261 000	315 000	26 600	32 000	1 900	2 600	**HR 30317 DJ**	7GB	113	103	166	144	169	6	16.5	3	2.5	55.3	0.83	0.73	0.40	4.88
	180	44.5	41	28	4	3	261 000	315 000	26 600	32 000	1 900	2 600	**HR 31317 J**	7GB	113	103	166	144	169	6	16.5	3	2.5	55.3	0.83	0.73	0.40	4.88
	180	63.5	60	49	4	3	410 000	535 000	42 000	54 500	2 000	2 800	**HR 32317 J**	2GD	110	104	166	151	167	5	14.5	3	2.5	43.5	0.35	1.7	0.96	7.31
90	125	23	23	18	1.5	1.5	97 000	167 000	9 850	17 000	2 600	3 600	**HR 32918 J**	2BC	101	97	116	116	120	5	5	1.5	1.5	22.0	0.34	1.8	0.96	0.838
	140	32	32	24	2	1.5	170 000	273 000	17 300	27 800	2 400	3 200	**HR 32018 XJ**	3CC	102	99	131	124	134	6	8	2	1.5	29.7	0.42	1.4	0.78	1.78
	140	39	39	32.5	2	1.5	220 000	360 000	22 400	37 000	2 400	3 200	**HR 33018 J**	2CE	102	99	131	129	135	7	6.5	2	1.5	27.9	0.27	2.2	1.2	2.21
	150	45	45	35	2.5	2	259 000	405 000	26 500	41 500	2 400	3 200	**HR 33118 J**	3DE	105	100	140	132	144	7	10	2	2	35.2	0.40	1.5	0.83	3.14
	160	32.5	30	26	2.5	2	201 000	256 000	20 500	26 100	2 200	3 000	**HR 30218 J**	3FB	105	103	150	141	150	5	6.5	2	2	31.7	0.42	1.4	0.79	2.6
	160	42.5	40	34	2.5	2	256 000	350 000	26 100	35 500	2 200	3 000	**HR 32218 J**	3FC	105	102	150	139	152	5	8.5	2	2	36.1	0.42	1.4	0.79	3.41
	190	46.5	43	36	4	3	345 000	425 000	35 500	43 000	1 900	2 600	**HR 30318 J**	2GB	111	114	176	176	176	5	10.5	3	2.5	37.3	0.35	1.7	0.96	5.91
	190	46.5	43	30	4	3	264 000	315 000	26 900	32 000	1 800	2 400	**HR 30318 DJ**	7GB	118	110	176	152	179	6	16.5	3	2.5	58.6	0.83	0.73	0.40	5.52
	190	46.5	43	30	4	3	264 000	315 000	26 900	32 000	1 800	2 400	**HR 31318 J**	7GB	118	110	176	152	179	6	16.5	3	2.5	58.6	0.83	0.73	0.40	5.52
	190	67.5	64	53	4	3	450 000	590 000	46 000	60 500	2 000	2 600	**HR 32318 J**	2GD	115	109	176	158	177	5	14.5	3	2.5	46.5	0.35	1.7	0.96	8.6
95	130	23	23	18	1.5	1.5	98 000	172 000	10 000	17 500	2 400	3 400	**HR 32919 J**	2BC	106	102	121	121	125	5	5	1.5	1.5	23.2	0.36	1.7	0.92	0.877
	145	32	32	24	2	1.5	173 000	283 000	17 600	28 900	2 400	3 200	**HR 32019 XJ**	4CC	107	104	136	131	140	6	8	2	1.5	31.2	0.44	1.4	0.75	1.88
	145	39	39	32.5	2	1.5	231 000	390 000	23 500	39 500	2 400	3 200	**HR 33019 J**	2CE	107	103	136	133	139	7	6.5	2	1.5	28.6	0.28	2.2	1.2	2.3
	160	46	46	38	3	3	283 000	445 000	28 800	45 500	2 200	3 000	**T 2 ED095**	2ED	113	108	146	141	152	6	8	2.5	2.5	34.5	0.34	1.8	0.97	3.74
	170	34.5	32	27	3	2.5	223 000	286 000	22 800	29 200	2 200	2 800	**HR 30219 J**	3FB	113	110	158	150	159	5	7.5	2.5	2	33.7	0.42	1.4	0.79	3.13
	170	45.5	43	37	3	2.5	289 000	400 000	29 500	40 500	2 200	2 800	**HR 32219 J**	3FC	113	108	158	147	161	5	8.5	2.5	2	39.3	0.42	1.4	0.79	4.22
	200	49.5	45	38	4	3	370 000	455 000	38 000	46 500	1 900	2 600	**HR 30319 J**	2GB	116	119	186	172	184	5	11.5	3	2.5	38.6	0.35	1.7	0.96	6.92
	200	49.5	45	36	4	3	350 000	430 000	35 500	44 000	1 800	2 400	**30319 CA**	—	116	119	186	168	188	5	13.5	3	2.5	48.6	0.54	1.1	0.61	6.71
	200	49.5	45	32	4	3	310 000	375 000	31 500	38 500	1 700	2 400	**HR 30319 DJ**	7GB	123	115	186	158	187	6	17.5	3	2.5	61.9	0.83	0.73	0.40	6.64
	200	49.5	45	32	4	3	310 000	375 000	31 500	38 500	1 700	2 400	**HR 31319 J**	7GB	123	115	186	158	187	6	17.5	3	2.5	61.9	0.83	0.73	0.40	6.64
	200	71.5	67	55	4	3	525 000	710 000	53 500	72 500	1 900	2 600	**HR 32319 J**	2GD	120	115	186	167	186	5	16.5	3	2.5	48.6	0.35	1.7	0.96	10.4
100	140	25	25	20	1.5	1.5	117 000	205 000	12 000	20 900	2 200	3 200	**HR 32920 J**	2CC	111	109	132	132	134	5	5	1.5	1.5	24.2	0.33	1.8	1.0	1.18
	145	24	22.5	17.5	3	3	113 000	163 000	11 500	16 600	2 200	3 000	**T 4 CB100**	4CB	118	108	135	135	142	6	6.5	2.5	2.5	30.1	0.47	1.3	0.70	1.18
	150	32	32	24	2	1.5	176 000	294 000	17 900	30 000	2 200	3 000	**HR 32020 XJ**	4CC	112	109	141	136	144	6	8	2	1.5	32.5	0.46	1.3	0.72	1.95
	150	39	39	32.5	2	1.5	235 000	405 000	24 000	41 500	2 200	3 000	**HR 33020 J**	2CE	112	107	141	137	143	7	6.5	2	1.5	29.3	0.29	2.1	1.2	2.38
	165	52	52	40	2.5	2	315 000	515 000	32 500	52 500	2 000	2 800	**HR 33120 J**	3EE	115	110	155	144	159	8	12	2	2	40.5	0.41	1.5	0.81	4.32
	180	37	34	29	3	2.5	255 000	330 000	26 000	34 000	2 000	2 600	**HR 30220 J**	3FB	118	116	168	158	168	5	8	2.5	2	36.1	0.42	1.4	0.79	3.78
	180	49	46	39	3	2.5	325 000	450 000	33 000	46 000	2 000	2 600	**HR 32220 J**	3FC	118	115	168	155	171	5	10	2.5	2	41.5	0.42	1.4	0.79	5.05
	180	63	63	48	3	2.5	410 000	635 000	42 000	65 000	2 000	2 600	**HR 33220 J**	3FE	118	113	168	152	172	10	15	2.5	2	45.9	0.40	1.5	0.82	6.76
	215	51.5	47	39	4	3	425 000	525 000	43 000	53 500	1 700	2 400	**HR 30320 J**	2GB	121	128	201	185	197	5	12.5	3	2.5	41.1	0.35	1.7	0.96	8.41
	215	56.5	51	35	4	3	385 000	505 000	39 000	51 500	1 500	2 200	**HR 31320 J**	7GB	136	125	201	169	202	7	21.5	3	2.5	67.7	0.83	0.73	0.40	9.02
	215	77.5	73	60	4	3	565 000	755 000	57 500	77 000	1 700	2 400	**HR 32320 J**	2GD	125	125	201	178	200	5	17.5	3	2.5	53.2	0.35	1.7	0.96	12.7

Remarks The suffix CA represents medium-angle tapered roller bearings. Since they are designed for specific applications, please consult NSK when using bearings with suffix CA.

Bore Diameter 105 – 130 mm





Dynamic Equivalent Load

$P = XF_r + YF_a$

$F_a/F_r \leq e$		$F_a/F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Static Equivalent Load

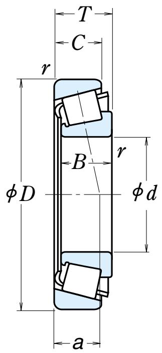
$P_0 = 0.5F_r + Y_0F_a$

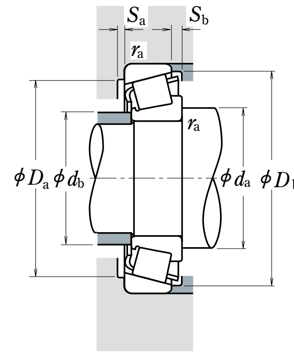
When $F_r > 0.5F_r + Y_0F_a$, use $P_0 = F_r$

The values of e, Y_1, and Y_0 are given in the table below.

Boundary Dimensions (mm)							Basic Load Ratings (N)		Basic Load Ratings {kgf}		Limiting Speeds (min⁻¹)		Bearing Numbers	ISO355 Dimension Series approx	Abutment and Fillet Dimensions (mm)									Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg)
d	D	T	B	C	Cone r min	Cup r min	C_r	C_{0r}	C_r	C_{0r}	Grease	Oil			d_a min	d_b max	D_a max	D_a min	D_b min	S_a min	S_b min	Cone r_a max	Cup r_a max	a	e	Y_1	Y_0	approx
105	145	25	25	20	1.5	1.5	119 000	212 000	12 100	21 600	2 200	3 000	**HR 32921 J**	2CC	116	114	137	137	140	5	5	1.5	1.5	25.3	0.34	1.8	0.96	1.23
	160	35	35	26	2.5	2	204 000	340 000	20 800	34 500	2 000	2 800	**HR 32021 XJ**	4DC	120	115	150	144	154	6	9	2	2	34.3	0.44	1.4	0.74	2.48
	160	43	43	34	2.5	2	256 000	435 000	26 100	44 000	2 000	2 800	**HR 33021 J**	2DE	120	115	150	146	153	7	9	2	2	30.9	0.28	2.1	1.2	3.03
	190	39	36	30	3	2.5	280 000	365 000	28 500	37 500	1 900	2 600	**HR 30221 J**	3FB	123	123	178	166	177	6	9	2.5	2	38.1	0.42	1.4	0.79	4.51
	190	53	50	43	3	2.5	360 000	510 000	37 000	52 000	1 900	2 600	**HR 32221 J**	3FC	123	120	178	162	180	5	10	2.5	2	44.8	0.42	1.4	0.79	6.25
	225	53.5	49	41	4	3	455 000	565 000	46 500	57 500	1 600	2 200	**HR 30321 J**	2GB	126	133	211	195	206	6	12.5	3	2.5	43.2	0.35	1.7	0.96	9.52
	225	58	53	36	4	3	415 000	540 000	42 000	55 000	1 500	2 000	**HR 31321 J**	7GB	141	130	211	177	211	7	22	3	2.5	70.2	0.83	0.73	0.40	10
	225	81.5	77	63	4	3	670 000	925 000	68 000	94 500	1 700	2 200	**HR 32321 J**	2GD	130	129	211	186	209	6	18.5	3	2.5	55.2	0.35	1.7	0.96	14.9
110	150	25	25	20	1.5	1.5	123 000	224 000	12 500	22 800	2 200	2 800	**HR 32922 J**	2CC	121	119	142	142	145	5	5	1.5	1.5	26.5	0.36	1.7	0.93	1.29
	170	38	38	29	2.5	2	236 000	390 000	24 000	40 000	2 000	2 600	**HR 32022 XJ**	4DC	125	121	160	153	163	7	9	2	2	35.9	0.43	1.4	0.77	3.09
	170	47	47	37	2.5	2	294 000	515 000	30 000	52 500	2 000	2 600	**HR 33022 J**	2DE	125	121	160	153	161	7	10	2	2	33.7	0.29	2.1	1.2	3.84
	180	56	56	43	2.5	2	365 000	610 000	37 500	62 000	1 900	2 600	**HR 33122 J**	3EE	125	121	170	156	174	9	13	2	2	44.1	0.42	1.4	0.79	5.54
	200	41	38	32	3	2.5	315 000	420 000	32 000	43 000	1 800	2 400	**HR 30222 J**	3FB	128	129	188	175	187	6	9	2.5	2	40.1	0.42	1.4	0.79	5.28
	200	56	53	46	3	2.5	400 000	565 000	40 500	57 500	1 800	2 400	**HR 32222 J**	3FC	128	127	188	171	190	5	10	2.5	2	47.2	0.42	1.4	0.79	7.35
	240	54.5	50	42	4	3	485 000	595 000	49 500	60 500	1 500	2 000	**HR 30322 J**	2GB	131	143	226	208	220	6	12.5	3	2.5	45.1	0.35	1.7	0.96	11
	240	63	57	38	4	3	470 000	605 000	48 000	62 000	1 400	1 900	**HR 31322 J**	7GB	146	136	226	191	224	7	25	3	2.5	74.7	0.83	0.73	0.40	12.3
	240	84.5	80	65	4	3	675 000	910 000	68 500	93 000	1 500	2 000	**HR 32322 J**	2GD	135	139	226	201	222	6	19.5	3	2.5	58.5	0.35	1.7	0.96	17.1
120	165	29	29	23	1.5	1.5	161 000	291 000	16 400	29 700	1 900	2 600	**HR 32924 J**	2CC	131	129	156	155	160	6	6	1.5	1.5	29.2	0.35	1.7	0.95	1.8
	170	27	25	19.5	3	3	153 000	243 000	51 600	24 800	1 800	2 600	**T 4 CB120**	4CB	138	129	158	158	164	7	7.5	2.5	2.5	35.0	0.47	1.3	0.70	1.78
	180	38	38	29	2.5	2	242 000	405 000	24 600	41 000	1 800	2 400	**HR 32024 XJ**	4DC	135	131	170	162	173	7	9	2	2	39.7	0.46	1.3	0.72	3.27
	180	48	48	38	2.5	2	300 000	540 000	30 500	55 000	1 800	2 600	**HR 33024 J**	2DE	135	130	168	161	171	6	10	2	2	36.0	0.31	2.0	1.1	4.2
	200	62	62	48	2.5	2	460 000	755 000	46 500	77 000	1 700	2 400	**HR 33124 J**	3FE	135	133	190	173	192	9	14	2	2	47.9	0.40	1.5	0.83	7.67
	215	43.5	40	34	3	2.5	335 000	450 000	34 000	46 000	1 600	2 200	**HR 30224 J**	4FB	138	141	203	190	201	6	9.5	2.5	2	44.4	0.44	1.4	0.76	6.28
	215	61.5	58	50	3	2.5	440 000	635 000	44 500	65 000	1 600	2 200	**HR 32224 J**	4FD	138	137	203	181	204	6	11.5	2.5	2	52.0	0.44	1.4	0.76	9.0
	260	59.5	55	46	4	3	535 000	655 000	54 500	67 000	1 400	1 900	**HR 30324 J**	2GB	141	154	246	223	237	6	13.5	3	2.5	50.0	0.35	1.7	0.96	13.9
	260	68	62	42	4	3	560 000	730 000	57 000	74 500	1 300	1 800	**HR 31324 J**	7GB	156	148	246	206	244	9	26	3	2.5	81.6	0.83	0.73	0.40	15.6
	260	90.5	86	69	4	3	770 000	1 060 000	78 500	108 000	1 400	1 900	**HR 32324 J**	2GD	145	149	246	216	239	6	21.5	3	2.5	62.4	0.35	1.7	0.96	21.8
130	180	32	30	26	2	1.5	167 000	281 000	17 000	28 600	1 800	2 400	**32926**	—	142	141	171	168	175	6	6	2	1.5	34.7	0.36	1.7	0.92	2.25
	180	32	32	25	2	1.5	200 000	365 000	20 400	37 500	1 800	2 400	**HR 32926 J**	2CC	142	140	170	168	173	6	7	2	1.5	31.4	0.34	1.8	0.97	2.46
	185	29	27	21	3	3	183 000	296 000	18 600	30 000	1 700	2 400	**T 4 CB130**	4CB	148	141	171	171	179	8	8	2.5	2.5	37.5	0.47	1.3	0.70	2.32
	200	45	45	34	2.5	2	320 000	535 000	32 500	54 500	1 600	2 200	**HR 32026 XJ**	4EC	145	144	190	179	192	8	11	2	2	43.9	0.43	1.4	0.76	5.06
	200	55	55	43	2.5	2	395 000	715 000	40 500	73 000	1 700	2 200	**HR 33026 J**	2EE	145	144	188	179	192	8	12	2	2	42.4	0.34	1.8	0.97	6.25
	230	43.75	40	34	4	3	375 000	505 000	38 000	51 500	1 500	2 000	**HR 30226 J**	4FB	151	151	216	205	217	7	9.5	3	2.5	45.8	0.44	1.4	0.76	7.25
	230	67.75	64	54	4	3	530 000	790 000	54 000	80 500	1 500	2 000	**HR 32226 J**	4FD	151	147	216	196	219	7	13.5	3	2.5	56.9	0.44	1.4	0.76	11.3
	280	63.75	58	49	5	4	545 000	675 000	56 000	68 500	1 300	1 800	**30326**	—	157	168	262	239	255	8	14.5	4	3	53.9	0.36	1.7	0.92	16.6
	280	63.75	58	49	5	4	650 000	820 000	66 000	83 500	1 300	1 800	**HR 30326 J**	2GB	157	166	262	241	255	8	14.5	4	3	52.7	0.35	1.7	0.96	17.2
	280	72	66	44	5	4	625 000	820 000	63 500	83 500	1 200	1 700	**HR 31326 J**	7GB	174	159	262	220	261	9	28	4	3	87.1	0.83	0.73	0.40	18.8
	280	98.75	93	78	5	4	830 000	1 150 000	84 500	117 000	1 300	1 800	**32326**	—	162	165	262	233	263	8	20.5	4	3	69.2	0.36	1.7	0.92	26.6

Bore Diameter 140 – 170 mm





Dynamic Equivalent Load

$P = XF_r + YF_a$

$F_a/F_r \leq e$		$F_a/F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Static Equivalent Load

$P_0 = 0.5F_r + Y_0F_a$

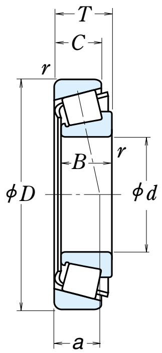
When $F_r > 0.5F_r + Y_0F_a$, use $P_0 = F_r$

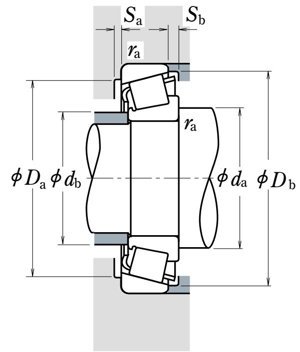
The values of e, Y_1, and Y_0 are given in the table below.

Boundary Dimensions (mm) d	D	T	B	C	Cone r min	Cup r min	Basic Load Ratings (N) C_r	(N) C_{0r}	{kgf} C_r	{kgf} C_{0r}	Limiting Speeds (min⁻¹) Grease	Oil
140	190	32	32	25	2	1.5	206 000	390 000	21 000	39 500	1 700	2 200
	210	45	45	34	2.5	2	325 000	555 000	33 000	57 000	1 600	2 200
	210	56	56	44	2.5	2	410 000	770 000	42 000	78 500	1 600	2 200
	250	45.75	42	36	4	3	390 000	515 000	40 000	52 500	1 400	1 900
	250	71.75	68	58	4	3	610 000	915 000	62 000	93 500	1 400	1 900
	300	67.75	62	53	5	4	740 000	945 000	75 500	96 500	1 200	1 700
	300	77	70	47	5	4	695 000	955 000	71 000	97 500	1 100	1 500
	300	107.75	102	85	5	4	985 000	1 440 000	101 000	147 000	1 200	1 600
150	210	38	36	31	2.5	2	247 000	440 000	25 200	45 000	1 500	2 000
	210	38	38	30	2.5	2	281 000	520 000	28 600	53 000	1 500	2 000
	225	48	48	36	3	2.5	375 000	650 000	38 000	66 500	1 400	2 000
	225	59	59	46	3	2.5	435 000	805 000	44 000	82 000	1 400	2 000
	270	49	45	38	4	3	485 000	665 000	49 000	67 500	1 300	1 800
	270	77	73	60	4	3	705 000	1 080 000	71 500	110 000	1 300	1 800
	320	72	65	55	5	4	690 000	860 000	70 000	87 500	1 100	1 500
	320	72	65	55	5	4	825 000	1 060 000	84 500	108 000	1 100	1 600
	320	82	75	50	5	4	790 000	1 100 000	80 500	112 000	1 000	1 400
	320	114	108	90	5	4	1 120 000	1 700 000	114 000	174 000	1 100	1 500
160	220	38	38	30	2.5	2	296 000	570 000	30 000	58 000	1 400	1 900
	240	51	51	38	3	2.5	425 000	750 000	43 500	76 500	1 300	1 800
	290	52	48	40	4	3	530 000	730 000	54 000	74 500	1 200	1 600
	290	84	80	67	4	3	795 000	1 120 000	81 000	125 000	1 200	1 600
	340	75	68	58	5	4	765 000	960 000	78 000	98 000	1 000	1 400
	340	75	68	58	5	4	870 000	1 110 000	89 000	113 000	1 100	1 400
	340	75	68	48	5	4	675 000	875 000	69 000	89 000	950	1 300
	340	121	114	95	5	4	1 210 000	1 770 000	123 000	181 000	1 000	1 400
170	230	38	36	31	2.5	2.5	258 000	485 000	26 300	49 500	1 300	1 800
	230	38	38	30	2.5	2	294 000	560 000	30 000	57 000	1 400	1 800
	260	57	57	43	3	2.5	505 000	890 000	51 500	90 500	1 200	1 700
	310	57	52	43	5	4	630 000	885 000	64 000	90 000	1 100	1 500
	310	91	86	71	5	4	930 000	1 450 000	94 500	148 000	1 100	1 500
	360	80	72	62	5	4	845 000	1 080 000	86 000	110 000	950	1 300
	360	80	72	62	5	4	960 000	1 230 000	98 000	125 000	1 000	1 300
	360	80	72	50	5	4	760 000	1 040 000	77 500	106 000	900	1 200
	360	127	120	100	5	4	1 370 000	2 050 000	140 000	209 000	1 000	1 300

Bearing Numbers	ISO355 Dimension Series approx	Abutment and Fillet Dimensions (mm) d_a min	d_b max	D_a max	D_a min	D_b min	S_a min	S_b min	Cone r_a max	Cup r_a max	Eff. Load Centers (mm) a	Constant e	Axial Load Factors Y_1	Y_0	Mass (kg) approx
HR 32928 J	2CC	152	150	180	178	184	6	7	2	1.5	33.6	0.36	1.7	0.92	2.64
HR 32028 XJ	4DC	155	152	200	189	202	8	11	2	2	46.6	0.46	1.3	0.72	5.32
HR 33028 J	2DE	155	153	198	189	202	7	12	2	2	45.5	0.36	1.7	0.92	6.74
HR 30228 J	4FB	161	164	236	221	234	7	9.5	3	2.5	48.9	0.44	1.4	0.76	8.74
HR 32228 J	4FD	161	159	236	213	238	9	13.5	3	2.5	60.5	0.44	1.4	0.76	14.3
HR 30328 J	2GB	167	177	282	256	273	9	14.5	4	3	55.7	0.35	1.7	0.96	21.1
HR 31328 J	7GB	184	174	282	236	280	9	30	4	3	92.8	0.83	0.73	0.40	28.5
32328	—	172	177	282	246	281	9	22.5	4	3	76.4	0.37	1.6	0.88	33.9
32930	—	165	162	200	195	201	7	7	2	2	36.7	0.33	1.8	1.0	3.8
HR 32930 J	2DC	165	163	198	196	202	7	8	2	2	36.5	0.33	1.8	1.0	4.05
HR 32030 XJ	4EC	168	164	213	202	216	8	12	2.5	2	49.8	0.46	1.3	0.72	6.6
HR 33030 J	2EE	168	165	213	203	217	8	13	2.5	2	48.7	0.36	1.7	0.90	8.07
HR 30230 J	2GB	171	175	256	236	250	7	11	3	2.5	51.3	0.44	1.4	0.76	11.2
HR 32230 J	4GD	171	171	256	228	254	8	17	3	2.5	64.7	0.44	1.4	0.76	17.8
30330	—	177	193	302	275	292	8	17	4	3	61.4	0.36	1.7	0.92	24.2
HR 30330 J	2GB	177	190	302	276	292	8	17	4	3	60.0	0.35	1.7	0.96	25
HR 31330 J	7GB	194	187	302	253	300	9	32	4	3	99.3	0.83	0.73	0.40	28.5
32330	—	182	191	302	262	297	8	24	4	3	81.5	0.37	1.6	0.88	41.4
HR 32932 J	2DC	175	173	208	206	212	7	8	2	2	38.7	0.35	1.7	0.95	4.32
HR 32032 XJ	4EC	178	175	228	216	231	8	13	2.5	2	53.0	0.46	1.3	0.72	7.93
HR 30232 J	4GB	181	189	276	253	269	8	12	3	2.5	55.0	0.44	1.4	0.76	13.7
HR 32232 J	4GD	181	184	276	243	274	10	17	3	2.5	70.5	0.44	1.4	0.76	22.7
30332	—	187	205	322	293	311	10	17	4	3	64.6	0.36	1.7	0.92	28.4
HR 30332 J	2GB	187	201	322	293	310	10	17	4	3	62.9	0.35	1.7	0.96	29.2
30332 D	—	196	198	322	270	313	9	27	4	3	99.3	0.81	0.74	0.41	27.5
32332	—	192	202	322	281	319	10	26	4	3	87.1	0.37	1.6	0.88	48.3
32934	—	185	183	220	216	223	7	7	2	2	41.6	0.36	1.7	0.90	4.3
HR 32934 J	3DC	185	180	218	215	222	7	8	2	2	41.7	0.38	1.6	0.86	4.44
HR 32034 XJ	4EC	188	187	248	232	249	10	14	2.5	2	56.6	0.44	1.4	0.74	10.6
HR 30234 J	4GB	197	202	292	273	288	8	14	4	3	59.4	0.44	1.4	0.76	17.1
HR 32234 J	4GD	197	197	292	262	294	10	20	4	3	76.4	0.44	1.4	0.76	28
30334	—	197	221	342	312	332	10	18	4	3	70.1	0.37	1.6	0.90	33.5
HR 30334 J	2GB	197	214	342	310	329	10	18	4	3	67.3	0.35	1.7	0.96	34.5
30334 D	—	206	215	342	288	332	10	30	4	3	107.3	0.81	0.74	0.41	33.4
32334	—	202	213	342	297	337	10	27	4	3	91.3	0.37	1.6	0.88	57

Bore Diameter 180 – 240 mm





Dynamic Equivalent Load

$P = XF_r + YF_a$

$F_a/F_r \leq e$		$F_a/F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Static Equivalent Load

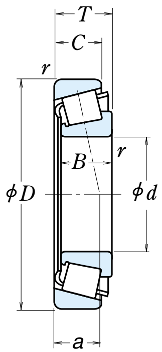
$P_0 = 0.5F_r + Y_0 F_a$

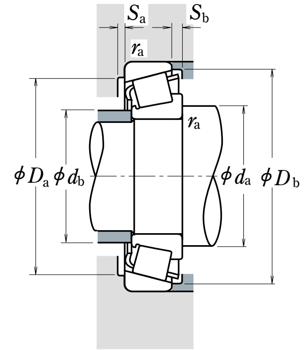
When $F_r > 0.5F_r + Y_0 F_a$, use $P_0 = F_r$

The values of e, Y_1, and Y_0 are given in the table below.

