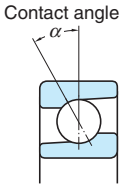
Angular contact ball bearings

Angular contact ball bearings are suitable for applications which require high accuracy and good high-speed performance. This type of bearing is designed to carry a combined load.

■ Single-row angular contact ball bearings and matched pair angular contact ball bearings



- The standard contact angles are 15°, 30° and 40°. They are identified, respectively, by the supplementary codes "C", "A" (omitted) and "B". Bearings with a smaller contact angle are more suitable for applications involving high-speed rotation. Those with a larger contact angle feature superior axial load resistance.
- Angular contact ball bearings are often preloaded to enhance their rigidity and rotating performance. (refer to p. A 112.) For high-precision matched pair angular contact ball bearings of class 5 or higher, which are used in machine tools and other precision equipment, the standard preload is specified in three levels: slight (S), light (L), medium (M) and heavy (H). (refer to Table 11-2 on p. A 114.)
- When this type of bearing is loaded radially, an axial component of force is produced. In this case, two bearings are used together facing one another, or two or more bearings are matched and used. (refer to p. A 38.)
- Tables 1 and 2 list the different types of single-row and matched pair/stack angular contact ball bearings and describe their characteristics.

■ Double-row angular contact ball bearings

Consist of two single-row angular contact ball bearings matched back-to-back, with inner and outer rings integrated.
Table 3 shows major types and their characteristics.

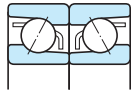
■ Four-point contact ball bearings

- Have a contact angle of 35° and an inner ring divided into two annular pieces. They are suitable for applications that involve either axial loading or combined loading, where the axial load makes up the major part of the load.
- Able to support both axial load and a certain degree of radial load. Each rolling element is in contact with each of the inner and outer rings at a single point, and both contact points lie on the contact angle line. The line runs to either the right or left depending on the direction of the axial load.

Single-row angular contact ball bearings

Bore diameter **10** – **380** mm

Matched pair angular contact ball bearings



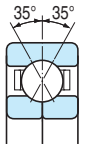
Bore diameter **10** – **380** mm

Double-row angular contact ball bearings

Bore diameter **10** – **110** mm

Four-point contact ball bearings

Bore diameter **20** – **110** mm



- Consult with JTEKT when using the four-point contact ball bearing because application conditions such as load magnitude should be examined carefully.

Table 1 Single-row angular contact ball bearings

Standard type

(with pressed cage)

(with machined cage)

- Single-row angular contact ball bearings accommodate radial load and axial load in one direction.
- Bearings with a machined cage are suitable for high-speed applications.

Reference **G-type bearing**

"G-type" bearings have a stand-out between the inner ring and outer ring on both sides that are equal in size. This arrangement is called "flush ground processing." These bearings can be matched in a variety of ways.

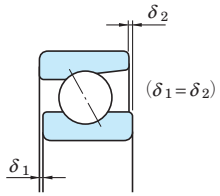
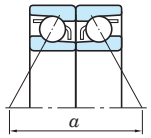
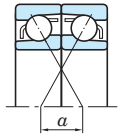
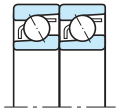
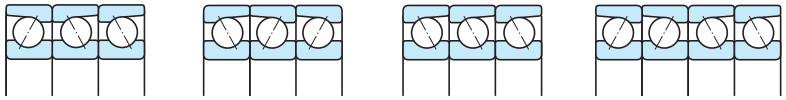


Table 2 Matched pair and stack angular contact ball bearings

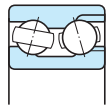
Back-to-back arrangement (DB)		• Carries radial load and axial load in both directions. • Suitable for applications involving moment loading because the distance between the load centers (a) is long. • As for the preloaded type, the clearance is pre-adjusted so that bearings will be preloaded the proper amount when the inner ring is fixed with a nut.
Face-to-face arrangement (DF)		• Carries radial load and axial load in both directions. • Has a smaller moment load accommodating capacity than the back-to-back arrangement, because the distance between the load centers (a) is shorter. • As for the preloaded type, the clearance is pre-adjusted so that bearings will be preloaded the proper amount when the outer rings are pressed together.
Tandem arrangement (DT)		• Carries radial load and axial load in one direction. • Suitable for applications which involve a high degree of axial loading.

Matched stack

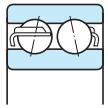


(DBD) (DFD) (DTD) (DBB)

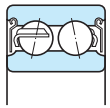
Table 3 Double-row angular contact ball bearings



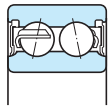
(with filling slot)
32, 33



(without filling slot)
52, 53



Shielded
52...ZZ, 53...ZZ



Sealed
52...2RS, 53...2RS

- Accommodates radial load and axial load in both directions. Also able to accommodate moment load. When installing bearings with filling slot (32 and 33 series), the raceway side without filling slot must accommodate main load.
- The 32 and 33 series are provided with a filling slot, while the 52 and 53 series are not.

  32 and 33 series : contact angle 32°
  52 and 53 series : contact angle 24°
- Inferior to single-row and matched pair angular contact ball bearings in terms of high-speed and high accuracy performance.
- Shielded or sealed 52 and 53 series bearings are also available.

Boundary dimensions	The dimensions of standard series are as specified in JIS B 1512.
Tolerances	· As specified in JIS B 1514-1. (refer to Table 7-3 on pp. A 60 – A 63.) · JTEKT has established "special tolerances" for bore diameter and outside diameter, as listed in the table to the right, to make it easy to produce high-precision matched stack bearings. Bearings which are produced based on these tolerances are identified by the supplementary code "K5."
Internal clearance	■ Matched pair bearing axial internal clearance.....(refer to Table 10-4 on p. A 103.) ■ Double-row bearing radial internal clearance.....(refer to Table 10-5 on p. A 104.)
Recommended fits	■ Classes 0 and 6 bearings.....(refer to Table 9-4 on pp. A 91, 92.) ■ Classes 5 and 4 bearings.....as listed in the table below. ■ Refer to Table 11-3 on page A 115 for the recommended fits of high-precision matched pair bearings (class 5 and class 4), which are used with light preload (L) or middle preload (M).

Special tolerances (K5) Unit : μm

Nominal bore diameter d (mm) over	up to	Single plane mean bore diameter (Δ_{dmp}) or single plane mean outside diameter deviation (Δ_{Dmp}) class 5 upper	class 5 lower	class 4 upper	class 4 lower
–	50	– 1	– 4	– 1	– 3
50	80	– 1	– 5	– 1	– 4
80	120	– 1	– 5	– 1	– 4

Fit		class 5 Tolerance class	class 4 Tolerance class
With shaft	Inner ring rotation	js 5	js 4
	Outer ring rotation	h 5	h 4
With housing	Fixed side	JS 6	JS 5
	Free side	H 6	H 5
	Outer ring rotation	M 5	M 4

Standard cages

- Pressed cage (supplementary code : //)
- Copper alloy machined cage (supplementary code : FY)

[Note] Machine tools are generally equipped with bearings that have a phenolic resin machined cage (FT). Bearings with a polyamide molded cage can also be used depending on the applications. Four-point contact ball bearings usually use a copper alloy machined cage.

Application of standard cages

Bearing series	Pressed cage	Machined cage
79C	—	7900C – 7932C
79CPA	—	7900CPA – 7932CPA
70	—	7000 – 7040
70B	—	7000B – 7040B
70C	—	7000C – 7040C
70CPA	—	7000CPA – 7034CPA
72	7200 – 7220	7200 – 7240
72B	7200B – 7220B	7200B – 7240B
72C	7200C – 7220C	7200C – 7240C
72CPA	—	7200CPA – 7230CPA
73	7300 – 7320	7300 – 7340
73B	7303B – 7320B	7303B – 7340B
73C	7303C – 7320C	7303C – 7334C
74	7405 – 7409	7404 – 7418
74B	7405B – 7409B	7404B – 7418B
32	3200 – 3215	3216 – 3222
33	3302 – 3313	3314 – 3322
52	5203 – 5214	—
53	5304 – 5315	—

Allowable misalignment

Single-row.....0.000 6 rad (2') : Matched pair, double-row.....misalignment not allowed

Equivalent radial load

[Single-row and matched pair angular contact ball bearings]

Dynamic equivalent radial load

$P_r = XF_r + YF_a$

Contact angle	$if_0F_a^*/C_{0r}$	e	Single-row and tandem arrangement				Back-to-back and face-to-face arrangement			
			$F_a/F_r \leqq e$		$F_a/F_r > e$		$F_a/F_r \leqq e$		$F_a/F_r > e$	
			X	Y	X	Y	X	Y	X	Y
15°	0.178	0.38	1	0	0.44	1.47	1	1.65	0.72	2.39
	0.357	0.40				1.40		1.57		2.28
	0.714	0.43				1.30		1.46		2.11
	1.07	0.46				1.23		1.38		2.00
	1.43	0.47				1.19		1.34		1.93
	2.14	0.50				1.12		1.26		1.82
	3.57	0.55				1.02		1.14		1.66
	5.35	0.56				1.00		1.12		1.63
	7.14	0.56				1.00		1.12		1.63
30°	–	0.80	1	0	0.39	0.76	1	0.78	0.63	1.24
40°	–	1.14	1	0	0.35	0.57	1	0.55	0.57	0.93

* For i, use 2 for DB&DF and 1 for single&DT.
Factor f_0 is shown in the bearing dimention table.

[Note] When two single-row angular contact ball bearings are used facing one another, an axial component of force is produced under radial load. In this case, refer to page A 38 for calculation of the dynamic equivalent radial load.

Static equivalent radial load

$P_{0r} = X_0 F_r + Y_0 F_a$

In reference to single-row and tandem arrangement bearings,

when $P_{0r} < F_r$, $P_{0r} = F_r$

Contact angle	Single-row and tandem arrangement		Back-to-back and face-to-face arrangement	
	X_0	Y_0	X_0	Y_0
15°	0.5	0.46	1	0.92
30°	0.5	0.33	1	0.66
40°	0.5	0.26	1	0.52

Equivalent radial load

[Double-row angular contact ball bearings]

Dynamic equivalent radial load

$P_r = XF_r + YF_a$

Contact angle	e	$F_a/F_r \leqq e$		$F_a/F_r > e$		(reference)
		X	Y	X	Y	
24°	0.66	1	0.95	0.68	1.45	52, 53 series
32°	0.86	1	0.73	0.62	1.17	32, 33 series

Static equivalent radial load

$P_{0r} = X_0 F_r + Y_0 F_a$

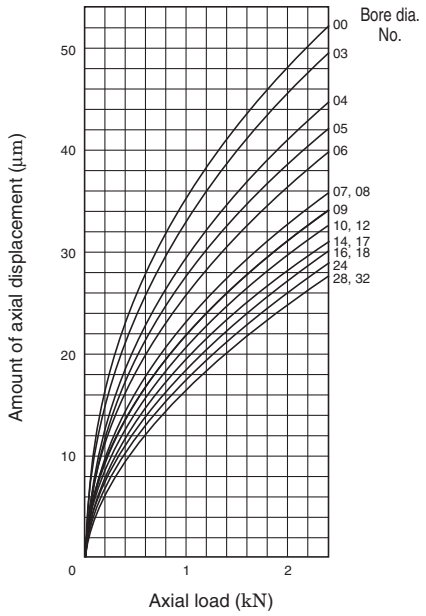
Contact angle	X_0	Y_0	(reference)
24°	1	0.78	52, 53 series
32°	1	0.63	32, 33 series

[Note] In angular contact ball bearings, slippage occurs between the balls and raceways under too small a load, causing smearing to develop.
Matched pair bearings may develop smearing when the ratio of the axial load to the radial load exceeds the value of e ($F_a / F_r > e$), as listed in the specification table. Consult with JTEKT when these bearings are used under the above conditions.

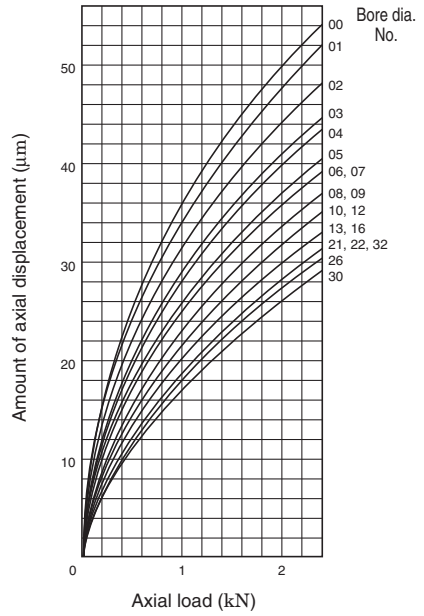
[Reference] Relationship between axial load and axial displacement

Diagrams (1) to (9) illustrate the relationship between axial load and axial displacement.