Boundary Dimensions (mm)							Basic Load Ratings (N)		{kgf}		Limiting Speeds (min^{-1})		Bearing Numbers	ISO355 Dimension Series approx	Abutment and Fillet Dimensions (mm)									Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg)
d	D	T	B	C	Cone r min	Cup r min	C_r	C_{0r}	C_r	C_{0r}	Grease	Oil			d_a min	d_b max	D_a max	D_a min	D_b min	S_a min	S_b min	Cone r_a max	Cup r_a max	a	e	Y_1	Y_0	approx
180	250	45	45	34	2.5	2	350 000	685 000	36 000	69 500	1 300	1 700	**HR 32936 J**	4DC	195	192	240	227	241	8	11	2	2	53.9	0.48	1.3	0.69	6.56
	280	64	64	48	3	2.5	640 000	1 130 000	65 000	115 000	1 200	1 600	**HR 32036 XJ**	3FD	198	199	268	248	267	10	16	2.5	2	60.4	0.42	1.4	0.78	14.3
	320	57	52	43	5	4	650 000	930 000	66 000	95 000	1 100	1 400	**HR 30236 J**	4GB	207	210	302	281	297	9	14	4	3	61.8	0.45	1.3	0.73	17.8
	320	91	86	71	5	4	960 000	1 540 000	98 000	157 000	1 100	1 400	**HR 32236 J**	4GD	207	205	302	270	303	10	20	4	3	78.8	0.45	1.3	0.73	29.8
	380	83	75	64	5	4	935 000	1 230 000	95 500	126 000	900	1 300	**30336**	—	207	233	362	324	345	10	19	4	3	72.4	0.36	1.7	0.92	39.3
	380	83	75	53	5	4	820 000	1 120 000	83 500	114 000	850	1 200	**30336 D**	—	216	229	362	304	352	10	30	4	3	113.1	0.81	0.74	0.41	38.5
	380	134	126	106	5	4	1 520 000	2 290 000	155 000	234 000	950	1 300	**32336**	—	212	225	362	310	353	10	28	4	3	96.6	0.37	1.6	0.88	66.8
190	260	45	45	34	2.5	2	365 000	715 000	37 000	73 000	1 200	1 600	**HR 32938 J**	4DC	205	201	250	237	251	8	11	2	2	55.3	0.48	1.3	0.69	6.83
	290	64	64	48	3	2.5	650 000	1 170 000	66 000	119 000	1 100	1 500	**HR 32038 XJ**	4FD	208	209	278	258	279	10	16	2.5	2	63.3	0.44	1.4	0.75	14.9
	340	60	55	46	5	4	760 000	1 080 000	77 500	111 000	1 000	1 300	**HR 30238 J**	4GB	217	223	322	302	318	9	14	4	3	64.4	0.44	1.4	0.76	21.4
	340	97	92	75	5	4	1 110 000	1 770 000	113 000	181 000	1 000	1 400	**HR 32238 J**	4GD	217	216	322	290	323	10	22	4	3	80.5	0.44	1.4	0.76	35.2
	400	86	78	65	6	5	1 010 000	1 340 000	103 000	136 000	850	1 200	**30338**	—	223	248	378	346	366	11	21	5	4	76.1	0.36	1.7	0.92	46
	400	140	132	109	6	5	1 660 000	2 580 000	169 000	263 000	850	1 200	**32338**	—	229	243	378	332	375	11	31	5	4	102.7	0.37	1.6	0.88	78.9
200	280	51	48	41	3	2.5	410 000	780 000	42 000	80 000	1 100	1 500	**32940**	—	218	217	268	256	269	9	10	2.5	2	53.4	0.37	1.6	0.88	9.26
	280	51	51	39	3	2.5	480 000	935 000	48 500	95 000	1 100	1 500	**HR 32940 J**	3EC	218	216	268	258	271	9	12	2.5	2	54.2	0.39	1.5	0.84	9.65
	310	70	70	53	3	2.5	760 000	1 370 000	77 500	139 000	1 000	1 400	**HR 32040 XJ**	4FD	218	221	298	277	297	11	17	2.5	2	67.4	0.43	1.4	0.77	18.9
	360	64	58	48	5	4	825 000	1 180 000	84 000	121 000	950	1 300	**HR 30240 J**	4GB	227	236	342	318	336	10	16	4	3	68.7	0.44	1.4	0.76	25.1
	360	104	98	82	5	4	1 210 000	1 920 000	123 000	196 000	950	1 300	**HR 32240 J**	3GD	227	230	342	305	340	11	22	4	3	85.1	0.41	1.5	0.81	42.6
	420	89	80	67	6	5	1 030 000	1 390 000	105 000	142 000	850	1 200	**30340**	—	233	253	398	346	368	11	22	5	4	81.4	0.37	1.6	0.88	52.3
	420	89	80	56	6	5	965 000	1 330 000	98 500	136 000	750	1 000	**30340 D**	—	244	253	398	336	385	11	33	5	4	122.8	0.81	0.74	0.41	49.6
	420	146	138	115	6	5	1 820 000	2 870 000	185 000	292 000	800	1 100	**32340**	—	239	253	398	346	392	11	31	5	4	106.7	0.37	1.6	0.88	90.9
220	300	51	51	39	3	2.5	490 000	990 000	50 000	101 000	1 000	1 400	**HR 32944 J**	3EC	238	235	288	278	293	9	12	2.5	2	59.2	0.43	1.4	0.78	10.3
	340	76	76	57	4	3	885 000	1 610 000	90 500	164 000	950	1 300	**HR 32044 XJ**	4FD	241	244	326	303	326	12	19	3	2.5	73.6	0.43	1.4	0.77	24.4
	400	72	65	54	5	4	810 000	1 150 000	82 500	117 000	850	1 100	**30244**	—	247	267	382	350	367	11	18	4	3	74.6	0.40	1.5	0.82	33.6
	400	114	108	90	5	4	1 340 000	2 210 000	137 000	225 000	850	1 100	**32244**	—	247	260	382	340	377	12	24	4	3	93.0	0.40	1.5	0.82	57.4
	460	97	88	73	6	5	1 430 000	1 990 000	146 000	203 000	750	1 000	**30344**	—	253	283	438	390	414	12	24	5	4	85.3	0.36	1.7	0.92	72.4
	460	154	145	122	6	5	2 020 000	3 200 000	206 000	325 000	750	1 000	**32344**	—	259	274	438	372	421	12	32	5	4	114.9	0.37	1.6	0.88	114
240	320	51	51	39	3	2.5	500 000	1 040 000	51 000	107 000	950	1 300	**HR 32948 J**	4EC	258	255	308	297	314	9	12	2.5	2	65.1	0.46	1.3	0.72	11.1
	360	76	76	57	4	3	920 000	1 730 000	94 000	177 000	850	1 200	**HR 32048 XJ**	4FD	261	262	346	321	346	12	19	3	2.5	79.1	0.46	1.3	0.72	26.2
	440	79	72	60	5	4	990 000	1 400 000	101 000	142 000	750	1 000	**30248**	—	267	288	422	384	408	11	19	4	3	85.1	0.44	1.4	0.74	45.2
	440	127	120	100	5	4	1 630 000	2 730 000	166 000	278 000	750	1 000	**32248**	—	267	285	422	374	416	12	27	4	3	102.5	0.40	1.5	0.82	78
	500	105	95	80	6	5	1 660 000	2 340 000	169 000	238 000	670	950	**30348**	—	273	308	478	422	447	12	25	5	4	92.8	0.36	1.7	0.92	92.6
	500	165	155	132	6	5	2 520 000	4 100 000	257 000	415 000	670	900	**32348**	—	279	301	478	410	464	12	33	5	4	123.2	0.37	1.6	0.88	145

Bore Diameter 260 – 440 mm





Dynamic Equivalent Load

$P = XF_r + YF_a$

$F_a/F_r \leq e$		$F_a/F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Static Equivalent Load

$P_0 = 0.5F_r + Y_0F_a$

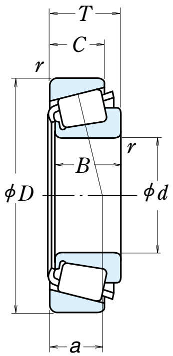
When $F_r > 0.5F_r + Y_0F_a$, use $P_0 = F_r$

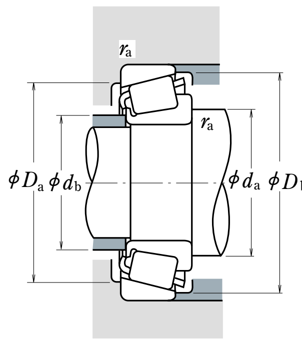
The values of e, Y_1, and Y_0 are given in the table below.

Boundary Dimensions (mm)							Basic Load Ratings (N)		{kgf}		Limiting Speeds (min⁻¹)	
d	D	T	B	C	Cone r min	Cup r min	C_r	C_{0r}	C_r	C_{0r}	Grease	Oil
260	360	63.5	63.5	48	3	2.5	730 000	1 450 000	74 500	148 000	850	1 100
	400	87	87	65	5	4	1 160 000	2 160 000	118 000	220 000	800	1 100
	480	89	80	67	6	5	1 190 000	1 700 000	121 000	174 000	670	900
	480	137	130	106	6	5	1 900 000	3 300 000	194 000	335 000	670	950
	540	113	102	85	6	6	1 870 000	2 640 000	190 000	269 000	630	850
	540	176	165	136	6	6	2 910 000	4 800 000	297 000	490 000	630	850
280	380	63.5	63.5	48	3	2.5	765 000	1 580 000	78 000	162 000	800	1 100
	420	87	87	65	5	4	1 180 000	2 240 000	120 000	228 000	710	1 000
	500	89	80	67	6	5	1 240 000	1 900 000	127 000	194 000	630	850
	500	137	130	106	6	5	1 950 000	3 450 000	199 000	355 000	630	850
	580	187	175	145	6	6	3 300 000	5 400 000	335 000	550 000	560	800
300	420	76	72	62	4	3	895 000	1 820 000	91 000	186 000	710	950
	420	76	76	57	4	3	1 010 000	2 100 000	103 000	214 000	710	950
	460	100	100	74	5	4	1 440 000	2 700 000	147 000	275 000	670	900
	540	96	85	71	6	5	1 440 000	2 100 000	147 000	214 000	600	800
	540	149	140	115	6	5	2 220 000	3 700 000	226 000	380 000	600	800
320	440	76	72	63	4	3	900 000	1 880 000	92 000	192 000	970	900
	440	76	76	57	4	3	1 040 000	2 220 000	106 000	227 000	670	900
	480	100	100	74	5	4	1 510 000	2 910 000	153 000	297 000	630	850
	580	104	92	75	6	5	1 640 000	2 420 000	168 000	247 000	530	750
	580	159	150	125	6	5	2 860 000	5 050 000	292 000	515 000	530	750
	670	210	200	170	7.5	7.5	4 200 000	7 100 000	430 000	725 000	480	670
340	460	76	72	63	4	3	910 000	1 940 000	93 000	197 000	630	850
	460	76	76	57	4	3	1 050 000	2 220 000	107 000	226 000	630	850
	520	112	106	92	6	5	1 650 000	3 400 000	168 000	345 000	560	750
360	480	76	72	62	4	3	945 000	2 100 000	96 500	214 000	600	800
	480	76	76	57	4	3	1 080 000	2 340 000	110 000	239 000	560	800
	540	112	106	92	6	5	1 680 000	3 500 000	171 000	355 000	530	750
380	520	87	82	71	5	4	1 210 000	2 550 000	124 000	260 000	560	750
400	540	87	82	71	5	4	1 250 000	2 700 000	128 000	276 000	530	710
	600	125	118	100	6	5	1 960 000	4 050 000	200 000	415 000	480	670
420	560	87	82	72	5	4	1 300 000	2 810 000	132 000	287 000	500	670
	620	125	118	100	6	5	2 000 000	4 200 000	204 000	430 000	450	630
440	650	130	122	104	6	6	2 230 000	4 600 000	227 000	470 000	430	600

Bearing Numbers	ISO355 Dimension Series approx	Abutment and Fillet Dimensions (mm)									Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg)
		d_a min	d_b max	D_a max	D_a min	D_b min	S_a min	S_b min	Cone r_a max	Cup r_a max	a	e	Y_1	Y_0	approx
HR 32952 J	3EC	278	278	348	333	347	11	15.5	2.5	2	69.8	0.41	1.5	0.81	18.6
HR 32052 XJ	4FC	287	287	382	357	383	14	22	4	3	86.3	0.43	1.4	0.76	38.5
30252	—	293	316	458	421	447	12	22	5	4	94.5	0.44	1.4	0.74	60.7
32252	—	293	305	458	394	446	14	31	5	4	116.0	0.45	1.3	0.73	103
30352	—	293	336	512	460	487	16	28	5	5	101.6	0.36	1.7	0.92	114
32352	—	293	328	512	441	495	13	40	5	5	130.5	0.37	1.6	0.88	188
HR 32956 J	4EC	298	297	368	352	368	12	15.5	2.5	2	75.3	0.43	1.4	0.76	20
HR 32056 XJ	4FC	307	305	402	374	402	14	22	4	3	91.6	0.46	1.3	0.72	40.6
30256	—	313	339	478	436	462	12	22	5	4	98.5	0.44	1.4	0.74	66.3
32256	—	313	325	478	412	467	14	31	5	4	123.0	0.47	1.3	0.70	109
32356	—	319	353	552	475	532	14	42	5	5	139.6	0.37	1.6	0.89	224
32960	—	321	326	406	386	405	13	14	3	2.5	79.3	0.37	1.6	0.88	30.5
HR 32960 J	3FD	321	324	406	387	405	13	19	3	2.5	79.9	0.39	1.5	0.84	31.4
HR 32060 XJ	4GD	327	330	442	408	439	15	26	4	3	98.4	0.43	1.4	0.76	56.6
30260	—	333	355	518	470	499	14	25	5	4	105.1	0.44	1.4	0.74	80.6
32260	—	333	352	518	458	514	15	34	5	4	131.6	0.46	1.3	0.72	132
32964	—	341	345	426	404	425	13	13	3	2.5	84.3	0.39	1.5	0.84	32
HR 32964 J	3FD	341	344	426	406	426	13	19	3	2.5	85.0	0.42	1.4	0.79	33.3
HR 32064 XJ	4GD	347	350	462	430	461	15	26	4	3	104.5	0.46	1.3	0.72	60
30264	—	353	381	558	503	533	14	29	5	4	113.7	0.44	1.4	0.74	99.3
32264	—	353	383	558	487	550	15	34	5	4	141.6	0.46	1.3	0.72	175
32364	—	383	412	634	547	616	14	42	6	6	157.5	0.37	1.6	0.88	343
32968	—	361	364	446	426	446	13	13	3	2.5	89.2	0.41	1.5	0.80	33.6
HR 32968 J	4FD	361	362	446	427	446	13	19	3	2.5	91.0	0.44	1.4	0.75	34.3
32068	—	373	386	498	464	496	3.5	22	5	4	104.4	0.37	1.6	0.89	83.7
32972	—	381	386	466	445	465	14	14	3	2.5	91.4	0.40	1.5	0.82	35.8
HR 32972 J	4FD	381	381	466	445	466	13	19	3	2.5	96.8	0.46	1.3	0.72	36.1
32072	—	393	402	518	480	514	5.5	22	5	4	108.5	0.38	1.6	0.86	86.5
32976	—	407	406	502	478	501	16	16	4	3	95.2	0.39	1.6	0.86	49.5
32980	—	427	428	522	499	524	16	16	4	3	100.8	0.40	1.5	0.82	52.7
32080	—	433	443	578	533	565	5	25	5	4	115.3	0.36	1.7	0.92	116
32984	—	447	448	542	521	544	3.5	15	4	3	106.1	0.41	1.5	0.81	54.8
32084	—	453	463	598	552	586	6.5	25	5	4	120.0	0.37	1.6	0.88	121
32088	—	473	487	622	582	616	5	26	5	5	126.3	0.36	1.7	0.92	136

Bore Diameter 12.000 – 22.225 mm





Dynamic Equivalent Load

$P = XF_r + YF_a$

$F_a/F_r \leqq e$		$F_a/F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Static Equivalent Load

$P_0 = 0.5F_r + Y_0 F_a$

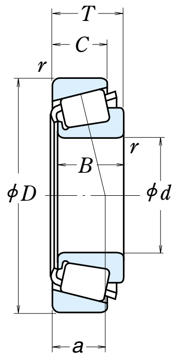
When $F_r > 0.5F_r + Y_0 F_a$, use $P_0 = F_r$

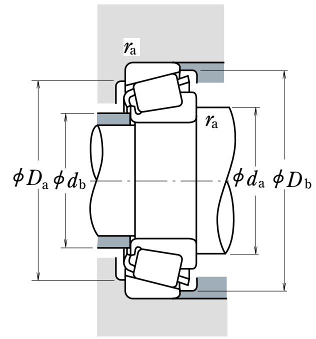
The values of e, Y_1, and Y_0 are given in the table below.

Boundary Dimensions (mm) d	D	T	B	C	Cone r min	Cup r min	Basic Load Ratings (N) C_r	(N) C_{0r}	{kgf} C_r	{kgf} C_{0r}	Limiting Speeds (min⁻¹) Grease	Oil	Bearing Numbers CONE	CUP	Abutment and Fillet Dimensions (mm) d_a	d_b	D_a	D_b	Cone r_a max	Cup r_a max	Eff. Load Centers (mm) a	Constant e	Axial Load Factors Y_1	Y_0	Mass (kg) approx CONE	CUP
12.000	31.991	10.008	10.785	7.938	0.8	1.3	10 300	8 900	1 050	905	13 000	18 000	***A 2047**	**A 2126**	16.5	15.5	26	29	0.8	1.3	6.8	0.41	1.5	0.81	0.023	0.017
12.700	34.988	10.998	10.988	8.730	1.3	1.3	11 700	10 900	1 200	1 110	12 000	16 000	**A 4050**	**A 4138**	18.5	17	29	32	1.3	1.3	8.2	0.45	1.3	0.73	0.033	0.022
15.000	34.988	10.998	10.988	8.730	0.8	1.3	11 700	10 900	1 200	1 110	12 000	16 000	***A 4059**	**A 4138**	19.5	19	29	32	0.8	1.3	8.2	0.45	1.3	0.73	0.029	0.022
15.875	34.988	10.998	10.998	8.712	1.3	1.3	13 800	13 400	1 410	1 360	11 000	15 000	**L 21549**	**L 21511**	21.5	19.5	29	32.5	1.3	1.3	7.7	0.32	1.9	1.0	0.031	0.018
	39.992	12.014	11.153	9.525	1.3	1.3	14 900	15 700	1 520	1 600	9 500	13 000	**A 6062**	**A 6157**	22	20.5	34	37	1.3	1.3	10.3	0.53	1.1	0.63	0.044	0.031
	41.275	14.288	14.681	11.112	1.3	2.0	21 300	19 900	2 170	2 030	10 000	13 000	**03062**	**03162**	21.5	20	34	37.5	1.3	2	9.1	0.31	1.9	1.1	0.061	0.035
	42.862	14.288	14.288	9.525	1.5	1.5	17 300	17 200	1 770	1 750	8 500	12 000	**11590**	**11520**	24.5	22.5	34.5	39.5	1.5	1.5	13.0	0.70	0.85	0.47	0.061	0.040
	42.862	16.670	16.670	13.495	1.5	1.5	26 900	26 300	2 750	2 680	9 500	13 000	**17580**	**17520**	23	21	36.5	39	1.5	1.5	10.6	0.33	1.8	1.0	0.075	0.048
	44.450	15.494	14.381	11.430	1.5	1.5	23 800	23 900	2 430	2 440	8 500	11 000	**05062**	**05175**	23.5	21	38	42	1.5	1.5	11.2	0.36	1.7	0.93	0.081	0.039
	49.225	19.845	21.539	14.288	0.8	1.3	37 500	37 000	3 800	3 800	8 500	11 000	**09062**	**09195**	22	21.5	42	44.5	0.8	1.3	10.7	0.27	2.3	1.2	0.139	0.065
16.000	47.000	21.000	21.000	16.000	1.0	2.0	35 000	36 500	3 600	3 750	9 000	12 000	***HM 81649**	****HM 81610**	27.5	23	37.5	43	1	2	14.9	0.55	1.1	0.60	0.115	0.082
16.993	39.992	12.014	11.153	9.525	0.8	1.3	14 900	15 700	1 520	1 600	9 500	13 000	**A 6067**	**A 6157**	22	21	34	37	0.8	1.3	10.3	0.53	1.1	0.63	0.042	0.031
17.455	36.525	11.112	11.112	7.938	1.5	1.5	11 600	11 000	1 190	1 120	10 000	14 000	**A 5069**	**A 5144**	23.5	21.5	30	33.5	1.5	1.5	8.9	0.49	1.2	0.68	0.030	0.020
17.462	39.878	13.843	14.605	10.668	1.3	1.3	22 500	22 500	2 290	2 290	10 000	13 000	**† LM 11749**	**† LM 11710**	23	21.5	34	37	1.3	1.3	8.7	0.29	2.1	1.2	0.055	0.028
	47.000	14.381	14.381	11.112	0.8	1.3	23 800	23 900	2 430	2 440	8 500	11 000	**05068**	**05185**	23	22.5	40.5	42.5	0.8	1.3	10.1	0.36	1.7	0.93	0.082	0.047
19.050	39.992	12.014	11.153	9.525	1.0	1.3	14 900	15 700	1 520	1 600	9 500	13 000	**A 6075**	**A 6157**	24	23	34	37	1	1.3	10.3	0.53	1.1	0.63	0.037	0.031
	45.237	15.494	16.637	12.065	1.3	1.3	28 500	28 900	2 910	2 950	9 000	12 000	**† LM 11949**	**† LM 11910**	25	23.5	39.5	41.5	1.3	1.3	9.5	0.30	2.0	1.1	0.081	0.044
	47.000	14.381	14.381	11.112	1.3	1.3	23 800	23 900	2 430	2 440	8 500	11 000	**05075**	**05185**	25	23.5	40.5	42.5	1.3	1.3	10.1	0.36	1.7	0.93	0.077	0.047
	49.225	18.034	19.050	14.288	1.3	1.3	37 500	37 000	3 800	3 800	8 500	11 000	**09067**	**09195**	25.5	24	42	44.5	1.3	1.3	10.7	0.27	2.3	1.2	0.115	0.065
	49.225	19.845	21.539	14.288	1.2	1.3	37 500	37 000	3 800	3 800	8 500	11 000	**09078**	**09195**	25.5	24	42	44.5	1.2	1.3	10.7	0.27	2.3	1.2	0.124	0.065
	49.225	21.209	19.050	17.462	1.3	1.5	37 500	37 000	3 800	3 800	8 500	11 000	**09067**	**09196**	25.5	24	41.5	44.5	1.3	1.5	13.8	0.27	2.3	1.2	0.115	0.085
	49.225	23.020	21.539	17.462	C1.5	3.5	37 500	37 000	3 800	3 800	8 500	11 000	**09074**	**09194**	26	24	39	44.5	1.5	3.5	13.8	0.27	2.3	1.2	0.124	0.082
	53.975	22.225	21.839	15.875	1.5	2.3	40 500	39 500	4 150	4 000	7 500	10 000	**21075**	**21212**	31.5	26	43	50	1.5	2.3	16.3	0.59	1.0	0.56	0.156	0.097
19.990	47.000	14.381	14.381	11.112	1.5	1.3	23 800	23 900	2 430	2 440	8 500	11 000	**05079**	**05185**	26.5	24	40.5	42.5	1.5	1.3	10.1	0.36	1.7	0.93	0.073	0.047
20.000	51.994	15.011	14.260	12.700	1.5	1.3	26 000	27 900	2 650	2 840	7 500	10 000	**07079**	**07204**	27.5	27	45	48	1.5	1.3	12.1	0.40	1.5	0.82	0.105	0.061
20.625	49.225	23.020	21.539	17.462	1.5	1.5	37 500	37 000	3 800	3 800	8 500	11 000	**09081**	**09196**	27.5	25.5	41.5	44.5	1.5	1.5	13.8	0.27	2.3	1.2	0.115	0.085
20.638	49.225	19.845	19.845	15.875	1.5	1.5	36 000	37 000	3 650	3 750	8 000	11 000	**12580**	**12520**	28.5	26	42.5	45.5	1.5	1.5	12.9	0.32	1.9	1.0	0.114	0.067
21.430	50.005	17.526	18.288	13.970	1.3	1.3	38 500	40 000	3 950	4 100	8 000	11 000	**† M 12649**	**† M 12610**	27.5	25.5	44	46	1.3	1.3	10.9	0.28	2.2	1.2	0.115	0.059
22.000	45.237	15.494	16.637	12.065	1.3	1.3	29 200	33 500	2 980	3 400	8 500	11 000	***† LM 12749**	**† LM 12710**	27.5	26	39.5	42.5	1.3	1.3	10.0	0.31	2.0	1.1	0.078	0.038
	45.975	15.494	16.637	12.065	1.3	1.3	29 200	33 500	2 980	3 400	8 500	11 000	***† LM 12749**	**† LM 12711**	27.5	26	40	42.5	1.3	1.3	10.0	0.31	2.0	1.1	0.078	0.043
22.225	50.005	13.495	14.260	9.525	1.3	1.0	26 000	27 900	2 650	2 840	7 500	10 000	**07087**	**07196**	28.5	27	44.5	47	1.3	1	10.6	0.40	1.5	0.82	0.097	0.035
	50.005	17.526	18.288	13.970	1.3	1.3	38 500	40 000	3 950	4 100	8 000	11 000	**† M 12648**	**† M 12610**	28.5	26.5	44	46	1.3	1.3	10.9	0.28	2.2	1.2	0.111	0.059
	52.388	19.368	20.168	14.288	1.5	1.5	40 500	43 000	4 100	4 400	7 500	10 000	**1380**	**1328**	29.5	27	45	48.5	1.5	1.5	11.3	0.29	2.1	1.1	0.137	0.067
	53.975	19.368	20.168	14.288	1.5	1.5	40 500	43 000	4 100	4 400	7 500	10 000	**1380**	**1329**	29.5	27	46	49	1.5	1.5	11.3	0.29	2.1	1.1	0.137	0.082
	56.896	19.368	19.837	15.875	1.3	1.3	38 000	40 500	3 900	4 150	7 100	9 500	**1755**	**1729**	29	27.5	49	51	1.3	1.3	12.2	0.31	2.0	1.1	0.152	0.102
	57.150	22.225	22.225	17.462	0.8	1.5	48 000	50 000	4 850	5 100	7 100	9 500	**1280**	**1220**	29.5	29	49	52	0.8	1.5	15.1	0.35	1.7	0.95	0.183	0.106

Notes
- * The maximum bore diameter is listed and its tolerance is negative (See Table **8.4.1** on Page **A68**).
- ** The maximum outside diameter is listed and its tolerance is negative (See Table **8.4.2** on Pages **A68** and **A69**).
- † The tolerances for the bore diameter and overall bearing width differ from the standard (See Table **5** on Page **B110**).
- *† The tolerance for the bore diameter is 0 to –20 μm, and for overall bearing width is +356 to 0 μm.

Bore Diameter 22.606 – 28.575 mm





Dynamic Equivalent Load

$P = XF_r + YF_a$

$F_a/F_r \leqq e$		$F_a/F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Static Equivalent Load

$P_0 = 0.5F_r + Y_0F_a$

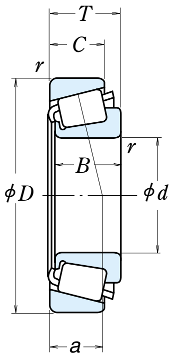
When $F_r > 0.5F_r + Y_0F_a$, use $P_0 = F_r$

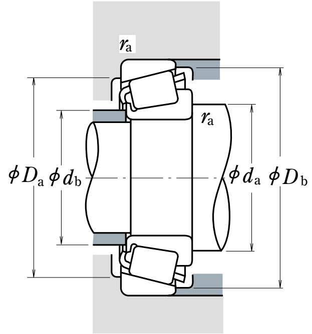
The values of e, Y_1, and Y_0 are given in the table below.

Boundary Dimensions (mm)							Basic Load Ratings (N)		{kgf}		Limiting Speeds (min⁻¹)		Bearing Numbers		Abutment and Fillet Dimensions (mm)						Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg) approx	
d	D	T	B	C	Cone r min	Cup r min	C_r	C_{0r}	C_r	C_{0r}	Grease	Oil	CONE	CUP	d_a	d_b	D_a	D_b	Cone r_a max	Cup r_a max	a	e	Y_1	Y_0	CONE	CUP
22.606	47.000	15.500	15.500	12.000	1.5	1.0	26 300	30 000	2 680	3 100	8 000	11 000	**LM 72849**	**LM 72810**	29	27	40.5	44.5	1.5	1	12.2	0.47	1.3	0.70	0.086	0.046
23.812	50.292	14.224	14.732	10.668	1.5	1.3	27 600	32 000	2 820	3 250	7 100	10 000	**† L 44640**	**† L 44610**	30.5	28.5	44.5	47	1.5	1.3	10.9	0.37	1.6	0.88	0.097	0.039
	56.896	19.368	19.837	15.875	0.8	1.3	38 000	40 500	3 900	4 150	7 100	9 500	**1779**	**1729**	29.5	28.5	49	51	0.8	1.3	12.2	0.31	2.0	1.1	0.143	0.102
24.000	55.000	25.000	25.000	21.000	2.0	2.0	49 500	55 000	5 050	5 650	7 100	9 500	**▲JHM 33449**	**▲JHM 33410**	35	30	47	52	2	2	15.8	0.35	1.7	0.93	0.181	0.107
24.981	51.994	15.011	14.260	12.700	1.5	1.3	26 000	27 900	2 650	2 840	7 500	10 000	**07098**	**07204**	31	29	45	48	1.5	1.3	12.1	0.40	1.5	0.82	0.085	0.061
	52.001	15.011	14.260	12.700	1.5	2.0	26 000	27 900	2 650	2 840	7 500	10 000	**07098**	**07205**	31	29	44.5	48	1.5	2	12.1	0.40	1.5	0.82	0.085	0.061
	62.000	16.002	16.566	14.288	1.5	1.5	37 000	39 500	3 750	4 000	6 300	8 500	**17098**	**17244**	33	30.5	54	57	1.5	1.5	12.8	0.38	1.6	0.86	0.165	0.091
25.000	50.005	13.495	14.260	9.525	1.5	1.0	26 000	27 900	2 650	2 840	7 500	10 000	**07097**	**07196**	31	29	44.5	47	1.5	1	10.6	0.40	1.5	0.82	0.085	0.035
	51.994	15.011	14.260	12.700	1.5	1.3	26 000	27 900	2 650	2 840	7 500	10 000	**07097**	**07204**	31	29	45	48	1.5	1.3	12.1	0.40	1.5	0.82	0.085	0.061
25.400	50.005	13.495	14.260	9.525	3.3	1.0	26 000	27 900	2 650	2 840	7 500	10 000	**07100 SA**	**07196**	35	29.5	44.5	47	3.3	1	10.6	0.40	1.5	0.82	0.082	0.035
	50.005	13.495	14.260	9.525	1.0	1.0	26 000	27 900	2 650	2 840	7 500	10 000	**07100**	**07196**	30.5	29.5	44.5	47	1	1	10.6	0.40	1.5	0.82	0.084	0.035
	50.292	14.224	14.732	10.668	1.3	1.3	27 600	32 000	2 820	3 250	7 100	10 000	**† L 44643**	**† L 44610**	31.5	29.5	44.5	47	1.3	1.3	10.9	0.37	1.6	0.88	0.090	0.039
	57.150	17.462	17.462	13.495	1.3	1.5	39 500	45 500	4 050	4 650	6 700	9 000	**15578**	**15520**	32.5	30.5	51	53	1.3	1.5	12.4	0.35	1.7	0.95	0.151	0.070
	57.150	19.431	19.431	14.732	1.5	1.5	42 500	49 000	4 300	5 000	6 700	9 000	**M 84548**	**M 84510**	36	33	48.5	54	1.5	1.5	16.1	0.55	1.1	0.60	0.156	0.089
	59.530	23.368	23.114	18.288	0.8	1.5	50 000	58 000	5 100	5 900	6 300	9 000	**M 84249**	**M 84210**	36	32.5	49.5	56	0.8	1.5	18.3	0.55	1.1	0.60	0.194	0.13
	62.000	19.050	20.638	14.288	0.8	1.3	46 000	53 000	4 700	5 400	6 000	8 000	**15101**	**15245**	32.5	31.5	55	58	0.8	1.3	13.3	0.35	1.7	0.94	0.222	0.081
	63.500	20.638	20.638	15.875	3.5	1.5	46 000	53 000	4 700	5 400	6 000	8 000	**15100**	**15250 X**	38	31.5	55	59	3.5	1.5	14.9	0.35	1.7	0.94	0.22	0.113
	64.292	21.433	21.433	16.670	1.5	1.5	51 000	64 500	5 200	6 600	5 600	8 000	**M 86643**	**M 86610**	38	36.5	54	61	1.5	1.5	17.7	0.55	1.1	0.60	0.246	0.128
	65.088	22.225	21.463	15.875	1.5	1.5	45 000	47 500	4 600	4 850	5 600	8 000	**23100**	**23256**	39	34.5	53	61	1.5	1.5	20.0	0.73	0.82	0.45	0.214	0.142
	68.262	22.225	22.225	17.462	0.8	1.5	55 000	64 000	5 600	6 550	5 600	7 500	**02473**	**02420**	34.5	33.5	59	63	0.8	1.5	16.9	0.42	1.4	0.79	0.28	0.152
	72.233	25.400	25.400	19.842	0.8	2.3	63 500	83 500	6 500	8 500	5 000	7 100	**HM 88630**	**HM 88610**	39.5	39.5	60	69	0.8	2.3	20.7	0.55	1.1	0.60	0.398	0.188
	72.626	24.608	24.257	17.462	2.3	1.5	60 000	58 000	6 100	5 900	5 600	7 500	**41100**	**41286**	41	36.5	61	68	2.3	1.5	20.7	0.60	1.0	0.55	0.32	0.177
26.988	50.292	14.224	14.732	10.668	3.5	1.3	27 600	32 000	2 820	3 250	7 100	10 000	**† L 44649**	**† L 44610**	37.5	31	44.5	47	3.5	1.3	10.9	0.37	1.6	0.88	0.081	0.039
	57.150	19.845	19.355	15.875	3.3	1.5	40 000	44 500	4 100	4 500	6 700	9 000	**1997 X**	**1922**	37.5	31.5	51	53.5	3.3	1.5	13.9	0.33	1.8	1.0	0.152	0.077
	60.325	19.842	17.462	15.875	3.5	1.5	39 500	45 500	4 050	4 650	6 700	9 000	**15580**	**15523**	38.5	32	51	54	3.5	1.5	14.7	0.35	1.7	0.95	0.141	0.123
	62.000	19.050	20.638	14.288	0.8	1.3	46 000	53 000	4 700	5 400	6 000	8 000	**15106**	**15245**	33.5	33	55	58	0.8	1.3	13.3	0.35	1.7	0.94	0.211	0.081
28.575	57.150	19.845	19.355	15.875	3.5	1.5	40 000	44 500	4 100	4 500	6 700	9 000	**1988**	**1922**	39.5	33.5	51	53.5	3.5	1.5	13.9	0.33	1.8	1.0	0.141	0.077
	59.131	15.875	16.764	11.811	spec.	1.3	34 500	41 500	3 550	4 200	6 300	8 500	**† LM 67043**	**† LM 67010**	40	33.5	52	56	3.5	1.3	12.6	0.41	1.5	0.80	0.147	0.062
	62.000	19.050	20.638	14.288	3.5	1.3	46 000	53 000	4 700	5 400	6 000	8 000	**15112**	**15245**	40	34	55	58	3.5	1.3	13.3	0.35	1.7	0.94	0.199	0.081
	62.000	19.050	20.638	14.288	0.8	1.3	46 000	53 000	4 700	5 400	6 000	8 000	**15113**	**15245**	34.5	34	55	58	0.8	1.3	13.3	0.35	1.7	0.94	0.20	0.081
	64.292	21.433	21.433	16.670	1.5	1.5	51 000	64 500	5 200	6 600	5 600	8 000	**M 86647**	**M 86610**	40	38	54	61	1.5	1.5	17.7	0.55	1.1	0.60	0.223	0.128
	68.262	22.225	22.225	17.462	0.8	1.5	55 000	64 000	5 600	6 550	5 600	7 500	**02474**	**02420**	36.5	36	59	63	0.8	1.5	16.9	0.42	1.4	0.79	0.257	0.152
	72.626	24.608	24.257	17.462	4.8	1.5	60 000	58 000	6 100	5 900	5 600	7 500	**41125**	**41286**	48	36.5	61	68	4.8	1.5	20.7	0.60	1.0	0.55	0.292	0.177
	72.626	24.608	24.257	17.462	1.5	1.5	60 000	58 000	6 100	5 900	5 600	7 500	**41126**	**41286**	41.5	36.5	61	68	1.5	1.5	20.7	0.60	1.0	0.55	0.295	0.177
	73.025	22.225	22.225	17.462	0.8	3.3	54 500	64 500	5 550	6 600	5 300	7 100	**02872**	**02820**	37.5	37	62	68	0.8	3.3	18.3	0.45	1.3	0.73	0.321	0.16

Notes † The tolerances for the bore diameter and overall bearing width differ from the standard (See Table **5** on Page **B110**).
▲ The tolerances are listed in Tables **2**, **3** and **4** on Pages **B109** and **B110**.

Bore Diameter 29.000 – 32.000 mm





Dynamic Equivalent Load

$P = XF_r + YF_a$

$F_a/F_r \leqq e$		$F_a/F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Static Equivalent Load

$P_0 = 0.5F_r + Y_0F_a$

When $F_r > 0.5F_r + Y_0F_a$, use $P_0 = F_r$

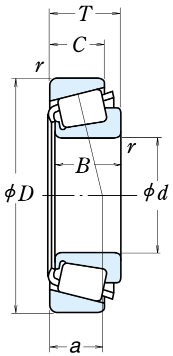
The values of e, Y_1, and Y_0 are given in the table below.

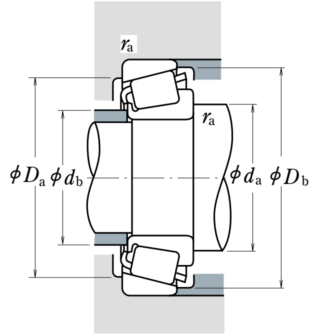
Boundary Dimensions (mm)							Basic Load Ratings (N)		{kgf}		Limiting Speeds (min⁻¹)		Bearing Numbers		Abutment and Fillet Dimensions (mm)						Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg) approx	
d	D	T	B	C	Cone r min	Cup r min	C_r	C_{0r}	C_r	C_{0r}	Grease	Oil	CONE	CUP	d_a	d_b	D_a	D_b	Cone r_a max	Cup r_a max	a	e	Y_1	Y_0	CONE	CUP
29.000	50.292	14.224	14.732	10.668	3.5	1.3	26 800	34 000	2 730	3 500	7 100	9 500	**† L 45449**	**† L 45410**	39.5	33	44.5	48	3.5	1.3	10.8	0.37	1.6	0.89	0.079	0.036
29.367	66.421	23.812	25.433	19.050	3.5	1.3	65 000	73 000	6 600	7 450	6 000	8 000	**2690**	**2631**	41	35	58	60	3.5	1.3	14.3	0.25	2.4	1.3	0.242	0.165
30.000	62.000	16.002	16.566	14.288	1.5	1.5	37 000	39 500	3 750	4 000	6 300	8 500	**∗ 17118**	**17244**	37	34.5	54	57	1.5	1.5	12.8	0.38	1.6	0.86	0.136	0.091
	62.000	19.050	20.638	14.288	1.3	1.3	46 000	53 000	4 700	5 400	6 000	8 000	**∗ 15117**	**15245**	36.5	35	55	58	1.3	1.3	13.3	0.35	1.7	0.94	0.189	0.081
	63.500	20.638	20.638	15.875	1.3	1.3	46 000	53 000	4 700	5 400	6 000	8 000	**∗ 15117**	**15250**	36.5	35	56	59	1.3	1.3	14.9	0.35	1.7	0.94	0.189	0.113
	72.000	19.000	18.923	15.875	1.5	1.5	52 000	56 000	5 300	5 700	5 600	7 500	**∗ 26118**	**26283**	38	36	62	65	1.5	1.5	14.8	0.36	1.7	0.92	0.225	0.163
30.112	62.000	19.050	20.638	14.288	0.8	1.3	46 000	53 000	4 700	5 400	6 000	8 000	**15116**	**15245**	36	35.5	55	58	0.8	1.3	13.3	0.35	1.7	0.94	0.189	0.081
30.162	58.738	14.684	15.080	10.716	3.5	1.0	28 800	33 500	2 940	3 450	6 000	8 000	**08118**	**08231**	41.5	35	52	55	3.5	1	13.3	0.47	1.3	0.70	0.12	0.057
	64.292	21.433	21.433	16.670	1.5	1.5	51 000	64 500	5 200	6 600	5 600	8 000	**M 86649**	**M 86610**	41	38	54	61	1.5	1.5	17.7	0.55	1.1	0.60	0.211	0.128
	68.262	22.225	22.225	17.462	2.3	1.5	55 500	70 500	5 650	7 200	5 300	7 500	**M 88043**	**M 88010**	43.5	39.5	58	65	2.3	1.5	19.1	0.55	1.1	0.60	0.263	0.146
	69.850	23.812	25.357	19.050	2.3	1.3	71 000	84 000	7 200	8 550	5 600	7 500	**2558**	**2523**	40	36.5	61	64	2.3	1.3	14.5	0.27	2.2	1.2	0.297	0.169
	69.850	23.812	25.357	19.050	0.8	1.3	71 000	84 000	7 200	8 550	5 600	7 500	**2559**	**2523**	37	36.5	61	64	0.8	1.3	14.5	0.27	2.2	1.2	0.298	0.169
	76.200	24.608	24.074	16.670	1.5	C3.3	67 500	69 500	6 850	7 100	5 000	6 700	**43118**	**43300**	45	42	64	73	1.5	3.3	22.9	0.67	0.90	0.49	0.383	0.146
30.213	62.000	19.050	20.638	14.288	3.5	1.3	46 000	53 000	4 700	5 400	6 000	8 000	**15118**	**15245**	41.5	35.5	55	58	3.5	1.3	13.3	0.35	1.7	0.94	0.186	0.081
	62.000	19.050	20.638	14.288	0.8	1.3	46 000	53 000	4 700	5 400	6 000	8 000	**15120**	**15245**	36	35.5	55	58	0.8	1.3	13.3	0.35	1.7	0.94	0.188	0.081
	62.000	19.050	20.638	14.288	1.5	1.3	46 000	53 000	4 700	5 400	6 000	8 000	**15119**	**15245**	37.5	35.5	55	58	1.5	1.3	13.3	0.35	1.7	0.94	0.188	0.081
30.955	64.292	21.433	21.433	16.670	1.5	1.5	51 000	64 500	5 200	6 600	5 600	8 000	**M 86648 A**	**M 86610**	42	38	54	61	1.5	1.5	17.7	0.55	1.1	0.60	0.205	0.128
31.750	58.738	14.684	15.080	10.716	1.0	1.0	28 800	33 500	2 940	3 450	6 000	8 000	**08125**	**08231**	37.5	36	52	55	1	1	13.3	0.47	1.3	0.70	0.113	0.057
	59.131	15.875	16.764	11.811	spec.	1.3	34 500	41 500	3 550	4 200	6 300	8 500	**† LM 67048**	**† LM 67010**	42.5	36	52	56	3.5	1.3	12.6	0.41	1.5	0.80	0.127	0.062
	62.000	18.161	19.050	14.288	spec.	1.3	46 000	53 000	4 700	5 400	6 000	8 000	**15123**	**15245**	42.5	36.5	55	58	3.5	1.3	13.3	0.35	1.7	0.94	0.165	0.081
	62.000	19.050	20.638	14.288	0.8	1.3	46 000	53 000	4 700	5 400	6 000	8 000	**15126**	**15245**	37	36.5	55	58	0.8	1.3	13.3	0.35	1.7	0.94	0.176	0.081
	62.000	19.050	20.638	14.288	3.5	1.3	46 000	53 000	4 700	5 400	6 000	8 000	**15125**	**15245**	42.5	36.5	55	58	3.5	1.3	13.3	0.35	1.7	0.94	0.174	0.081
	63.500	20.638	20.638	15.875	0.8	1.3	46 000	53 000	4 700	5 400	6 000	8 000	**15126**	**15250**	37	36.5	56	59	0.8	1.3	14.9	0.35	1.7	0.94	0.176	0.113
	68.262	22.225	22.225	17.462	3.5	1.5	55 000	64 000	5 600	6 550	5 600	7 500	**02475**	**02420**	44.5	38.5	59	63	3.5	1.5	16.9	0.42	1.4	0.79	0.229	0.152
	68.262	22.225	22.225	17.462	1.5	1.5	55 500	70 500	5 650	7 200	5 300	7 500	**M 88046**	**M 88010**	43	40.5	58	65	1.5	1.5	19.1	0.55	1.1	0.60	0.25	0.146
	69.012	19.845	19.583	15.875	3.5	1.3	47 000	56 000	4 800	5 700	5 600	7 500	**14125 A**	**14276**	44	37.5	60	63	3.5	1.3	15.3	0.38	1.6	0.86	0.219	0.135
	69.012	26.982	26.721	15.875	4.3	3.3	47 000	56 000	4 800	5 700	5 600	7 500	**14123 A**	**14274**	41.5	37.5	59	63	4.3	3.3	15.1	0.38	1.6	0.87	0.289	0.132
	69.850	23.812	25.357	19.050	0.8	1.3	71 000	84 000	7 200	8 550	5 600	7 500	**2580**	**2523**	38.5	37.5	61	64	0.8	1.3	14.5	0.27	2.2	1.2	0.282	0.169
	69.850	23.812	25.357	19.050	3.5	1.3	71 000	84 000	7 200	8 550	5 600	7 500	**2582**	**2523**	44	37.5	61	64	3.5	1.3	14.5	0.27	2.2	1.2	0.28	0.169
	72.626	30.162	29.997	23.812	0.8	3.3	79 500	90 000	8 100	9 200	5 300	7 500	**3188**	**3120**	39.5	39.5	61	67	0.8	3.3	19.6	0.33	1.8	0.99	0.368	0.225
	73.025	29.370	27.783	23.020	1.3	3.3	74 000	100 000	7 550	10 200	5 000	7 100	**HM 88542**	**HM 88510**	45.5	42.5	59	70	1.3	3.3	23.5	0.55	1.1	0.60	0.379	0.242
	80.000	21.000	22.403	17.826	0.8	1.3	68 500	75 500	6 950	7 700	4 500	6 300	**346**	**332**	40	39.5	73	75	0.8	1.3	14.6	0.27	2.2	1.2	0.419	0.146
32.000	72.233	25.400	25.400	19.842	3.3	2.3	63 500	83 500	6 500	8 500	5 000	7 100	**∗HM 88638**	**HM 88610**	48.5	42.5	60	69	3.3	2.3	20.7	0.55	1.1	0.60	0.337	0.188

Notes ∗ The maximum bore diameter is listed and its tolerance is negative (See Table **8.4.1** on Page **A68**).

† The tolerances for the bore diameter and overall bearing width differ from the standard (See Table **5** on Page **B110**).

Bore Diameter 33.338 – 35.000 mm





Dynamic Equivalent Load

$P = XF_r + YF_a$

$F_a/F_r \leqq e$		$F_a/F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Static Equivalent Load

$P_0 = 0.5F_r + Y_0F_a$

When $F_r > 0.5F_r + Y_0F_a$, use $P_0 = F_r$

The values of e, Y_1, and Y_0 are given in the table below.

Boundary Dimensions (mm)							Basic Load Ratings (N)		{kgf}		Limiting Speeds (min⁻¹)	
d	D	T	B	C	Cone r min	Cup r min	C_r	C_{0r}	C_r	C_{0r}	Grease	Oil
33.338	66.675	20.638	20.638	15.875	3.5	1.5	46 000	53 500	4 650	5 450	5 600	7 500
	68.262	22.225	22.225	17.462	0.8	1.5	55 500	70 500	5 650	7 200	5 300	7 500
	69.012	19.845	19.583	15.875	3.5	3.3	47 000	56 000	4 800	5 700	5 600	7 500
	69.012	19.845	19.583	15.875	0.8	1.3	47 000	56 000	4 800	5 700	5 600	7 500
	69.850	23.812	25.357	19.050	3.5	1.3	71 000	84 000	7 200	8 550	5 600	7 500
	72.000	19.000	18.923	15.875	3.5	1.5	52 000	56 000	5 300	5 700	5 600	7 500
	72.626	30.162	29.997	23.812	0.8	3.3	79 500	90 000	8 100	9 200	5 300	7 500
	73.025	29.370	27.783	23.020	0.8	3.3	74 000	100 000	7 550	10 200	5 000	7 100
	76.200	29.370	28.575	23.020	3.8	0.8	78 500	106 000	8 000	10 800	4 800	6 700
	76.200	29.370	28.575	23.020	0.8	3.3	78 500	106 000	8 000	10 800	4 800	6 700
	79.375	25.400	24.074	17.462	3.5	1.5	67 500	69 500	6 850	7 100	5 000	6 700
34.925	65.088	18.034	18.288	13.970	spec.	1.3	47 500	57 500	4 850	5 900	5 600	7 500
	65.088	20.320	18.288	16.256	spec.	1.3	47 500	57 500	4 850	5 900	5 600	7 500
	66.675	20.638	20.638	16.670	3.5	2.3	53 000	62 500	5 400	6 400	5 600	7 500
	69.012	19.845	19.583	15.875	3.5	1.3	47 000	56 000	4 800	5 700	5 600	7 500
	69.012	19.845	19.583	15.875	1.5	1.3	47 000	56 000	4 800	5 700	5 600	7 500
	72.233	25.400	25.400	19.842	2.3	2.3	63 500	83 500	6 500	8 500	5 000	7 100
	73.025	22.225	22.225	17.462	0.8	3.3	54 500	64 500	5 550	6 600	5 300	7 100
	73.025	22.225	23.812	17.462	3.5	3.3	63 500	77 000	6 500	7 850	5 300	7 100
	73.025	23.812	24.608	19.050	1.5	0.8	71 000	86 000	7 250	8 750	5 300	7 100
	73.025	23.812	24.608	19.050	3.5	2.3	71 000	86 000	7 250	8 750	5 300	7 100
	76.200	29.370	28.575	23.020	0.8	0.8	78 500	106 000	8 000	10 800	4 800	6 700
	76.200	29.370	28.575	23.020	3.5	0.8	78 500	106 000	8 000	10 800	4 800	6 700
	76.200	29.370	28.575	23.020	3.5	3.3	78 500	106 000	8 000	10 800	4 800	6 700
	76.200	29.370	28.575	23.812	1.5	3.3	80 500	96 500	8 200	9 850	5 000	6 700
	79.375	29.370	29.771	23.812	3.5	3.3	88 000	106 000	8 950	10 800	4 800	6 700
34.976	68.262	15.875	16.520	11.908	1.5	1.5	45 000	53 500	4 600	5 450	5 300	7 100
	72.085	22.385	19.583	18.415	1.3	2.3	47 000	56 000	4 800	5 700	5 600	7 500
	80.000	21.006	20.940	15.875	1.5	1.5	56 500	64 500	5 750	6 600	5 000	6 700
35.000	59.131	15.875	16.764	11.938	spec.	1.3	35 000	47 000	3 550	4 750	6 000	8 000
	59.975	15.875	16.764	11.938	spec.	1.3	35 000	47 000	3 550	4 750	6 000	8 000
	62.000	16.700	17.000	13.600	spec.	1.0	38 000	50 000	3 900	5 100	5 600	8 000
	62.000	16.700	17.000	13.600	spec.	1.5	38 000	50 000	3 900	5 100	5 600	8 000
	65.987	20.638	20.638	16.670	3.5	2.3	53 000	62 500	5 400	6 400	5 600	7 500
	73.025	26.988	26.975	22.225	3.5	0.8	75 500	88 500	7 650	9 050	5 300	7 500

Bearing Numbers		Abutment and Fillet Dimensions (mm)						Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg) approx	
CONE	CUP	d_a	d_b	D_a	D_b	Cone r_a max	Cup r_a max	a	e	Y_1	Y_0	CONE	CUP
1680	**1620**	44.5	38.5	58	61	3.5	1.5	15.2	0.37	1.6	0.89	0.196	0.121
M 88048	**M 88010**	42.5	41	58	65	0.8	1.5	19.0	0.55	1.1	0.60	0.236	0.146
14130	**14274**	45	38.5	59	63	3.5	3.3	15.3	0.38	1.6	0.86	0.207	0.132
14131	**14276**	39.5	38.5	60	63	0.8	1.3	15.3	0.38	1.6	0.86	0.209	0.135
2585	**2523**	45	39	61	64	3.5	1.3	14.5	0.27	2.2	1.2	0.263	0.169
26131	**26283**	44.5	38.5	62	65	3.5	1.5	14.7	0.36	1.7	0.92	0.20	0.163
3197	**3120**	41.5	40.5	61	67	0.8	3.3	19.6	0.33	1.8	0.99	0.348	0.225
HM 88547	**HM 88510**	45.5	42.5	59	70	0.8	3.3	23.5	0.55	1.1	0.60	0.362	0.242
HM 89444	**HM 89411**	53	44.5	65	73	3.8	0.8	23.6	0.55	1.1	0.60	0.419	0.261
HM 89443	**HM 89410**	46.5	44.5	62	73	0.8	3.3	23.6	0.55	1.1	0.60	0.421	0.257
43131	**43312**	51	42	67	74	3.5	1.5	23.7	0.67	0.90	0.49	0.348	0.22
† LM 48548	**† LM 48510**	46	40	58	61	3.5	1.3	14.1	0.38	1.6	0.88	0.172	0.087
† LM 48548	**† LM 48511**	46	40	58	61	3.5	1.3	16.4	0.38	1.6	0.88	0.172	0.108
M 38549	**M 38510**	46.5	40	58	62	3.5	2.3	15.2	0.35	1.7	0.94	0.194	0.112
14138 A	**14276**	46	40	60	63	3.5	1.3	15.3	0.38	1.6	0.86	0.194	0.135
14137 A	**14276**	42	40	60	63	1.5	1.3	15.1	0.38	1.6	0.86	0.196	0.135
HM 88649	**HM 88610**	48.5	42.5	60	69	2.3	2.3	20.7	0.55	1.1	0.60	0.307	0.188
02878	**02820**	42.5	42	62	68	0.8	3.3	18.3	0.45	1.3	0.73	0.266	0.16
2877	**2820**	47	41.5	63	68	3.5	3.3	16.1	0.37	1.6	0.90	0.291	0.15
25877	**25821**	43	40.5	65	68	1.5	0.8	15.7	0.29	2.1	1.1	0.306	0.167
25878	**25820**	47	40.5	64	68	3.5	2.3	15.7	0.29	2.1	1.1	0.304	0.165
HM 89446 A	**HM 89411**	47.5	44.5	65	73	0.8	0.8	23.6	0.55	1.1	0.60	0.403	0.261
HM 89446	**HM 89411**	53	44.5	65	73	3.5	0.8	23.6	0.55	1.1	0.60	0.40	0.261
HM 89446	**HM 89410**	53	44.5	62	73	3.5	3.3	23.6	0.55	1.1	0.60	0.40	0.257
31594	**31520**	46	43.5	64	72	1.5	3.3	21.6	0.40	1.5	0.82	0.404	0.235
3478	**3420**	50	43.5	67	74	3.5	3.3	20.0	0.37	1.6	0.90	0.448	0.259
19138	**19268**	42.5	40.5	61	65	1.5	1.5	14.5	0.44	1.4	0.74	0.196	0.073
14139	**14283**	41.5	40	60	65	1.3	2.3	17.7	0.38	1.6	0.87	0.198	0.21
28138	**28315**	43.5	41	69	73	1.5	1.5	16.0	0.40	1.5	0.82	0.308	0.199
∗† L 68149	**† L 68110**	45.5	39	52	56	3.5	1.3	13.2	0.42	1.4	0.79	0.117	0.056
∗† L 68149	**† L 68111**	45.5	39	53	56	3.5	1.3	13.2	0.42	1.4	0.79	0.117	0.064
∗ LM 78349	**∗∗ LM 78310**	46	40	55	59	3.5	1	14.4	0.44	1.4	0.74	0.137	0.074
∗ LM 78349	**∗∗ LM 78310 A**	46	40	54	59	3.5	1.5	14.4	0.44	1.4	0.74	0.138	0.073
M 38547	**M 38511**	46	39.5	59	61	3.5	2.3	15.2	0.35	1.7	0.94	0.193	0.103
23691	**23621**	49	42	63	68	3.5	0.8	18.1	0.37	1.6	0.89	0.309	0.212

Notes

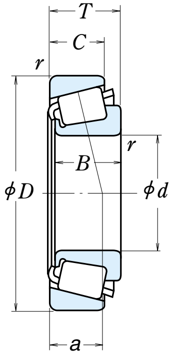
∗ The maximum bore diameter is listed and its tolerance is negative (See Table **8.4.1** on Page **A68**).

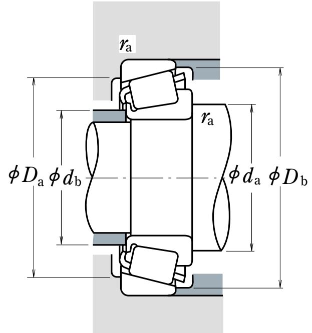
∗∗ The maximum outside diameter is listed and its tolerance is negative (See Table **8.4.2** on Pages **A68** and **A69**).

† The tolerances for the bore diameter and overall bearing width differ from the standard (See Table **5** on Page **B110**).

∗† The tolerance for the bore diameter is 0 to –20 μm, and for overall bearing width is +356 to 0 μm.

Bore Diameter 35.717 – 41.275 mm





Dynamic Equivalent Load

$P = XF_r + YF_a$

$F_a/F_r \leqq e$		$F_a/F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Static Equivalent Load

$P_0 = 0.5F_r + Y_0F_a$

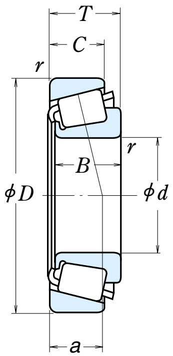
When $F_r > 0.5F_r + Y_0F_a$, use $P_0 = F_r$

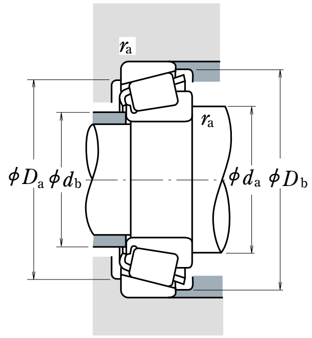
The values of e, Y_1, and Y_0 are given in the table below.

Boundary Dimensions (mm)							Basic Load Ratings (N)		{kgf}		Limiting Speeds (min⁻¹)		Bearing Numbers		Abutment and Fillet Dimensions (mm)						Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg) approx	
d	D	T	B	C	Cone r min	Cup r min	C_r	C_{0r}	C_r	C_{0r}	Grease	Oil	CONE	CUP	d_a	d_b	D_a	D_b	Cone r_a max	Cup r_a max	a	e	Y_1	Y_0	CONE	CUP
35.717	72.233	25.400	25.400	19.842	3.5	2.3	63 500	83 500	6 500	8 500	5 000	7 100	**HM 88648**	**HM 88610**	52	43	60	69	3.5	2.3	20.7	0.55	1.1	0.60	0.298	0.188
36.487	73.025	23.812	24.608	19.050	1.5	0.8	71 000	86 000	7 250	8 750	5 300	7 100	**25880**	**25821**	44	42	65	68	1.5	0.8	15.7	0.29	2.1	1.1	0.291	0.167
36.512	76.200	29.370	28.575	23.020	3.5	3.3	78 500	106 000	8 000	10 800	4 800	6 700	**HM 89449**	**HM 89410**	54	44.5	62	73	3.5	3.3	23.6	0.55	1.1	0.60	0.38	0.257
	79.375	29.370	29.771	23.812	0.8	3.3	88 000	106 000	8 950	10 800	4 800	6 700	**3479**	**3420**	45.5	44.5	67	74	0.8	3.3	20.0	0.37	1.6	0.90	0.429	0.259
	88.501	25.400	23.698	17.462	2.3	1.5	73 000	81 000	7 450	8 250	4 000	5 600	**44143**	**44348**	54	50	75	84	2.3	1.5	27.9	0.78	0.77	0.42	0.502	0.245
	93.662	31.750	31.750	26.195	1.5	3.3	110 000	142 000	11 200	14 400	4 000	5 600	**46143**	**46368**	48.5	46.5	79	87	1.5	3.3	24.0	0.40	1.5	0.82	0.765	0.405
38.000	63.000	17.000	17.000	13.500	spec.	1.3	38 500	52 000	3 900	5 300	5 600	7 500	**▲ JL 69349**	**▲ JL 69310**	49	42.5	56	60	3.5	1.3	14.6	0.42	1.4	0.79	0.132	0.071
38.100	63.500	12.700	11.908	9.525	1.5	0.8	24 100	30 500	2 460	3 100	5 300	7 100	**13889**	**13830**	45	42.5	59	60	1.5	0.8	11.9	0.35	1.7	0.95	0.109	0.046
	65.088	18.034	18.288	13.970	2.3	1.3	42 500	55 000	4 300	5 650	5 300	7 500	**LM 29749**	**LM 29710**	46	42.5	59	62	2.3	1.3	13.7	0.33	1.8	0.99	0.16	0.079
	65.088	18.034	18.288	13.970	spec.	1.3	42 500	55 000	4 300	5 650	5 300	7 500	**LM 29748**	**LM 29710**	49	42.5	59	62	3.5	1.3	13.7	0.33	1.8	0.99	0.158	0.079
	65.088	19.812	18.288	15.748	2.3	1.3	42 500	55 000	4 300	5 650	5 300	7 500	**LM 29749**	**LM 29711**	46	42.5	58	62	2.3	1.3	15.5	0.33	1.8	0.99	0.16	0.094
	68.262	15.875	16.520	11.908	1.5	1.5	45 000	53 500	4 600	5 450	5 300	7 100	**19150**	**19268**	45	43	61	65	1.5	1.5	14.5	0.44	1.4	0.74	0.173	0.073
	69.012	19.050	19.050	15.083	2.0	2.3	49 000	61 000	4 950	6 250	5 300	7 100	**13687**	**13621**	46.5	43	61	65	2	2.3	15.8	0.40	1.5	0.82	0.193	0.104
	69.012	19.050	19.050	15.083	3.5	0.8	49 000	61 000	4 950	6 250	5 300	7 100	**13685**	**13620**	49.5	43	62	65	3.5	0.8	15.8	0.40	1.5	0.82	0.191	0.105
	72.238	20.638	20.638	15.875	3.5	1.3	48 500	59 500	4 950	6 050	5 300	7 100	**16150**	**16284**	49.5	43	63	67	3.5	1.3	16.0	0.40	1.5	0.82	0.212	0.146
	73.025	23.812	25.654	19.050	3.5	0.8	73 500	91 000	7 500	9 300	5 000	6 700	**2788**	**2735 X**	50	43.5	66	69	3.5	0.8	15.9	0.30	2.0	1.1	0.312	0.135
	76.200	23.812	25.654	19.050	3.5	3.3	73 500	91 000	7 500	9 300	5 000	6 700	**2788**	**2720**	50	43.5	66	70	3.5	3.3	15.9	0.30	2.0	1.1	0.312	0.187
	76.200	23.812	25.654	19.050	3.5	0.8	73 500	91 000	7 500	9 300	5 000	6 700	**2788**	**2729**	50	43.5	68	70	3.5	0.8	15.9	0.30	2.0	1.1	0.312	0.191
	79.375	29.370	29.771	23.812	3.5	3.3	88 000	106 000	8 950	10 800	4 800	6 700	**3490**	**3420**	52	45.5	67	74	3.5	3.3	20.0	0.37	1.6	0.90	0.404	0.259
	80.035	24.608	23.698	18.512	0.8	1.5	69 000	84 500	7 000	8 600	4 500	6 300	**27880**	**27820**	48	47	68	75	0.8	1.5	21.5	0.56	1.1	0.59	0.362	0.209
	82.550	29.370	28.575	23.020	0.8	3.3	87 000	117 000	8 850	11 900	4 500	6 000	**HM 801346**	**HM 801310**	51	49	68	78	0.8	3.3	24.2	0.55	1.1	0.60	0.483	0.282
	88.501	25.400	23.698	17.462	2.3	1.5	73 000	81 000	7 450	8 250	4 000	5 600	**44150**	**44348**	55	51	75	84	2.3	1.5	27.9	0.78	0.77	0.42	0.484	0.245
	88.501	26.988	29.083	22.225	3.5	1.5	96 500	109 000	9 800	11 100	4 500	6 000	**418**	**414**	51	44.5	77	80	3.5	1.5	17.1	0.26	2.3	1.3	0.50	0.329
	95.250	30.958	28.301	20.638	1.5	0.8	87 500	97 000	8 950	9 850	3 600	5 300	**53150**	**53375**	55	53	81	89	1.5	0.8	30.7	0.74	0.81	0.45	0.665	0.365
39.688	73.025	25.654	22.098	21.336	0.8	2.3	62 500	80 000	6 400	8 150	5 000	6 700	**M 201047**	**M 201011**	45.5	48	64	69	0.8	2.3	19.7	0.33	1.8	0.99	0.266	0.169
	76.200	23.812	25.654	19.050	3.5	3.3	73 500	91 000	7 500	9 300	5 000	6 700	**2789**	**2720**	52	45	66	70	3.5	3.3	15.9	0.30	2.0	1.1	0.292	0.187
	80.167	29.370	30.391	23.812	0.8	3.3	92 500	108 000	9 450	11 000	4 800	6 300	**3386**	**3320**	46.5	45.5	70	75	0.8	3.3	18.4	0.27	2.2	1.2	0.442	0.217
40.000	80.000	21.000	22.403	17.826	3.5	1.3	68 500	75 500	6 950	7 700	4 500	6 300	**344**	**332**	52	45.5	73	75	3.5	1.3	14.5	0.27	2.2	1.2	0.338	0.146
	80.000	21.000	22.403	17.826	0.8	1.3	68 500	75 500	6 950	7 700	4 500	6 300	**344 A**	**332**	46	45.5	73	75	0.8	1.3	14.5	0.27	2.2	1.2	0.339	0.146
	88.501	25.400	23.698	17.462	2.3	1.5	73 000	81 000	7 450	8 250	4 000	5 600	**44157**	**44348**	56	51	75	84	2.3	1.5	27.9	0.78	0.77	0.42	0.463	0.245
41.000	68.000	17.500	18.000	13.500	spec.	1.5	43 500	58 000	4 450	5 950	5 300	7 100	**∗ LM 300849**	**∗∗ LM 300811**	52	45	61	65	3.5	1.5	13.9	0.35	1.7	0.95	0.16	0.082
41.275	73.025	16.667	17.462	12.700	3.5	1.5	44 500	54 000	4 550	5 500	4 800	6 700	**18590**	**18520**	53	46	66	69	3.5	1.5	14.0	0.35	1.7	0.94	0.199	0.086
	73.431	19.558	19.812	14.732	3.5	0.8	54 500	67 000	5 550	6 850	4 800	6 700	**LM 501349**	**LM 501310**	53	46.5	67	70	3.5	0.8	16.3	0.40	1.5	0.83	0.226	0.108
	73.431	21.430	19.812	16.604	3.5	0.8	54 500	67 000	5 550	6 850	4 800	6 700	**LM 501349**	**LM 501314**	53	46.5	66	70	3.5	0.8	18.2	0.40	1.5	0.83	0.226	0.129

Notes
∗ The maximum bore diameter is listed and its tolerance is negative (See Table **8.4.1** on Page **A68**).
∗∗ The maximum outside diameter is listed and its tolerance is negative (See Table **8.4.2** on Pages **A68** and **A69**).
▲ The tolerances are listed in Tables **2, 3** and **4** on Pages **B109** and **B110**.