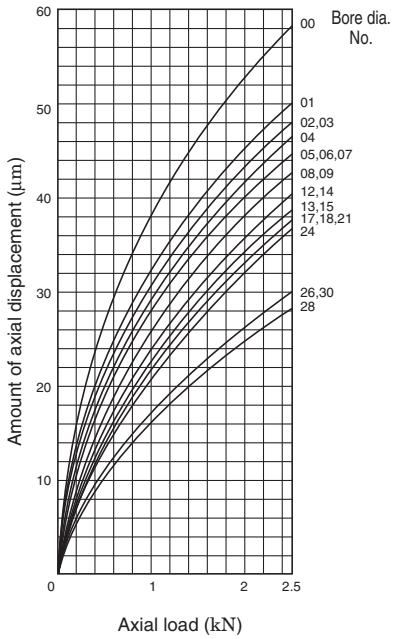
(1) 7900C (contact angle 15°)



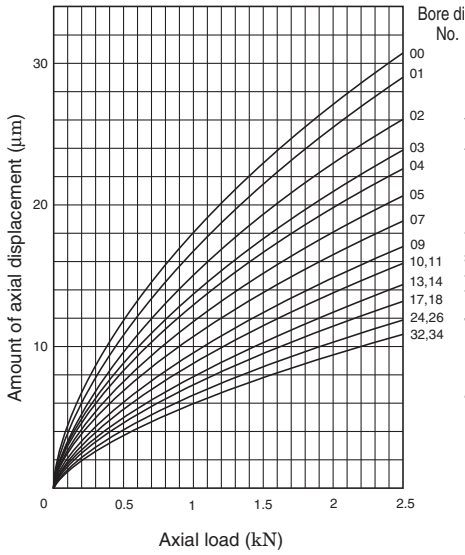
(2) 7000C (contact angle 15°)



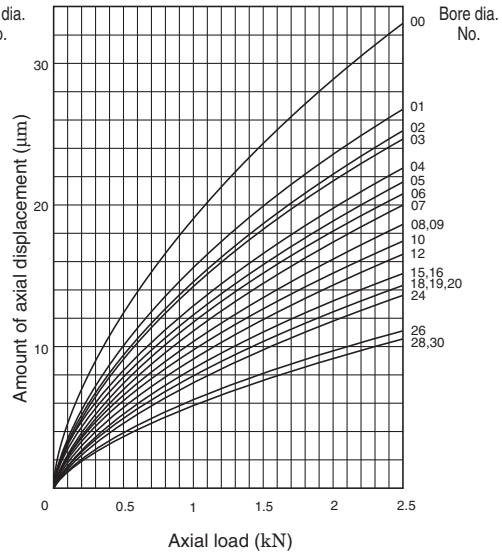
(3) 7200C (contact angle 15°)



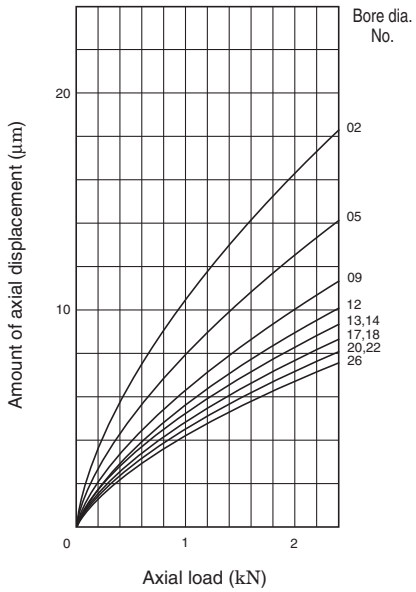
(4) 7000 (contact angle 30°)



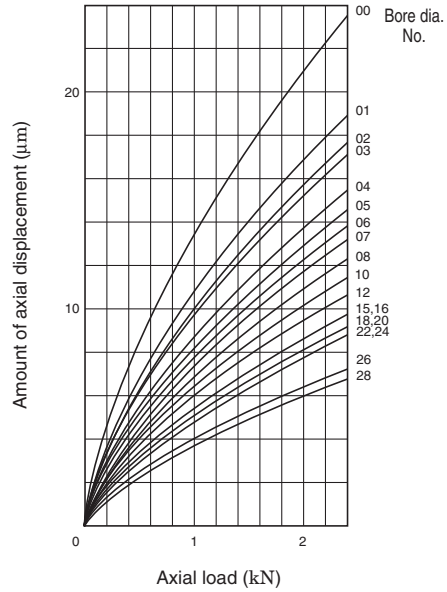
(5) 7200 (contact angle 30°)



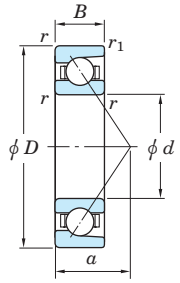
(6) 7000B (contact angle 40°)



(7) 7200B (contact angle 40°)

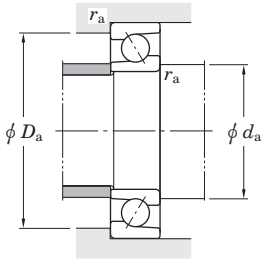


d 10 ~ (17) mm



With machined cage

With pressed cage



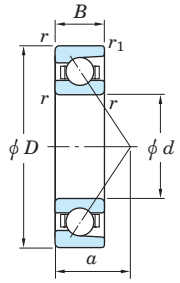
Boundary dimensions (mm)					Basic load ratings (kN)				Fatigue load limits (kN)		Factor	Limiting speeds [1] (min^{-1})		Bearing No. [2]	Load center (mm)	Mounting dimensions (mm)			(Refer.) Mass (kg)
					With machined cage		With pressed cage		C_u										
d	D	B	r min.	r_1 min.	C_r	C_{0r}	C_r	C_{0r}	With machined cage	With pressed cage	f_0	Grease lub.	Oil lub.		a	d_a min.	D_a max.	r_a max.	
10	22	6	0.3	0.15	3.75	1.50	—	—	0.060	—	14.2	52 000	69 000	**7900C**	5.1	12.5	19.5	0.3	0.008
	26	8	0.3	0.15	6.25	2.35	—	—	0.120	—	—	34 000	42 000	**7000**	9.1	12.5	23.5	0.3	0.021
	26	8	0.3	0.15	5.80	2.15	—	—	0.110	—	—	25 000	33 000	**7000B**	11.6	12.5	23.5	0.3	0.021
	26	8	0.3	0.15	6.60	2.45	—	—	0.130	—	12.5	47 000	62 000	**7000C**	6.4	12.5	23.5	0.3	0.021
	30	9	0.6	0.3	5.85	2.20	6.75	2.75	0.110	0.140	—	29 000	37 000	**7200**	10.4	14.5	25.5	0.6	0.031
	30	9	0.6	0.3	5.35	2.00	6.20	2.50	0.100	0.130	—	22 000	29 000	**7200B**	13.1	14.5	25.5	0.6	0.031
	30	9	0.6	0.3	6.25	2.35	7.25	2.95	0.120	0.150	13.4	40 000	54 000	**7200C**	7.2	14.5	25.5	0.6	0.031
	35	11	0.6	0.3	10.6	3.75	11.6	4.30	0.300	0.340	—	27 000	33 000	**7300**	12.0	14.5	30.5	0.6	0.054
12	24	6	0.3	0.15	4.00	1.70	—	—	0.070	—	14.7	48 000	62 000	**7901C**	5.4	14.5	21.5	0.3	0.010
	28	8	0.3	0.15	6.75	2.75	—	—	0.140	—	—	29 000	37 000	**7001**	9.9	14.5	25.5	0.3	0.024
	28	8	0.3	0.15	6.20	2.50	—	—	0.130	—	—	22 000	29 000	**7001B**	12.6	14.5	25.5	0.3	0.024
	28	8	0.3	0.15	7.25	2.95	—	—	0.150	—	13.4	40 000	54 000	**7001C**	6.7	14.5	25.5	0.3	0.024
	32	10	0.6	0.3	9.30	3.65	10.0	4.05	0.280	0.310	—	27 000	34 000	**7201**	11.4	16.5	27.5	0.6	0.038
	32	10	0.6	0.3	8.65	3.40	9.30	3.75	0.240	0.270	—	20 000	27 000	**7201B**	14.2	16.5	27.5	0.6	0.038
	32	10	0.6	0.3	9.90	3.85	10.6	4.30	0.300	0.330	12.5	38 000	50 000	**7201C**	7.9	16.5	27.5	0.6	0.038
	37	12	1	0.6	12.8	4.60	14.0	5.25	0.360	0.410	—	24 000	31 000	**7301**	13.1	17.5	31.5	1	0.065
15	28	7	0.3	0.15	5.95	2.65	—	—	0.110	—	14.5	39 000	52 000	**7902C**	6.4	17.5	25.5	0.3	0.015
	32	9	0.3	0.15	7.65	3.45	—	—	0.180	—	—	26 000	32 000	**7002**	11.3	17.5	29.5	0.3	0.035
	32	9	0.3	0.15	6.95	3.15	—	—	0.160	—	—	19 000	25 000	**7002B**	14.6	17.5	29.5	0.3	0.035
	32	9	0.3	0.15	8.25	3.70	—	—	0.190	—	14.1	35 000	47 000	**7002C**	7.6	17.5	29.5	0.3	0.035
	35	11	0.6	0.3	10.1	4.25	10.1	4.25	0.300	0.300	—	24 000	29 000	**7202**	12.9	19.5	30.5	0.6	0.048
	35	11	0.6	0.3	9.30	3.95	9.30	3.95	0.260	0.260	—	18 000	24 000	**7202B**	16.2	19.5	30.5	0.6	0.048
	35	11	0.6	0.3	10.8	4.55	10.8	4.55	0.340	0.340	13.3	33 000	43 000	**7202C**	8.9	19.5	30.5	0.6	0.048
	42	13	1	0.6	15.7	6.45	16.8	7.20	0.490	0.550	—	20 000	25 000	**7302**	15.0	20.5	36.5	1	0.088
17	30	7	0.3	0.15	6.25	2.95	—	—	0.120	—	14.9	36 000	47 000	**7903C**	6.7	19.5	27.5	0.3	0.016
	35	10	0.3	0.15	8.40	4.15	—	—	0.210	—	—	23 000	28 000	**7003**	12.7	19.5	32.5	0.3	0.045

[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings.
Limiting speeds of pressed cage bearings should be kept to under 80% of this value.
For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined cage or molded cage.

2) B, C or no indication after the bearing number indicates nominal contact angle of 40°, 15° and 30° respectively.

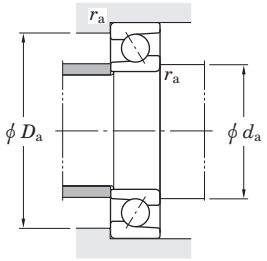
[Remark] Standard cage types used for the above bearings are described earlier in this section.

d (17) ~ (25) mm



With machined cage

With pressed cage



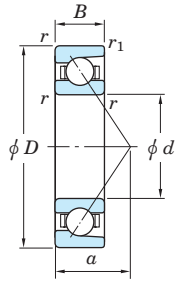
Boundary dimensions (mm)					Basic load ratings (kN)				Fatigue load limits (kN) C_u		Factor	Limiting speeds [1] (min^{-1})		Bearing No. [2]	Load center (mm)	Mounting dimensions (mm)			(Refer.) Mass (kg)
					With machined cage		With pressed cage												
d	D	B	r min.	r_1 min.	C_r	C_{0r}	C_r	C_{0r}	With machined cage	With pressed cage	f_0	Grease lub.	Oil lub.		a	d_a min.	D_a max.	r_a max.	
17	35	10	0.3	0.15	7.60	3.75	—	—	0.190	—	—	17 000	23 000	**7003B**	16.1	19.5	32.5	0.3	0.045
	35	10	0.3	0.15	9.15	4.45	—	—	0.230	—	14.6	31 000	41 000	**7003C**	8.6	19.5	32.5	0.3	0.045
	40	12	0.6	0.3	12.7	5.50	12.7	5.50	0.380	0.380	—	21 000	26 000	**7203**	14.4	21.5	35.5	0.6	0.070
	40	12	0.6	0.3	11.7	5.05	11.7	5.05	0.330	0.330	—	16 000	21 000	**7203B**	18.2	21.5	35.5	0.6	0.070
	40	12	0.6	0.3	13.6	5.90	13.6	5.90	0.440	0.440	13.4	29 000	38 000	**7203C**	9.9	21.5	35.5	0.6	0.070
	47	14	1	0.6	18.7	7.90	20.0	8.75	0.590	0.660	—	18 000	23 000	**7303**	16.5	22.5	41.5	1	0.120
	47	14	1	0.6	17.3	7.30	18.5	8.10	0.510	0.570	—	14 000	18 000	**7303B**	20.8	22.5	41.5	1	0.120
	47	14	1	0.6	19.8	8.40	19.8	8.40	0.650	0.650	12.6	25 000	33 000	**7303C**	11.4	22.5	41.5	1	0.120
20	37	9	0.3	0.15	9.10	4.55	—	—	0.240	—	14.9	30 000	39 000	**7904C**	8.3	22.5	34.5	0.3	0.035
	42	12	0.6	0.3	12.9	6.10	—	—	0.390	—	—	19 000	24 000	**7004**	15.1	24.5	37.5	0.6	0.079
	42	12	0.6	0.3	11.7	5.55	—	—	0.340	—	—	14 000	19 000	**7004B**	19.2	24.5	37.5	0.6	0.079
	42	12	0.6	0.3	13.9	6.60	—	—	0.450	—	14.1	26 000	35 000	**7004C**	10.2	24.5	37.5	0.6	0.079
	47	14	1	0.6	18.1	8.40	19.2	9.15	0.580	0.640	—	17 000	22 000	**7204**	17.0	25.5	41.5	1	0.112
	47	14	1	0.6	16.6	7.70	17.6	8.40	0.500	0.550	—	13 000	17 000	**7204B**	21.5	25.5	41.5	1	0.112
	47	14	1	0.6	19.4	9.00	20.6	9.80	0.670	0.730	13.4	24 000	32 000	**7204C**	11.6	25.5	41.5	1	0.112
	52	15	1.1	0.6	21.8	9.40	23.4	10.4	0.710	0.790	—	17 000	21 000	**7304**	17.9	27	45	1	0.150
	52	15	1.1	0.6	20.2	8.70	21.7	9.65	0.610	0.680	—	13 000	17 000	**7304B**	22.6	27	45	1	0.150
	52	15	1.1	0.6	23.1	9.95	24.8	11.1	0.780	0.860	12.6	23 000	31 000	**7304C**	12.3	27	45	1	0.150
	72	19	1.1	0.6	44.5	19.1	—	—	1.50	—	—	9 600	13 000	**7404**	23.1	27	65	1	0.395
	72	19	1.1	0.6	41.9	17.9	—	—	1.40	—	—	8 500	12 000	**7404B**	29.2	27	65	1	0.395
25	42	9	0.3	0.15	10.2	5.45	—	—	0.300	—	15.5	25 000	33 000	**7905C**	9.1	27.5	39.5	0.3	0.041
	47	12	0.6	0.3	14.1	7.40	—	—	0.450	—	—	17 000	21 000	**7005**	16.4	29.5	42.5	0.6	0.091
	47	12	0.6	0.3	12.8	6.70	—	—	0.390	—	—	12 000	17 000	**7005B**	21.1	29.5	42.5	0.6	0.091
	47	12	0.6	0.3	15.4	8.00	—	—	0.510	—	14.7	23 000	30 000	**7005C**	10.8	29.5	42.5	0.6	0.091
	52	15	1	0.6	19.2	9.50	20.2	10.3	0.620	0.670	—	15 000	19 000	**7205**	18.8	30.5	46.5	1	0.135
	52	15	1	0.6	17.5	8.70	18.4	9.40	0.530	0.580	—	12 000	15 000	**7205B**	23.9	30.5	46.5	1	0.135

[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings.
Limiting speeds of pressed cage bearings should be kept to under 80% of this value.
For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined cage or molded cage.