Bore Diameter 41.275 – 44.450 mm





Dynamic Equivalent Load

$P = XF_r + YF_a$

$F_a/F_r \leq e$		$F_a/F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Static Equivalent Load

$P_0 = 0.5F_r + Y_0 F_a$

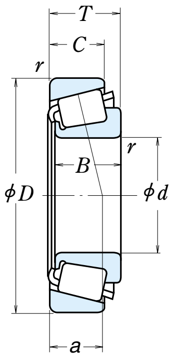
When $F_r > 0.5F_r + Y_0 F_a$, use $P_0 = F_r$

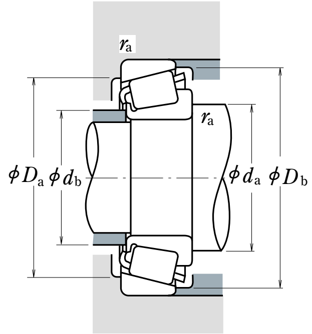
The values of e, Y_1, and Y_0 are given in the table below.

Boundary Dimensions (mm)							Basic Load Ratings (N)		(kgf)		Limiting Speeds (min⁻¹)		Bearing Numbers		Abutment and Fillet Dimensions (mm)						Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg) approx	
d	D	T	B	C	Cone r min	Cup r min	C_r	C_{0r}	C_r	C_{0r}	Grease	Oil	CONE	CUP	d_a	d_b	D_a	D_b	Cone r_a max	Cup r_a max	a	e	Y_1	Y_0	CONE	CUP
41.275	76.200	18.009	17.384	14.288	1.5	1.5	42 500	51 000	4 350	5 200	4 500	6 300	**11162**	**11300**	49	46.5	67	71	1.5	1.5	17.4	0.49	1.2	0.68	0.212	0.129
	76.200	22.225	23.020	17.462	3.5	0.8	66 000	82 000	6 700	8 400	4 800	6 700	**24780**	**24720**	53	47.5	68	72	3.5	0.8	17.0	0.39	1.5	0.84	0.279	0.15
	76.200	25.400	23.020	20.638	3.5	2.3	66 000	82 000	6 700	8 400	4 800	6 700	**24780**	**24721**	54	47	66	72	3.5	2.3	20.2	0.39	1.5	0.84	0.279	0.189
	79.375	23.812	25.400	19.050	3.5	0.8	77 000	98 500	7 850	10 000	4 800	6 300	**26882**	**26822**	54	47	71	74	3.5	0.8	16.4	0.32	1.9	1.0	0.349	0.186
	80.000	21.000	22.403	17.826	0.8	1.3	68 500	75 500	6 950	7 700	4 500	6 300	**336**	**332**	47	46	73	75	0.8	1.3	14.5	0.27	2.2	1.2	0.325	0.146
	80.000	21.000	22.403	17.826	3.5	1.3	68 500	75 500	6 950	7 700	4 500	6 300	**342**	**332**	53	46	73	75	3.5	1.3	14.5	0.27	2.2	1.2	0.323	0.146
	80.167	25.400	25.400	20.638	3.5	3.3	77 000	98 500	7 850	10 000	4 800	6 300	**26882**	**26820**	54	47	69	74	3.5	3.3	18.0	0.32	1.9	1.0	0.349	0.219
	82.550	26.543	25.654	20.193	3.5	3.3	78 500	102 000	8 000	10 400	4 300	6 000	**M 802048**	**M 802011**	57	51	70	79	3.5	3.3	22.9	0.55	1.1	0.60	0.406	0.23
	85.725	30.162	30.162	23.812	3.5	3.3	91 000	115 000	9 300	11 700	4 300	6 000	**3877**	**3820**	57	50	73	81	3.5	3.3	21.8	0.40	1.5	0.82	0.506	0.285
	87.312	30.162	30.886	23.812	0.8	3.3	96 000	120 000	9 800	12 200	4 300	6 000	**3576**	**3525**	49	48	75	81	0.8	3.3	19.5	0.31	2.0	1.1	0.532	0.304
	88.501	25.400	23.698	17.462	2.3	1.5	73 000	81 000	7 450	8 250	4 000	5 600	**44162**	**44348**	57	51	75	84	2.3	1.5	28.0	0.78	0.77	0.42	0.447	0.245
	88.900	30.162	29.370	23.020	3.5	3.3	96 500	129 000	9 800	13 200	4 000	5 600	**HM 803146**	**HM 803110**	60	53	74	85	3.5	3.3	25.6	0.55	1.1	0.60	0.579	0.322
	88.900	30.162	29.370	23.020	0.8	3.3	96 500	129 000	9 800	13 200	4 000	5 600	**HM 803145**	**HM 803110**	54	53	74	85	0.8	3.3	25.6	0.55	1.1	0.60	0.582	0.322
	90.488	39.688	40.386	33.338	3.5	3.3	139 000	180 000	14 200	18 400	4 300	5 600	**4388**	**4335**	57	51	77	85	3.5	3.3	24.6	0.28	2.1	1.2	0.789	0.459
	93.662	31.750	31.750	26.195	0.8	3.3	110 000	142 000	11 200	14 400	4 000	5 600	**46162**	**46368**	52	51	79	87	0.8	3.3	24.0	0.40	1.5	0.82	0.695	0.405
	95.250	30.162	29.370	23.020	3.5	3.3	106 000	143 000	10 800	14 500	3 800	5 300	**HM 804840**	**HM 804810**	61	54	81	91	3.5	3.3	26.1	0.55	1.1	0.60	0.726	0.354
	98.425	30.958	28.301	20.638	1.5	0.8	87 500	97 000	8 950	9 850	3 600	5 300	**53162**	**53387**	57	53	82	91	1.5	0.8	30.7	0.74	0.81	0.45	0.618	0.442
42.862	76.992	17.462	17.145	11.908	1.5	1.5	44 000	54 000	4 450	5 500	4 500	6 000	**12168**	**12303**	51	48.5	68	73	1.5	1.5	17.7	0.51	1.2	0.65	0.228	0.098
	82.550	19.842	19.837	15.080	2.3	1.5	58 500	69 000	5 950	7 050	4 500	6 300	**22168**	**22325**	52	48.5	73	76	2.3	1.5	17.6	0.43	1.4	0.77	0.283	0.176
	82.931	23.812	25.400	19.050	2.3	0.8	76 500	99 000	7 800	10 100	4 500	6 000	**25578**	**25520**	53	49.5	74	77	2.3	0.8	17.6	0.33	1.8	0.99	0.383	0.203
	82.931	26.988	25.400	22.225	2.3	2.3	76 500	99 000	7 800	10 100	4 500	6 000	**25578**	**25523**	53	49.5	72	77	2.3	2.3	20.8	0.33	1.8	0.99	0.383	0.248
42.875	76.200	25.400	25.400	20.638	3.5	1.5	77 000	98 500	7 850	10 000	4 800	6 300	**26884**	**26823**	55	48.5	69	73	3.5	1.5	18.0	0.32	1.9	1.0	0.337	0.136
	80.000	21.000	22.403	17.826	3.5	1.3	68 500	75 500	6 950	7 700	4 500	6 300	**342 S**	**332**	54	47.5	73	75	3.5	1.3	14.5	0.27	2.2	1.2	0.305	0.146
	82.931	26.988	25.400	22.225	3.5	2.3	76 500	99 000	7 800	10 100	4 500	6 000	**25577**	**25523**	55	49	72	77	3.5	2.3	20.8	0.33	1.8	0.99	0.381	0.248
	83.058	23.812	25.400	19.050	3.5	3.3	76 500	99 000	7 800	10 100	4 500	6 000	**25577**	**25521**	55	49	72	77	3.5	3.3	17.6	0.33	1.8	0.99	0.381	0.201
43.000	74.988	19.368	19.837	14.288	1.5	1.3	52 500	68 000	5 350	6 900	4 800	6 300	∗ **16986**	**16929**	51	48.5	67	71	1.5	1.3	17.2	0.44	1.4	0.74	0.24	0.106
44.450	80.962	19.050	17.462	14.288	0.3	1.5	45 000	57 000	4 600	5 800	4 300	6 000	**13175**	**13318**	50	50	72	76	0.3	1.5	20.1	0.53	1.1	0.63	0.252	0.144
	82.931	23.812	25.400	19.050	3.5	0.8	76 500	99 000	7 800	10 100	4 500	6 000	**25580**	**25520**	57	50	74	77	3.5	0.8	17.6	0.33	1.8	0.99	0.359	0.203
	83.058	23.812	25.400	19.050	3.5	3.3	76 500	99 000	7 800	10 100	4 500	6 000	**25580**	**25521**	56	51	72	78	3.5	3.3	17.6	0.33	1.8	0.99	0.359	0.201
	87.312	30.162	30.886	23.812	3.5	3.3	96 000	120 000	9 800	12 200	4 300	6 000	**3578**	**3525**	57	51	75	81	3.5	3.3	19.5	0.31	2.0	1.1	0.477	0.304
	88.900	30.162	29.370	23.020	3.5	3.3	96 500	129 000	9 800	13 200	4 000	5 600	**HM 803149**	**HM 803110**	62	53	74	85	3.5	3.3	25.6	0.55	1.1	0.60	0.528	0.322
	93.264	30.162	30.302	23.812	3.5	3.2	103 000	136 000	10 500	13 900	3 800	5 300	**3782**	**3720**	58	52	82	88	3.5	3.2	22.4	0.34	1.8	0.97	0.678	0.292
	93.662	31.750	31.750	25.400	0.8	3.3	120 000	147 000	12 200	15 000	4 000	5 600	**49176**	**49368**	54	53	82	87	0.8	3.3	21.6	0.36	1.7	0.92	0.648	0.371
	93.662	31.750	31.750	25.400	3.5	3.3	120 000	147 000	12 200	15 000	4 000	5 600	**49175**	**49368**	59	53	82	87	3.5	3.3	21.6	0.36	1.7	0.92	0.645	0.371
	93.662	31.750	31.750	26.195	3.5	3.3	110 000	142 000	11 200	14 400	4 000	5 600	**46176**	**46368**	60	54	79	87	3.5	3.3	24.0	0.40	1.5	0.82	0.635	0.405
	95.250	27.783	29.901	22.225	3.5	2.3	106 000	126 000	10 800	12 900	4 300	5 600	**438**	**432**	57	51	83	87	3.5	2.3	18.6	0.28	2.1	1.2	0.555	0.384

Note ∗ The maximum bore diameter is listed and its tolerance is negative (See Table **8.4.1** on Page **A68**).

Bore Diameter 44.450 – 47.625 mm





Dynamic Equivalent Load

$P = XF_r + YF_a$

$F_a/F_r \leqq e$		$F_a/F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Static Equivalent Load

$P_0 = 0.5F_r + Y_0F_a$

When $F_r > 0.5F_r + Y_0F_a$, use $P_0 = F_r$

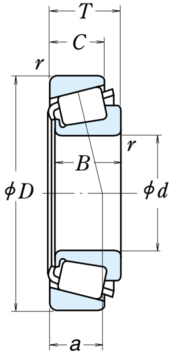
The values of e, Y_1, and Y_0 are given in the table below.

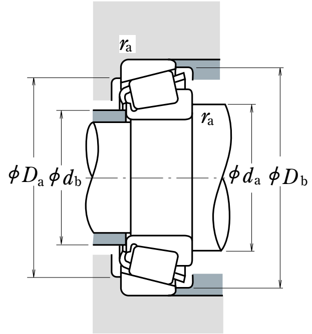
Boundary Dimensions (mm) d	D	T	B	C	Cone r min	Cup r min	Basic Load Ratings (N) C_r	(N) C_{0r}	{kgf} C_r	{kgf} C_{0r}	Limiting Speeds (min^{-1}) Grease	Oil	Bearing Numbers CONE	CUP	Abutment and Fillet Dimensions (mm) d_a	d_b	D_a	D_b	Cone r_a max	Cup r_a max	Eff. Load Centers (mm) a	Constant e	Axial Load Factors Y_1	Y_0	Mass (kg) approx CONE	CUP
44.450	95.250	30.162	29.370	23.020	3.5	3.3	106 000	143 000	10 800	14 500	3 800	5 300	**HM 804843**	**HM 804810**	63	57	81	91	3.5	3.3	26.1	0.55	1.1	0.60	0.677	0.354
	95.250	30.958	28.301	20.638	3.5	0.8	87 500	97 000	8 950	9 850	3 600	5 300	**53177**	**53375**	63	53	81	89	3.5	0.8	30.7	0.74	0.81	0.45	0.572	0.365
	95.250	30.958	28.301	20.638	1.3	0.8	87 500	97 000	8 950	9 850	3 600	5 300	**53176**	**53375**	59	53	81	89	1.3	0.8	30.7	0.74	0.81	0.45	0.574	0.365
	95.250	30.958	28.301	20.638	2.0	0.8	87 500	97 000	8 950	9 850	3 600	5 300	**53178**	**53375**	60	53	81	89	2	0.8	30.7	0.74	0.81	0.45	0.574	0.365
	95.250	30.958	28.301	22.225	1.3	0.8	100 000	122 000	10 200	12 500	3 600	5 000	**HM 903247**	**HM 903210**	61	54	81	91	1.3	0.8	31.5	0.74	0.81	0.45	0.651	0.389
	95.250	30.958	28.575	22.225	3.5	0.8	100 000	122 000	10 200	12 500	3 600	5 000	**HM 903249**	**HM 903210**	65	54	81	91	3.5	0.8	31.5	0.74	0.81	0.45	0.635	0.389
	98.425	30.958	28.301	20.638	3.5	0.8	87 500	97 000	8 950	9 850	3 600	5 300	**53177**	**53387**	63	53	82	91	3.5	0.8	30.7	0.74	0.81	0.45	0.568	0.442
	103.188	43.658	44.475	36.512	1.3	3.3	178 000	238 000	18 100	24 300	3 800	5 000	**5356**	**5335**	58	56	89	97	1.3	3.3	27.0	0.30	2.0	1.1	1.23	0.637
	104.775	36.512	36.512	28.575	3.5	3.3	139 000	192 000	14 200	19 600	3 400	4 800	**HM 807040**	**HM 807010**	66	59	89	100	3.5	3.3	29.7	0.49	1.2	0.68	1.14	0.502
	107.950	27.783	29.317	22.225	3.5	0.8	116 000	149 000	11 800	15 200	3 400	4 800	**460**	**453 A**	60	54	97	100	3.5	0.8	20.7	0.34	1.8	0.98	0.93	0.42
	111.125	30.162	26.909	20.638	3.5	3.3	92 500	110 000	9 450	11 200	3 200	4 300	**55175**	**55437**	67	60	92	105	3.5	3.3	37.3	0.88	0.68	0.37	0.867	0.514
	114.300	44.450	44.450	34.925	3.5	3.3	172 000	205 000	17 500	20 900	3 600	4 800	**65385**	**65320**	65	59	97	107	3.5	3.3	32.2	0.43	1.4	0.77	1.39	0.894
44.983	82.931	23.812	25.400	19.050	1.5	0.8	76 500	99 000	7 800	10 100	4 500	6 000	**25584**	**25520**	53	51	74	77	1.5	0.8	17.6	0.33	1.8	0.99	0.354	0.203
45.000	93.264	20.638	22.225	15.082	0.8	1.3	77 000	93 000	7 900	9 500	3 800	5 300	**376**	**374**	54	54	85	88	0.8	1.3	17.1	0.34	1.8	0.97	0.492	0.174
45.230	79.985	19.842	20.638	15.080	2.0	1.3	62 000	78 500	6 300	8 000	4 500	6 000	**17887**	**17831**	57	52	68	74	2	1.3	15.9	0.37	1.6	0.90	0.274	0.136
45.242	73.431	19.558	19.812	15.748	3.5	0.8	53 500	75 000	5 450	7 650	4 800	6 300	**LM 102949**	**LM 102910**	56	50	68	70	3.5	0.8	14.6	0.31	2.0	1.1	0.213	0.102
	77.788	19.842	19.842	15.080	3.5	0.8	56 000	71 000	5 700	7 250	4 500	6 300	**LM 603049**	**LM 603011**	57	50	71	74	3.5	0.8	17.2	0.43	1.4	0.77	0.249	0.119
	77.788	21.430	19.842	16.667	3.5	0.8	56 000	71 000	5 700	7 250	4 500	6 300	**LM 603049**	**LM 603012**	57	50	70	74	3.5	0.8	18.8	0.43	1.4	0.77	0.249	0.137
45.618	82.931	23.812	25.400	19.050	3.5	0.8	76 500	99 000	7 800	10 100	4 500	6 000	**25590**	**25520**	58	51	74	77	3.5	0.8	17.6	0.33	1.8	0.99	0.343	0.203
	82.931	26.988	25.400	22.225	3.5	2.3	76 500	99 000	7 800	10 100	4 500	6 000	**25590**	**25523**	58	51	74	72	3.5	2.3	20.8	0.33	1.8	0.99	0.343	0.248
46.000	75.000	18.000	18.000	14.000	2.3	1.5	51 000	71 500	5 200	7 300	4 500	6 300	**∗ LM 503349**	**∗∗ LM 503310**	55	51	67	71	2.3	1.5	15.9	0.40	1.5	0.82	0.209	0.096
46.038	79.375	17.462	17.462	13.495	2.8	1.5	46 000	57 000	4 700	5 800	4 500	6 000	**18690**	**18620**	56	51	71	74	2.8	1.5	15.5	0.37	1.6	0.88	0.211	0.126
	80.962	19.050	17.462	14.288	0.8	1.5	45 000	57 000	4 600	5 800	4 300	6 000	**13181**	**13318**	52	52	72	76	0.8	1.5	20.1	0.53	1.1	0.63	0.236	0.144
	85.000	20.638	21.692	17.462	2.3	1.3	71 500	81 500	7 300	8 300	4 300	6 000	**359 S**	**354 A**	55	51	77	80	2.3	1.3	15.4	0.31	2.0	1.1	0.343	0.162
	85.000	25.400	25.608	20.638	3.5	1.3	79 500	105 000	8 100	10 700	4 300	6 000	**2984**	**2924**	58	52	76	80	3.5	1.3	19.0	0.35	1.7	0.95	0.397	0.223
	95.250	27.783	29.901	22.225	3.5	0.8	106 000	126 000	10 800	12 900	4 300	5 600	**436**	**432 A**	59	52	84	87	3.5	0.8	18.6	0.28	2.1	1.2	0.536	0.381
47.625	88.900	20.638	22.225	16.513	3.5	1.3	73 000	85 000	7 450	8 650	4 000	5 600	**369 A**	**362 A**	60	53	81	84	3.5	1.3	16.6	0.32	1.9	1.0	0.381	0.166
	88.900	25.400	25.400	19.050	3.5	3.3	86 000	107 000	8 750	10 900	4 000	5 600	**M 804049**	**M 804010**	63	56	77	85	3.5	3.3	23.8	0.55	1.1	0.60	0.455	0.218
	95.250	30.162	29.370	23.020	3.5	3.3	106 000	143 000	10 800	14 500	3 800	5 300	**HM 804846**	**HM 804810**	66	57	81	91	3.5	3.3	26.1	0.55	1.1	0.60	0.626	0.354
	101.600	34.925	36.068	26.988	3.5	3.3	137 000	169 000	14 000	17 200	3 800	5 000	**528**	**522**	62	55	89	95	3.5	3.3	22.1	0.29	2.1	1.2	0.894	0.416
	111.125	30.162	26.909	20.638	3.5	3.3	92 500	110 000	9 450	11 200	3 200	4 300	**55187**	**55437**	69	62	92	105	3.5	3.3	37.3	0.88	0.68	0.37	0.817	0.514
	112.712	30.162	26.909	20.638	3.5	3.3	92 500	110 000	9 450	11 200	3 200	4 300	**55187**	**55443**	69	62	92	106	3.5	3.3	37.3	0.88	0.68	0.37	0.816	0.554
	117.475	33.338	31.750	23.812	3.5	3.3	137 000	156 000	13 900	15 900	3 200	4 300	**66187**	**66462**	66	62	100	111	3.5	3.3	32.1	0.63	0.96	0.53	1.19	0.552
	123.825	36.512	32.791	25.400	3.5	3.3	143 000	160 000	14 600	16 400	3 000	4 000	**72187**	**72487**	72	66	102	116	3.5	3.3	37.0	0.74	0.81	0.45	1.29	0.79

Notes ∗ The maximum bore diameter is listed and its tolerance is negative (See Table **8.4.1** on Page **A68**).

∗∗ The maximum outside diameter is listed and its tolerance is negative (See Table **8.4.2** on Pages **A68** and **A69**).

Bore Diameter 48.412 – 52.388 mm





Dynamic Equivalent Load

$P = XF_r + YF_a$

$F_a/F_r \leq e$		$F_a/F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Static Equivalent Load

$P_0 = 0.5F_r + Y_0F_a$

When $F_r > 0.5F_r + Y_0F_a$, use $P_0 = F_r$

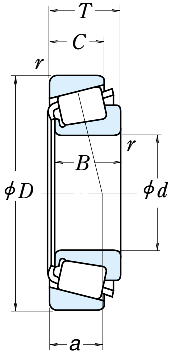
The values of e, Y_1, and Y_0 are given in the table below.

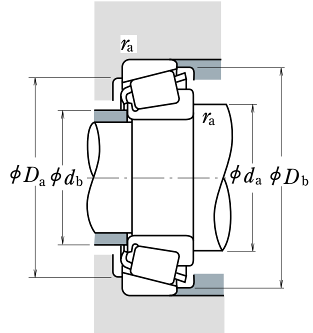
Boundary Dimensions (mm)							Basic Load Ratings (N)		{kgf}		Limiting Speeds (min⁻¹)		Bearing Numbers		Abutment and Fillet Dimensions (mm)						Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg) approx	
d	D	T	B	C	Cone r min	Cup r min	C_r	C_{0r}	C_r	C_{0r}	Grease	Oil	CONE	CUP	d_a	d_b	D_a	D_b	Cone r_a max	Cup r_a max	a	e	Y_1	Y_0	CONE	CUP
48.412	95.250	30.162	29.370	23.020	3.5	3.3	106 000	143 000	10 800	14 500	3 800	5 300	**HM 804849**	**HM 804810**	66	57	81	91	3.5	3.3	26.1	0.55	1.1	0.60	0.61	0.354
	95.250	30.162	29.370	23.020	2.3	3.3	106 000	143 000	10 800	14 500	3 800	5 300	**HM 804848**	**HM 804810**	63	57	81	91	2.3	3.3	26.1	0.55	1.1	0.60	0.614	0.354
49.212	104.775	36.512	36.512	28.575	3.5	0.8	139 000	192 000	14 200	19 600	3 400	4 800	**HM 807044**	**HM 807011**	69	63	91	100	3.5	0.8	29.7	0.49	1.2	0.68	1.03	0.508
	114.300	44.450	44.450	36.068	3.5	3.3	196 000	243 000	20 000	24 800	3 400	4 800	**HH 506348**	**HH 506310**	71	61	97	107	3.5	3.3	30.8	0.40	1.5	0.82	1.43	0.837
50.000	82.000	21.500	21.500	17.000	3.0	0.5	71 000	96 000	7 250	9 800	4 300	5 600	▲ **JLM 104948**	▲ **JLM 104910**	60	55	76	78	3	0.5	16.1	0.31	2.0	1.1	0.306	0.129
	82.550	21.590	22.225	16.510	0.5	1.3	71 000	96 000	7 250	9 800	4 300	5 600	* **LM 104947 A**	**LM 104911**	55	55	75	78	0.5	1.3	15.7	0.31	2.0	1.1	0.316	0.133
	88.900	20.638	22.225	16.513	2.3	1.3	73 000	85 000	7 450	8 650	4 000	5 600	**366**	**362 A**	59	55	81	84	2.3	1.3	16.6	0.32	1.9	1.0	0.351	0.166
	90.000	28.000	28.000	23.000	3.0	2.5	104 000	136 000	10 600	13 900	4 000	5 600	▲ **JM 205149**	▲ **JM 205110**	62	57	80	85	3	2.5	19.9	0.33	1.8	1.0	0.507	0.246
	105.000	37.000	36.000	29.000	3.0	2.5	139 000	192 000	14 200	19 600	3 400	4 800	▲ **JHM 807045**	▲ **JHM 807012**	69	63	90	100	3	2.5	29.7	0.49	1.2	0.68	1.01	0.523
50.800	80.962	18.258	18.258	14.288	1.5	1.5	53 000	81 000	5 400	8 250	4 300	5 600	**L 305649**	**L 305610**	58	56	73	77	1.5	1.5	15.7	0.36	1.7	0.93	0.239	0.119
	82.550	23.622	22.225	18.542	3.5	0.8	71 000	96 000	7 250	9 800	4 300	5 600	**LM 104949**	**LM 104911 A**	62	55	75	78	3.5	0.8	17.8	0.31	2.0	1.1	0.303	0.156
	82.931	21.590	22.225	16.510	3.5	1.3	71 000	96 000	7 250	9 800	4 300	5 600	**LM 104949**	**LM 104912**	62	55	75	78	3.5	1.3	15.7	0.31	2.0	1.1	0.301	0.14
	85.000	17.462	17.462	13.495	3.5	1.5	48 500	63 000	4 950	6 450	4 300	5 600	**18790**	**18720**	62	56	77	80	3.5	1.5	16.7	0.41	1.5	0.81	0.239	0.136
	85.725	19.050	18.263	12.700	1.5	1.5	42 500	54 000	4 350	5 500	4 000	5 300	**18200**	**18337**	59	56	76	81	1.5	1.5	21.0	0.57	1.1	0.58	0.268	0.136
	88.900	20.638	22.225	16.513	3.5	1.3	73 000	85 000	7 450	8 650	4 000	5 600	**368 A**	**362 A**	62	56	81	84	3.5	1.3	16.6	0.32	1.9	1.0	0.338	0.166
	88.900	20.638	22.225	16.513	1.5	1.3	73 000	85 000	7 450	8 650	4 000	5 600	**368**	**362 A**	58	56	81	84	1.5	1.3	16.6	0.32	1.9	1.0	0.341	0.166
	92.075	24.608	25.400	19.845	3.5	0.8	84 500	117 000	8 600	11 900	4 000	5 300	**28580**	**28521**	63	57	83	87	3.5	0.8	20.0	0.38	1.6	0.87	0.46	0.247
	93.264	30.162	30.302	23.812	0.8	0.8	103 000	136 000	10 500	13 900	3 800	5 300	**3775**	**3730**	58	58	84	88	0.8	0.8	22.4	0.34	1.8	0.97	0.568	0.297
	93.264	30.162	30.302	23.812	3.5	0.8	103 000	136 000	10 500	13 900	3 800	5 300	**3780**	**3730**	64	58	84	88	3.5	0.8	22.4	0.34	1.8	0.97	0.564	0.297
	95.250	27.783	28.575	22.225	3.5	2.3	110 000	144 000	11 200	14 700	3 800	5 300	**33889**	**33821**	64	58	85	90	3.5	2.3	19.8	0.33	1.8	1.0	0.601	0.267
	101.600	31.750	31.750	25.400	3.5	3.3	118 000	150 000	12 100	15 200	3 600	5 000	**49585**	**49520**	66	59	88	96	3.5	3.3	23.4	0.40	1.5	0.82	0.744	0.389
	101.600	34.925	36.068	26.988	0.8	3.3	137 000	169 000	14 000	17 200	3 800	5 000	**529**	**522**	59	58	89	95	0.8	3.3	22.1	0.29	2.1	1.2	0.822	0.416
	101.600	34.925	36.068	26.988	3.5	3.3	137 000	169 000	14 000	17 200	3 800	5 000	**529 X**	**522**	65	58	89	95	3.5	3.3	22.1	0.29	2.1	1.2	0.819	0.416
	104.775	36.512	36.512	28.575	3.5	0.8	139 000	192 000	14 200	19 600	3 400	4 800	**HM 807046**	**HM 807011**	70	63	91	100	3.5	0.8	29.7	0.49	1.2	0.68	0.992	0.508
	104.775	36.512	36.512	28.575	3.5	3.3	139 000	192 000	14 200	19 600	3 400	4 800	**HM 807046**	**HM 807010**	70	63	89	100	3.5	3.3	29.7	0.49	1.2	0.68	0.993	0.502
	108.966	34.925	36.512	26.988	3.5	3.3	145 000	181 000	14 700	18 500	3 600	4 800	**59200**	**59429**	68	61	93	101	3.5	3.3	25.4	0.40	1.5	0.82	0.943	0.594
	111.125	30.162	26.909	20.638	3.5	3.3	113 000	152 000	11 500	15 400	3 000	4 300	**55200 C**	**55437**	71	65	92	105	3.5	3.3	37.6	0.88	0.68	0.37	0.845	0.514
	111.125	30.162	26.909	20.638	3.5	3.3	92 500	110 000	9 450	11 200	3 200	4 300	**55200**	**55437**	71	64	92	105	3.5	3.3	37.3	0.88	0.68	0.37	0.767	0.514
	123.825	36.512	32.791	25.400	3.5	3.3	162 000	199 000	16 500	20 300	2 800	4 000	**72200 C**	**72487**	77	67	102	116	3.5	3.3	38.0	0.74	0.81	0.45	1.33	0.79
	123.825	36.512	32.791	25.400	3.5	3.3	143 000	160 000	14 600	16 400	3 000	4 000	**72200**	**72487**	74	66	102	116	3.5	3.3	37.0	0.74	0.81	0.45	1.22	0.79
	127.000	44.450	44.450	34.925	3.5	3.3	199 000	258 000	20 200	26 300	3 000	4 000	**65200**	**65500**	75	69	107	119	3.5	3.3	35.0	0.49	1.2	0.68	1.86	1.03
	127.000	50.800	52.388	41.275	3.5	3.3	236 000	300 000	24 000	31 000	3 200	4 300	**6279**	**6220**	71	65	108	117	3.5	3.3	30.7	0.30	2.0	1.1	2.08	1.22
52.388	92.075	24.608	25.400	19.845	3.5	0.8	84 500	117 000	8 600	11 900	4 000	5 300	**28584**	**28521**	65	58	83	87	3.5	0.8	20.0	0.38	1.6	0.87	0.435	0.247
	100.000	25.000	22.225	21.824	2.3	2.0	77 000	93 000	7 900	9 500	3 800	5 300	**377**	**372**	62	58	86	90	2.3	2	21.4	0.34	1.8	0.97	0.392	0.435
	111.125	30.162	26.909	20.638	3.5	3.3	92 500	110 000	9 450	11 200	3 200	4 300	**55206**	**55437**	72	64	92	105	3.5	3.3	37.3	0.88	0.68	0.37	0.737	0.514

Notes * The maximum bore diameter is listed and its tolerance is negative (See Table **8.4.1** on Page **A68**).