2) B, C or no indication after the bearing number indicates nominal contact angle of 40°, 15° and 30° respectively.

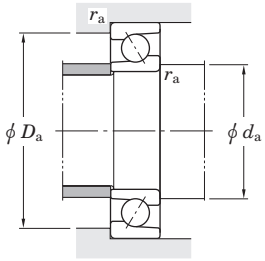
[Remark] Standard cage types used for the above bearings are described earlier in this section.

d (25) ~ (35) mm



With machined cage

With pressed cage



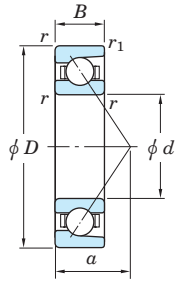
Boundary dimensions (mm)					Basic load ratings (kN)				Fatigue load limits (kN)		Factor		Limiting speeds [1] (min^{-1})		Bearing No. [2]	Load center (mm)	Mounting dimensions (mm)			(Refer.) Mass (kg)
					With machined cage		With pressed cage		C_u											
d	D	B	r min.	r_1 min.	C_r	C_{0r}	C_r	C_{0r}	With machined cage	With pressed cage	f_0		Grease lub.	Oil lub.		a	d_a min.	D_a max.	r_a max.	
25	52	15	1	0.6	20.7	10.2	21.9	11.1	0.710	0.770	14.0		21 000	28 000	**7205C**	12.7	30.5	46.5	1	0.135
	62	17	1.1	0.6	31.0	14.4	33.0	15.8	1.05	1.15	—		14 000	17 000	**7305**	21.1	32	55	1	0.243
	62	17	1.1	0.6	28.6	13.3	30.5	14.6	0.910	1.00	—		10 000	14 000	**7305B**	26.8	32	55	1	0.243
	62	17	1.1	0.6	33.0	15.3	35.1	16.8	1.20	1.30	12.8		19 000	25 000	**7305C**	14.3	32	55	1	0.243
	80	21	1.5	1	49.7	23.2	53.3	25.7	1.80	2.00	—		8 200	11 000	**7405**	26.4	33.5	71.5	1.5	0.527
	80	21	1.5	1	46.1	21.5	49.5	23.9	1.55	1.70	—		7 300	10 000	**7405B**	33.6	33.5	71.5	1.5	0.527
30	47	9	0.3	0.15	10.4	6.25	—	—	0.320	—	15.9		22 000	29 000	**7906C**	9.7	32.5	44.5	0.3	0.046
	55	13	1	0.6	18.2	10.1	—	—	0.610	—	—		14 000	18 000	**7006**	18.8	35.5	49.5	1	0.133
	55	13	1	0.6	16.4	9.20	—	—	0.530	—	—		11 000	14 000	**7006B**	24.3	35.5	49.5	1	0.133
	55	13	1	0.6	19.8	11.0	—	—	0.690	—	14.9		20 000	26 000	**7006C**	12.2	35.5	49.5	1	0.133
	62	16	1	0.6	26.7	13.7	28.1	14.8	0.890	0.970	—		13 000	16 000	**7206**	21.5	35.5	56.5	1	0.208
	62	16	1	0.6	24.3	12.5	25.6	13.6	0.770	0.840	—		9 600	13 000	**7206B**	27.6	35.5	56.5	1	0.208
	62	16	1	0.6	28.8	14.7	30.4	16.0	1.00	1.10	14.0		18 000	24 000	**7206C**	14.3	35.5	56.5	1	0.208
	72	19	1.1	0.6	37.6	18.9	39.9	20.6	1.30	1.45	—		12 000	14 000	**7306**	24.5	37	65	1	0.362
	72	19	1.1	0.6	34.5	17.4	36.6	19.0	1.15	1.25	—		8 700	12 000	**7306B**	31.3	37	65	1	0.362
	72	19	1.1	0.6	40.4	20.3	42.8	22.1	1.50	1.65	13.4		16 000	21 000	**7306C**	16.5	37	65	1	0.362
	90	23	1.5	1	59.5	28.4	63.9	31.6	2.20	2.45	—		7 300	9 700	**7406**	29.3	38.5	81.5	1.5	0.686
	90	23	1.5	1	55.2	26.4	59.3	29.3	1.90	2.10	—		6 500	8 900	**7406B**	37.3	38.5	81.5	1.5	0.686
35	55	10	0.6	0.3	15.7	9.70	—	—	0.550	—	15.7		19 000	25 000	**7907C**	11.0	39.5	50.5	0.6	0.074
	62	14	1	0.6	21.9	12.6	—	—	0.740	—	—		12 000	15 000	**7007**	21.2	40.5	56.5	1	0.170
	62	14	1	0.6	19.7	11.4	—	—	0.640	—	—		9 200	12 000	**7007B**	27.6	40.5	56.5	1	0.170
	62	14	1	0.6	23.9	13.7	—	—	0.840	—	15.0		17 000	22 000	**7007C**	13.5	40.5	56.5	1	0.170
	72	17	1.1	0.6	35.2	18.6	37.1	20.2	1.20	1.30	—		11 000	14 000	**7207**	24.2	42	65	1	0.295
	72	17	1.1	0.6	32.0	17.0	33.8	18.5	1.05	1.15	—		8 300	11 000	**7207B**	31.4	42	65	1	0.295
	72	17	1.1	0.6	38.0	20.1	40.1	21.7	1.40	1.50	14.0		15 000	20 000	**7207C**	15.8	42	65	1	0.295
	80	21	1.5	1	44.2	22.0	49.9	26.4	1.55	1.85	—		10 000	13 000	**7307**	27.4	43.5	71.5	1.5	0.475
	80	21	1.5	1	40.6	20.2	45.8	24.3	1.30	1.60	—		7 700	10 000	**7307B**	35.0	43.5	71.5	1.5	0.475

[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings.
Limiting speeds of pressed cage bearings should be kept to under 80% of this value.
For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined cage or molded cage.

2) B, C or no indication after the bearing number indicates nominal contact angle of 40°, 15° and 30° respectively.

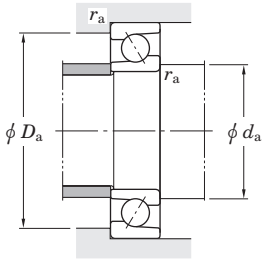
[Remark] Standard cage types used for the above bearings are described earlier in this section.

d (35) ~ 45 mm



With machined cage

With pressed cage



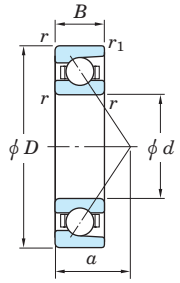
Boundary dimensions (mm)					Basic load ratings (kN)				Fatigue load limits (kN) C_u		Factor		Limiting speeds [1] (min^{-1})		Bearing No. [2]	Load center (mm)	Mounting dimensions (mm)			(Refer.) Mass (kg)
					With machined cage		With pressed cage													
d	D	B	r min.	r_1 min.	C_r	C_{0r}	C_r	C_{0r}	With machined cage	With pressed cage	f_0		Grease lub.	Oil lub.		a	d_a min.	D_a max.	r_a max.	
35	80	21	1.5	1	47.4	23.6	53.5	28.3	1.75	2.10	13.4		14 000	19 000	**7307C**	18.3	43.5	71.5	1.5	0.475
	100	25	1.5	1	75.6	37.0	81.1	41.1	2.85	3.20	—		6 500	8 600	**7407**	32.6	43.5	91.5	1.5	0.950
	100	25	1.5	1	70.2	34.3	75.3	38.1	2.45	2.75	—		5 700	7 900	**7407B**	41.7	43.5	91.5	1.5	0.950
40	62	12	0.6	0.3	19.7	12.4	—	—	0.710	—	15.7		17 000	22 000	**7908C**	12.8	44.5	57.5	0.6	0.107
	68	15	1	0.6	23.4	14.6	—	—	0.830	—	—		11 000	14 000	**7008**	23.2	45.5	62.5	1	0.210
	68	15	1	0.6	21.1	13.2	—	—	0.720	—	—		8 300	11 000	**7008B**	30.2	45.5	62.5	1	0.210
	68	15	1	0.6	25.7	15.9	—	—	0.940	—	15.4		15 000	20 000	**7008C**	14.8	45.5	62.5	1	0.210
	80	18	1.1	0.6	42.0	23.3	44.1	25.1	1.50	1.60	—		10 000	12 000	**7208**	26.3	47	73	1	0.382
	80	18	1.1	0.6	38.2	21.3	40.2	23.0	1.30	1.40	—		7 500	10 000	**7208B**	34.2	47	73	1	0.382
	80	18	1.1	0.6	45.4	25.2	47.7	27.1	1.70	1.85	14.2		14 000	18 000	**7208C**	17.0	47	73	1	0.382
	90	23	1.5	1	54.0	27.4	61.0	32.9	1.90	2.30	—		9 200	12 000	**7308**	30.3	48.5	81.5	1.5	0.657
	90	23	1.5	1	49.6	25.2	56.0	30.3	1.65	2.00	—		6 900	9 200	**7308B**	38.8	48.5	81.5	1.5	0.657
	90	23	1.5	1	57.9	29.4	65.4	35.3	2.20	2.65	13.4		13 000	17 000	**7308C**	20.2	48.5	81.5	1.5	0.657
	110	27	2	1	87.4	43.5	93.8	48.4	3.35	3.70	—		5 900	7 900	**7408**	35.5	50	100	2	1.23
	110	27	2	1	81.1	40.4	87.0	44.9	2.90	3.20	—		5 200	7 200	**7408B**	45.4	50	100	2	1.23
45	68	12	0.6	0.3	20.8	14.1	—	—	0.770	—	16.0		15 000	20 000	**7909C**	13.6	49.5	63.5	0.6	0.127
	75	16	1	0.6	27.8	17.7	—	—	1.00	—	—		10 000	12 000	**7009**	25.3	50.5	69.5	1	0.260
	75	16	1	0.6	25.0	16.0	—	—	0.870	—	—		7 500	10 000	**7009B**	33.2	50.5	69.5	1	0.260
	75	16	1	0.6	30.5	19.3	—	—	1.15	—	15.4		14 000	18 000	**7009C**	16.0	50.5	69.5	1	0.260
	85	19	1.1	0.6	47.2	26.6	49.6	28.6	1.70	1.85	—		9 400	12 000	**7209**	28.0	52	78	1	0.430
	85	19	1.1	0.6	42.9	24.3	45.1	26.1	1.50	1.60	—		7 000	9 400	**7209B**	36.4	52	78	1	0.430
	85	19	1.1	0.6	51.0	28.7	53.6	30.9	1.95	2.10	14.2		13 000	17 000	**7209C**	18.1	52	78	1	0.430
	100	25	1.5	1	68.9	37.1	73.1	40.4	2.55	2.80	—		8 200	10 000	**7309**	33.6	53.5	91.5	1.5	0.875
	100	25	1.5	1	63.2	34.1	67.0	37.2	2.20	2.40	—		6 200	8 200	**7309B**	43.1	53.5	91.5	1.5	0.875
	100	25	1.5	1	74.0	39.7	78.4	43.4	2.95	3.20	13.5		11 000	15 000	**7309C**	22.3	53.5	91.5	1.5	0.875
	120	29	2	1	106	53.8	114	59.8	4.20	4.65	—		5 400	7 100	**7409**	38.6	55	110	2	1.55
	120	29	2	1	98.7	50.0	106	55.5	3.60	4.00	—		4 800	6 600	**7409B**	49.5	55	110	2	1.55

[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings.
Limiting speeds of pressed cage bearings should be kept to under 80% of this value.
For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined cage or molded cage.

2) B, C or no indication after the bearing number indicates nominal contact angle of 40°, 15° and 30° respectively.

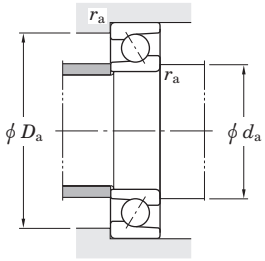
[Remark] Standard cage types used for the above bearings are described earlier in this section.

d 50 ~ (60) mm



With machined cage

With pressed cage



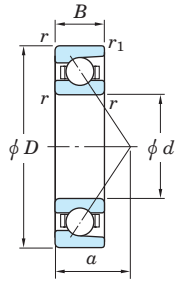
Boundary dimensions (mm)					Basic load ratings (kN)				Fatigue load limits (kN)		Factor		Limiting speeds [1] (min^{-1})		Bearing No. [2]	Load center (mm)	Mounting dimensions (mm)			(Refer.) Mass
					With machined cage		With pressed cage		C_u											
d	D	B	r min.	r_1 min.	C_r	C_{0r}	C_r	C_{0r}	With machined cage	With pressed cage	f_0		Grease lub.	Oil lub.		a	d_a min.	D_a max.	r_a max.	(kg)
50	72	12	0.6	0.3	21.8	15.7	—	—	0.840	—	16.2		14 000	18 000	**7910C**	14.2	54.5	67.5	0.6	0.128
	80	16	1	0.6	29.5	20.1	—	—	1.10	—	—		9 200	11 000	**7010**	26.9	55.5	74.5	1	0.290
	80	16	1	0.6	26.5	18.1	—	—	0.960	—	—		6 900	9 200	**7010B**	35.3	55.5	74.5	1	0.290
	80	16	1	0.6	32.5	21.9	—	—	1.25	—	15.7		13 000	17 000	**7010C**	16.8	55.5	74.5	1	0.290
	90	20	1.1	0.6	49.2	29.4	51.6	31.5	1.80	1.95	—		8 500	11 000	**7210**	30.4	57	83	1	0.485
	90	20	1.1	0.6	44.6	26.7	46.7	28.6	1.55	1.70	—		6 400	8 500	**7210B**	39.6	57	83	1	0.485
	90	20	1.1	0.6	53.5	31.8	56.0	34.1	2.05	2.20	14.6		12 000	16 000	**7210C**	19.4	57	83	1	0.485
	110	27	2	1	87.6	48.1	92.9	52.5	3.35	3.65	—		7 300	9 100	**7310**	37.2	60	100	2	1.14
	110	27	2	1	80.5	44.3	85.3	48.3	2.90	3.15	—		5 500	7 300	**7310B**	47.9	60	100	2	1.14
	110	27	2	1	93.9	51.6	99.5	56.2	3.85	4.20	13.4		10 000	13 000	**7310C**	24.5	60	100	2	1.14
	130	31	2.1	1.1	122	65.3	—	—	4.90	—	—		4 900	6 600	**7410**	41.6	62	118	2	1.92
	130	31	2.1	1.1	113	60.4	—	—	4.20	—	—		4 400	6 000	**7410B**	53.5	62	118	2	1.92
55	80	13	1	0.6	24.6	18.5	—	—	0.980	—	16.3		13 000	17 000	**7911C**	15.5	60.5	74.5	1	0.178
	90	18	1.1	0.6	38.9	26.3	—	—	1.50	—	—		8 300	10 000	**7011**	29.9	62	83	1	0.420
	90	18	1.1	0.6	34.9	23.7	—	—	1.30	—	—		6 200	8 300	**7011B**	39.4	62	83	1	0.420
	90	18	1.1	0.6	42.6	28.6	—	—	1.65	—	15.5		11 000	15 000	**7011C**	18.7	62	83	1	0.420
	100	21	1.5	1	60.9	37.1	63.7	39.8	2.30	2.45	—		7 600	9 500	**7211**	33.3	63.5	91.5	1.5	0.635
	100	21	1.5	1	55.1	33.8	57.7	36.2	2.00	2.15	—		5 700	7 600	**7211B**	43.6	63.5	91.5	1.5	0.635
	100	21	1.5	1	66.1	40.2	69.2	43.1	2.60	2.80	14.6		11 000	14 000	**7211C**	21.1	63.5	91.5	1.5	0.635
	120	29	2	1	101	56.5	107	61.7	3.95	4.30	—		6 700	8 400	**7311**	40.2	65	110	2	1.45
	120	29	2	1	92.9	52.0	98.4	56.7	3.40	3.70	—		5 000	6 700	**7311B**	51.8	65	110	2	1.45
	120	29	2	1	108	60.6	115	66.1	4.50	4.90	13.4		9 300	12 000	**7311C**	26.4	65	110	2	1.45
	140	33	2.1	1.1	148	82.4	—	—	6.40	—	—		4 500	6 000	**7411**	45.0	67	128	2	2.36
	140	33	2.1	1.1	138	76.5	—	—	5.50	—	—		4 000	5 500	**7411B**	57.8	67	128	2	2.36
60	85	13	1	0.6	29.0	21.8	—	—	1.15	—	16.3		12 000	16 000	**7912C**	16.3	65.5	79.5	1	0.187
	95	18	1.1	0.6	39.9	28.1	—	—	1.55	—	—		7 700	9 700	**7012**	31.4	67	88	1	0.450
	95	18	1.1	0.6	35.7	25.3	—	—	1.35	—	—		5 800	7 700	**7012B**	41.5	67	88	1	0.450

[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings.
Limiting speeds of pressed cage bearings should be kept to under 80% of this value.
For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined cage or molded cage.

2) B, C or no indication after the bearing number indicates nominal contact angle of 40°, 15° and 30° respectively.

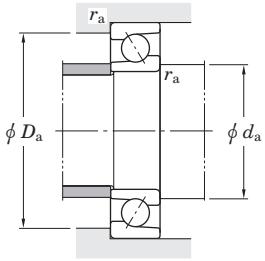
[Remark] Standard cage types used for the above bearings are described earlier in this section.

d (60) ~ (70) mm



With machined cage

With pressed cage

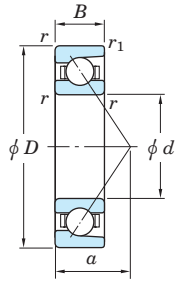


Boundary dimensions (mm)					Basic load ratings (kN)				Fatigue load limits (kN) C_u		Factor	Limiting speeds [1] (min^{-1})		Bearing No. [2]	Load center (mm)	Mounting dimensions (mm)			(Refer.) Mass (kg)
					With machined cage		With pressed cage												
d	D	B	r min.	r_1 min.	C_r	C_{0r}	C_r	C_{0r}	With machined cage	With pressed cage	f_0	Grease lub.	Oil lub.		a	d_a min.	D_a max.	r_a max.	
60	95	18	1.1	0.6	43.8	30.6	—	—	1.75	—	15.7	11 000	14 000	**7012C**	19.4	67	88	1	0.450
	110	22	1.5	1	73.7	45.7	77.1	49.0	2.85	3.05	—	6 900	8 600	**7212**	36.1	68.5	101.5	1.5	0.820
	110	22	1.5	1	66.8	41.6	69.9	44.6	2.45	2.60	—	5 100	6 900	**7212B**	47.5	68.5	101.5	1.5	0.820
	110	22	1.5	1	80.0	49.5	83.8	53.0	3.20	3.45	14.5	9 500	13 000	**7212C**	22.7	68.5	101.5	1.5	0.820
	130	31	2.1	1.1	116	65.6	123	71.6	4.55	5.00	—	6 200	7 700	**7312**	43.2	72	118	2	1.81
	130	31	2.1	1.1	106	60.3	113	65.8	3.95	4.30	—	4 600	6 200	**7312B**	55.8	72	118	2	1.81
	130	31	2.1	1.1	124	70.3	131	76.7	5.25	5.70	13.4	8 600	11 000	**7312C**	28.4	72	118	2	1.81
	150	35	2.1	1.1	161	93.6	—	—	6.85	—	—	4 100	5 500	**7412**	48.5	72	138	2	2.85
	150	35	2.1	1.1	149	86.7	—	—	5.90	—	—	3 700	5 100	**7412B**	62.6	72	138	2	2.85
65	90	13	1	0.6	25.9	21.2	—	—	1.10	—	16.5	11 000	15 000	**7913C**	16.9	70.5	84.5	1	0.205
	100	18	1.1	0.6	42.1	31.4	—	—	1.70	—	—	7 200	9 000	**7013**	33.0	72	93	1	0.470
	100	18	1.1	0.6	37.7	28.3	—	—	1.45	—	—	5 400	7 200	**7013B**	43.8	72	93	1	0.470
	100	18	1.1	0.6	46.3	34.3	—	—	1.90	—	15.9	10 000	13 000	**7013C**	20.1	72	93	1	0.470
	120	23	1.5	1	84.1	54.2	87.8	57.8	3.35	3.55	—	6 400	8 000	**7213**	38.2	73.5	111.5	1.5	1.02
	120	23	1.5	1	76.2	49.3	79.5	52.6	2.90	3.10	—	4 800	6 400	**7213B**	50.3	73.5	111.5	1.5	1.02
	120	23	1.5	1	91.4	58.7	95.4	62.6	3.80	4.05	14.6	8 900	12 000	**7213C**	23.9	73.5	111.5	1.5	1.02
	140	33	2.1	1.1	131	75.3	139	82.2	5.15	5.65	—	5 800	7 200	**7313**	46.3	77	128	2	2.22
	140	33	2.1	1.1	120	69.3	127	75.6	4.45	4.85	—	4 300	5 800	**7313B**	59.7	77	128	2	2.22
	140	33	2.1	1.1	140	80.7	149	88.1	5.90	6.45	13.4	8 000	11 000	**7313C**	30.3	77	128	2	2.22
	160	37	2.1	1.1	174	104	—	—	7.40	—	—	3 900	5 200	**7413**	51.4	77	148	2	3.41
	160	37	2.1	1.1	161	96.8	—	—	6.35	—	—	3 500	4 800	**7413B**	66.3	77	148	2	3.41
70	100	16	1	0.6	36.2	29.0	—	—	1.55	—	16.4	10 000	12 000	**7914C**	19.4	75.5	94.5	1	0.332
	110	20	1.1	0.6	53.3	39.4	—	—	2.15	—	—	6 600	8 300	**7014**	36.0	77	103	1	0.660
	110	20	1.1	0.6	47.8	35.5	—	—	1.90	—	—	5 000	6 600	**7014B**	47.8	77	103	1	0.660
	110	20	1.1	0.6	58.6	43.0	—	—	2.45	—	15.7	9 200	12 000	**7014C**	22.1	77	103	1	0.660
	125	24	1.5	1	87.3	55.6	95.4	63.5	3.40	3.90	—	6 100	7 600	**7214**	40.2	78.5	116.5	1.5	1.12
	125	24	1.5	1	79.0	50.6	86.4	57.8	2.95	3.40	—	4 600	6 100	**7214B**	52.9	78.5	116.5	1.5	1.12

[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings.
Limiting speeds of pressed cage bearings should be kept to under 80% of this value.
For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined cage or molded cage.

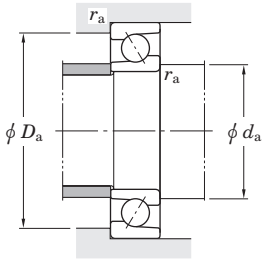
2) B, C or no indication after the bearing number indicates nominal contact angle of 40°, 15° and 30° respectively.
[Remark] Standard cage types used for the above bearings are described earlier in this section.

d (70) ~ (80) mm



With machined cage

With pressed cage



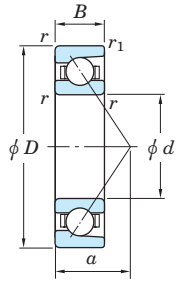
Boundary dimensions (mm)					Basic load ratings (kN)				Fatigue load limits (kN) C_u		Factor		Limiting speeds [1] (min^{-1})		Bearing No. [2]	Load center (mm)	Mounting dimensions (mm)			(Refer.) Mass (kg)
					With machined cage		With pressed cage													
d	D	B	r min.	r_1 min.	C_r	C_{0r}	C_r	C_{0r}	With machined cage	With pressed cage	f_0		Grease lub.	Oil lub.		a	d_a min.	D_a max.	r_a max.	
70	125	24	1.5	1	94.9	60.2	104	68.8	3.90	4.45	14.6		8 400	11 000	**7214C**	25.1	78.5	116.5	1.5	1.12
	150	35	2.1	1.1	147	85.8	156	93.6	5.70	6.20	—		5 400	6 700	**7314**	49.3	82	138	2	2.70
	150	35	2.1	1.1	135	78.9	143	86.0	4.90	5.35	—		4 000	5 400	**7314B**	63.7	82	138	2	2.70
	150	35	2.1	1.1	158	91.9	167	100	6.50	7.10	13.4		7 500	9 900	**7314C**	32.2	82	138	2	2.70
	180	42	3	1.1	187	115	—	—	5.30	—	—		3 500	4 600	**7414**	57.6	84	166	2.5	4.99
	180	42	3	1.1	185	119	—	—	5.45	—	—		3 100	4 300	**7414B**	74.2	84	166	2.5	4.99
75	105	16	1	0.6	36.7	30.5	—	—	1.60	—	16.5		9 300	12 000	**7915C**	20.1	80.5	99.5	1	0.350
	115	20	1.1	0.6	54.6	41.7	—	—	2.25	—	—		6 300	7 800	**7015**	37.4	82	108	1	0.690
	115	20	1.1	0.6	48.8	37.6	—	—	1.95	—	—		4 700	6 300	**7015B**	49.9	82	108	1	0.690
	115	20	1.1	0.6	60.1	45.6	—	—	2.55	—	15.9		8 700	11 000	**7015C**	22.7	82	108	1	0.690
	130	25	1.5	1	99.0	65.2	103	69.5	3.95	4.20	—		5 800	7 200	**7215**	42.1	83.5	121.5	1.5	1.23
	130	25	1.5	1	89.6	59.3	93.6	63.3	3.40	3.65	—		4 300	5 800	**7215B**	55.5	83.5	121.5	1.5	1.23
	130	25	1.5	1	108	70.6	112	75.3	4.50	4.80	14.6		8 000	11 000	**7215C**	26.2	83.5	121.5	1.5	1.23
	160	37	2.1	1.1	160	97.0	170	106	6.20	6.75	—		5 000	6 300	**7315**	52.4	87	148	2	3.15
	160	37	2.1	1.1	147	89.2	156	97.3	5.35	5.85	—		3 800	5 000	**7315B**	67.8	87	148	2	3.15
	160	37	2.1	1.1	172	104	182	113	7.10	7.75	13.4		7 000	9 200	**7315C**	34.2	87	148	2	3.15
	190	45	3	1.1	214	141	—	—	6.30	—	—		3 300	4 400	**7415**	61.3	89	176	2.5	5.90
	190	45	3	1.1	198	131	—	—	5.80	—	—		2 900	4 000	**7415B**	78.9	89	176	2.5	5.90
80	110	16	1	0.6	37.3	31.6	—	—	1.65	—	16.5		8 800	11 000	**7916C**	20.7	85.5	104.5	1	0.368
	125	22	1.1	0.6	66.7	50.6	—	—	2.75	—	—		5 800	7 200	**7016**	40.6	87	118	1	0.930
	125	22	1.1	0.6	59.8	45.7	—	—	2.40	—	—		4 300	5 800	**7016B**	54.0	87	118	1	0.930
	125	22	1.1	0.6	73.3	55.3	—	—	3.10	—	15.7		8 000	11 000	**7016C**	24.7	87	118	1	0.930
	140	26	2	1	107	71.5	111	76.2	4.10	4.40	—		5 400	6 700	**7216**	44.8	90	130	2	1.50
	140	26	2	1	96.4	65.0	101	69.3	3.55	3.80	—		4 000	5 400	**7216B**	59.2	90	130	2	1.50
	140	26	2	1	116	77.5	121	82.7	4.70	5.00	14.7		7 500	9 900	**7216C**	27.7	90	130	2	1.50
	170	39	2.1	1.1	174	109	184	119	6.75	7.35	—		4 700	5 900	**7316**	55.6	92	158	2	3.85
	170	39	2.1	1.1	159	100	169	109	5.80	6.35	—		3 500	4 700	**7316B**	71.9	92	158	2	3.85

[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings.
Limiting speeds of pressed cage bearings should be kept to under 80% of this value.
For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined cage or molded cage.