▲ The tolerances are listed in Tables **2, 3** and **4** on Pages **B109** and **B110**.

Bore Diameter 53.975 – 58.738 mm





Dynamic Equivalent Load

$P = XF_r + YF_a$

$F_a/F_r \leqq e$		$F_a/F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Static Equivalent Load

$P_0 = 0.5F_r + Y_0F_a$

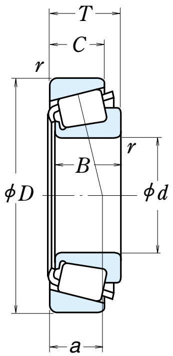
When $F_r > 0.5F_r + Y_0F_a$, use $P_0 = F_r$

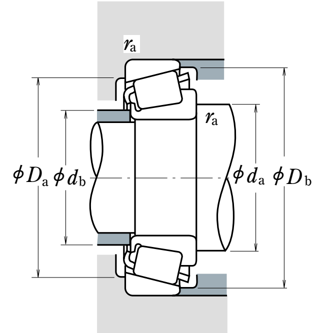
The values of e, Y_1, and Y_0 are given in the table below.

Boundary Dimensions (mm) d	D	T	B	C	Cone r min	Cup r min	Basic Load Ratings (N) C_r	(N) C_{0r}	{kgf} C_r	{kgf} C_{0r}	Limiting Speeds (min⁻¹) Grease	Oil	Bearing Numbers CONE	CUP	Abutment and Fillet Dimensions (mm) d_a	d_b	D_a	D_b	Cone r_a max	Cup r_a max	Eff. Load Centers (mm) a	Constant e	Axial Load Factors Y_1	Y_0	Mass (kg) approx CONE	CUP
53.975	104.775	39.688	40.157	33.338	3.5	3.3	150 000	210 000	15 300	21 400	3 600	4 800	**4595**	**4535**	70	63	90	99	3.5	3.3	27.4	0.33	1.8	0.99	0.972	0.583
	107.950	36.512	36.957	28.575	3.5	3.3	144 000	182 000	14 700	18 500	3 600	4 800	**539**	**532 X**	68	61	94	100	3.5	3.3	24.3	0.30	2.0	1.1	0.88	0.57
	122.238	33.338	31.750	23.812	3.5	3.3	135 000	156 000	13 800	15 900	3 000	4 000	**66584**	**66520**	75	68	105	116	3.5	3.3	34.3	0.67	0.90	0.50	1.2	0.558
	123.825	36.512	32.791	25.400	3.5	3.3	143 000	160 000	14 600	16 400	3 000	4 000	**72212**	**72487**	77	66	102	116	3.5	3.3	37.0	0.74	0.81	0.45	1.16	0.79
	123.825	36.512	32.791	25.400	3.5	3.3	162 000	199 000	16 500	20 300	2 800	4 000	**72212 C**	**72487**	79	67	102	116	3.5	3.3	38.0	0.74	0.81	0.45	1.27	0.79
	123.825	38.100	36.678	30.162	3.5	3.3	161 000	221 000	16 400	22 500	3 000	4 000	**557 S**	**552 A**	71	65	109	116	3.5	3.3	28.8	0.35	1.7	0.95	1.49	0.764
	127.000	44.450	44.450	34.925	3.5	3.3	199 000	258 000	20 200	26 300	3 000	4 000	**65212**	**65500**	77	71	107	119	3.5	3.3	35.0	0.49	1.2	0.68	1.76	1.03
	127.000	50.800	52.388	41.275	3.5	3.3	236 000	300 000	24 000	31 000	3 200	4 300	**6280**	**6220**	74	67	108	117	3.5	3.3	30.7	0.30	2.0	1.1	1.97	1.22
	130.175	36.512	33.338	23.812	3.5	3.3	133 000	154 000	13 600	15 700	2 600	3 600	**HM911242**	**HM911210**	79	74	109	124	3.5	3.3	42.2	0.82	0.73	0.40	1.45	0.725
55.000	90.000	23.000	23.000	18.500	1.5	0.5	79 000	111 000	8 050	11 300	3 800	5 300	**▲JLM506849**	**▲JLM506810**	63	61	82	86	1.5	0.5	19.7	0.40	1.5	0.82	0.378	0.186
	95.000	29.000	29.000	23.500	1.5	2.5	111 000	152 000	11 300	15 500	3 800	5 000	**▲JM207049**	**▲JM207010**	64	62	85	91	1.5	2.5	21.3	0.33	1.8	0.99	0.59	0.26
	96.838	21.000	21.946	15.875	2.3	0.8	80 500	100 000	8 200	10 200	3 600	5 000	**385**	**382 A**	65	61	89	92	2.3	0.8	17.6	0.35	1.7	0.93	0.455	0.179
	110.000	39.000	39.000	32.000	3.0	2.5	177 000	225 000	18 000	23 000	3 400	4 500	**▲JH307749**	**▲JH307710**	71	64	97	104	3	2.5	27.2	0.35	1.7	0.95	1.13	0.567
	115.000	41.021	41.275	31.496	3.0	3.0	172 000	214 000	17 500	21 800	3 200	4 500	**622 X**	**614 X**	70	64	101	108	3	3	26.6	0.31	1.9	1.1	1.3	0.597
55.562	97.630	24.608	24.608	19.446	3.5	0.8	89 000	129 000	9 100	13 100	3 600	5 000	**28680**	**28622**	68	62	88	92	3.5	0.8	21.3	0.40	1.5	0.82	0.499	0.27
	122.238	43.658	43.764	36.512	1.3	3.3	198 000	292 000	20 200	29 700	3 000	4 000	**5566**	**5535**	70	68	106	116	1.3	3.3	29.9	0.36	1.7	0.92	1.76	0.815
	123.825	36.512	32.791	25.400	3.5	3.3	143 000	160 000	14 600	16 400	3 000	4 000	**72218**	**72487**	78	66	102	116	3.5	3.3	37.0	0.74	0.81	0.45	1.12	0.79
	123.825	36.512	32.791	25.400	3.5	3.3	162 000	199 000	16 500	20 300	2 800	4 000	**72218 C**	**72487**	80	67	102	116	3.5	3.3	38.0	0.74	0.81	0.45	1.23	0.79
57.150	96.838	21.000	21.946	15.875	3.5	0.8	80 500	100 000	8 200	10 200	3 600	5 000	**387 A**	**382 A**	69	62	89	92	3.5	0.8	17.6	0.35	1.7	0.93	0.42	0.179
	96.838	21.000	21.946	15.875	2.3	0.8	80 500	100 000	8 200	10 200	3 600	5 000	**387**	**382 A**	66	62	89	92	2.3	0.8	17.6	0.35	1.7	0.93	0.423	0.179
	96.838	25.400	21.946	20.275	3.5	2.3	80 500	100 000	8 200	10 200	3 600	5 000	**387 A**	**382 S**	69	62	87	91	3.5	2.3	22.0	0.35	1.7	0.93	0.42	0.249
	98.425	21.000	21.946	17.826	3.5	0.8	80 500	100 000	8 200	10 200	3 600	5 000	**387 A**	**382**	69	62	90	92	3.5	0.8	17.6	0.35	1.7	0.93	0.42	0.226
	104.775	30.162	29.317	24.605	3.5	3.3	116 000	149 000	11 800	15 200	3 400	4 800	**469**	**453 X**	70	63	92	98	3.5	3.3	23.1	0.34	1.8	0.98	0.692	0.376
	104.775	30.162	29.317	24.605	2.3	3.3	116 000	149 000	11 800	15 200	3 400	4 800	**462**	**453 X**	67	63	92	98	2.3	3.3	23.1	0.34	1.8	0.98	0.694	0.376
	104.775	30.162	30.958	23.812	0.8	3.3	130 000	170 000	13 300	17 400	3 400	4 800	**45289**	**45220**	65	65	93	99	0.8	3.3	21.9	0.33	1.8	0.99	0.752	0.347
	104.775	30.162	30.958	23.812	0.8	0.8	130 000	170 000	13 300	17 400	3 400	4 800	**45289**	**45221**	65	65	95	99	0.8	0.8	21.9	0.33	1.8	0.99	0.76	0.35
	122.238	33.338	31.750	23.812	3.5	3.3	135 000	156 000	13 800	15 900	3 000	4 000	**66587**	**66520**	77	71	105	116	3.5	3.3	34.3	0.67	0.90	0.50	1.14	0.558
	123.825	36.512	32.791	25.400	3.5	3.3	162 000	199 000	16 500	20 300	2 800	4 000	**72225 C**	**72487**	81	67	102	116	3.5	3.3	38.0	0.74	0.81	0.45	1.19	0.79
	123.825	38.100	36.678	30.162	3.5	3.3	161 000	221 000	16 400	22 500	3 000	4 000	**555 S**	**552 A**	83	68	109	116	3.5	3.3	28.8	0.35	1.7	0.95	1.41	0.764
	140.030	36.512	33.236	23.520	3.5	2.3	152 000	183 000	15 500	18 700	2 600	3 600	**78225**	**78551**	83	77	117	132	3.5	2.3	44.2	0.87	0.69	0.38	1.67	0.926
	144.983	36.000	33.236	23.007	3.5	3.5	152 000	183 000	15 500	18 700	2 600	3 600	**78225**	**78571**	83	77	118	132	3.5	3.5	43.6	0.87	0.69	0.38	1.68	1.08
	149.225	53.975	54.229	44.450	3.5	3.3	287 000	410 000	29 300	41 500	2 600	3 400	**6455**	**6420**	81	75	129	140	3.5	3.3	39.0	0.36	1.7	0.91	3.49	1.63
57.531	96.838	21.000	21.946	15.875	3.5	0.8	80 500	100 000	8 200	10 200	3 600	5 000	**388 A**	**382 A**	69	63	89	92	3.5	0.8	17.6	0.35	1.7	0.93	0.416	0.179
58.738	112.712	33.338	30.048	26.988	3.5	3.3	120 000	173 000	12 200	17 700	3 200	4 300	**3981**	**3926**	73	67	98	106	3.5	3.3	28.7	0.40	1.5	0.82	0.899	0.541

Note ▲ The tolerances are listed in Tables **2**, **3** and **4** on Pages **B109** and **B110**.

Bore Diameter 60.000 – 64.963 mm





Dynamic Equivalent Load

$P=XF_r+YF_a$

$F_a/F_r \leqq e$		$F_a/F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Static Equivalent Load

$P_0=0.5F_r+Y_0F_a$

When $F_r > 0.5F_r+Y_0F_a$, use $P_0=F_r$

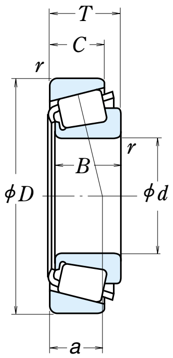
The values of e, Y_1, and Y_0 are given in the table below.

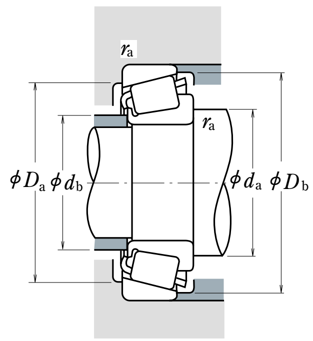
Boundary Dimensions (mm)							Basic Load Ratings (N)		Basic Load Ratings {kgf}		Limiting Speeds (min⁻¹)		Bearing Numbers		Abutment and Fillet Dimensions (mm)						Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg) approx	
d	D	T	B	C	Cone r min	Cup r min	C_r	C_{0r}	C_r	C_{0r}	Grease	Oil	CONE	CUP	d_a	d_b	D_a	D_b	Cone r_a max	Cup r_a max	a	e	Y_1	Y_0	CONE	CUP
60.000	95.000	24.000	24.000	19.000	5.0	2.5	86 500	125 000	8 800	12 800	3 600	5 000	**▲JLM 508748**	**▲JLM 508710**	75	66	85	91	5	2.5	21.6	0.40	1.5	0.82	0.43	0.20
	104.775	21.433	22.000	15.875	2.3	2.0	83 500	107 000	8 500	10 900	3 400	4 500	***39236**	**39412**	71	67	96	100	2.3	2	20.0	0.39	1.5	0.85	0.559	0.186
	110.000	22.000	21.996	18.824	0.8	1.3	85 500	113 000	8 750	11 500	3 200	4 300	**397**	**394 A**	69	68	101	104	0.8	1.3	20.9	0.40	1.5	0.82	0.642	0.263
	122.238	33.338	31.750	23.812	3.5	3.3	135 000	156 000	13 800	15 900	3 000	4 000	**66585**	**66520**	79	73	105	116	3.5	3.3	34.3	0.67	0.90	0.50	1.07	0.558
60.325	100.000	25.400	25.400	19.845	3.5	3.3	91 000	135 000	9 250	13 700	3 400	4 800	**28985**	**28921**	73	67	89	96	3.5	3.3	22.9	0.43	1.4	0.78	0.538	0.232
	101.600	25.400	25.400	19.845	3.5	3.3	91 000	135 000	9 250	13 700	3 400	4 800	**28985**	**28920**	73	67	90	97	3.5	3.3	22.9	0.43	1.4	0.78	0.538	0.272
	122.238	38.100	36.678	30.162	2.3	3.3	161 000	221 000	16 400	22 500	3 000	4 000	**558**	**553 X**	73	69	108	115	2.3	3.3	28.8	0.35	1.7	0.95	1.33	0.692
	122.238	38.100	38.354	29.718	8.0	1.5	188 000	245 000	19 200	25 000	3 000	4 000	**HM 212044**	**HM 212010**	85	70	110	116	8	1.5	27.0	0.34	1.8	0.98	1.43	0.604
	122.238	43.658	43.764	36.512	0.8	3.3	198 000	292 000	20 200	29 700	3 000	4 000	**5582**	**5535**	73	72	106	116	0.8	3.3	29.9	0.36	1.7	0.92	1.61	0.815
	127.000	44.450	44.450	34.925	3.5	3.3	199 000	258 000	20 200	26 300	3 000	4 000	**65237**	**65500**	82	71	107	119	3.5	3.3	35.0	0.49	1.2	0.68	1.56	1.03
	130.175	41.275	41.275	31.750	3.5	3.3	195 000	263 000	19 800	26 800	2 800	3 800	**637**	**633**	78	72	116	124	3.5	3.3	29.9	0.36	1.7	0.91	1.87	0.712
	135.755	53.975	56.007	44.450	3.5	3.3	264 000	355 000	27 000	36 000	2 800	3 800	**6376**	**6320**	81	74	117	126	3.5	3.3	35.0	0.32	1.8	1.0	2.45	1.39
61.912	136.525	46.038	46.038	36.512	3.5	3.3	233 000	370 000	23 800	37 500	2 600	3 400	**H 715334**	**H 715311**	84	78	119	132	3.5	3.3	37.1	0.47	1.3	0.70	2.51	0.961
	146.050	41.275	39.688	25.400	3.5	3.3	193 000	225 000	19 700	22 900	2 400	3 400	**H 913842**	**H 913810**	90	82	124	138	3.5	3.3	44.4	0.78	0.77	0.42	2.2	0.898
	152.400	47.625	46.038	31.750	3.5	3.3	237 000	267 000	24 200	27 300	2 400	3 400	**9180**	**9121**	90	81	130	145	3.5	3.3	44.3	0.66	0.92	0.50	2.77	1.21
63.500	94.458	19.050	19.050	15.083	1.5	1.5	59 000	100 000	6 050	10 200	3 600	4 800	**L 610549**	**L 610510**	71	69	86	91	1.5	1.5	19.6	0.42	1.4	0.78	0.306	0.154
	104.775	21.433	22.000	15.875	2.0	2.0	83 500	107 000	8 500	10 900	3 400	4 500	**39250**	**39412**	73	69	96	100	2	2	20.0	0.39	1.5	0.85	0.501	0.186
	107.950	25.400	25.400	19.050	1.5	3.3	90 000	138 000	9 150	14 100	3 200	4 300	**29586**	**29520**	73	71	96	103	1.5	3.3	24.0	0.46	1.3	0.72	0.661	0.281
	110.000	22.000	21.996	18.824	3.5	1.3	85 500	113 000	8 750	11 500	3 200	4 300	**395**	**394 A**	77	70	101	104	3.5	1.3	20.9	0.40	1.5	0.82	0.58	0.263
	110.000	22.000	21.996	18.824	1.5	1.3	85 500	113 000	8 750	11 500	3 200	4 300	**390 A**	**394 A**	73	70	101	104	1.5	1.3	20.9	0.40	1.5	0.82	0.583	0.263
	112.712	30.162	30.048	23.812	3.5	3.2	120 000	173 000	12 200	17 700	3 200	4 300	**3982**	**3920**	77	71	99	106	3.5	3.2	25.5	0.40	1.5	0.82	0.789	0.454
	112.712	30.162	30.162	23.812	3.5	3.3	142 000	202 000	14 500	20 600	3 200	4 300	**39585**	**39520**	77	71	101	107	3.5	3.3	23.5	0.34	1.8	0.97	0.899	0.359
	112.712	33.338	30.048	26.988	3.5	3.3	120 000	173 000	12 200	17 700	3 200	4 300	**3982**	**3926**	78	71	98	106	3.5	3.3	28.7	0.40	1.5	0.82	0.789	0.541
	122.238	38.100	38.354	29.718	7.0	3.3	188 000	245 000	19 200	25 000	3 000	4 000	**HM 212047**	**HM 212011**	87	73	108	116	7	3.3	26.9	0.34	1.8	0.98	1.34	0.598
	122.238	38.100	38.354	29.718	7.0	1.5	188 000	245 000	19 200	25 000	3 000	4 000	**HM 212047**	**HM 212010**	87	73	110	116	7	1.5	26.9	0.34	1.8	0.98	1.34	0.604
	122.238	38.100	38.354	29.718	3.5	1.5	188 000	245 000	19 200	25 000	3 000	4 000	**HM 212046**	**HM 212010**	80	73	110	116	3.5	1.5	26.9	0.34	1.8	0.98	1.35	0.604
	122.238	43.658	43.764	36.512	3.5	3.3	198 000	292 000	20 200	29 700	3 000	4 000	**5584**	**5535**	81	75	106	116	3.5	3.3	29.9	0.36	1.7	0.92	1.5	0.815
	123.825	38.100	36.678	30.162	3.5	3.3	161 000	221 000	16 400	22 500	3 000	4 000	**559**	**522 A**	78	73	109	116	3.5	3.3	28.8	0.35	1.7	0.95	1.23	0.764
	127.000	36.512	36.170	28.575	3.5	3.3	166 000	234 000	16 900	23 900	2 800	3 800	**565**	**563**	80	73	112	120	3.5	3.3	28.3	0.36	1.6	0.91	1.46	0.655
	130.175	41.275	41.275	31.750	3.5	3.3	195 000	263 000	19 800	26 800	2 800	3 800	**639**	**633**	81	74	116	124	3.5	3.3	29.9	0.36	1.7	0.91	1.77	0.712
	136.525	36.512	33.236	23.520	2.3	3.3	152 000	183 000	15 500	18 700	2 600	3 600	**78250**	**78537**	85	79	115	130	2.3	3.3	44.2	0.87	0.69	0.38	1.51	0.782
	136.525	41.275	41.275	31.750	3.5	3.3	195 000	263 000	19 800	26 800	2 800	3 800	**639**	**632**	79	76	119	125	3.5	3.3	29.9	0.36	1.7	0.91	1.77	1.04
	140.030	36.512	33.236	23.520	2.3	2.3	152 000	183 000	15 500	18 700	2 600	3 600	**78250**	**78551**	85	79	117	132	2.3	2.3	44.2	0.87	0.69	0.38	1.51	0.926
64.963	127.000	36.512	36.170	28.575	3.5	3.3	166 000	234 000	16 900	23 900	2 800	3 800	**569**	**563**	81	74	112	120	3.5	3.3	28.3	0.36	1.6	0.91	1.41	0.655

Notes * The maximum bore diameter is listed and its tolerance is negative (See Table **8.4.1** on Page **A68**).

▲ The tolerances are listed in Tables **2, 3** and **4** on Pages **B109** and **B110**.

Bore Diameter 65.000 – 69.850 mm





Dynamic Equivalent Load

$P = XF_r + YF_a$

$F_a/F_r \leqq e$		$F_a/F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Static Equivalent Load

$P_0 = 0.5F_r + Y_0F_a$

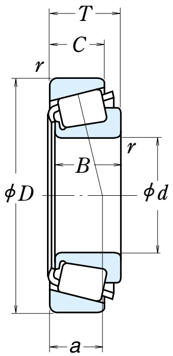
When $F_r > 0.5F_r + Y_0F_a$, use $P_0 = F_r$

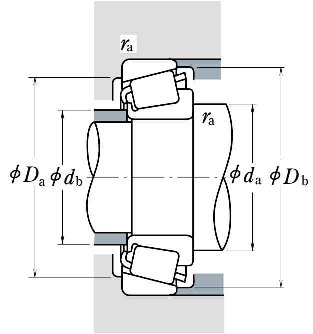
The values of e, Y_1, and Y_0 are given in the table below.

Boundary Dimensions (mm)							Basic Load Ratings (N)		Basic Load Ratings {kgf}		Limiting Speeds (min^{-1})		Bearing Numbers		Abutment and Fillet Dimensions (mm)						Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg) approx	
d	D	T	B	C	Cone r min	Cup r min	C_r	C_{0r}	C_r	C_{0r}	Grease	Oil	CONE	CUP	d_a	d_b	D_a	D_b	Cone r_a max	Cup r_a max	a	e	Y_1	Y_0	CONE	CUP
65.000	105.000	24.000	23.000	18.500	3.0	1.0	93 000	126 000	9 500	12 900	3 400	4 500	**▲JLM 710949**	**▲JLM 710910**	77	71	96	101	3	1	23.7	0.45	1.3	0.73	0.526	0.237
	110.000	28.000	28.000	22.500	3.0	2.5	120 000	173 000	12 200	17 700	3 200	4 300	**▲JM 511946**	**▲JM 511910**	78	72	99	105	3	2.5	24.5	0.40	1.5	0.82	0.72	0.342
	120.000	29.002	29.007	23.444	2.3	3.3	123 000	169 000	12 500	17 200	3 000	4 000	**478**	**472 A**	77	73	106	114	2.3	3.3	24.3	0.38	1.6	0.86	0.942	0.466
	120.000	39.000	38.500	32.000	3.0	2.5	185 000	249 000	18 800	25 400	3 000	4 000	**▲JH 211749**	**▲JH 211710**	80	74	107	114	3	2.5	27.9	0.34	1.8	0.98	1.25	0.625
65.088	135.755	53.975	56.007	44.450	3.5	3.3	264 000	355 000	27 000	36 000	2 800	3 800	**6379**	**6320**	84	77	117	126	3.5	3.3	35.0	0.32	1.8	1.0	2.25	1.39
	136.525	46.038	46.038	36.512	3.5	3.3	233 000	370 000	23 800	37 500	2 600	3 400	**H 715340**	**H 715311**	88	82	118	132	3.5	3.3	37.1	0.47	1.3	0.70	2.4	0.961
66.675	110.000	22.000	21.996	18.824	0.8	1.3	85 500	113 000	8 750	11 500	3 200	4 300	**395 A**	**394 A**	73	73	101	104	0.8	1.3	20.9	0.40	1.5	0.82	0.528	0.263
	110.000	22.000	21.996	18.824	3.5	1.3	85 500	113 000	8 750	11 500	3 200	4 300	**395 S**	**394 A**	79	73	101	104	3.5	1.3	20.9	0.40	1.5	0.82	0.524	0.263
	112.712	30.162	30.048	23.812	3.5	3.2	120 000	173 000	12 200	17 700	3 200	4 300	**3984**	**3920**	80	74	99	106	3.5	3.2	25.5	0.40	1.5	0.82	0.712	0.454
	112.712	30.162	30.048	23.812	5.5	3.2	120 000	173 000	12 200	17 700	3 200	4 300	**3994**	**3920**	84	74	99	106	5.5	3.2	25.5	0.40	1.5	0.82	0.706	0.454
	112.712	30.162	30.162	23.812	3.5	0.8	142 000	202 000	14 500	20 600	3 200	4 300	**39590**	**39521**	80	74	103	107	3.5	0.8	23.5	0.34	1.8	0.97	0.822	0.365
	112.712	30.162	30.162	23.812	3.5	3.3	142 000	202 000	14 500	20 600	3 200	4 300	**39590**	**39520**	80	74	101	107	3.5	3.3	23.5	0.34	1.8	0.97	0.822	0.359
	117.475	30.162	30.162	23.812	3.5	3.3	119 000	179 000	12 200	18 300	3 000	4 000	**33262**	**33462**	81	75	104	112	3.5	3.3	26.8	0.44	1.4	0.76	0.911	0.442
	122.238	38.100	36.678	30.162	3.5	3.3	161 000	221 000	16 400	22 500	3 000	4 000	**560**	**553 X**	81	75	108	115	3.5	3.3	28.8	0.35	1.7	0.95	1.14	0.692
	122.238	38.100	38.354	29.718	3.5	1.5	188 000	245 000	19 200	25 000	3 000	4 000	**HM 212049**	**HM 212010**	82	75	110	116	3.5	1.5	26.9	0.34	1.8	0.98	1.25	0.604
	122.238	38.100	38.354	29.718	3.5	3.3	188 000	245 000	19 200	25 000	3 000	4 000	**HM 212049**	**HM 212011**	81	74	108	116	3.5	3.3	26.9	0.34	1.8	0.98	1.25	0.598
	123.825	38.100	36.678	30.162	3.5	3.3	161 000	221 000	16 400	22 500	3 000	4 000	**560**	**552 A**	81	75	109	116	3.5	3.3	28.8	0.35	1.7	0.95	1.14	0.764
	136.525	46.038	46.038	36.512	3.5	3.3	233 000	370 000	23 800	37 500	2 600	3 400	**H 715341**	**H 715311**	89	83	118	132	3.5	3.3	37.1	0.47	1.3	0.70	2.34	0.961
68.262	110.000	22.000	21.996	18.824	2.3	1.3	85 500	113 000	8 750	11 500	3 200	4 300	**399 A**	**394 A**	78	74	101	104	2.3	1.3	20.9	0.40	1.5	0.82	0.497	0.263
	120.000	29.795	29.007	24.237	3.5	2.0	123 000	169 000	12 500	17 200	3 000	4 000	**480**	**472**	83	76	106	113	3.5	2	25.1	0.38	1.6	0.86	0.862	0.493
	122.238	38.100	36.678	30.162	3.5	3.3	161 000	221 000	16 400	22 500	3 000	4 000	**560 S**	**553 X**	83	76	108	115	3.5	3.3	28.8	0.35	1.7	0.95	1.09	0.692
	127.000	36.512	36.170	28.575	3.5	3.3	166 000	234 000	16 900	23 900	2 800	3 800	**570**	**563**	83	77	112	120	3.5	3.3	28.3	0.36	1.6	0.91	1.32	0.655
	136.525	41.275	41.275	31.750	3.5	3.3	229 000	297 000	23 300	30 500	2 600	3 600	**H 414245**	**H 414210**	86	82	121	129	3.5	3.3	30.6	0.36	1.7	0.92	1.95	0.796
	136.525	46.038	46.038	36.512	3.5	3.3	233 000	370 000	23 800	37 500	2 600	3 400	**H 715343**	**H 715311**	90	84	118	132	3.5	3.3	37.1	0.47	1.3	0.70	2.28	0.961
	152.400	47.625	46.038	31.750	3.5	3.3	237 000	267 000	24 200	27 300	2 400	3 400	**9185**	**9121**	94	81	130	145	3.5	3.3	44.3	0.66	0.92	0.50	2.53	1.21
69.850	112.712	22.225	21.996	15.875	1.5	0.8	85 000	113 000	8 650	11 500	3 000	4 000	**LM 613449**	**LM 613410**	78	76	104	107	1.5	0.8	22.1	0.42	1.4	0.79	0.562	0.238
	112.712	25.400	25.400	19.050	1.5	3.3	96 000	152 000	9 800	15 500	2 800	4 000	**29675**	**29620**	80	77	101	109	1.5	3.3	26.3	0.49	1.2	0.68	0.695	0.273
	117.475	30.162	30.162	23.812	3.5	3.3	119 000	179 000	12 200	18 300	3 000	4 000	**33275**	**33462**	84	77	104	112	3.5	3.3	26.8	0.44	1.4	0.76	0.83	0.442
	120.000	32.545	32.545	26.195	3.5	3.3	152 000	225 000	15 500	22 900	3 000	4 000	**47487**	**47420**	84	78	107	114	3.5	3.3	26.0	0.36	1.7	0.92	1.02	0.477
	120.650	25.400	25.400	19.050	1.5	3.3	96 000	152 000	9 800	15 500	2 800	4 000	**29675**	**29630**	79	78	105	113	1.5	3.3	26.3	0.49	1.2	0.68	0.695	0.489
	127.000	36.512	36.170	28.575	3.5	0.8	166 000	234 000	16 900	23 900	2 800	3 800	**566**	**563 X**	85	78	114	120	3.5	0.8	28.3	0.36	1.6	0.91	1.27	0.658
	130.175	41.275	41.275	31.750	3.5	3.3	195 000	263 000	19 800	26 800	2 800	3 800	**643**	**633**	86	80	116	124	3.5	3.3	29.9	0.36	1.7	0.91	1.56	0.712
	146.050	41.275	39.688	25.400	3.5	3.3	193 000	225 000	19 700	22 900	2 400	3 400	**H 913849**	**H 913810**	95	82	124	138	3.5	3.3	44.4	0.78	0.77	0.42	1.95	0.898
	146.050	41.275	41.275	31.750	3.5	3.3	207 000	296 000	21 100	30 000	2 400	3 200	**655**	**653**	88	82	131	139	3.5	3.3	33.2	0.41	1.5	0.81	2.35	0.891
	149.225	53.975	54.229	44.450	5.0	3.3	287 000	410 000	29 300	41 500	2 600	3 400	**6454**	**6420**	94	85	129	140	5	3.3	39.0	0.36	1.7	0.91	2.95	1.63
	150.089	44.450	46.672	36.512	3.5	3.3	265 000	370 000	27 000	37 500	2 400	3 200	**745 A**	**742**	88	82	134	142	3.5	3.3	32.5	0.33	1.8	1.0	2.82	1.07

Note ▲ The tolerances are listed in Tables **2, 3** and **4** on Pages **B109** and **B110**.

Bore Diameter 70.000 – 76.200 mm





Dynamic Equivalent Load

$P = XF_r + YF_a$

$F_a/F_r \leq e$		$F_a/F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Static Equivalent Load

$P_0 = 0.5F_r + Y_0F_a$

When $F_r > 0.5F_r + Y_0F_a$, use $P_0 = F_r$

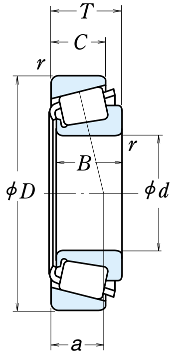
The values of e, Y_1, and Y_0 are given in the table below.