2) B, C or no indication after the bearing number indicates nominal contact angle of 40°, 15° and 30° respectively.

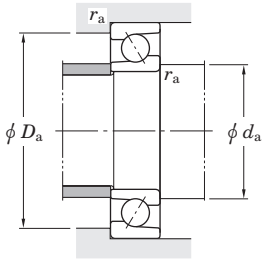
[Remark] Standard cage types used for the above bearings are described earlier in this section.

d (80) ~ 90 mm



With machined cage

With pressed cage



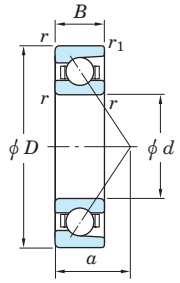
Boundary dimensions (mm)					Basic load ratings (kN)				Fatigue load limits (kN)		Factor		Limiting speeds [1] (min^{-1})		Bearing No. [2]	Load center (mm)	Mounting dimensions (mm)			(Refer.) Mass (kg)
					With machined cage		With pressed cage		C_u											
d	D	B	r min.	r_1 min.	C_r	C_{0r}	C_r	C_{0r}	With machined cage	With pressed cage	f_0		Grease lub.	Oil lub.		a	d_a min.	D_a max.	r_a max.	
80	170	39	2.1	1.1	186	117	197	127	7.70	8.40	13.5		6 500	8 600	**7316C**	36.2	92	158	2	3.85
	200	48	3	1.1	241	166	—	—	7.20	—	—		3 100	4 100	**7416**	65.0	94	186	2.5	6.00
	200	48	3	1.1	223	154	—	—	6.65	—	—		2 700	3 800	**7416B**	83.6	94	186	2.5	6.00
85	120	18	1.1	0.6	48.6	40.6	—	—	2.10	—	16.5		8 100	11 000	**7917C**	22.7	92	113	1	0.523
	130	22	1.1	0.6	68.2	53.7	—	—	2.75	—	—		5 500	6 800	**7017**	42.3	92	123	1	0.970
	130	22	1.1	0.6	61.0	48.4	—	—	2.40	—	—		4 100	5 500	**7017B**	56.5	92	123	1	0.970
	130	22	1.1	0.6	75.1	58.7	—	—	3.15	—	15.9		7 600	10 000	**7017C**	25.5	92	123	1	0.970
	150	28	2	1	123	83.6	129	89.2	4.70	5.00	—		5 000	6 300	**7217**	47.9	95	140	2	1.87
	150	28	2	1	111	76.0	116	81.1	4.05	4.35	—		3 800	5 000	**7217B**	63.3	95	140	2	1.87
	150	28	2	1	134	90.6	140	96.6	5.35	5.70	14.7		7 000	9 200	**7217C**	29.7	95	140	2	1.87
	180	41	3	1.1	187	122	198	133	7.30	7.95	—		4 400	5 500	**7317**	58.8	99	166	2.5	4.53
	180	41	3	1.1	172	112	182	122	6.30	6.85	—		3 300	4 400	**7317B**	76.1	99	166	2.5	4.53
	180	41	3	1.1	201	130	213	142	8.35	9.10	13.5		6 100	8 100	**7317C**	38.3	99	166	2.5	4.53
	210	52	4	1.5	255	180	—	—	7.65	—	—		3 000	3 900	**7417**	68.7	103	192	3	8.54
	210	52	4	1.5	236	167	—	—	7.10	—	—		2 600	3 600	**7417B**	88.1	103	192	3	8.54
90	125	18	1.1	0.6	49.5	42.6	—	—	2.15	—	16.6		7 800	10 000	**7918C**	23.4	97	118	1	0.551
	140	24	1.5	1	81.5	63.3	—	—	3.25	—	—		5 100	6 400	**7018**	45.2	98.5	131.5	1.5	1.26
	140	24	1.5	1	73.0	57.1	—	—	2.80	—	—		3 900	5 100	**7018B**	60.2	98.5	131.5	1.5	1.26
	140	24	1.5	1	89.6	69.1	—	—	3.65	—	15.7		7 100	9 400	**7018C**	27.4	98.5	131.5	1.5	1.26
	160	30	2	1	141	96.7	147	103	5.30	5.65	—		4 700	5 900	**7218**	51.1	100	150	2	2.30
	160	30	2	1	128	88.0	133	93.8	4.60	4.90	—		3 500	4 700	**7218B**	67.4	100	150	2	2.30
	160	30	2	1	153	105	160	112	6.00	6.40	14.6		6 500	8 600	**7218C**	31.7	100	150	2	2.30
	190	43	3	1.1	201	135	213	147	5.90	6.40	—		4 200	5 200	**7318**	61.9	104	176	2.5	5.30
	190	43	3	1.1	184	124	195	135	5.40	5.90	—		3 100	4 200	**7318B**	80.2	104	176	2.5	5.30
	190	43	3	1.1	216	145	229	158	6.30	6.90	13.5		5 800	7 700	**7318C**	40.3	104	176	2.5	5.30
	225	54	4	1.5	270	196	—	—	8.10	—	—		2 800	3 700	**7418**	72.5	108	207	3	11.4
	225	54	4	1.5	250	182	—	—	7.50	—	—		2 500	3 400	**7418B**	93.1	108	207	3	11.4

[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings.
Limiting speeds of pressed cage bearings should be kept to under 80% of this value.
For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined cage or molded cage.

2) B, C or no indication after the bearing number indicates nominal contact angle of 40°, 15° and 30° respectively.

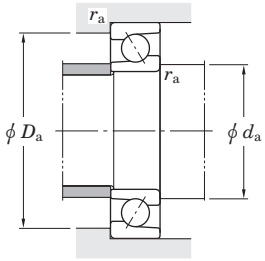
[Remark] Standard cage types used for the above bearings are described earlier in this section.

d 95 ~ (105) mm



With machined cage

With pressed cage



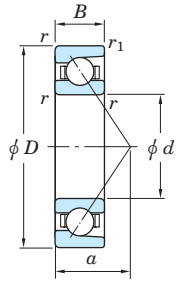
Boundary dimensions (mm)					Basic load ratings (kN)				Fatigue load limits (kN)		Factor		Limiting speeds [1] (min^{-1})		Bearing No. [2]	Load center (mm)	Mounting dimensions (mm)			(Refer.) Mass (kg)
					With machined cage		With pressed cage		C_u											
d	D	B	r min.	r_1 min.	C_r	C_{0r}	C_r	C_{0r}	With machined cage	With pressed cage	f_0		Grease lub.	Oil lub.		a	d_a min.	D_a max.	r_a max.	
95	130	18	1.1	0.6	50.3	44.1	—	—	2.15	—	16.5		7 400	9 800	**7919C**	24.1	102	123	1	0.574
	145	24	1.5	1	83.3	67.1	—	—	3.25	—	—		4 800	6 000	**7019**	47.2	103.5	136.5	1.5	1.32
	145	24	1.5	1	74.5	60.5	—	—	2.85	—	—		3 600	4 800	**7019B**	63.2	103.5	136.5	1.5	1.32
	145	24	1.5	1	91.7	73.4	—	—	3.70	—	15.9		6 700	8 900	**7019C**	28.3	103.5	136.5	1.5	1.32
	170	32	2.1	1.1	153	103	160	111	5.50	5.90	—		4 400	5 500	**7219**	54.3	107	158	2	2.78
	170	32	2.1	1.1	138	94.0	145	101	4.80	5.10	—		3 300	4 400	**7219B**	71.6	107	158	2	2.78
	170	32	2.1	1.1	166	112	174	120	6.30	6.75	14.6		6 100	8 100	**7219C**	33.8	107	158	2	2.78
	200	45	3	1.1	215	149	228	162	6.35	6.90	—		4 000	4 900	**7319**	65.1	109	186	2.5	6.12
	200	45	3	1.1	197	137	209	149	5.80	6.35	—		3 000	4 000	**7319B**	84.4	109	186	2.5	6.12
	200	45	3	1.1	231	160	245	174	6.80	7.40	13.5		5 500	7 300	**7319C**	42.3	109	186	2.5	6.12
100	140	20	1.1	0.6	69.4	58.5	—	—	2.85	—	16.3		7 000	9 200	**7920C**	26.1	107	133	1	0.773
	150	24	1.5	1	85.5	70.6	—	—	3.35	—	—		4 700	5 900	**7020**	48.1	108.5	141.5	1.5	1.37
	150	24	1.5	1	76.5	63.6	—	—	2.95	—	—		3 500	4 700	**7020B**	64.4	108.5	141.5	1.5	1.37
	150	24	1.5	1	94.2	77.2	—	—	3.80	—	16.0		6 500	8 600	**7020C**	28.7	108.5	141.5	1.5	1.37
	180	34	2.1	1.1	171	117	180	126	6.10	6.50	—		4 100	5 200	**7220**	57.7	112	168	2	3.32
	180	34	2.1	1.1	155	107	163	115	5.25	5.65	—		3 100	4 200	**7220B**	76.2	112	168	2	3.32
	180	34	2.1	1.1	186	127	195	136	6.95	7.40	14.6		5 700	7 600	**7220C**	35.9	112	168	2	3.32
	215	47	3	1.1	229	161	259	194	6.60	7.95	—		3 600	4 600	**7320**	69.4	114	201	2.5	7.53
	215	47	3	1.1	210	148	238	178	6.10	7.30	—		2 700	3 600	**7320B**	90.2	114	201	2.5	7.53
	215	47	3	1.1	246	173	278	208	7.10	8.50	13.4		5 000	6 700	**7320C**	44.8	114	201	2.5	7.53
105	145	20	1.1	0.6	70.8	61.5	—	—	2.90	—	16.4		6 700	8 800	**7921C**	26.7	112	138	1	0.810
	160	26	2	1	99.7	81.9	—	—	3.80	—	—		4 400	5 500	**7021**	51.8	115	150	2	1.73
	160	26	2	1	89.2	73.8	—	—	3.30	—	—		3 300	4 400	**7021B**	68.6	115	150	2	1.73
	160	26	2	1	110	89.6	—	—	4.30	—	15.9		6 000	8 000	**7021C**	31.0	115	150	2	1.73
	190	36	2.1	1.1	187	132	—	—	6.70	—	—		3 900	4 900	**7221**	61.0	117	178	2	3.95
	190	36	2.1	1.1	169	121	—	—	5.80	—	—		2 900	3 900	**7221B**	80.5	117	178	2	3.95

[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings.
Limiting speeds of pressed cage bearings should be kept to under 80% of this value.
For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined cage or molded cage.

2) B, C or no indication after the bearing number indicates nominal contact angle of 40°, 15° and 30° respectively.

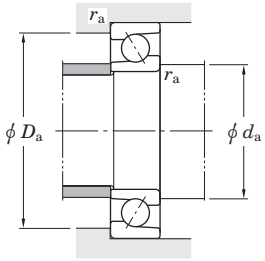
[Remark] Standard cage types used for the above bearings are described earlier in this section.

d (105) ~ (130) mm



With machined cage

With pressed cage



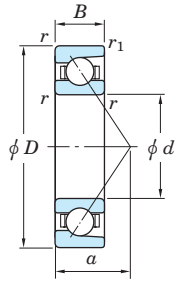
Boundary dimensions (mm)					Basic load ratings (kN)				Fatigue load limits (kN)		Factor	Limiting speeds [1] (min^{-1})		Bearing No. [2]	Load center (mm)	Mounting dimensions (mm)			(Refer.) Mass (kg)
					With machined cage		With pressed cage		C_u										
d	D	B	r min.	r_1 min.	C_r	C_{0r}	C_r	C_{0r}	With machined cage	With pressed cage	f_0	Grease lub.	Oil lub.		a	d_a min.	D_a max.	r_a max.	
105	190	36	2.1	1.1	203	143	—	—	7.60	—	14.6	5 400	7 200	**7221C**	38.0	117	178	2	3.95
	225	49	3	1.1	260	193	—	—	7.75	—	—	3 500	4 400	**7321**	72.1	119	211	2.5	8.62
	225	49	3	1.1	238	177	—	—	7.15	—	—	2 600	3 500	**7321B**	93.7	119	211	2.5	8.62
	225	49	3	1.1	278	207	—	—	8.30	—	13.4	4 800	6 400	**7321C**	46.6	119	211	2.5	8.62
110	150	20	1.1	0.6	72.2	64.4	—	—	2.95	—	16.5	6 400	8 500	**7922C**	27.4	117	143	1	0.840
	170	28	2	1	115	92.8	—	—	4.30	—	—	4 200	5 200	**7022**	54.4	120	160	2	2.14
	170	28	2	1	103	83.7	—	—	3.75	—	—	3 100	4 200	**7022B**	72.7	120	160	2	2.14
	170	28	2	1	126	101	—	—	4.85	—	15.7	5 800	7 700	**7022C**	32.8	120	160	2	2.14
	200	38	2.1	1.1	202	148	—	—	7.30	—	—	3 700	4 600	**7222**	64.3	122	188	2	4.65
	200	38	2.1	1.1	183	135	—	—	6.35	—	—	2 800	3 700	**7222B**	84.9	122	188	2	4.65
	200	38	2.1	1.1	220	160	—	—	8.35	—	14.5	5 100	6 800	**7222C**	40.0	122	188	2	4.65
	240	50	3	1.1	290	226	—	—	8.75	—	—	3 200	4 000	**7322**	76.4	124	226	2.5	10.1
	240	50	3	1.1	266	208	—	—	8.05	—	—	2 400	3 200	**7322B**	99.6	124	226	2.5	10.1
	240	50	3	1.1	311	242	—	—	9.40	—	13.4	4 500	5 900	**7322C**	48.8	124	226	2.5	10.1
120	165	22	1.1	0.6	89.7	81.2	—	—	3.55	—	16.5	5 900	7 800	**7924C**	30.1	127	158	1	1.15
	180	28	2	1	121	103	—	—	4.50	—	—	3 900	4 900	**7024**	57.3	130	170	2	2.27
	180	28	2	1	108	93.0	—	—	3.95	—	—	2 900	3 900	**7024B**	76.9	130	170	2	2.27
	180	28	2	1	133	113	—	—	5.10	—	16.0	5 400	7 100	**7024C**	34.1	130	170	2	2.27
	215	40	2.1	1.1	218	166	—	—	7.85	—	—	3 400	4 300	**7224**	68.5	132	203	2	5.49
	215	40	2.1	1.1	197	151	—	—	6.80	—	—	2 600	3 400	**7224B**	90.3	132	203	2	5.49
	215	40	2.1	1.1	237	180	—	—	8.95	—	14.6	4 800	6 300	**7224C**	42.5	132	203	2	5.49
	260	55	3	1.1	308	252	—	—	9.45	—	—	3 000	3 700	**7324**	82.3	134	246	2.5	12.6
	260	55	3	1.1	282	231	—	—	8.65	—	—	2 200	3 000	**7324B**	107.2	134	246	2.5	12.6
	260	55	3	1.1	331	271	—	—	10.2	—	13.7	4 100	5 500	**7324C**	53.0	134	246	2.5	12.6
130	180	24	1.5	1	109	99.9	—	—	4.20	—	16.4	5 400	7 100	**7926C**	32.8	138.5	171.5	1.5	1.50
	200	33	2	1	147	125	—	—	5.25	—	—	3 500	4 400	**7026**	64.1	140	190	2	3.43

[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings.
Limiting speeds of pressed cage bearings should be kept to under 80% of this value.
For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined cage or molded cage.

2) B, C or no indication after the bearing number indicates nominal contact angle of 40°, 15° and 30° respectively.

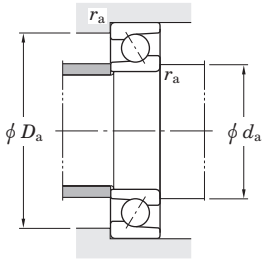
[Remark] Standard cage types used for the above bearings are described earlier in this section.

d (130) ~ (150) mm



With machined cage

With pressed cage



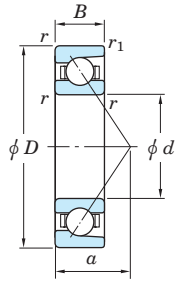
Boundary dimensions (mm)					Basic load ratings (kN)				Fatigue load limits (kN)		Factor		Limiting speeds [1] (min^{-1})		Bearing No. [2]	Load center (mm)	Mounting dimensions (mm)			(Refer.) Mass
					With machined cage		With pressed cage		C_u											
d	D	B	r min.	r_1 min.	C_r	C_{0r}	C_r	C_{0r}	With machined cage	With pressed cage	f_0		Grease lub.	Oil lub.		a	d_a min.	D_a max.	r_a max.	Mass (kg)
130	200	33	2	1	131	113	—	—	4.60	—	—		2 600	3 500	**7026B**	85.7	140	190	2	3.43
	200	33	2	1	161	137	—	—	5.95	—	15.9		4 800	6 400	**7026C**	38.6	140	190	2	3.43
	230	40	3	1.1	245	198	—	—	7.60	—	—		3 200	4 000	**7226**	72.0	144	216	2.5	6.21
	230	40	3	1.1	222	180	—	—	6.95	—	—		2 400	3 200	**7226B**	95.5	144	216	2.5	6.21
	230	40	3	1.1	266	214	—	—	8.25	—	14.7		4 400	5 800	**7226C**	44.1	144	216	2.5	6.21
	280	58	4	1.5	376	329	—	—	11.8	—	—		2 700	3 400	**7326**	88.8	148	262	3	15.4
	280	58	4	1.5	312	268	—	—	9.70	—	—		2 100	2 700	**7326B**	115.0	148	262	3	15.4
	280	58	4	1.5	368	314	—	—	11.3	—	13.7		3 800	5 000	**7326C**	56.5	148	262	3	15.4
140	190	24	1.5	1	110	105	—	—	4.20	—	16.6		5 100	6 700	**7928C**	34.1	148.5	181.5	1.5	1.59
	210	33	2	1	150	133	—	—	5.30	—	—		3 300	4 100	**7028**	67.0	150	200	2	3.64
	210	33	2	1	134	119	—	—	4.65	—	—		2 500	3 300	**7028B**	89.9	150	200	2	3.64
	210	33	2	1	165	145	—	—	6.00	—	16.0		4 500	6 000	**7028C**	39.9	150	200	2	3.64
	250	42	3	1.1	273	234	—	—	8.65	—	—		2 900	3 600	**7228**	77.3	154	236	2.5	7.76
	250	42	3	1.1	247	213	—	—	7.85	—	—		2 200	2 900	**7228B**	102.8	154	236	2.5	7.76
	250	42	3	1.1	297	254	—	—	9.40	—	14.8		4 000	5 300	**7228C**	47.1	154	236	2.5	7.76
	300	62	4	1.5	411	374	—	—	13.0	—	—		2 500	3 200	**7328**	94.5	158	282	3	18.8
	300	62	4	1.5	378	344	—	—	12.0	—	—		1 900	2 500	**7328B**	123.3	158	282	3	18.8
	300	62	4	1.5	441	401	—	—	14.0	—	13.4		3 500	4 600	**7328C**	60.5	158	282	3	18.8
150	210	28	2	1	148	132	—	—	5.45	—	16.3		4 700	6 200	**7930C**	38.1	160	200	2	2.47
	225	35	2.1	1.1	171	154	—	—	5.95	—	—		3 000	3 800	**7030**	72.1	162	213	2	4.43
	225	35	2.1	1.1	153	138	—	—	5.20	—	—		2 300	3 000	**7030B**	96.2	162	213	2	4.43
	225	35	2.1	1.1	188	169	—	—	6.70	—	16.1		4 200	5 500	**7030C**	42.8	162	213	2	4.43
	270	45	3	1.1	310	280	—	—	9.95	—	—		2 700	3 300	**7230**	83.1	164	256	2.5	9.75
	270	45	3	1.1	281	254	—	—	9.05	—	—		2 000	2 700	**7230B**	110.6	164	256	2.5	9.75
	270	45	3	1.1	338	303	—	—	10.8	—	14.7		3 700	4 900	**7230C**	50.6	164	256	2.5	9.75
	320	65	4	1.5	434	414	—	—	14.0	—	—		2 300	2 900	**7330**	100.3	168	302	3	22.4
	320	65	4	1.5	397	380	—	—	12.8	—	—		1 800	2 300	**7330B**	131.1	168	302	3	22.4

[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings.
Limiting speeds of pressed cage bearings should be kept to under 80% of this value.
For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined cage or molded cage.

2) B, C or no indication after the bearing number indicates nominal contact angle of 40°, 15° and 30° respectively.

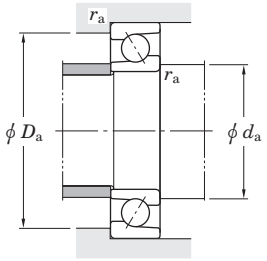
[Remark] Standard cage types used for the above bearings are described earlier in this section.

d (150) ~ (180) mm



With machined cage

With pressed cage



Boundary dimensions (mm)					Basic load ratings (kN)				Fatigue load limits (kN)		Factor	Limiting speeds [1] (min^{-1})		Bearing No. [2]	Load center (mm)	Mounting dimensions (mm)			(Refer.) Mass (kg)
					With machined cage		With pressed cage		C_u										
d	D	B	r min.	r_1 min.	C_r	C_{0r}	C_r	C_{0r}	With machined cage	With pressed cage	f_0	Grease lub.	Oil lub.		a	d_a min.	D_a max.	r_a max.	
150	320	65	4	1.5	468	445	—	—	15.0	—	13.7	3 200	4 300	**7330C**	64.0	168	302	3	22.4
160	220	28	2	1	151	144	—	—	5.45	—	16.5	4 400	5 800	**7932C**	39.5	170	210	2	2.60
	240	38	2.1	1.1	194	176	—	—	6.65	—	—	2 800	3 500	**7032**	76.8	172	228	2	5.45
	240	38	2.1	1.1	173	158	—	—	5.80	—	—	2 100	2 800	**7032B**	102.9	172	228	2	5.45
	240	38	2.1	1.1	214	193	—	—	7.50	—	16.0	3 900	5 200	**7032C**	45.8	172	228	2	5.45
	290	48	3	1.1	288	263	—	—	9.05	—	—	2 500	3 100	**7232**	89.0	174	276	2.5	12.1
	290	48	3	1.1	297	279	—	—	9.60	—	—	1 800	2 500	**7232B**	118.4	174	276	2.5	12.1
	290	48	3	1.1	315	333	—	—	9.85	—	15.2	3 400	4 500	**7232C**	54.1	174	276	2.5	12.1
	340	68	4	1.5	456	455	—	—	14.9	—	—	2 200	2 700	**7332**	106.2	178	322	3	26.4
	340	68	4	1.5	415	416	—	—	13.6	—	—	1 600	2 200	**7332B**	138.9	178	322	3	26.4
	340	68	4	1.5	492	490	—	—	16.0	—	14.0	3 000	4 000	**7332C**	67.5	168.5	322	3	26.4
170	230	28	2	1	157	151	—	—	5.75	—	16.6	3 900	5 100	**7934C**	40.8	180	220	2	3.21
	260	42	2.1	1.1	232	214	—	—	7.90	—	—	2 600	3 200	**7034**	83.1	182	248	2	7.58
	260	42	2.1	1.1	208	193	—	—	6.90	—	—	1 900	2 600	**7034B**	111.2	182	248	2	7.77
	260	42	2.1	1.1	256	234	—	—	8.95	—	15.9	3 600	4 800	**7034C**	49.8	182	248	2	7.57
	310	52	4	1.5	340	331	—	—	11.0	—	—	2 300	2 800	**7234**	95.3	188	292	3	15.1
	310	52	4	1.5	306	300	—	—	10.0	—	—	1 700	2 300	**7234B**	126.7	188	292	3	15.1
	310	52	4	1.5	371	359	—	—	12.0	—	15.1	3 100	4 200	**7234C**	58.2	188	292	3	15.1
	360	72	4	1.5	486	485	—	—	15.4	—	—	2 000	2 500	**7334**	112.5	188	342	3	31.2
	360	72	4	1.5	444	444	—	—	14.1	—	—	1 500	2 000	**7334B**	147.2	188	342	3	31.2
	360	72	4	1.5	523	521	—	—	16.5	—	13.8	2 800	3 700	**7334C**	71.5	188	342	3	31.2
180	250	33	2	1	200	188	—	—	7.05	—	16.4	3 600	4 700	**7936C**	45.3	190	240	2	4.68
	280	46	2.1	1.1	265	253	—	—	9.15	—	—	2 400	3 000	**7036**	89.4	192	268	2	10.1
	280	46	2.1	1.1	237	228	—	—	7.95	—	—	1 800	2 400	**7036B**	119.5	192	268	2	10.2
	280	46	2.1	1.1	291	276	—	—	10.4	—	15.7	3 300	4 400	**7036C**	53.8	192	268	2	9.96
	320	52	4	1.5	367	362	—	—	11.8	—	—	2 200	2 700	**7236**	98.2	198	302	3	15.7

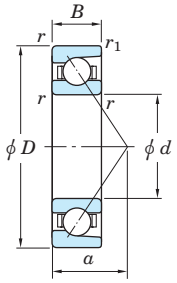
[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings.
Limiting speeds of pressed cage bearings should be kept to under 80% of this value.
For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined cage or molded cage.

2) B, C or no indication after the bearing number indicates nominal contact angle of 40°, 15° and 30° respectively.

[Remark] Standard cage types used for the above bearings are described earlier in this section.

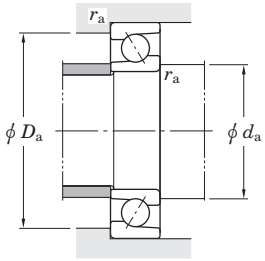
Single-row angular contact ball bearings

d (180) ~ (240) mm



With machined cage

With pressed cage



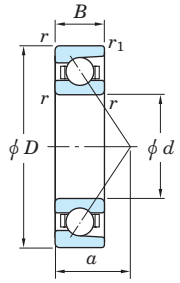
Boundary dimensions (mm)					Basic load ratings (kN)				Fatigue load limits (kN)		Factor		Limiting speeds [1] (min^{-1})		Bearing No. [2]	Load center (mm)	Mounting dimensions (mm)			(Refer.) Mass (kg)
					With machined cage		With pressed cage		C_u											
d	D	B	r min.	r_1 min.	C_r	C_{0r}	C_r	C_{0r}	With machined cage	With pressed cage	f_0		Grease lub.	Oil lub.		a	d_a min.	D_a max.	r_a max.	
180	320	52	4	1.5	331	329	—	—	10.7	—	—		1 600	2 200	**7236B**	130.9	198	302	3	15.7
	320	52	4	1.5	400	393	—	—	12.8	—	14.9		3 000	4 000	**7236C**	59.5	198	302	3	15.7
	380	75	4	1.5	512	534	—	—	16.5	—	—		1 900	2 400	**7336**	118.3	198	362	3	40.0
	380	75	4	1.5	466	488	—	—	15.1	—	—		1 400	1 900	**7336B**	155.0	198	362	3	40.0
190	260	33	2	1	198	197	—	—	6.85	—	16.5		3 300	4 500	**7938C**	46.6	200	250	2	4.83
	290	46	2.1	1.1	271	268	—	—	9.35	—	—		2 300	2 800	**7038**	92.3	202	278	2	10.8
	290	46	2.1	1.1	243	241	—	—	8.15	—	—		1 700	2 300	**7038B**	123.7	202	278	2	10.8
	290	46	2.1	1.1	299	293	—	—	10.6	—	15.9		3 100	4 200	**7038C**	55.2	202	278	2	10.8
	340	55	4	1.5	379	390	—	—	12.4	—	—		2 000	2 500	**7238**	104.0	208	322	3	18.8
	340	55	4	1.5	341	353	—	—	11.2	—	—		1 500	2 000	**7238B**	138.7	208	322	3	18.8
	340	55	4	1.5	414	424	—	—	13.5	—	15.1		2 800	3 700	**7238C**	63.0	208	322	3	18.8
	400	78	5	2	563	598	—	—	18.0	—	—		1 800	2 200	**7338**	124.2	212	378	4	45.5
	400	78	5	2	514	548	—	—	16.5	—	—		1 300	1 800	**7338B**	162.8	212	378	4	45.5
200	280	38	2.1	1.1	256	255	—	—	8.70	—	16.3		3 100	4 100	**7940C**	51.2	212	268	2	6.85
	310	51	2.1	1.1	304	309	—	—	10.0	—	—		2 100	2 600	**7040**	99.1	212	298	2	12.7
	310	51	2.1	1.1	273	279	—	—	9.05	—	—		1 600	2 100	**7040B**	132.5	212	298	2	12.7
	310	51	2.1	1.1	335	338	—	—	10.9	—	15.7		2 900	3 900	**7040C**	59.7	212	298	2	12.7
	360	58	4	1.5	405	423	—	—	13.1	—	—		1 900	2 400	**7240**	109.8	218	342	3	22.4
	360	58	4	1.5	365	384	—	—	11.9	—	—		1 400	1 900	**7240B**	146.5	218	342	3	22.4
	360	58	4	1.5	442	460	—	—	14.2	—	15.1		2 600	3 500	**7240C**	66.5	218	342	3	22.4
	420	80	5	2	593	658	—	—	19.3	—	—		1 700	2 100	**7340**	129.5	222	398	4	52.0
	420	80	5	2	541	602	—	—	17.7	—	—		1 200	1 700	**7340B**	170.1	222	398	4	52.0
220	340	56	3	1.1	334	353	—	—	10.9	—	—		1 900	2 400	**7044**	108.9	234	326	2.5	18.5
	340	56	3	1.1	299	318	—	—	9.80	—	—		1 400	1 900	**7044B**	145.5	234	326	2.5	18.9
240	360	56	3	1.1	364	375	—	—	12.3	—	—		1 700	2 200	**7048**	114.6	254	346	2.5	19.7
	360	56	3	1.1	325	338	—	—	11.1	—	—		1 300	1 700	**7048B**	153.9	254	346	2.5	20.1