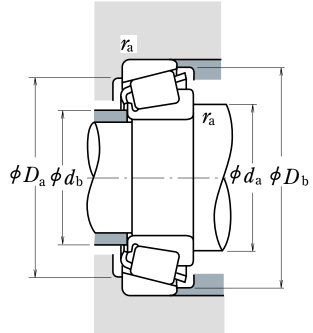
Boundary Dimensions (mm)							Basic Load Ratings (N)		Basic Load Ratings {kgf}		Limiting Speeds (min⁻¹)	
d	D	T	B	C	Cone r min	Cup r min	C_r	C_{0r}	C_r	C_{0r}	Grease	Oil
70.000	110.000	26.000	25.000	20.500	1.0	2.5	98 500	152 000	10 000	15 500	3 000	4 000
	115.000	29.000	29.000	23.000	3.0	2.5	126 000	177 000	12 900	18 100	3 000	4 000
	120.000	29.795	29.007	24.237	2.0	2.0	123 000	169 000	12 500	17 200	3 000	4 000
71.438	117.475	30.162	30.162	23.812	3.5	3.3	119 000	179 000	12 200	18 300	3 000	4 000
	120.000	32.545	32.545	26.195	3.5	3.3	152 000	225 000	15 500	22 900	3 000	4 000
	127.000	36.512	36.170	28.575	6.4	3.3	166 000	234 000	16 900	23 900	2 800	3 800
	127.000	36.512	36.170	28.575	3.5	3.3	166 000	234 000	16 900	23 900	2 800	3 800
	130.175	41.275	41.275	31.750	6.4	3.3	195 000	263 000	19 800	26 800	2 800	3 800
	136.525	41.275	41.275	31.750	3.5	3.3	195 000	263 000	19 800	26 800	2 800	3 800
	136.525	41.275	41.275	31.750	3.5	3.3	229 000	297 000	23 300	30 500	2 600	3 600
	136.525	46.038	46.038	36.512	3.5	3.3	233 000	370 000	23 800	37 500	2 600	3 400
73.025	112.712	25.400	25.400	19.050	3.5	3.3	96 000	152 000	9 800	15 500	2 800	4 000
	117.475	30.162	30.162	23.812	3.5	3.3	119 000	179 000	12 200	18 300	3 000	4 000
	127.000	36.512	36.170	28.575	3.5	3.3	166 000	234 000	16 900	23 900	2 800	3 800
	146.050	41.275	41.275	31.750	3.5	3.3	207 000	296 000	21 100	30 000	2 400	3 200
	149.225	53.975	54.229	44.450	3.5	3.3	287 000	410 000	29 300	41 500	2 600	3 400
73.817	127.000	36.512	36.170	28.575	0.8	3.3	166 000	234 000	16 900	23 900	2 800	3 800
74.612	150.000	41.275	41.275	31.750	3.5	3.0	207 000	296 000	21 100	30 000	2 400	3 200
75.000	115.000	25.000	25.000	19.000	3.0	2.5	101 000	150 000	10 300	15 300	3 000	4 000
	120.000	31.000	29.500	25.000	3.0	2.5	129 000	198 000	13 100	20 200	2 800	3 800
	145.000	51.000	51.000	42.000	3.0	2.5	287 000	410 000	29 300	41 500	2 600	3 400
76.200	121.442	24.608	23.012	17.462	2.0	2.0	89 000	124 000	9 100	12 600	2 800	3 800
	127.000	30.162	31.000	22.225	3.5	3.3	134 000	195 000	13 700	19 900	2 800	3 800
	127.000	30.162	31.001	22.225	6.4	3.3	134 000	195 000	13 700	19 900	2 800	3 800
	133.350	33.338	33.338	26.195	0.8	3.3	154 000	237 000	15 700	24 200	2 600	3 600
	135.732	44.450	46.101	34.925	3.5	3.3	216 000	340 000	22 000	35 000	2 600	3 600
	136.525	30.162	29.769	22.225	3.5	3.3	130 000	192 000	13 300	19 600	2 600	3 400
	136.525	30.162	29.769	22.225	6.4	3.3	130 000	192 000	13 300	19 600	2 600	3 400
	139.992	36.512	36.098	28.575	3.5	3.3	175 000	260 000	17 800	26 500	2 600	3 400
	149.225	53.975	54.229	44.450	3.5	3.3	287 000	410 000	29 300	41 500	2 600	3 400
	152.400	39.688	36.322	30.162	3.5	3.2	183 000	285 000	18 700	29 100	2 200	3 200
	152.400	41.275	41.275	31.750	3.5	3.3	207 000	296 000	21 100	30 000	2 400	3 200
	161.925	49.212	46.038	31.750	3.5	3.3	248 000	290 000	25 300	29 600	2 200	3 000
	161.925	53.975	55.100	42.862	3.5	3.3	325 000	480 000	33 000	49 000	2 200	3 000
	161.925	53.975	55.100	42.862	6.4	3.3	325 000	480 000	33 000	49 000	2 200	3 000
	161.925	53.975	55.100	42.862	6.4	0.8	325 000	480 000	33 000	49 000	2 200	3 000

Bearing Numbers		Abutment and Fillet Dimensions (mm)						Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg) approx	
CONE	CUP	d_a	d_b	D_a	D_b	Cone r_a max	Cup r_a max	a	e	Y_1	Y_0	CONE	CUP
▲ **JLM 813049**	▲ **JLM 813010**	78	77	98	105	1	2.5	26.2	0.49	1.2	0.68	0.604	0.304
▲ **JM 612949**	▲ **JM 612910**	83	77	103	110	3	2.5	26.4	0.43	1.4	0.77	0.800	0.362
484	**472**	80	78	106	113	2	2	25.1	0.38	1.6	0.86	0.822	0.493
33281	**33462**	85	79	104	112	3.5	3.3	26.8	0.44	1.4	0.76	0.789	0.442
47490	**47420**	86	79	107	114	3.5	3.3	26.0	0.36	1.7	0.92	0.983	0.477
567 S	**563**	92	80	112	120	6.4	3.3	28.3	0.36	1.6	0.91	1.21	0.655
567 A	**563**	86	80	112	120	3.5	3.3	28.3	0.36	1.6	0.91	1.23	0.655
645	**633**	93	81	116	124	6.4	3.3	29.9	0.36	1.7	0.91	1.49	0.712
644	**632**	87	81	118	125	3.5	3.3	29.9	0.36	1.7	0.91	1.5	1.04
H 414249	**H 414210**	89	83	121	129	3.5	3.3	30.6	0.36	1.7	0.92	1.83	0.796
H 715345	**H 715311**	92	84	119	132	3.5	3.3	37.1	0.47	1.3	0.70	2.15	0.961
29685	**29620**	86	80	101	109	3.5	3.3	26.3	0.49	1.2	0.68	0.62	0.273
33287	**33462**	87	80	104	112	3.5	3.3	26.8	0.44	1.4	0.76	0.746	0.442
567	**563**	88	81	112	120	3.5	3.3	28.3	0.36	1.6	0.91	1.17	0.655
657	**653**	91	85	131	139	3.5	3.3	33.2	0.41	1.5	0.81	2.24	0.891
6460	**6420**	93	87	129	140	3.5	3.3	39.0	0.36	1.7	0.91	2.8	1.63
568	**563**	83	82	112	120	0.8	3.3	28.3	0.36	1.6	0.91	1.15	0.655
658	**653 X**	92	86	133	141	3.5	3	33.2	0.41	1.5	0.81	2.37	0.932
▲ **JLM 714149**	▲ **JLM 714110**	87	81	104	110	3	2.5	25.3	0.46	1.3	0.72	0.638	0.272
▲ **JM 714249**	▲ **JM 714210**	88	83	108	115	3	2.5	28.8	0.44	1.4	0.74	0.863	0.436
▲ **JH 415647**	▲ **JH 415610**	94	89	129	139	3	2.5	36.7	0.36	1.7	0.91	2.64	1.19
34300	**34478**	86	84	111	116	2	2	26.3	0.45	1.3	0.73	0.65	0.316
42687	**42620**	90	84	114	121	3.5	3.3	27.3	0.42	1.4	0.79	1.03	0.438
42688	**42620**	94	84	114	121	6.4	3.3	27.3	0.42	1.4	0.79	1.01	0.438
47680	**47620**	86	85	119	128	0.8	3.3	29.0	0.40	1.5	0.82	1.39	0.577
5760	**5735**	94	88	119	130	3.5	3.3	32.9	0.41	1.5	0.81	1.86	0.887
495 A	**493**	92	86	122	130	3.5	3.3	28.7	0.44	1.4	0.74	1.27	0.55
495 AX	**493**	98	86	122	130	6.4	3.3	28.7	0.44	1.4	0.74	1.26	0.55
575	**572**	92	86	125	133	3.5	3.3	31.1	0.40	1.5	0.82	1.61	0.788
6461	**6420**	96	89	129	140	3.5	3.3	39.0	0.36	1.7	0.91	2.64	1.63
590 A	**592 A**	95	89	135	145	3.5	3.2	37.1	0.44	1.4	0.75	2.2	1.06
659	**652**	93	87	134	141	3.5	3.3	33.2	0.41	1.5	0.81	2.11	1.26
9285	**9220**	103	90	138	153	3.5	3.3	49.8	0.71	0.85	0.47	2.82	1.4
6576	**6535**	99	92	141	154	3.5	3.3	40.7	0.40	1.5	0.82	3.74	1.67
6575	**6535**	104	92	141	154	6.4	3.3	40.7	0.40	1.5	0.82	3.73	1.67
6575	**6536**	104	92	144	154	6.4	0.8	40.7	0.40	1.5	0.82	3.73	1.68

Note ▲ The tolerances are listed in Tables **2**, **3** and **4** on Pages **B109** and **B110**.

Bore Diameter 76.200 – 83.345 mm





Dynamic Equivalent Load

$P = XF_r + YF_a$

$F_a/F_r \leqq e$		$F_a/F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Static Equivalent Load

$P_0 = 0.5F_r + Y_0F_a$

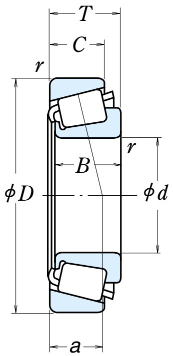
When $F_r > 0.5F_r + Y_0F_a$, use $P_0 = F_r$

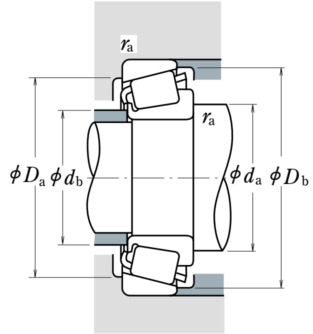
The values of e, Y_1, and Y_0 are given in the table below.

Boundary Dimensions (mm) d	D	T	B	C	r min Cone	r min Cup	Basic Load Ratings (N) C_r	(N) C_{0r}	{kgf} C_r	{kgf} C_{0r}	Limiting Speeds (min⁻¹) Grease	Oil	Bearing Numbers CONE	CUP	Abutment and Fillet Dimensions (mm) d_a	d_b	D_a	D_b	r_a max Cone	r_a max Cup	Eff. Load Centers (mm) a	Constant e	Axial Load Factors Y_1	Y_0	Mass (kg) approx CONE	CUP
76.200	168.275	53.975	56.363	41.275	6.4	3.3	345 000	470 000	35 000	48 000	2 200	3 000	**843**	**832**	101	89	149	155	6.4	3.3	35.2	0.30	2.0	1.1	4.11	1.74
	168.275	53.975	56.363	41.275	0.8	3.3	345 000	470 000	35 000	48 000	2 200	3 000	**837**	**832**	90	89	149	155	0.8	3.3	35.2	0.30	2.0	1.1	4.13	1.74
	171.450	49.212	46.038	31.750	3.5	3.3	257 000	310 000	26 200	32 000	2 000	2 800	**9380**	**9321**	105	98	147	164	3.5	3.3	54.1	0.76	0.79	0.43	3.47	1.51
	177.800	55.562	50.800	34.925	3.5	3.3	257 000	310 000	26 200	32 000	2 000	2 800	**9378**	**9320**	105	98	148	164	3.5	3.3	57.3	0.76	0.79	0.43	3.71	2.24
77.788	121.442	24.608	23.012	17.462	3.5	2.0	89 000	124 000	9 100	12 600	2 800	3 800	**34306**	**34478**	90	84	110	116	3.5	2	26.3	0.45	1.3	0.73	0.612	0.316
	127.000	30.162	31.000	22.225	3.5	3.3	134 000	195 000	13 700	19 900	2 800	3 800	**42690**	**42620**	91	85	114	121	3.5	3.3	27.3	0.42	1.4	0.79	0.976	0.438
	135.733	44.450	46.101	34.925	3.5	3.3	216 000	340 000	22 000	35 000	2 600	3 600	**5795**	**5735**	96	89	119	130	3.5	3.3	32.9	0.41	1.5	0.81	1.79	0.887
79.375	146.050	41.275	41.275	31.750	3.5	3.3	207 000	296 000	21 100	30 000	2 400	3 200	**661**	**653**	96	90	131	139	3.5	3.3	33.2	0.41	1.5	0.81	1.99	0.891
	150.089	44.450	46.672	36.512	3.5	3.3	265 000	370 000	27 000	37 500	2 400	3 200	**750**	**742**	96	90	134	142	3.5	3.3	32.5	0.33	1.8	1.0	2.42	1.07
80.000	130.000	35.000	34.000	28.500	3.0	2.5	166 000	251 000	17 000	25 600	2 600	3 600	**▲JM 515649**	**▲JM 515610**	94	88	117	125	3	2.5	29.9	0.39	1.5	0.85	1.18	0.583
80.962	136.525	30.162	29.769	22.225	3.5	3.3	130 000	192 000	13 300	19 600	2 600	3 400	**496**	**493**	95	89	122	130	3.5	3.3	28.7	0.44	1.4	0.74	1.13	0.55
	139.700	36.512	36.098	28.575	3.5	3.3	175 000	260 000	17 800	26 500	2 600	3 400	**581**	**572 X**	96	90	125	133	3.5	3.3	31.1	0.40	1.5	0.82	1.44	0.774
	139.992	36.512	36.098	28.575	3.5	3.3	175 000	260 000	17 800	26 500	2 600	3 400	**581**	**572**	96	90	125	133	3.5	3.3	31.1	0.40	1.5	0.82	1.44	0.788
82.550	125.412	25.400	25.400	19.845	3.5	1.5	102 000	164 000	10 400	16 700	2 600	3 600	**27687**	**27620**	96	89	115	120	3.5	1.5	25.7	0.42	1.4	0.79	0.747	0.348
	133.350	30.162	29.769	22.225	3.5	3.3	130 000	192 000	13 300	19 600	2 600	3 400	**495**	**492 A**	97	90	120	128	3.5	3.3	28.7	0.44	1.4	0.74	1.08	0.434
	133.350	33.338	33.338	26.195	3.5	3.3	154 000	237 000	15 700	24 200	2 600	3 600	**47686**	**47620**	97	90	119	128	3.5	3.3	29.0	0.40	1.5	0.82	1.18	0.577
	133.350	33.338	33.338	26.195	0.8	3.3	154 000	237 000	15 700	24 200	2 600	3 600	**47685**	**47620**	90	90	119	128	0.8	3.3	29.0	0.40	1.5	0.82	1.18	0.577
	133.350	33.338	33.338	26.195	6.8	3.3	154 000	237 000	15 700	24 200	2 600	3 600	**47687**	**47620**	103	90	119	128	6.8	3.3	29.0	0.40	1.5	0.82	1.16	0.577
	133.350	39.688	39.688	32.545	6.8	3.3	179 000	310 000	18 300	31 500	2 600	3 600	**HM 516448**	**HM 516410**	105	92	118	128	6.8	3.3	32.4	0.40	1.5	0.82	1.35	0.767
	136.525	30.162	29.769	22.225	3.5	3.3	130 000	192 000	13 300	19 600	2 600	3 400	**495**	**493**	97	90	122	130	3.5	3.3	28.7	0.44	1.4	0.74	1.08	0.55
	139.700	36.512	36.098	28.575	3.5	3.3	175 000	260 000	17 800	26 500	2 600	3 400	**580**	**572 X**	98	91	125	133	3.5	3.3	31.1	0.40	1.5	0.82	1.39	0.774
	139.992	36.512	36.098	28.575	3.5	3.3	175 000	260 000	17 800	26 500	2 600	3 400	**580**	**572**	98	91	125	133	3.5	3.3	31.1	0.40	1.5	0.82	1.39	0.788
	139.992	36.512	36.098	28.575	6.8	3.3	175 000	260 000	17 800	26 500	2 600	3 400	**582**	**572**	104	91	125	133	6.8	3.3	31.1	0.40	1.5	0.82	1.37	0.788
	146.050	41.275	41.275	31.750	3.5	3.3	207 000	296 000	21 100	30 000	2 400	3 200	**663**	**653**	99	92	131	139	3.5	3.3	33.2	0.41	1.5	0.81	1.85	0.891
	150.000	44.455	46.672	35.000	3.5	3.3	265 000	370 000	27 000	37 500	2 400	3 200	**749 A**	**743**	99	93	134	142	3.5	3.3	32.5	0.33	1.8	1.0	2.26	1.04
	150.089	44.450	46.672	36.512	3.5	3.3	265 000	370 000	27 000	37 500	2 400	3 200	**749 A**	**742**	98	93	135	143	3.5	3.3	32.5	0.33	1.8	1.0	2.26	1.07
	152.400	41.275	41.275	31.750	3.5	3.3	207 000	296 000	21 100	30 000	2 400	3 200	**663**	**652**	99	92	134	141	3.5	3.3	33.2	0.41	1.5	0.81	1.85	1.26
	161.925	47.625	48.260	38.100	3.5	3.3	274 000	390 000	28 000	40 000	2 200	3 000	**757**	**752**	100	94	144	150	3.5	3.3	35.6	0.34	1.8	0.97	2.79	1.61
	161.925	53.975	55.100	42.862	3.5	3.3	325 000	480 000	33 000	49 000	2 200	3 000	**6559**	**6535**	104	98	141	154	3.5	3.3	40.7	0.40	1.5	0.82	3.4	1.67
	168.275	47.625	48.260	38.100	3.5	3.3	274 000	390 000	28 000	40 000	2 200	3 000	**757**	**753**	100	94	147	150	3.5	3.3	35.6	0.34	1.8	0.97	2.79	2.1
	168.275	53.975	56.363	41.275	3.5	3.3	345 000	470 000	35 000	48 000	2 200	3 000	**842**	**832**	101	94	149	155	3.5	3.3	35.2	0.30	2.0	1.1	3.76	1.74
83.345	125.412	25.400	25.400	19.845	3.5	1.5	102 000	164 000	10 400	16 700	2 600	3 600	**27690**	**27620**	96	90	115	120	3.5	1.5	25.7	0.42	1.4	0.79	0.727	0.348
	125.412	25.400	25.400	19.845	0.8	1.5	102 000	164 000	10 400	16 700	2 600	3 600	**27689**	**27620**	90	90	115	120	0.8	1.5	25.7	0.42	1.4	0.79	0.732	0.348

Note ▲ The tolerances are listed in Tables **2**, **3** and **4** on Pages **B109** and **B110**.

Bore Diameter 84.138 – 90.488 mm





Dynamic Equivalent Load

$P = XF_r + YF_a$

$F_a/F_r \leqq e$		$F_a/F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Static Equivalent Load

$P_0 = 0.5F_r + Y_0F_a$

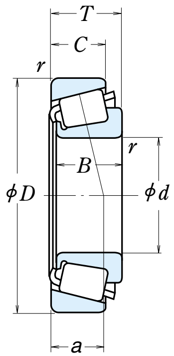
When $F_r > 0.5F_r + Y_0F_a$, use $P_0 = F_r$

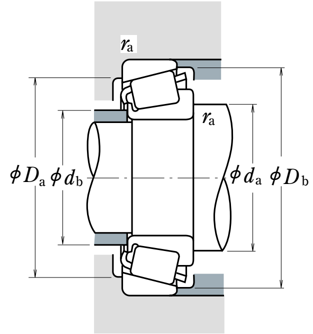
The values of e, Y_1, and Y_0 are given in the table below.

Boundary Dimensions (mm)							Basic Load Ratings (N)		(kgf)		Limiting Speeds (min⁻¹)		Bearing Numbers		Abutment and Fillet Dimensions (mm)						Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg) approx	
d	D	T	B	C	Cone r min	Cup r min	C_r	C_{0r}	C_r	C_{0r}	Grease	Oil	CONE	CUP	d_a	d_b	D_a	D_b	Cone r_a max	Cup r_a max	a	e	Y_1	Y_0	CONE	CUP
84.138	136.525	30.162	29.769	22.225	3.5	3.3	130 000	192 000	13 300	19 600	2 600	3 400	**498**	**493**	98	91	122	130	3.5	3.3	28.7	0.44	1.4	0.74	1.04	0.55
	146.050	41.275	41.275	31.750	3.5	3.3	207 000	296 000	21 100	30 000	2 400	3 200	**664**	**653**	99	93	131	139	3.5	3.3	33.2	0.41	1.5	0.81	1.79	0.891
	171.450	49.212	46.038	31.750	3.5	3.3	257 000	310 000	26 200	32 000	2 000	2 800	**9385**	**9321**	111	98	147	164	3.5	3.3	54.1	0.76	0.79	0.43	3.11	1.51
85.000	130.000	30.000	29.000	24.000	6.0	2.5	138 000	222 000	14 100	22 700	2 600	3 600	**▲JM 716648**	**▲JM 716610**	104	92	117	125	6	2.5	29.5	0.44	1.4	0.74	0.931	0.461
	130.000	30.000	29.000	24.000	3.0	2.5	138 000	222 000	14 100	22 700	2 600	3 600	**▲JM 716649**	**▲JM 716610**	98	92	117	125	3	2.5	29.5	0.44	1.4	0.74	0.943	0.461
	140.000	39.000	38.000	31.500	3.0	2.5	202 000	305 000	20 600	31 000	2 400	3 400	**▲JHM 516849**	**▲JHM 516810**	100	94	125	134	3	2.5	33.3	0.41	1.5	0.81	1.55	0.768
	150.000	46.000	46.000	38.000	3.0	2.5	275 000	390 000	28 000	40 000	2 400	3 200	**▲JH 217249**	**▲JH 217210**	101	95	134	142	3	2.5	33.9	0.33	1.8	0.99	2.29	1.09
85.026	150.089	44.450	46.672	36.512	3.5	3.3	265 000	370 000	27 000	37 500	2 400	3 200	**749**	**742**	101	95	134	142	3.5	3.3	32.5	0.33	1.8	1.0	2.14	1.07
	150.089	44.450	46.672	36.512	5.0	3.3	265 000	370 000	27 000	37 500	2 400	3 200	**749 S**	**742**	104	95	134	142	5	3.3	32.5	0.33	1.8	1.0	2.14	1.07
85.725	133.350	30.162	29.769	22.225	3.5	3.3	130 000	192 000	13 300	19 600	2 600	3 400	**497**	**492 A**	99	93	120	128	3.5	3.3	28.7	0.44	1.4	0.74	0.987	0.434
	136.525	30.162	29.769	22.225	3.5	3.3	130 000	192 000	13 300	19 600	2 600	3 400	**497**	**493**	99	93	122	130	3.5	3.3	28.7	0.44	1.4	0.74	0.987	0.55
	142.138	42.862	42.862	34.133	4.8	3.3	221 000	360 000	22 500	36 500	2 400	3 400	**HM 617049**	**HM 617010**	106	95	125	137	4.8	3.3	35.4	0.43	1.4	0.76	1.77	0.911
	146.050	41.275	41.275	31.750	6.4	3.3	207 000	296 000	21 100	30 000	2 400	3 200	**665 A**	**653**	107	95	131	139	6.4	3.3	33.2	0.41	1.5	0.81	1.71	0.891
	146.050	41.275	41.275	31.750	3.5	3.3	207 000	296 000	21 100	30 000	2 400	3 200	**665**	**653**	102	95	131	139	3.5	3.3	33.2	0.41	1.5	0.81	1.72	0.891
	152.400	39.688	36.322	30.162	3.5	3.2	183 000	285 000	18 700	29 100	2 200	3 200	**596**	**592 A**	102	96	135	144	3.5	3.2	37.1	0.44	1.4	0.75	1.85	1.06
	161.925	47.625	48.260	38.100	3.5	3.3	274 000	390 000	28 000	40 000	2 200	3 000	**758**	**752**	103	97	144	150	3.5	3.3	35.6	0.34	1.8	0.97	2.63	1.61
	168.275	41.275	41.275	30.162	3.5	3.3	223 000	345 000	22 700	35 000	2 000	2 800	**677**	**672**	105	99	149	160	3.5	3.3	38.3	0.47	1.3	0.70	2.91	1.24
87.312	190.500	57.150	57.531	46.038	8.0	3.3	390 000	520 000	39 500	53 500	1 900	2 600	**HH 221432**	**HH 221410**	118	103	171	179	8	3.3	42.3	0.33	1.8	0.99	5.51	2.24
88.900	149.225	31.750	28.971	24.608	3.0	3.3	140 000	218 000	14 300	22 300	2 200	3 000	**42350**	**42587**	104	98	134	143	3	3.3	34.9	0.49	1.2	0.67	1.39	0.711
	152.400	39.688	36.322	30.162	3.5	3.2	183 000	285 000	18 700	29 100	2 200	3 200	**593**	**592 A**	104	98	135	144	3.5	3.2	37.1	0.44	1.4	0.75	1.73	1.06
	152.400	39.688	39.688	30.162	6.4	3.3	253 000	365 000	25 800	37 500	2 200	3 200	**HM 518445**	**HM 518410**	107	96	137	148	6.4	3.3	33.1	0.40	1.5	0.82	2.11	0.776
	161.925	47.625	48.260	38.100	3.5	3.3	274 000	390 000	28 000	40 000	2 200	3 000	**759**	**752**	106	99	144	150	3.5	3.3	35.6	0.34	1.8	0.97	2.47	1.61
	161.925	47.625	48.260	38.100	7.0	3.3	274 000	390 000	28 000	40 000	2 200	3 000	**766**	**752**	113	99	144	150	7	3.3	35.6	0.34	1.8	0.97	2.45	1.61
	161.925	53.975	55.100	42.862	3.5	3.3	325 000	480 000	33 000	49 000	2 200	3 000	**6580**	**6535**	109	102	141	154	3.5	3.3	40.7	0.40	1.5	0.82	3.03	1.67
	168.275	47.625	48.260	38.100	3.5	3.3	274 000	390 000	28 000	40 000	2 200	3 000	**759**	**753**	106	99	147	150	3.5	3.3	35.6	0.34	1.8	0.97	2.47	2.1
	168.275	53.975	56.363	41.275	3.5	3.3	345 000	470 000	35 000	48 000	2 200	3 000	**850**	**832**	106	100	149	155	3.5	3.3	35.2	0.30	2.0	1.1	3.39	1.74
	190.500	57.150	57.531	44.450	8.0	3.3	355 000	500 000	36 000	51 000	1 900	2 600	**855**	**854**	118	103	170	174	8	3.3	41.8	0.33	1.8	0.99	4.99	2.55
	190.500	57.150	57.531	46.038	8.0	3.3	390 000	520 000	39 500	53 500	1 900	2 600	**HH 221434**	**HH 221410**	120	105	171	179	8	3.3	42.3	0.33	1.8	0.99	5.41	2.24
90.000	145.000	35.000	34.000	27.000	3.0	2.5	190 000	285 000	19 400	29 000	2 400	3 200	**▲JM 718149**	**▲JM 718110**	105	99	131	139	3	2.5	33.0	0.44	1.4	0.74	1.49	0.66
	147.000	40.000	40.000	32.500	7.0	3.5	229 000	345 000	23 400	35 000	2 400	3 200	***HM 218248**	****HM 218210**	111	98	133	141	7	3.5	30.8	0.33	1.8	0.99	1.77	0.796
	155.000	44.000	44.000	35.500	3.0	2.5	274 000	395 000	28 000	40 000	2 200	3 000	**▲JHM 318448**	**▲JHM 318410**	106	100	140	148	3	2.5	34.1	0.34	1.7	0.96	2.32	1.01
90.488	161.925	47.625	48.260	38.100	3.5	3.3	274 000	390 000	28 000	40 000	2 200	3 000	**760**	**752**	107	101	144	150	3.5	3.3	35.6	0.34	1.8	0.97	2.38	1.61

Notes
* The maximum bore diameter is listed and its tolerance is negative (See Table **8.4.1** on Page **A68**).
** The maximum outside diameter is listed and its tolerance is negative (See Table **8.4.2** on Pages **A68** and **A69**).
▲ The tolerances are listed in Tables **2, 3** and **4** on Pages **B109** and **B110**.

Bore Diameter 92.075 – 100.012 mm





Dynamic Equivalent Load

$P = XF_r + YF_a$

$F_a/F_r \leq e$		$F_a/F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Static Equivalent Load

$P_0 = 0.5F_r + Y_0F_a$

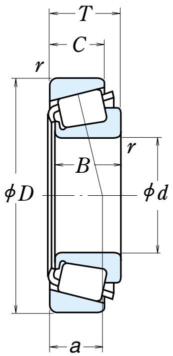
When $F_r > 0.5F_r + Y_0F_a$, use $P_0 = F_r$

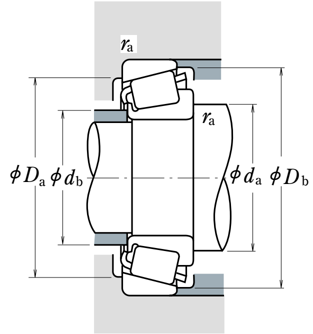
The values of e, Y_1, and Y_0 are given in the table below.