[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings.
Limiting speeds of pressed cage bearings should be kept to under 80% of this value.
For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined cage or molded cage.

2) B, C or no indication after the bearing number indicates nominal contact angle of 40°, 15° and 30° respectively.

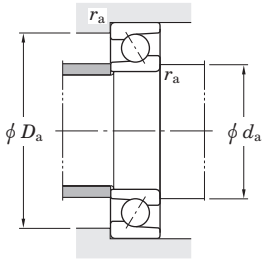
[Remark] Standard cage types used for the above bearings are described earlier in this section.

d (240) ~ 380 mm



With machined cage

With pressed cage



Boundary dimensions (mm)					Basic load ratings (kN)				Fatigue load limits (kN)		Factor		Limiting speeds [1] (min^{-1})		Bearing No. [2]	Load center (mm)	Mounting dimensions (mm)			(Refer.) Mass (kg)
					With machined cage		With pressed cage		C_u											
d	D	B	r min.	r_1 min.	C_r	C_{0r}	C_r	C_{0r}	With machined cage	With pressed cage	f_0		Grease lub.	Oil lub.		a	d_a min.	D_a max.	r_a max.	
240	440	72	4	1.5	504	595	—	—	16.7	—	—		1 500	1 800	**7248**	134.2	258	422	3	51.8
	440	72	4	1.5	453	539	—	—	15.1	—	—		1 100	1 500	**7248B**	178.6	258	422	3	52.8
260	400	65	4	1.5	407	478	—	—	13.6	—	—		1 500	1 900	**7052**	128.4	278	382	3	28.7
	400	65	4	1.5	364	431	—	—	12.2	—	—		1 100	1 500	**7052B**	171.0	278	382	3	29.3
280	420	65	4	1.5	415	507	—	—	14.0	—	—		1 400	1 800	**7056**	133.5	298	402	3	30.4
	420	65	4	1.5	384	453	—	—	13.1	—	—		1 100	1 400	**7056B**	179.3	298	402	3	31.0
300	460	74	4	1.5	533	680	—	—	18.0	—	—		1 300	1 600	**7060**	146.7	318	442	3	43.7
	460	74	4	1.5	478	613	—	—	16.3	—	—		960	1 300	**7060B**	196.4	318	442	3	44.9
320	480	74	4	1.5	546	722	—	—	18.6	—	—		1 200	1 500	**7064**	152.5	338	462	3	46.0
	480	74	4	1.5	489	651	—	—	16.8	—	—		890	1 200	**7064B**	204.8	338	462	3	47.2
340	520	82	5	2	628	861	—	—	21.4	—	—		1 100	1 300	**7068**	165.1	362	498	4	61.8
	520	82	5	2	563	777	—	—	19.4	—	—		800	1 100	**7068B**	221.4	362	498	4	63.3
360	540	82	5	2	644	913	—	—	22.2	—	—		1 000	1 300	**7072**	170.9	382	518	4	64.6
	540	82	5	2	577	824	—	—	20.1	—	—		750	1 000	**7072B**	229.8	382	518	4	66.2
380	560	82	5	2	660	966	—	—	23.0	—	—		940	1 200	**7076**	176.7	402	538	4	67.2
	560	82	5	2	590	870	—	—	20.7	—	—		700	940	**7076B**	238.2	402	538	4	69.1

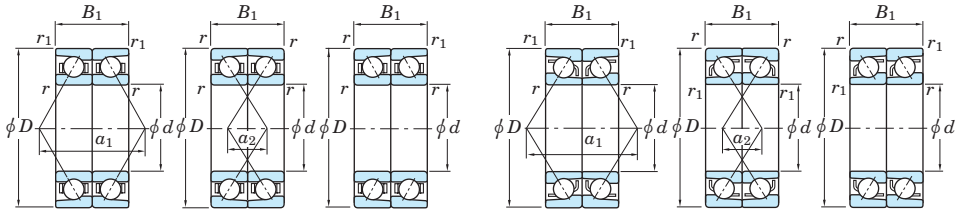
[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings.
Limiting speeds of pressed cage bearings should be kept to under 80% of this value.
For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined cage or molded cage.

2) B or no indication after the bearing number indicates nominal contact angle of 15° and 30° respectively.

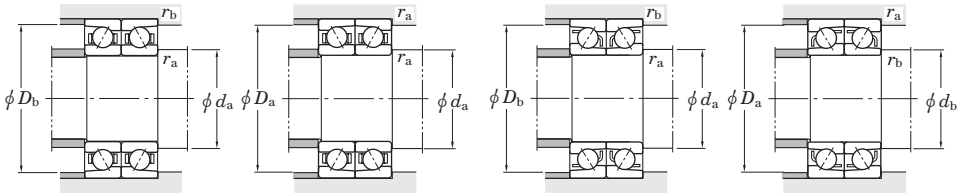
[Remark] Standard cage types used for the above bearings are described earlier in this section.

Angular contact ball bearings (matched pair)

d 10 ~ (17) mm



(With machined cages) (With pressed cages)



(With machined cages) (With pressed cages)

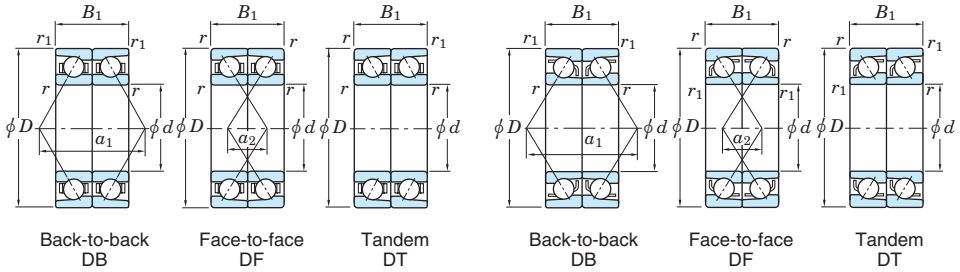
Boundary dimensions (mm)					Basic load ratings (kN)				Fatigue load limits (kN) C_u		Factor	Limiting speeds [1] (min^{-1})		Bearing No. [2]			Load center spread (mm)		Mounting dimensions (mm)						(Refer.) Mass (kg)
					With machined cages		With pressed cages																	
d	D	B_1	r min.	r_1 min.	C_r	C_{0r}	C_r	C_{0r}	With machined cages	With pressed cages	f_0	Grease lub.	Oil lub.	Back-to-back DB	Face-to-face DF	Tandem DT	a_1	a_2	d_a min.	d_b min.	D_a max.	D_b max.	r_a max.	r_b max.	
10	22	12	0.3	0.15	6.10	3.05	—	—	0.120	—	14.2	42 000	55 000	**7900CDB**	**7900CDF**	**7900CDT**	10.3	1.7	12.5	—	19.5	20.8	0.3	0.15	0.016
	26	16	0.3	0.15	10.1	4.65	—	—	0.240	—	—	27 000	34 000	**7000DB**	**7000DF**	**7000DT**	18.2	2.2	12.5	—	23.5	24.8	0.3	0.15	0.042
	26	16	0.3	0.15	9.40	4.35	—	—	0.220	—	—	20 000	27 000	**7000BDB**	**7000BDF**	**7000BDT**	23.1	7.1	12.5	—	23.5	24.8	0.3	0.15	0.042
	26	16	0.3	0.15	10.7	4.95	—	—	0.250	—	12.5	37 000	50 000	**7000CDB**	**7000CDF**	**7000CDT**	12.7	3.3	12.5	—	23.5	24.8	0.3	0.15	0.042
	30	18	0.6	0.3	9.50	4.40	11.0	5.45	0.230	0.280	—	23 000	29 000	**7200DB**	**7200DF**	**7200DT**	20.8	2.8	14.5	12.5	25.5	27.5	0.6	0.3	0.062
	30	18	0.6	0.3	8.70	4.05	10.1	5.05	0.210	0.260	—	18 000	23 000	**7200BDB**	**7200BDF**	**7200BDT**	26.2	8.2	14.5	12.5	25.5	27.5	0.6	0.3	0.062
	30	18	0.6	0.3	10.2	4.70	11.8	5.85	0.240	0.300	13.4	32 000	43 000	**7200CDB**	**7200CDF**	**7200CDT**	14.5	3.5	14.5	12.5	25.5	27.5	0.6	0.3	0.062
	35	22	0.6	0.3	17.3	7.55	18.9	8.60	0.590	0.680	—	21 000	27 000	**7300DB**	**7300DF**	**7300DT**	24.0	2.0	14.5	12.5	30.5	32.5	0.6	0.3	0.108
12	24	12	0.3	0.15	6.45	3.45	—	—	0.140	—	14.7	37 000	49 000	**7901CDB**	**7901CDF**	**7901CDT**	10.8	1.2	14.5	—	21.5	22.8	0.3	0.15	0.020
	28	16	0.3	0.15	11.0	5.45	—	—	0.280	—	—	23 000	29 000	**7001DB**	**7001DF**	**7001DT**	19.9	3.9	14.5	—	25.5	26.8	0.3	0.15	0.048
	28	16	0.3	0.15	10.1	5.05	—	—	0.260	—	—	18 000	23 000	**7001BDB**	**7001BDF**	**7001BDT**	25.2	9.2	14.5	—	25.5	26.8	0.3	0.15	0.048
	28	16	0.3	0.15	11.8	5.85	—	—	0.300	—	13.4	32 000	43 000	**7001CDB**	**7001CDF**	**7001CDT**	13.5	2.5	14.5	—	25.5	26.8	0.3	0.15	0.048
	32	20	0.6	0.3	15.1	7.25	16.2	8.05	0.560	0.620	—	22 000	27 000	**7201DB**	**7201DF**	**7201DT**	22.7	2.7	16.5	14.5	27.5	29.5	0.6	0.3	0.076
	32	20	0.6	0.3	14.0	6.80	15.1	7.50	0.480	0.530	—	16 000	22 000	**7201BDB**	**7201BDF**	**7201BDT**	28.5	8.5	16.5	14.5	27.5	29.5	0.6	0.3	0.076
	32	20	0.6	0.3	16.0	7.70	17.2	8.55	0.600	0.670	12.5	30 000	40 000	**7201CDB**	**7201CDF**	**7201CDT**	15.9	4.1	16.5	14.5	27.5	29.5	0.6	0.3	0.076
	37	24	1	0.6	20.7	9.20	22.7	10.5	0.720	0.820	—	20 000	24 000	**7301DB**	**7301DF**	**7301DT**	26.2	2.2	17.5	16.5	31.5	32.5	1	0.6	0.130
15	28	14	0.3	0.15	9.65	5.30	—	—	0.210	—	14.5	31 000	41 000	**7902CDB**	**7902CDF**	**7902CDT**	12.8	1.2	17.5	—	25.5	26.8	0.3	0.15	0.030
	32	18	0.3	0.15	12.4	6.85	—	—	0.350	—	—	20 000	26 000	**7002DB**	**7002DF**	**7002DT**	22.6	4.6	17.5	—	29.5	30.8	0.3	0.15	0.070
	32	18	0.3	0.15	11.3	6.30	—	—	0.320	—	—	15 000	20 000	**7002BDB**	**7002BDF**	**7002BDT**	29.1	11.1	17.5	—	29.5	30.8	0.3	0.15	0.070
	32	18	0.3	0.15	13.4	7.40	—	—	0.380	—	14.1	28 000	37 000	**7002CDB**	**7002CDF**	**7002CDT**	15.3	2.7	17.5	—	29.5	30.8	0.3	0.15	0.070
	35	22	0.6	0.3	16.4	8.55	16.4	8.55	0.600	0.600	—	19 000	24 000	**7202DB**	**7202DF**	**7202DT**	25.7	3.7	19.5	17.5	30.5	32.5	0.6	0.3	0.096
	35	22	0.6	0.3	15.1	7.85	15.1	7.85	0.520	0.520	—	14 000	19 000	**7202BDB**	**7202BDF**	**7202BDT**	32.4	10.4	19.5	17.5	30.5	32.5	0.6	0.3	0.096
	35	22	0.6	0.3	17.6	9.15	17.6	9.15	0.680	0.680	13.3	26 000	35 000	**7202CDB**	**7202CDF**	**7202CDT**	17.8	4.2	19.5	17.5	30.5	32.5	0.6	0.3	0.096
	42	26	1	0.6	25.4	12.9	27.3	14.4	0.990	1.10	—	16 000	20 000	**7302DB**	**7302DF**	**7302DT**	30.0	4.0	20.5	19.5	36.5	37.5	1	0.6	0.176
17	30	14	0.3	0.15	10.1	5.90	—	—	0.240	—	14.9	28 000	38 000	**7903CDB**	**7903CDF**	**7903CDT**	13.4	0.6	19.5	—	27.5	28.8	0.3	0.15	0.032
	35	20	0.3	0.15	13.7	8.25	—	—	0.430	—	—	18 000	23 000	**7003DB**	**7003DF**	**7003DT**	25.3	5.3	19.5	—	32.5	33.8	0.3	0.15	0.090
	35	20	0.3	0.15	12.4	7.50	—	—	0.390	—	—	14 000	18 000	**7003BDB**	**7003BDF**	**7003BDT**	32.2	12.2	19.5	—	32.5	33.8	0.3	0.15	0.090

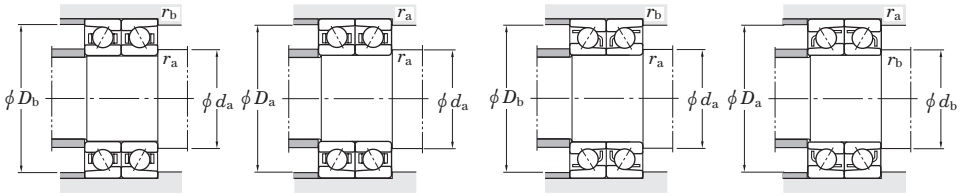
[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings.
Limiting speeds of pressed cage bearings should be kept to under 80% of this value.
For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined cages or molded cages.