Boundary Dimensions (mm)							Basic Load Ratings (N)		Basic Load Ratings {kgf}		Limiting Speeds (min⁻¹)		Bearing Numbers		Abutment and Fillet Dimensions (mm)						Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg) approx	
d	D	T	B	C	Cone r min	Cup r min	C_r	C_{0r}	C_r	C_{0r}	Grease	Oil	CONE	CUP	d_a	d_b	D_a	D_b	Cone r_a max	Cup r_a max	a	e	Y_1	Y_0	CONE	CUP
92.075	146.050	33.338	34.925	26.195	3.5	3.3	169 000	280 000	17 300	28 500	2 400	3 200	**47890**	**47820**	107	101	131	140	3.5	3.3	32.3	0.45	1.3	0.74	1.46	0.664
	148.430	28.575	28.971	21.433	3.5	3.0	140 000	218 000	14 300	22 300	2 200	3 000	**42362**	**42584**	107	101	134	142	3.5	3	31.8	0.49	1.2	0.67	1.29	0.553
	152.400	39.688	36.322	30.162	3.5	3.2	183 000	285 000	18 700	29 100	2 200	3 200	**598**	**592 A**	107	101	135	144	3.5	3.2	37.1	0.44	1.4	0.75	1.6	1.06
	152.400	39.688	36.322	30.162	6.4	3.2	183 000	285 000	18 700	29 100	2 200	3 200	**598 A**	**592 A**	113	101	135	144	6.4	3.2	37.1	0.44	1.4	0.75	1.59	1.06
	168.275	41.275	41.275	30.162	3.5	3.3	223 000	345 000	22 700	35 000	2 000	2 800	**681**	**672**	110	104	149	160	3.5	3.3	38.3	0.47	1.3	0.70	2.62	1.24
	190.500	57.150	57.531	44.450	8.0	3.3	355 000	500 000	36 000	51 000	1 900	2 600	**857**	**854**	121	106	170	174	8	3.3	41.8	0.33	1.8	0.99	4.78	2.55
93.662	148.430	28.575	28.971	21.433	3.0	3.0	140 000	218 000	14 300	22 300	2 200	3 000	**42368**	**42584**	107	102	134	142	3	3	31.8	0.49	1.2	0.67	1.24	0.553
	149.225	31.750	28.971	24.608	3.0	3.3	140 000	218 000	14 300	22 300	2 200	3 000	**42368**	**42587**	107	102	134	143	3	3.3	34.9	0.49	1.2	0.67	1.24	0.711
	152.400	39.688	36.322	30.162	3.5	3.2	183 000	285 000	18 700	29 100	2 200	3 200	**597**	**592 A**	109	102	135	144	3.5	3.2	37.1	0.44	1.4	0.75	1.54	1.06
95.000	150.000	35.000	34.000	27.000	3.0	2.5	183 000	285 000	18 700	29 100	2 200	3 200	**▲ JM 719149**	**▲ JM 719113**	109	104	135	143	3	2.5	33.4	0.44	1.4	0.75	1.46	0.765
95.250	146.050	33.338	34.925	26.195	3.5	3.3	169 000	280 000	17 300	28 500	2 400	3 200	**47896**	**47820**	110	103	131	140	3.5	3.3	32.3	0.45	1.3	0.74	1.33	0.664
	148.430	28.575	28.971	21.433	3.0	3.0	140 000	218 000	14 300	22 300	2 200	3 000	**42375**	**42584**	108	103	134	142	3	3	31.8	0.49	1.2	0.67	1.18	0.553
	149.225	31.750	28.971	24.608	3.5	3.3	140 000	218 000	14 300	22 300	2 200	3 000	**42376**	**42587**	109	103	134	143	3.5	3.3	34.9	0.49	1.2	0.67	1.18	0.711
	152.400	39.688	36.322	30.162	3.5	3.2	183 000	285 000	18 700	29 100	2 200	3 200	**594**	**592 A**	110	104	135	144	3.5	3.2	37.1	0.44	1.4	0.75	1.47	1.06
	152.400	39.688	36.322	33.338	3.5	3.3	183 000	285 000	18 700	29 100	2 200	3 200	**594**	**592**	109	103	135	145	3.5	3.3	37.1	0.44	1.4	0.75	1.47	1.12
	168.275	41.275	41.275	30.162	3.5	3.3	223 000	345 000	22 700	35 000	2 000	2 800	**683**	**672**	113	106	149	160	3.5	3.3	38.3	0.47	1.3	0.70	2.47	1.24
	171.450	47.625	48.260	38.100	3.5	3.3	282 000	415 000	28 800	42 500	2 000	2 800	**77375**	**77675**	117	105	152	159	3.5	3.3	37.8	0.37	1.6	0.90	2.91	1.67
	180.975	47.625	48.006	38.100	3.5	3.3	258 000	375 000	26 300	38 500	2 000	2 600	**776**	**772**	114	107	161	168	3.5	3.3	39.1	0.39	1.6	0.86	3.25	1.99
	190.500	57.150	57.531	44.450	8.0	3.3	355 000	500 000	36 000	51 000	1 900	2 600	**864**	**854**	123	108	170	174	8	3.3	41.8	0.33	1.8	0.99	4.57	2.55
	190.500	57.150	57.531	46.038	8.0	3.3	390 000	520 000	39 500	53 500	1 900	2 600	**HH 221440**	**HH 221410**	125	110	171	179	8	3.3	42.3	0.33	1.8	0.99	5.0	2.24
96.838	148.430	28.575	28.971	21.433	3.5	3.0	140 000	218 000	14 300	22 300	2 200	3 000	**42381**	**42584**	110	104	134	142	3.5	3	31.8	0.49	1.2	0.67	1.13	0.553
	149.225	31.750	28.971	24.606	3.5	3.3	140 000	218 000	14 300	22 300	2 200	3 000	**42381**	**42587**	111	105	135	143	3.5	3.3	34.9	0.49	1.2	0.67	1.13	0.711
98.425	161.925	36.512	36.116	26.195	3.5	3.3	191 000	310 000	19 500	31 500	2 000	2 800	**52387**	**52637**	114	108	144	154	3.5	3.3	36.1	0.47	1.3	0.69	1.89	0.942
	168.275	41.275	41.275	30.162	3.5	3.3	223 000	345 000	22 700	35 000	2 000	2 800	**685**	**672**	116	109	149	160	3.5	3.3	38.3	0.47	1.3	0.70	2.32	1.24
	180.975	47.625	48.006	38.100	3.5	3.3	258 000	375 000	26 300	38 500	2 000	2 600	**779**	**772**	116	110	161	168	3.5	3.3	39.1	0.39	1.6	0.86	3.06	1.99
	190.500	57.150	57.531	44.450	3.5	3.3	355 000	500 000	36 000	51 000	1 900	2 600	**866**	**854**	118	111	170	174	3.5	3.3	41.8	0.33	1.8	0.99	4.38	2.55
	190.500	57.150	57.531	46.038	3.5	3.3	390 000	520 000	39 500	53 500	1 900	2 600	**HH 221442**	**HH 221410**	119	113	171	179	3.5	3.3	42.3	0.33	1.8	0.99	4.81	2.24
99.982	190.500	57.150	57.531	46.038	6.4	3.3	390 000	520 000	39 500	53 500	1 900	2 600	**HH 221447**	**HH 221410**	126	114	171	179	6.4	3.3	42.3	0.33	1.8	0.99	4.68	2.24
100.000	150.000	32.000	30.000	26.000	2.3	2.3	146 000	235 000	14 900	24 000	2 200	3 000	**▲ JLM 820048**	**▲ JLM 820012**	111	107	135	144	2.3	2.3	36.8	0.50	1.2	0.66	1.27	0.616
	155.000	36.000	35.000	28.000	3.0	2.5	191 000	325 000	19 500	33 000	2 000	2 800	**▲ JM 720249**	**▲ JM 720210**	115	109	140	149	3	2.5	36.8	0.47	1.3	0.70	1.68	0.772
	160.000	41.000	40.000	32.000	3.0	2.5	239 000	380 000	24 400	38 500	2 000	2 800	**▲ JHM 720249**	**▲ JHM 720210**	117	109	143	154	3	2.5	38.2	0.47	1.3	0.70	2.09	0.974
100.012	157.162	36.512	36.116	26.195	3.5	3.3	191 000	310 000	19 500	31 500	2 000	2 800	**52393**	**52618**	116	109	142	152	3.5	3.3	36.1	0.47	1.3	0.69	1.81	0.702

Note ▲ The tolerances are listed in Tables **2**, **3** and **4** on Pages **B109** and **B110**.

Bore Diameter 101.600 – 117.475 mm





Dynamic Equivalent Load

$P = XF_r + YF_a$

$F_a/F_r \leqq e$		$F_a/F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Static Equivalent Load

$P_0 = 0.5F_r + Y_0F_a$

When $F_r > 0.5F_r + Y_0F_a$, use $P_0 = F_r$

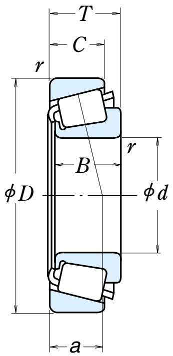
The values of e, Y_1, and Y_0 are given in the table below.

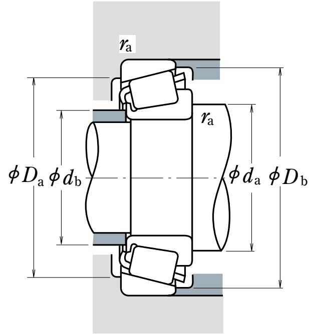
Boundary Dimensions (mm)							Basic Load Ratings (N)		Basic Load Ratings {kgf}		Limiting Speeds (min⁻¹)		Bearing Numbers		Abutment and Fillet Dimensions (mm)						Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg) approx	
d	D	T	B	C	Cone r min	Cup r min	C_r	C_{0r}	C_r	C_{0r}	Grease	Oil	CONE	CUP	d_a	d_b	D_a	D_b	Cone r_a max	Cup r_a max	a	e	Y_1	Y_0	CONE	CUP
101.600	157.162	36.512	36.116	26.195	3.5	3.3	191 000	310 000	19 500	31 500	2 000	2 800	**52400**	**52618**	117	111	142	152	3.5	3.3	36.1	0.47	1.3	0.69	1.75	0.702
	161.925	36.512	36.116	26.195	3.5	3.3	191 000	310 000	19 500	31 500	2 000	2 800	**52400**	**52637**	117	111	144	154	3.5	3.3	36.1	0.47	1.3	0.69	1.75	0.942
	168.275	41.275	41.275	30.162	3.5	3.3	223 000	345 000	22 700	35 000	2 000	2 800	**687**	**672**	118	112	149	160	3.5	3.3	38.3	0.47	1.3	0.70	2.15	1.24
	180.975	47.625	48.006	38.100	3.5	3.3	258 000	375 000	26 300	38 500	2 000	2 600	**780**	**772**	119	113	161	168	3.5	3.3	39.1	0.39	1.6	0.86	2.88	1.99
	190.500	57.150	57.531	44.450	8.0	3.3	355 000	500 000	36 000	51 000	1 900	2 600	**861**	**854**	129	114	170	174	8	3.3	41.8	0.33	1.8	0.99	4.13	2.55
	190.500	57.150	57.531	46.038	8.0	3.3	390 000	520 000	39 500	53 500	1 900	2 600	**HH 221449**	**HH 221410**	131	116	171	179	8	3.3	42.3	0.33	1.8	0.99	4.55	2.24
	212.725	66.675	66.675	53.975	7.0	3.3	570 000	810 000	58 000	82 500	1 700	2 200	**HH 224335**	**HH 224310**	132	121	192	202	7	3.3	47.3	0.33	1.8	1.0	8.14	3.06
104.775	180.975	47.625	48.006	38.100	7.0	3.3	258 000	375 000	26 300	38 500	2 000	2 600	**787**	**772**	129	116	161	168	7	3.3	39.1	0.39	1.6	0.86	2.66	1.99
	180.975	47.625	48.006	38.100	3.5	3.3	258 000	375 000	26 300	38 500	2 000	2 600	**782**	**772**	122	116	161	168	3.5	3.3	39.1	0.39	1.6	0.86	2.68	1.99
	190.500	47.625	49.212	34.925	3.5	3.3	296 000	465 000	30 000	47 000	1 800	2 400	**71412**	**71750**	124	118	171	181	3.5	3.3	40.1	0.42	1.4	0.79	4.0	1.71
106.362	165.100	36.512	36.512	26.988	3.5	3.3	195 000	320 000	19 800	33 000	2 000	2 600	**56418**	**56650**	122	116	149	159	3.5	3.3	38.6	0.50	1.2	0.66	1.87	0.861
107.950	158.750	23.020	21.438	15.875	3.5	3.3	102 000	165 000	10 400	16 800	2 000	2 800	**37425**	**37625**	122	115	143	152	3.5	3.3	37.0	0.61	0.99	0.54	0.886	0.488
	159.987	34.925	34.925	26.988	3.5	3.3	164 000	315 000	16 700	32 000	2 000	2 800	**LM 522546**	**LM 522510**	122	116	146	154	3.5	3.3	33.7	0.40	1.5	0.82	1.65	0.784
	161.925	34.925	34.925	26.988	3.5	3.3	164 000	280 000	16 800	28 600	2 000	2 800	**48190**	**48120**	122	116	146	156	3.5	3.3	38.7	0.51	1.2	0.65	1.59	0.83
	165.100	36.512	36.512	26.988	3.5	3.3	195 000	320 000	19 800	33 000	2 000	2 600	**56425**	**56650**	123	117	149	159	3.5	3.3	38.6	0.50	1.2	0.66	1.8	0.861
	190.500	47.625	49.212	34.925	3.5	3.3	296 000	465 000	30 000	47 000	1 800	2 400	**71425**	**71750**	126	120	171	181	3.5	3.3	40.1	0.42	1.4	0.79	3.79	1.71
	212.725	66.675	66.675	53.975	8.0	3.3	570 000	810 000	58 000	82 500	1 700	2 200	**HH 224340**	**HH 224310**	139	126	192	202	8	3.3	47.3	0.33	1.8	1.0	7.58	3.06
109.987	159.987	34.925	34.925	26.988	3.5	3.3	164 000	315 000	16 700	32 000	2 000	2 800	**LM 522549**	**LM 522510**	124	118	146	154	3.5	3.3	33.7	0.40	1.5	0.82	1.55	0.784
	159.987	34.925	34.925	26.988	8.0	3.3	164 000	315 000	16 700	32 000	2 000	2 800	**LM 522548**	**LM 522510**	133	118	146	154	8	3.3	33.7	0.40	1.5	0.82	1.53	0.784
109.992	177.800	41.275	41.275	30.162	3.5	3.3	232 000	375 000	23 700	38 000	1 800	2 600	**64433**	**64700**	128	121	160	172	3.5	3.3	42.4	0.52	1.2	0.64	2.64	1.11
110.000	165.000	35.000	35.000	26.500	3.0	2.5	195 000	320 000	19 800	33 000	2 000	2 600	**▲ JM 822049**	**▲ JM 822010**	124	119	149	159	3	2.5	38.3	0.50	1.2	0.66	1.64	0.842
	180.000	47.000	46.000	38.000	3.0	2.5	310 000	490 000	31 500	50 000	1 900	2 600	**▲ JHM 522649**	**▲ JHM 522610**	127	122	162	172	3	2.5	40.9	0.41	1.5	0.81	3.12	1.51
111.125	190.500	47.625	49.212	34.925	3.5	3.3	296 000	465 000	30 000	47 000	1 800	2 400	**71437**	**71750**	129	123	171	181	3.5	3.3	40.1	0.42	1.4	0.79	3.58	1.71
114.300	152.400	21.433	21.433	16.670	1.5	1.5	89 500	178 000	9 100	18 100	2 000	2 800	**L 623149**	**L 623110**	123	121	143	148	1.5	1.5	27.4	0.41	1.5	0.80	0.725	0.344
	177.800	41.275	41.275	30.162	3.5	3.3	232 000	375 000	23 700	38 000	1 800	2 600	**64450**	**64700**	131	125	160	172	3.5	3.3	42.4	0.52	1.2	0.64	2.39	1.11
	180.000	34.925	31.750	25.400	3.5	0.8	174 000	254 000	17 800	25 900	1 800	2 400	**68450**	**** 68709**	130	123	165	172	3.5	0.8	40.0	0.50	1.2	0.66	1.95	1.0
	190.500	47.625	49.212	34.925	3.5	3.3	296 000	465 000	30 000	47 000	1 800	2 400	**71450**	**71750**	132	125	171	181	3.5	3.3	40.1	0.42	1.4	0.79	3.37	1.71
	212.725	66.675	66.675	53.975	7.0	3.3	475 000	700 000	48 500	71 500	1 700	2 400	**938**	**932**	141	128	187	193	7	3.3	46.9	0.33	1.8	1.0	6.01	4.11
	212.725	66.675	66.675	53.975	7.0	3.3	570 000	810 000	58 000	82 500	1 700	2 200	**HH 224346**	**HH 224310**	143	131	192	202	7	3.3	47.3	0.33	1.8	1.0	7.01	3.06
115.087	190.500	47.625	49.212	34.925	3.5	3.3	296 000	465 000	30 000	47 000	1 800	2 400	**71453**	**71750**	133	126	171	181	3.5	3.3	40.1	0.42	1.4	0.79	3.31	1.71
117.475	180.975	34.925	31.750	25.400	3.5	3.3	174 000	254 000	17 800	25 900	1 800	2 400	**68462**	**68712**	132	125	163	172	3.5	3.3	40.0	0.50	1.2	0.66	1.73	1.05

Notes ** The maximum outside diameter is listed and its tolerance is negative (See Table **8.4.2** on Pages **A68** and **A69**).

▲ The tolerances are listed in Tables **2**, **3** and **4** on Pages **B109** and **B110**.

Bore Diameter 120.000 – 165.100 mm





Dynamic Equivalent Load

$P = XF_r + YF_a$

$F_a/F_r \leq e$		$F_a/F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Static Equivalent Load

$P_0 = 0.5F_r + Y_0F_a$

When $F_r > 0.5F_r + Y_0F_a$, use $P_0 = F_r$

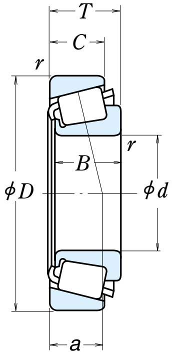
The values of e, Y_1, and Y_0 are given in the table below.

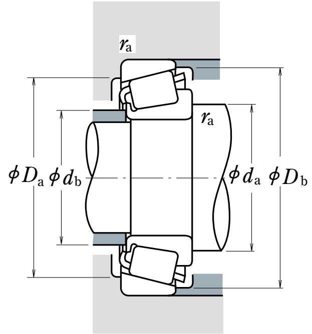
Boundary Dimensions (mm)							Basic Load Ratings (N)		{kgf}		Limiting Speeds (min⁻¹)		Bearing Numbers		Abutment and Fillet Dimensions (mm)						Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg) approx	
d	D	T	B	C	Cone r min	Cup r min	C_r	C_{0r}	C_r	C_{0r}	Grease	Oil	CONE	CUP	d_a	d_b	D_a	D_b	Cone r_a max	Cup r_a max	a	e	Y_1	Y_0	CONE	CUP
120.000	170.000	25.400	25.400	19.050	3.3	3.3	130 000	219 000	13 200	22 300	1 900	2 600	**▲ JL 724348**	**▲ JL 724314**	132	127	156	163	3.3	3.3	32.9	0.46	1.3	0.72	1.08	0.591
	174.625	35.720	36.512	27.783	3.5	1.5	212 000	385 000	21 600	39 000	1 900	2 600	**＊ M 224748**	**M 224710**	135	129	163	168	3.5	1.5	32.2	0.33	1.8	0.99	1.9	0.866
120.650	182.562	39.688	38.100	33.338	3.5	3.3	228 000	445 000	23 200	45 000	1 800	2 400	**48282**	**48220**	136	133	168	176	3.5	3.3	34.2	0.31	2.0	1.1	2.56	1.14
	206.375	47.625	47.625	34.925	3.3	3.3	320 000	530 000	32 500	54 000	1 600	2 200	**795**	**792**	139	134	186	198	3.3	3.3	45.7	0.46	1.3	0.72	4.44	1.9
123.825	182.562	39.688	38.100	33.338	3.5	3.3	228 000	445 000	23 200	45 000	1 800	2 400	**48286**	**48220**	139	133	168	176	3.5	3.3	34.2	0.31	2.0	1.1	2.37	1.14
125.000	175.000	25.400	25.400	18.288	3.3	3.3	134 000	232 000	13 700	23 600	1 800	2 400	**▲ JL 725346**	**▲ JL 725316**	138	133	161	168	3.3	3.3	34.3	0.48	1.3	0.69	1.19	0.573
127.000	165.895	18.258	17.462	13.495	1.5	1.5	84 500	149 000	8 650	15 200	1 900	2 600	**LL 225749**	**LL 225710**	135	132	158	160	1.5	1.5	24.2	0.33	1.8	0.99	0.647	0.288
	182.562	39.688	38.100	33.338	3.5	3.3	228 000	445 000	23 200	45 000	1 800	2 400	**48290**	**48220**	141	135	168	176	3.5	3.3	34.2	0.31	2.0	1.1	2.19	1.14
	196.850	46.038	46.038	38.100	3.5	3.3	315 000	560 000	32 000	57 500	1 700	2 200	**67388**	**67322**	144	138	180	189	3.5	3.3	39.7	0.34	1.7	0.96	3.74	1.46
	215.900	47.625	47.625	34.925	3.5	3.3	287 000	495 000	29 300	50 000	1 500	2 000	**74500**	**74850**	148	141	196	208	3.5	3.3	48.4	0.49	1.2	0.68	4.92	1.99
128.588	206.375	47.625	47.625	34.925	3.3	3.3	320 000	530 000	32 500	54 000	1 600	2 200	**799**	**792**	146	140	186	198	3.3	3.3	45.7	0.46	1.3	0.72	3.86	1.9
130.000	206.375	47.625	47.625	34.925	3.5	3.3	320 000	530 000	32 500	54 000	1 600	2 200	**797**	**792**	148	141	186	198	3.5	3.3	45.7	0.46	1.3	0.72	3.76	1.9
130.175	203.200	46.038	46.038	38.100	3.5	3.3	315 000	560 000	32 000	57 500	1 700	2 200	**67389**	**67320**	146	141	183	191	3.5	3.3	39.7	0.34	1.7	0.96	3.51	2.06
	206.375	47.625	47.625	34.925	3.5	3.3	320 000	530 000	32 500	54 000	1 600	2 200	**799 A**	**792**	148	142	186	198	3.5	3.3	45.7	0.46	1.3	0.72	3.74	1.9
133.350	177.008	25.400	26.195	20.638	1.5	1.5	124 000	258 000	12 700	26 300	1 800	2 400	**L 327249**	**L 327210**	143	141	167	171	1.5	1.5	29.5	0.35	1.7	0.95	1.18	0.55
	190.500	39.688	39.688	33.338	3.5	3.3	240 000	485 000	24 500	49 500	1 700	2 200	**48385**	**48320**	148	142	177	184	3.5	3.3	35.9	0.32	1.9	1.0	2.58	1.16
	196.850	46.038	46.038	38.100	3.5	3.3	315 000	560 000	32 000	57 500	1 700	2 200	**67390**	**67322**	149	143	180	189	3.5	3.3	39.7	0.34	1.7	0.96	3.27	1.46
	215.900	47.625	47.625	34.925	3.5	3.3	287 000	495 000	29 300	50 000	1 500	2 000	**74525**	**74850**	152	146	196	208	3.5	3.3	48.4	0.49	1.2	0.68	4.44	1.99
136.525	190.500	39.688	39.688	33.338	3.5	3.3	240 000	485 000	24 500	49 500	1 700	2 200	**48393**	**48320**	151	144	177	184	3.5	3.3	35.9	0.32	1.9	1.0	2.37	1.16
	217.488	47.625	47.625	34.925	3.5	3.3	287 000	495 000	29 300	50 000	1 500	2 000	**74537**	**74856**	155	148	197	210	3.5	3.3	48.4	0.49	1.2	0.68	4.19	2.13
139.700	187.325	28.575	29.370	23.020	1.5	1.5	153 000	305 000	15 600	31 500	1 700	2 200	**LM 328448**	**LM 328410**	149	147	176	182	1.5	1.5	31.7	0.36	1.7	0.93	1.59	0.67
	215.900	47.625	47.625	34.925	3.5	3.3	287 000	495 000	29 300	50 000	1 500	2 000	**74550**	**74850**	158	151	196	208	3.5	3.3	48.4	0.49	1.2	0.68	3.93	1.99
	254.000	66.675	66.675	47.625	7.0	3.3	515 000	830 000	52 500	84 500	1 300	1 800	**99550**	**99100**	170	156	227	238	7	3.3	55.3	0.41	1.5	0.81	9.99	3.83
142.875	200.025	41.275	39.688	34.130	3.5	3.3	227 000	460 000	23 100	46 500	1 600	2 200	**48685**	**48620**	158	151	185	193	3.5	3.3	37.6	0.34	1.8	0.98	2.63	1.19
146.050	193.675	28.575	28.575	23.020	1.5	1.5	170 000	355 000	17 300	36 500	1 600	2 200	**36690**	**36620**	155	154	182	188	1.5	1.5	33.5	0.37	1.6	0.90	1.64	0.725
	236.538	57.150	56.642	44.450	3.5	3.3	455 000	720 000	46 000	73 500	1 400	1 900	**HM 231140**	**HM 231110**	164	160	217	224	3.5	3.3	45.9	0.32	1.9	1.0	6.07	2.93
	254.000	66.675	66.675	47.625	7.0	3.3	515 000	830 000	52 500	84 500	1 300	1 800	**99575**	**99100**	175	162	227	238	7	3.3	55.3	0.41	1.5	0.81	9.24	3.83
149.225	254.000	66.675	66.675	47.625	7.0	3.3	515 000	830 000	52 500	84 500	1 300	1 800	**99587**	**99100**	178	165	227	238	7	3.3	55.3	0.41	1.5	0.81	8.86	3.83
152.400	254.000	66.675	66.675	47.625	7.0	3.3	515 000	830 000	52 500	84 500	1 300	1 800	**99600**	**99100**	181	167	227	238	7	3.3	55.3	0.41	1.5	0.81	8.46	3.83
158.750	225.425	41.275	39.688	33.338	3.5	3.3	240 000	540 000	24 400	55 000	1 400	1 900	**46780**	**46720**	176	169	209	218	3.5	3.3	44.3	0.38	1.6	0.86	3.69	1.66
165.100	247.650	47.625	47.625	38.100	3.5	3.3	345 000	705 000	35 500	71 500	1 300	1 700	**67780**	**67720**	185	179	229	240	3.5	3.3	52.4	0.44	1.4	0.75	5.83	2.33

Notes ＊ The maximum bore diameter is listed and its tolerance is negative (See Table **8.4.1** on Page **A68**).

▲ The tolerances are listed in Tables **2, 3** and **4** on Pages **B109** and **B110**.

Bore Diameter 170.000 – 206.375 mm





Dynamic Equivalent Load

$P = XF_r + YF_a$

$F_a/F_r \leq e$		$F_a/F_r > e$	
X	Y	X	Y
1	0	0.4	Y_1

Static Equivalent Load

$P_0 = 0.5F_r + Y_0F_a$

When $F_r > 0.5F_r + Y_0F_a$, use $P_0 = F_r$

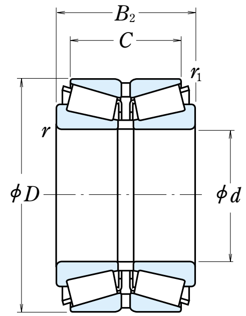
The values of e, Y_1, and Y_0 are given in the table below.

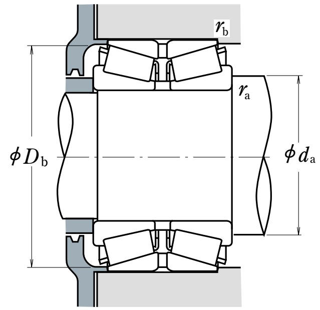
Boundary Dimensions (mm)							Basic Load Ratings (N)		{kgf}		Limiting Speeds (min⁻¹)	
d	D	T	B	C	Cone r min	Cup r min	C_r	C_{0r}	C_r	C_{0r}	Grease	Oil
170.000	230.000	39.000	38.000	31.000	3.0	2.5	278 000	520 000	28 300	53 000	1 300	1 800
	240.000	46.000	44.500	37.000	3.0	2.5	380 000	720 000	39 000	73 000	1 300	1 800
174.625	247.650	47.625	47.625	38.100	3.5	3.3	345 000	705 000	35 500	71 500	1 300	1 700
177.800	227.012	30.162	30.162	23.020	1.5	1.5	181 000	415 000	18 500	42 000	1 300	1 800
	247.650	47.625	47.625	38.100	3.5	3.3	345 000	705 000	35 500	71 500	1 300	1 700
	260.350	53.975	53.975	41.275	3.5	3.3	455 000	835 000	46 500	85 000	1 200	1 700
190.000	260.000	46.000	44.000	36.500	3.0	2.5	370 000	730 000	38 000	74 500	1 100	1 600
190.500	266.700	47.625	46.833	38.100	3.5	3.3	345 000	720 000	35 000	73 000	1 100	1 500
200.000	300.000	65.000	62.000	51.000	3.5	2.5	615 000	1 130 000	62 500	116 000	1 000	1 400
203.200	282.575	46.038	46.038	36.512	3.5	3.3	365 000	800 000	37 500	81 500	1 000	1 400
206.375	282.575	46.038	46.038	36.512	3.5	3.3	365 000	800 000	37 500	81 500	1 000	1 400

Bearing Numbers		Abutment and Fillet Dimensions (mm)						Eff. Load Centers (mm)	Constant	Axial Load Factors		Mass (kg) approx	
CONE	CUP	d_a	d_b	D_a	D_b	Cone r_a max	Cup r_a max	a	e	Y_1	Y_0	CONE	CUP
▲ JHM 534149	**▲ JHM 534110**	184	178	217	224	3	2.5	43.2	0.38	1.6	0.86	3.1	1.3
▲ JM 734449	**▲ JM 734410**	185	180	222	232	3	2.5	50.5	0.44	1.4	0.75	4.42	2.02
67787	**67720**	192	185	229	240	3.5	3.3	52.4	0.44	1.4	0.75	4.88	2.33
36990	**36920**	189	186	214	221	1.5	1.5	42.9	0.44	1.4	0.75	2.1	0.907
67790	**67720**	194	188	229	240	3.5	3.3	52.4	0.44	1.4	0.75	4.56	2.33
M 236849	**M 236810**	195	192	241	249	3.5	3.3	47.5	0.33	1.8	0.99	6.49	2.86
▲ JM 738249	**▲ JM 738210**	206	200	242	252	3	2.5	56.4	0.48	1.3	0.69	4.73	2.2
67885	**67820**	209	203	246	259	3.5	3.3	57.9	0.48	1.3	0.69	5.4	2.64
▲ JHM 840449	**▲ JHM 840410**	223	215	273	289	3.5	2.5	73.1	0.52	1.2	0.63	10.3	5.19
67983	**67920**	222	216	260	275	3.5	3.3	61.9	0.51	1.2	0.65	6.03	2.82
67985	**67920**	224	219	260	275	3.5	3.3	61.9	0.51	1.2	0.65	5.66	2.82

Note ▲ The tolerances are listed in Tables **2, 3** and **4** on Pages **B109** and **B110**.

Bore Diameter 40 – 90 mm





Dynamic Equivalent Load

$P = XF_r + YF_a$

$F_a/F_r \leqq e$		$F_a/F_r > e$	
X	Y	X	Y
1	Y_3	0.67	Y_2

Static Equivalent Load

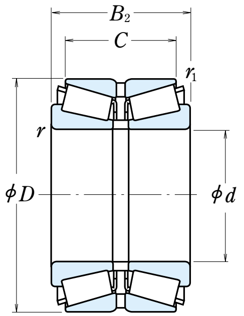
$P_0 = F_r + Y_0 F_a$

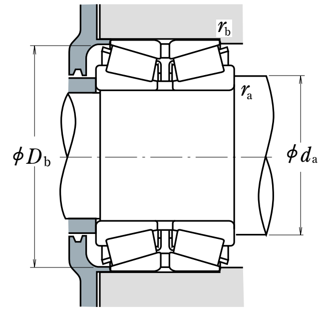
The values of e, Y_2, Y_3, and Y_0 are given in the table below.

Boundary Dimensions (mm)						Basic Load Ratings (N)		Limiting Speeds (min^{-1})		Bearing Numbers	Abutment and Fillet Dimensions (mm)				Constant	Axial Load Factors			Mass (kg)
d	D	B_2	C	r min	r_1 min	C_r	C_{0r}	Grease	Oil		d_a min	D_b min	r_a max	r_b max	e	Y_2	Y_3	Y_0	approx
40	80	45	37.5	1.5	0.6	109 000	140 000	3 700	5 100	**HR 40 KBE 42+L**	51	75	1.5	0.6	0.37	2.7	1.8	1.8	0.97
45	85	47	37.5	1.5	0.6	117 000	159 000	3 400	4 700	**HR 45 KBE 42+L**	56	81	1.5	0.6	0.40	2.5	1.7	1.6	1.08
	85	55	43.5	1.5	0.6	143 000	204 000	3 400	4 700	**HR 45 KBE 52X+L**	56	81	1.5	0.6	0.40	2.5	1.7	1.6	1.31
50	90	48	38.5	1.5	0.6	131 000	183 000	3 200	4 400	**HR 50 KBE 042+L**	61	87	1.5	0.6	0.42	2.4	1.6	1.6	1.20
	90	49	39.5	1.5	0.6	131 000	183 000	3 200	4 400	**HR 50 KBE 42+L**	61	87	1.5	0.6	0.42	2.4	1.6	1.6	1.22
	90	55	43.5	1.5	0.6	150 000	218 000	3 200	4 400	**HR 50 KBE 52X+L**	61	87	1.5	0.6	0.42	2.4	1.6	1.6	1.39
	110	64	51.5	2.5	0.6	224 000	297 000	2 700	3 700	**HR 50 KBE 043+L**	65	104	2	0.6	0.35	2.9	2.0	1.9	2.77
55	100	51	41.5	2	0.6	162 000	226 000	2 900	3 900	**HR 55 KBE 042+L**	67	96	2	0.6	0.40	2.5	1.7	1.6	1.59
	100	52	42.5	2	0.6	162 000	226 000	2 900	3 900	**HR 55 KBE 1003+L**	67	96	2	0.6	0.40	2.5	1.7	1.6	1.63
	100	60	48.5	2	0.6	188 000	274 000	2 900	3 900	**HR 55 KBE 52X+L**	67	97	2	0.6	0.40	2.5	1.7	1.6	1.88
	120	70	57	2.5	0.6	256 000	342 000	2 500	3 400	**HR 55 KBE 43+L**	70	113	2	0.6	0.35	2.9	2.0	1.9	3.52
60	110	53	43.5	2	0.6	178 000	246 000	2 700	3 600	**HR 60 KBE 042+L**	72	105	2	0.6	0.40	2.5	1.7	1.6	2.03
	110	66	54.5	2	0.6	225 000	335 000	2 700	3 600	**HR 60 KBE 52X+L**	72	106	2	0.6	0.40	2.5	1.7	1.6	2.52
	130	74	59	3	1	298 000	405 000	2 300	3 200	**HR 60 KBE 43+L**	78	122	2.5	1	0.35	2.9	2.0	1.9	4.40
65	120	56	46.5	2	0.6	210 000	300 000	2 400	3 200	**HR 65 KBE 42+L**	77	115	2	0.6	0.40	2.5	1.7	1.6	2.58
	120	57	47.5	2	0.6	210 000	300 000	2 400	3 200	**HR 65 KBE 1202+L**	77	115	2	0.6	0.40	2.5	1.7	1.6	2.61
	120	73	61.5	2	0.6	269 000	405 000	2 400	3 300	**HR 65 KBE 52X+L**	77	117	2	0.6	0.40	2.5	1.7	1.6	3.35
	140	79	63	3	1	340 000	465 000	2 100	2 900	**HR 65 KBE 43+L**	83	132	2.5	1	0.55	2.9	2.0	1.9	5.42
70	125	57	46.5	2	0.6	227 000	325 000	2 300	3 100	**HR 70 KBE 042+L**	82	120	2	0.6	0.42	2.4	1.6	1.6	2.79
	125	59	48.5	2	0.6	227 000	325 000	2 300	3 100	**HR 70 KBE 42+L**	82	120	2	0.6	0.42	2.4	1.6	1.6	2.85
	125	74	61.5	2	0.6	270 000	410 000	2 300	3 100	**HR 70 KBE 52X+L**	82	121	2	0.6	0.42	2.4	1.6	1.6	3.58
	150	83	67	3	1	390 000	535 000	2 000	2 700	**HR 70 KBE 43+L**	88	142	2.5	1	0.35	2.9	2.0	1.9	6.45
75	130	62	51.5	2	0.6	245 000	365 000	2 200	3 000	**HR 75 KBE 42+L**	87	126	2	0.6	0.44	2.3	1.6	1.5	3.15
	130	74	61.5	2	0.6	283 000	440 000	2 200	3 000	**HR 75 KBE 52X+L**	87	127	2	0.6	0.44	2.3	1.6	1.5	3.73
	160	87	69	3	1	435 000	600 000	1 900	2 500	**HR 75 KBE 043+L**	93	151	2.5	1	0.35	2.9	2.0	1.9	7.66
80	140	61	49	2.5	0.6	269 000	390 000	2 000	2 800	**HR 80 KBE 042+L**	95	134	2	0.6	0.42	2.4	1.6	1.6	3.70
	140	64	51.5	2.5	0.6	269 000	390 000	2 000	2 800	**HR 80 KBE 42+L**	95	134	2	0.6	0.42	2.4	1.6	1.6	3.70
	140	78	63.5	2.5	0.6	330 000	505 000	2 000	2 800	**HR 80 KBE 52X+L**	95	136	2	0.6	0.42	2.4	1.6	1.6	4.59
	170	92	73	3	1	475 000	655 000	1 700	2 400	**HR 80 KBE 043+L**	98	161	2.5	1	0.35	2.9	2.0	1.9	9.02
85	150	70	57	2.5	0.6	315 000	465 000	1 900	2 600	**HR 85 KBE 42+L**	100	143	2	0.6	0.42	2.4	1.6	1.6	4.69
	150	86	69	2.5	0.6	360 000	555 000	1 900	2 600	**HR 85 KBE 52X+L**	100	144	2	0.6	0.42	2.4	1.6	1.6	5.70
	180	98	77	4	1	530 000	745 000	1 600	2 200	**HR 85 KBE 043+L**	106	169	3	1	0.35	2.9	2.0	1.9	10.8
90	160	71	58	2.5	0.6	345 000	510 000	1 800	2 400	**HR 90 KBE 042+L**	105	152	2	0.6	0.42	2.4	1.6	1.6	5.53
	160	74	61	2.5	0.6	345 000	510 000	1 800	2 400	**HR 90 KBE 42+L**	105	152	2	0.6	0.42	2.4	1.6	1.6	5.71
	160	94	77	2.5	0.6	440 000	700 000	1 800	2 400	**HR 90 KBE 52X+L**	105	154	2	0.6	0.42	2.4	1.6	1.6	7.26

Remarks For other double-row tapered roller bearings not listed above, please contact NSK.

Bore Diameter 90 – 120 mm





Dynamic Equivalent Load

$P = XF_r + YF_a$

$F_a/F_r \leqq e$		$F_a/F_r > e$	
X	Y	X	Y
1	Y_3	0.67	Y_2

Static Equivalent Load

$P_0 = F_r + Y_0 F_a$

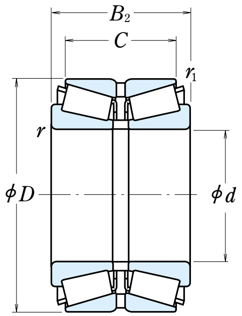
The values of e, Y_2, Y_3, and Y_0 are given in the table below.

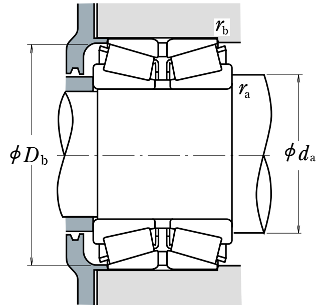
Boundary Dimensions (mm)						Basic Load Ratings (N)		Limiting Speeds (min⁻¹)	
d	D	B_2	C	r min	r_1 min	C_r	C_{0r}	Grease	Oil
90	190	102	81	4	1	595 000	845 000	1 600	2 100
	190	144	115	4	1	770 000	1 180 000	1 600	2 200
95	170	78	63	3	1	385 000	570 000	1 700	2 300
	170	100	83	3	1	495 000	800 000	1 700	2 300
	200	108	85	4	1	640 000	910 000	1 500	2 000
100	165	52	46	2.5	0.6	222 000	340 000	1 700	2 300
	180	81	64	3	1	435 000	665 000	1 600	2 200
	180	81	65	3	1	435 000	665 000	1 600	2 200
	180	82	66	3	1	435 000	665 000	1 600	2 200
	180	83	67	3	1	435 000	665 000	1 600	2 200
	180	105	85	3	1	555 000	905 000	1 600	2 200
	180	107	87	3	1	555 000	905 000	1 600	2 200
	180	110	90	3	1	555 000	905 000	1 600	2 200
	215	112	87	4	1	725 000	1 050 000	1 400	1 900
105	190	88	70	3	1	480 000	735 000	1 500	2 000
	190	117	96	3	1	620 000	1 020 000	1 500	2 000
	190	115	95	3	1	620 000	1 020 000	1 500	2 000
	225	116	91	4	1	780 000	1 130 000	1 300	1 800
110	180	56	50	2.5	0.6	264 000	400 000	1 500	2 000
	180	70	56	2.5	0.6	340 000	555 000	1 500	2 000
	180	125	100	2.5	0.6	550 000	1 060 000	1 500	2 100
	200	90	72	3	1	540 000	840 000	1 400	1 900
	200	92	74	3	1	540 000	840 000	1 400	1 900
	200	120	100	3	1	685 000	1 130 000	1 400	1 900
	200	121	101	3	1	685 000	1 130 000	1 400	1 900
	240	118	93	4	1.5	830 000	1 190 000	1 200	1 700
120	180	46	41	2.5	0.6	184 000	296 000	1 500	2 000
	180	58	46	2.5	0.6	260 000	450 000	1 500	2 000
	200	62	55	2.5	0.6	310 000	500 000	1 400	1 800
	200	78	62	2.5	0.6	415 000	690 000	1 400	1 900
	200	100	84	2.5	0.6	515 000	885 000	1 400	1 800
	215	97	78	3	1	575 000	900 000	1 300	1 800
	215	132	109	3	1	750 000	1 270 000	1 300	1 800
	260	128	101	4	1	915 000	1 310 000	1 100	1 500
	260	188	145	4	1	1 320 000	2 110 000	1 100	1 500

Bearing Numbers	Abutment and Fillet Dimensions (mm)				Constant	Axial Load Factors			Mass (kg)
	d_a min	D_b min	r_a max	r_b max	e	Y_2	Y_3	Y_0	approx
HR 90 KBE 043+L	111	178	3	1	0.35	2.9	2.0	1.9	12.7
HR 90 KBE 1901+L	111	179	3	1	0.35	2.9	2.0	1.9	17.9
HR 95 KBE 42+L	113	161	2.5	1	0.42	2.4	1.6	1.6	6.75
HR 95 KBE 52+L	113	163	2.5	1	0.42	2.4	1.6	1.6	8.60
HR 95 KBE 43+L	116	187	3	1	0.35	2.9	2.0	1.9	14.7
100 KBE 31+L	115	156	2	0.6	0.33	3.0	2.0	2.0	4.04
HR100 KBE 1805+L	118	170	2.5	1	0.42	2.4	1.6	1.6	8.16
HR100 KBE 042+L	118	170	2.5	1	0.42	2.4	1.6	1.6	8.13
HR100 KBE 1801+L	118	170	2.5	1	0.42	2.4	1.6	1.6	8.22
HR100 KBE 42+L	118	170	2.5	1	0.42	2.4	1.6	1.6	8.7
HR100 KBE 1802+L	118	173	2.5	1	0.42	2.4	1.6	1.6	10.6
HR100 KBE 52X+L	118	173	2.5	1	0.42	2.4	1.6	1.6	10.7
HR100 KBE 1804+L	118	173	2.5	1	0.42	2.4	1.6	1.6	11
HR100 KBE 043+L	121	200	3	1	0.35	2.9	2.0	1.9	18.1
HR105 KBE 42X+L	123	179	2.5	1	0.42	2.4	1.6	1.6	9.76
HR105 KBE 1902+L	123	182	2.5	1	0.42	2.4	1.6	1.6	13.4
HR105 KBE 52+L	123	182	2.5	1	0.42	2.4	1.6	1.6	13.1
HR105 KBE 043+L	126	209	3	1	0.35	2.9	2.0	1.9	20.4
110 KBE 31+L	125	172	2	0.6	0.39	2.6	1.7	1.7	5.11
110 KBE 031+L	125	172	2	0.6	0.39	2.6	1.7	1.7	6.33
110 KBE 1802+L	125	172	2	0.6	0.26	3.8	2.6	2.5	11.4
HR110 KBE 42+L	128	190	2.5	1	0.42	2.4	1.6	1.6	11.2
HR110 KBE 42X+L	128	190	2.5	1	0.42	2.4	1.6	1.6	11.5
HR110 KBE 2001+L	128	193	2.5	1	0.42	2.4	1.6	1.6	15.4
HR110 KBE 52X+L	128	193	2.5	1	0.42	2.4	1.6	1.6	15.2
HR110 KBE 043+L	131	223	3	1.5	0.35	2.9	2.0	1.9	23.6
120 KBE 30+L	135	172	2	0.6	0.40	2.5	1.7	1.6	3.75
120 KBE 030+L	135	172	2	0.6	0.39	2.6	1.7	1.7	4.64
120 KBE 31+L	135	190	2	0.6	0.39	2.6	1.7	1.7	7.35
120 KBE 031+L	135	190	2	0.6	0.39	2.6	1.7	1.7	8.97
120 KBE 2001+L	135	193	2	0.6	0.37	2.7	1.8	1.8	11.3
HR120 KBE 42X+L	138	204	2.5	1	0.44	2.3	1.6	1.5	13.7
HR120 KBE 52X+L	138	207	2.5	1	0.44	2.3	1.6	1.5	18.8
HR120 KBE 43+L	141	240	3	1	0.35	2.9	2.0	1.9	29.4
HR120 KBE 2601+L	141	242	3	1	0.35	2.9	2.0	1.9	44.6

Remarks For other double-row tapered roller bearings not listed above, please contact NSK.

Bore Diameter 125 – 150 mm





Dynamic Equivalent Load

$P = XF_r + YF_a$

$F_a/F_r \leqq e$		$F_a/F_r > e$	
X	Y	X	Y
1	Y_3	0.67	Y_2

Static Equivalent Load

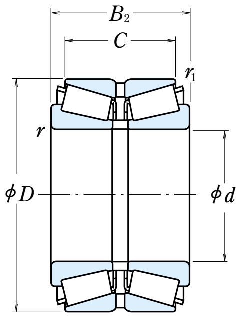
$P_0 = F_r + Y_0F_a$

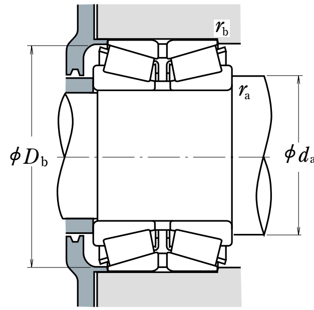
The values of e, Y_2, Y_3, and Y_0 are given in the table below.

Boundary Dimensions (mm)						Basic Load Ratings (N)		Limiting Speeds (min^{-1})		Bearing Numbers	Abutment and Fillet Dimensions (mm)				Constant	Axial Load Factors			Mass (kg)
d	D	B_2	C	r min	r_1 min	C_r	C_{0r}	Grease	Oil		d_a min	D_b min	r_a max	r_b max	e	Y_2	Y_3	Y_0	approx
125	210	110	88	4	1	560 000	1 030 000	1 300	1 800	**125 KBE 2101+L**	146	201	3	1	0.43	2.3	1.6	1.5	14.5
130	230	98	78.5	4	1	640 000	1 010 000	1 200	1 600	**HR130 KBE 42+L**	151	220	3	1	0.44	2.3	1.6	1.5	15.8
	230	100	80.5	4	1	640 000	1 010 000	1 200	1 600	**HR130 KBE 2301+L**	151	220	3	1	0.44	2.3	1.6	1.5	15.9
	280	137	107.5	5	1.5	940 000	1 350 000	1 000	1 400	**130 KBE 43+L**	157	258	4	1.5	0.36	2.8	1.9	1.8	35
	230	145	115	4	1	905 000	1 580 000	1 200	1 700	**HR130 KBE 2302+L**	151	221	3	1	0.44	2.3	1.6	1.5	24.1
	230	145	117.5	4	1	905 000	1 580 000	1 200	1 700	**HR130 KBE 52+L**	151	222	3	1	0.44	2.3	1.6	1.5	23.8
	230	150	120	4	1	905 000	1 580 000	1 200	1 700	**HR130 KBE 2303+L**	151	221	3	1	0.44	2.3	1.6	1.5	24.2
140	210	53	47	2.5	0.6	280 000	495 000	1 200	1 700	**140 KBE 30+L**	155	202	2	0.6	0.39	2.6	1.7	1.7	6.02
	210	106	94	2.5	0.6	555 000	1 200 000	1 300	1 700	**140 KBE 030+L**	155	202	2	1	0.40	2.5	1.7	1.6	7.02
	210	66	53	2.5	1	305 000	530 000	1 200	1 700	**140 KBE 2101+L**	155	202	2	0.6	0.33	3.0	2.0	2.0	12.3
	225	68	61	3	1	400 000	630 000	1 200	1 600	**140 KBE 31+L**	158	216	2.5	1	0.39	2.6	1.7	1.7	9.31
	225	84	68	3	1	490 000	850 000	1 200	1 600	**140 KBE 031+L**	158	215	2.5	1	0.39	2.6	1.7	1.7	11.6
	225	85	68	3	1	490 000	850 000	1 200	1 600	**140 KBE 2201+L**	158	215	2.5	1	0.39	2.6	1.7	1.7	11.7
	230	120	94	3	1	685 000	1 270 000	1 200	1 600	**140 KBE 2301+L**	158	220	2.5	1	0.33	3.0	2.0	2.0	17.6
	230	140	110	3	1	820 000	1 550 000	1 200	1 600	**140 KBE 2302+L**	158	221	2.5	1	0.35	2.9	2.0	1.9	20.7
	240	132	106	4	1.5	685 000	1 360 000	1 100	1 500	**140 KBE 2401+L**	161	227	3	1.5	0.44	2.3	1.5	1.5	22.7
	250	102	82.5	4	1	670 000	1 030 000	1 100	1 500	**HR140 KBE 42+L**	161	237	3	1	0.44	2.3	1.6	1.5	18.9
	250	153	125.5	4	1	1 040 000	1 830 000	1 100	1 500	**HR140 KBE 52X+L**	161	241	3	1	0.44	2.3	1.6	1.5	29.6
	300	145	115.5	5	1.5	1 030 000	1 480 000	1 000	1 300	**140 KBE 43+L**	167	275	4	1.5	0.36	2.8	1.9	1.8	42.6
150	225	56	50	3	1	300 000	545 000	1 200	1 600	**150 KBE 30+L**	168	213	2.5	1	0.35	2.9	2.0	1.9	7.41
	225	70	56	3	1	395 000	685 000	1 200	1 600	**150 KBE 030+L**	168	215	2.5	1	0.35	2.9	2.0	1.9	8.70
	250	80	71	3	1	510 000	810 000	1 100	1 400	**150 KBE 31+L**	168	240	2.5	1	0.40	2.5	1.7	1.6	14.2
	250	100	80	3	1	630 000	1 090 000	1 100	1 400	**150 KBE 031+L**	168	238	2.5	1	0.39	2.6	1.7	1.7	17.8
	250	115	95	3	1	745 000	1 320 000	1 100	1 500	**150 KBE 2502+L**	168	238	2.5	1	0.37	2.7	1.8	1.8	20.9
	260	150	115	4	1	815 000	1 520 000	1 100	1 400	**150 KBE 2601+L**	171	242	3	1	0.43	2.3	1.6	1.5	30.0
	270	109	87	4	1	830 000	1 330 000	1 000	1 400	**HR150 KBE 42+L**	171	253	3	1	0.44	2.3	1.6	1.5	24.3
	270	164	130	4	1	1 210 000	2 150 000	1 000	1 400	**HR150 KBE 52X+L**	171	257	3	1	0.44	2.3	1.6	1.5	37.3
	270	174	140	4	1	1 210 000	2 150 000	1 000	1 400	**HR150 KBE 2701+L**	171	257	3	1	0.44	2.3	1.6	1.5	39.7
	320	154	120	5	1.5	1 420 000	2 130 000	900	1 200	HR150 KBE 43+L	177	295	4	1.5	0.35	2.9	2.0	1.9	53.4

Remarks For other double-row tapered roller bearings not listed above, please contact NSK.

Bore Diameter 160 – 200 mm





Dynamic Equivalent Load

$P = XF_r + YF_a$

$F_a/F_r \leqq e$		$F_a/F_r > e$	
X	Y	X	Y
1	Y_3	0.67	Y_2

Static Equivalent Load

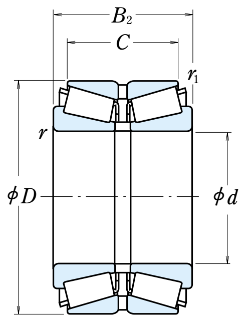
$P_0 = F_r + Y_0 F_a$

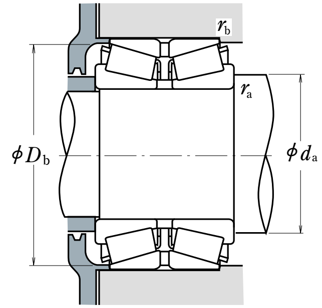
The values of e, Y_2, Y_3, and Y_0 are given in the table below.

Boundary Dimensions (mm)						Basic Load Ratings (N)		Limiting Speeds (min⁻¹)		Bearing Numbers	Abutment and Fillet Dimensions (mm)				Constant	Axial Load Factors			Mass (kg)
d	D	B_2	C	r min	r_1 min	C_r	C_{0r}	Grease	Oil		d_a min	D_b min	r_a max	r_b max	e	Y_2	Y_3	Y_0	approx
160	240	60	53	3	1	355 000	580 000	1 100	1 500	**160 KBE 30+L**	178	231	2.5	1	0.37	2.7	1.8	1.8	8.56
	240	75	60	3	1	395 000	710 000	1 100	1 500	**160 KBE 030+L**	178	230	2.5	1	0.40	2.5	1.7	1.6	10.5
	240	110	90	3	1	650 000	1 290 000	1 100	1 500	**160 KBE 2401+L**	178	232	2.5	1	0.38	2.6	1.8	1.7	16.2
	270	86	76	3	1	540 000	885 000	1 000	1 300	**160 KBE 31+L**	178	255	2.5	1	0.40	2.5	1.7	1.6	18.6
	270	108	86	3	1	775 000	1 380 000	1 000	1 300	**160 KBE 031+L**	178	256	2.5	1	0.39	2.6	1.7	1.7	23.1
	270	140	120	3	1	990 000	1 880 000	1 000	1 300	**160 KBE 2701+L**	178	261	2.5	1	0.39	2.6	1.7	1.7	30.6
	280	150	125	4	1	1 100 000	2 020 000	1 000	1 300	**160 KBE 2801+L**	181	266	3	1	0.32	3.2	2.1	2.1	35.9
	290	115	91	4	1	800 000	1 220 000	900	1 300	**160 KBE 42+L**	181	275	3	1	0.43	2.3	1.6	1.5	28.2
	290	178	144	4	1	1 360 000	2 440 000	1 000	1 300	**HR160 KBE 52X+L**	181	277	3	1	0.44	2.3	1.6	1.5	47.3
	340	160	126	5	1.5	1 310 000	1 920 000	800	1 100	**160 KBE 43+L**	187	314	4	1.5	0.36	2.8	1.9	1.8	60.4
165	290	150	125	4	1	1 140 000	2 130 000	900	1 300	**165 KBE 2901+L**	186	272	3	1	0.33	3.1	2.1	2.0	39.5
170	250	85	65	3	1	435 000	845 000	1 000	1 400	**170 KBE 2501+L**	188	241	2.5	1	0.44	2.3	1.5	1.5	12.3
	260	67	60	3	1	400 000	700 000	1 000	1 300	**170 KBE 30+L**	188	248	2.5	1	0.40	2.5	1.7	1.6	11.8
	260	84	67	3	1	575 000	1 030 000	1 000	1 300	**170 KBE 030+L**	188	249	2.5	1	0.39	2.6	1.7	1.7	14.4
	280	88	78	3	1	630 000	1 040 000	900	1 300	**170 KBE 31+L**	188	266	2.5	1	0.39	2.6	1.7	1.7	19.7
	280	110	88	3	1	820 000	1 450 000	900	1 300	**170 KBE 031+L**	188	268	2.5	1	0.39	2.6	1.7	1.7	24.2
	280	150	130	3	1	1 110 000	2 160 000	1 000	1 300	**170 KBE 2802+L**	188	269	2.5	1	0.39	2.6	1.7	1.7	34.6
	310	192	152	5	1.5	1 590 000	2 910 000	900	1 200	**HR170 KBE 52X+L**	197	297	4	1.5	0.44	2.3	1.6	1.5	57.3
180	280	74	66	3	1	455 000	810 000	900	1 300	**180 KBE 30+L**	198	265	2.5	1	0.40	2.5	1.7	1.6	15.4
	280	93	74	3	1	655 000	1 220 000	900	1 200	**180 KBE 030+L**	198	265	2.5	1	0.35	2.9	2.0	1.9	14.4
	300	96	85	4	1.5	725 000	1 210 000	900	1 200	**180 KBE 31+L**	201	284	3	1.5	0.39	2.6	1.7	1.7	24.8
	300	120	96	4	1.5	940 000	1 690 000	900	1 200	**180 KBE 031+L**	201	287	3	1.5	0.39	2.6	1.7	1.7	31.1
	320	127	99	5	1.5	895 000	1 390 000	800	1 200	**180 KBE 42+L**	207	300	4	1.5	0.44	2.3	1.5	1.5	36.5
	320	192	152	5	1.5	1 640 000	3 050 000	900	1 200	**HR180 KBE 52X+L**	207	308	4	1.5	0.45	2.2	1.5	1.5	59.2
	340	180	140	5	1.5	1 410 000	2 510 000	800	1 100	**180 KBE 3401+L**	207	305	4	1.5	0.43	2.3	1.6	1.5	68.1
190	290	75	67	3	1	490 000	845 000	900	1 200	**190 KBE 30+L**	208	279	2.5	1	0.39	2.6	1.7	1.7	16.2
	290	94	75	3	1	670 000	1 230 000	900	1 200	**190 KBE 030+L**	208	279	2.5	1	0.40	2.5	1.7	1.6	20.1
	320	104	92	4	1.5	800 000	1 380 000	800	1 100	**190 KBE 31+L**	211	301	3	1.5	0.40	2.5	1.7	1.6	30.9
	320	130	104	4	1.5	1 070 000	1 960 000	800	1 100	**190 KBE 031+L**	211	302	3	1.5	0.39	2.6	1.7	1.7	39.0
	340	133	105	5	1.5	990 000	1 580 000	800	1 100	**190 KBE 42+L**	217	320	4	1.5	0.40	2.5	1.7	1.6	43.9
	340	204	160	5	1.5	1 910 000	3 550 000	800	1 100	**HR190 KBE 52X+L**	217	327	4	1.5	0.44	2.3	1.6	1.5	70.8
200	310	152	123	3	1	1 300 000	2 740 000	800	1 100	**HR200 KBE 3101+L**	218	301	2.5	1	0.43	2.3	1.6	1.5	40.1
	320	146	110	5	1.5	990 000	2 120 000	800	1 100	**200 KBE 3201+L**	227	301	4	1.5	0.52	1.9	1.3	1.3	41.6
	330	180	140	5	1.5	1 390 000	2 730 000	800	1 100	**200 KBE 3301+L**	227	316	4	1.5	0.42	2.4	1.6	1.6	54.4
	340	112	100	4	1.5	940 000	1 670 000	800	1 000	**200 KBE 31+L**	221	321	3	1.5	0.40	2.5	1.7	1.6	38.8
	340	140	112	4	1.5	1 260 000	2 250 000	800	1 000	**200 KBE 031+L**	221	324	3	1.5	0.39	2.6	1.7	1.7	47.0
	360	142	110	5	1.5	1 100 000	1 780 000	700	1 000	**200 KBE 42+L**	227	338	4	1.5	0.40	2.5	1.7	1.6	52.6
	360	218	174	5	1.5	2 070 000	3 850 000	800	1 000	**HR200 KBE 52+L**	227	344	4	1.5	0.41	2.5	1.7	1.6	88.3

Remarks For other double-row tapered roller bearings not listed above, please contact NSK.

Bore Diameter 206 – 260 mm





Dynamic Equivalent Load

$P = XF_r + YF_a$

$F_a/F_r \leqq e$		$F_a/F_r > e$	
X	Y	X	Y
1	Y_3	0.67	Y_2

Static Equivalent Load

$P_0 = F_r + Y_0 F_a$

The values of e, Y_2, Y_3, and Y_0 are given in the table below.

Boundary Dimensions (mm)						Basic Load Ratings (N)		Limiting Speeds (min^{-1})	
d	D	B_2	C	r min	r_1 min	C_r	C_{0r}	Grease	Oil
206	283	102	83	4	1.5	580 000	1 430 000	900	1 200
210	355	116	103	4	1.5	905 000	1 520 000	700	1 000
220	300	110	88	3	1	730 000	1 710 000	800	1 100
	340	90	80	4	1.5	695 000	1 280 000	700	1 000
	340	113	90	4	1.5	920 000	1 830 000	700	1 000
	370	120	107	5	1.5	1 110 000	1 940 000	700	1 000
	370	150	120	5	1.5	1 460 000	2 760 000	700	1 000
	400	158	122	5	1.5	1 390 000	2 300 000	600	900
240	360	92	82	4	1.5	780 000	1 490 000	700	900
	360	115	92	4	1.5	1 020 000	2 040 000	700	900
	400	128	114	5	1.5	1 180 000	2 190 000	600	900
	400	160	128	5	1.5	1 620 000	3 050 000	600	900
	400	209	168	5	1.5	2 220 000	4 450 000	600	900
250	380	98	87	4	1	795 000	1 460 000	600	900
260	400	104	92	5	1.5	895 000	1 670 000	600	800
	400	130	104	5	1.5	1 210 000	2 460 000	600	800
	440	144	128	5	1.5	1 540 000	2 760 000	600	800
	440	172	145	5	1.5	1 870 000	3 500 000	600	800
	440	180	144	5	1.5	2 110 000	4 150 000	600	800

Bearing Numbers	Abutment and Fillet Dimensions (mm)				Constant	Axial Load Factors			Mass (kg)
	d_a min	D_b min	r_a max	r_b max	e	Y_2	Y_3	Y_0	approx
206 KBE 2801+L	227	275	3	1.5	0.51	2.0	1.3	1.3	18.1
210 KBE 31+L	231	338	3	1.5	0.46	2.2	1.5	1.4	41.7
220 KBE 3001+L	238	292	2.5	1	0.37	2.7	1.8	1.8	21.2
220 KBE 30+L	241	324	3	1.5	0.40	2.5	1.7	1.6	27.9
220 KBE 030+L	241	327	3	1.5	0.40	2.5	1.7	1.6	34.7
220 KBE 31+L	247	345	4	1.5	0.39	2.6	1.7	1.7	48.3
220 KBE 031+L	247	349	4	1.5	0.39	2.6	1.7	1.7	60.2
220 KBE 42+L	247	371	4	1.5	0.40	2.5	1.7	1.6	74.2
240 KBE 30+L	261	344	3	1.5	0.39	2.6	1.7	1.7	30.1
240 KBE 030+L	261	344	3	1.5	0.35	2.9	2.0	1.9	37.3
240 KBE 31+L	267	380	4	1.5	0.43	2.3	1.6	1.5	60.0
240 KBE 031+L	267	378	4	1.5	0.39	2.6	1.7	1.7	73.6
240 KBE 4003+L	267	384	4	1.5	0.33	3.0	2.0	2.0	96.4
250 KBE 3801+L	271	365	3	1	0.40	2.5	1.7	1.6	35.5
260 KBE 30+L	287	379	4	1.5	0.40	2.5	1.7	1.6	43.4
260 KBE 030+L	287	382	4	1.5	0.40	2.5	1.7	1.6	54.1
260 KBE 31+L	287	416	4	1.5	0.39	2.6	1.7	1.7	82.5
260 KBE 4401+L	287	414	4	1.5	0.38	2.6	1.8	1.7	98.1
260 KBE 031+L	287	416	4	1.5	0.39	2.6	1.7	1.7	104.0

Remarks For other double-row tapered roller bearings not listed above, please contact NSK.