2) B, C or no indication after the bearing number indicates nominal contact angle of 40°, 15° and 30° respectively.
[Remark] Standard cage types used for the above bearings are described earlier in this section.

Angular contact ball bearings (matched pair)

d (17) ~ (25) mm





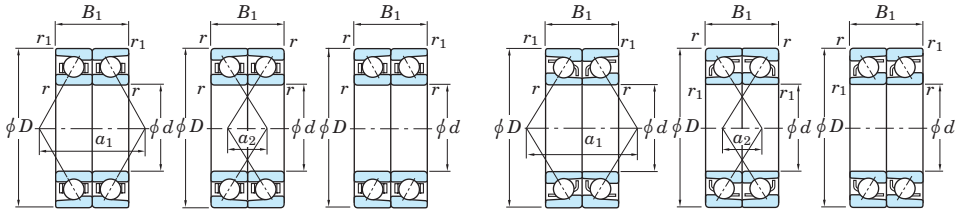
Boundary dimensions (mm)					Basic load ratings (kN)				Fatigue load limits (kN) C_u		Factor	Limiting speeds [1] (min^{-1})		Bearing No. [2]			Load center spread (mm)		Mounting dimensions (mm)					(Refer.) Mass (kg)
					With machined cages		With pressed cages																	
d	D	B_1	r min.	r_1 min.	C_r	C_{0r}	C_r	C_{0r}	With machined cages	With pressed cages	f_0	Grease lub.	Oil lub.	Back-to-back DB	Face-to-face DF	Tandem DT	a_1	a_2	d_a min.	d_b min.	D_a max.	D_b max.	r_a max.	r_b max.	
17	35	20	0.3	0.15	14.8	8.95	—	—	0.460	—	14.6	25 000	33 000	**7003CDB**	**7003CDF**	**7003CDT**	17.1	2.9	19.5	—	32.5	33.8	0.3	0.15	0.090
	40	24	0.6	0.3	20.6	11.0	20.6	11.0	0.770	0.770	—	17 000	21 000	**7203DB**	**7203DF**	**7203DT**	28.8	4.8	21.5	19.5	35.5	37.5	0.6	0.3	0.140
	40	24	0.6	0.3	19.0	10.1	19.0	10.1	0.660	0.660	—	12 000	17 000	**7203BDB**	**7203BDF**	**7203BDT**	36.3	12.3	21.5	19.5	35.5	37.5	0.6	0.3	0.140
	40	24	0.6	0.3	22.1	11.8	22.1	11.8	0.880	0.880	13.4	23 000	30 000	**7203CDB**	**7203CDF**	**7203CDT**	19.8	4.2	21.5	19.5	35.5	37.5	0.6	0.3	0.140
	47	28	1	0.6	30.3	15.8	32.5	17.5	1.20	1.30	—	15 000	18 000	**7303DB**	**7303DF**	**7303DT**	33.1	5.1	22.5	21.5	41.5	42.5	1	0.6	0.240
	47	28	1	0.6	28.1	14.6	30.1	16.2	1.00	1.15	—	11 000	15 000	**7303BDB**	**7303BDF**	**7303BDT**	41.7	13.7	22.5	21.5	41.5	42.5	1	0.6	0.240
	47	28	1	0.6	32.2	16.8	32.2	16.8	1.30	1.30	12.6	20 000	27 000	**7303CDB**	**7303CDF**	**7303CDT**	22.8	5.2	22.5	21.5	41.5	42.5	1	0.6	0.240
20	37	18	0.3	0.15	14.8	9.15	—	—	0.470	—	14.9	24 000	31 000	**7904CDB**	**7904CDF**	**7904CDT**	16.6	1.4	22.5	—	34.5	35.8	0.3	0.15	0.070
	42	24	0.6	0.3	20.9	12.2	—	—	0.790	—	—	15 000	19 000	**7004DB**	**7004DF**	**7004DT**	30.2	6.2	24.5	—	37.5	39.5	0.6	0.3	0.158
	42	24	0.6	0.3	19.0	11.1	—	—	0.680	—	—	11 000	15 000	**7004BDB**	**7004BDF**	**7004BDT**	38.4	14.4	24.5	—	37.5	39.5	0.6	0.3	0.158
	42	24	0.6	0.3	22.6	13.2	—	—	0.900	—	14.1	21 000	28 000	**7004CDB**	**7004CDF**	**7004CDT**	20.4	3.6	24.5	—	37.5	39.5	0.6	0.3	0.158
	47	28	1	0.6	29.4	16.8	31.2	18.3	1.15	1.25	—	14 000	17 000	**7204DB**	**7204DF**	**7204DT**	33.9	5.9	25.5	24.5	41.5	42.5	1	0.6	0.224
	47	28	1	0.6	27.0	15.4	28.6	16.8	1.00	1.10	—	10 000	14 000	**7204BDB**	**7204BDF**	**7204BDT**	42.9	14.9	25.5	24.5	41.5	42.5	1	0.6	0.224
	47	28	1	0.6	31.5	18.0	33.4	19.6	1.35	1.45	13.4	19 000	26 000	**7204CDB**	**7204CDF**	**7204CDT**	23.2	4.8	25.5	24.5	41.5	42.5	1	0.6	0.224
	52	30	1.1	0.6	35.4	18.8	38.0	20.8	1.40	1.60	—	13 000	17 000	**7304DB**	**7304DF**	**7304DT**	35.8	5.8	27	24.5	45	47.5	1	0.6	0.300
	52	30	1.1	0.6	32.8	17.4	35.2	19.3	1.20	1.35	—	10 000	13 000	**7304BDB**	**7304BDF**	**7304BDT**	45.2	15.2	27	24.5	45	47.5	1	0.6	0.300
	52	30	1.1	0.6	37.6	19.9	40.3	22.2	1.55	1.75	12.6	18 000	24 000	**7304CDB**	**7304CDF**	**7304CDT**	24.6	5.4	27	24.5	45	47.5	1	0.6	0.300
	72	38	1.1	0.6	72.3	38.2	—	—	3.00	—	—	7 400	11 000	**7404DB**	**7404DF**	**7404DT**	46.1	8.1	27	—	65	67.5	1	0.6	0.790
	72	38	1.1	0.6	68.1	35.9	—	—	2.80	—	—	6 400	9 600	**7404BDB**	**7404BDF**	**7404BDT**	58.4	20.4	27	—	65	67.5	1	0.6	0.790
25	42	18	0.3	0.15	16.5	10.9	—	—	0.600	—	15.5	20 000	27 000	**7905CDB**	**7905CDF**	**7905CDT**	18.2	0.2	27.5	—	39.5	40.8	0.3	0.15	0.082
	47	24	0.6	0.3	22.9	14.8	—	—	0.900	—	—	13 000	17 000	**7005DB**	**7005DF**	**7005DT**	32.9	8.9	29.5	—	42.5	44.5	0.6	0.3	0.182
	47	24	0.6	0.3	20.7	13.4	—	—	0.780	—	—	10 000	13 000	**7005BDB**	**7005BDF**	**7005BDT**	42.3	18.3	29.5	—	42.5	44.5	0.6	0.3	0.182
	47	24	0.6	0.3	24.9	16.0	—	—	1.00	—	14.7	18 000	24 000	**7005CDB**	**7005CDF**	**7005CDT**	21.7	2.3	29.5	—	42.5	44.5	0.6	0.3	0.182
	52	30	1	0.6	31.2	19.0	32.9	20.6	1.25	1.35	—	12 000	15 000	**7205DB**	**7205DF**	**7205DT**	37.5	7.5	30.5	29.5	46.5	47.5	1	0.6	0.270
	52	30	1	0.6	28.4	17.4	29.9	18.8	1.05	1.15	—	9 200	12 000	**7205BDB**	**7205BDF**	**7205BDT**	47.7	17.7	30.5	29.5	46.5	47.5	1	0.6	0.270
	52	30	1	0.6	33.7	20.5	35.5	22.2	1.40	1.55	14.0	17 000	23 000	**7205CDB**	**7205CDF**	**7205CDT**	25.5	4.5	30.5	29.5	46.5	47.5	1	0.6	0.270
	62	34	1.1	0.6	50.3	28.8	53.6	31.6	2.10	2.35	—	11 000	14 000	**7305DB**	**7305DF**	**7305DT**	42.1	8.1	32	29.5	55	57.5	1	0.6	0.486

[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings.
Limiting speeds of pressed cage bearings should be kept to under 80% of this value.
For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined cages or molded cages.

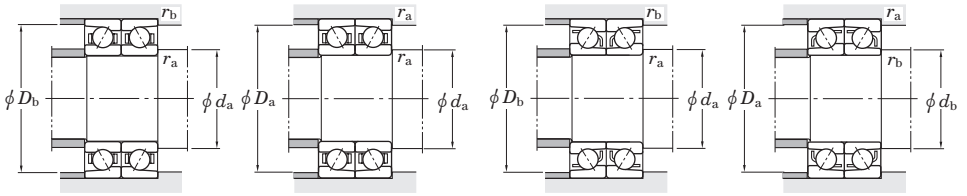
2) B, C or no indication after the bearing number indicates nominal contact angle of 40°, 15° and 30° respectively.
[Remark] Standard cage types used for the above bearings are described earlier in this section.

Angular contact ball bearings (matched pair)

d (25) ~ (35) mm



(With machined cages) (With pressed cages)



(With machined cages) (With pressed cages)

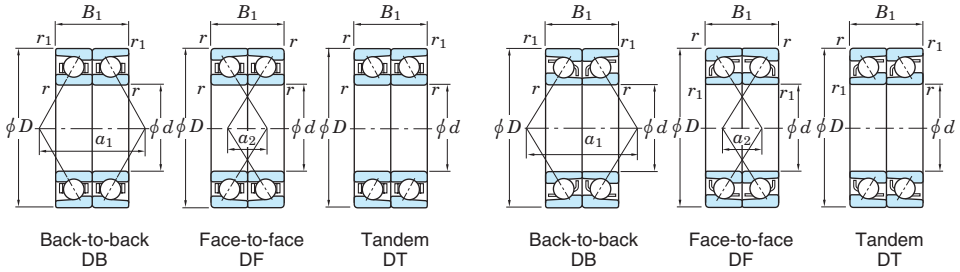
Boundary dimensions (mm)					Basic load ratings (kN)				Fatigue load limits (kN) C_u		Factor	Limiting speeds [1] (min^{-1})		Bearing No. [2]			Load center spread (mm)		Mounting dimensions (mm)						(Refer.) Mass (kg)
					With machined cages		With pressed cages																	
d	D	B_1	r min.	r_1 min.	C_r	C_{0r}	C_r	C_{0r}	With machined cages	With pressed cages	f_0	Grease lub.	Oil lub.	Back-to-back DB	Face-to-face DF	Tandem DT	a_1	a_2	d_a min.	d_b min.	D_a max.	D_b max.	r_a max.	r_b max.	
25	62	34	1.1	0.6	46.5	26.6	49.5	29.2	1.85	2.00	—	8 300	11 000	**7305BDB**	**7305BDF**	**7305BDT**	53.5	19.5	32	29.5	55	57.5	1	0.6	0.486
	62	34	1.1	0.6	53.5	30.6	57.0	33.7	2.40	2.65	12.8	15 000	20 000	**7305CDB**	**7305CDF**	**7305CDT**	28.7	5.3	32	29.5	55	57.5	1	0.6	0.486
	80	42	1.5	1	80.7	46.3	86.6	51.5	3.60	4.00	—	6 400	9 100	**7405DB**	**7405DF**	**7405DT**	52.8	10.8	33.5	30.5	71.5	74.5	1.5	1	1.05
	80	42	1.5	1	74.9	43.0	80.4	47.8	3.10	3.40	—	5 500	8 200	**7405BDB**	**7405BDF**	**7405BDT**	67.2	25.2	33.5	30.5	71.5	74.5	1.5	1	1.05
30	47	18	0.3	0.15	16.8	12.5	—	—	0.650	—	15.9	18 000	23 000	**7906CDB**	**7906CDF**	**7906CDT**	19.3	1.3	32.5	—	44.5	45.8	0.3	0.15	0.092
	55	26	1	0.6	29.5	20.2	—	—	1.20	—	—	11 000	14 000	**7006DB**	**7006DF**	**7006DT**	37.5	11.5	35.5	—	49.5	50.5	1	0.6	0.266
	55	26	1	0.6	26.7	18.4	—	—	1.05	—	—	8 500	11 000	**7006BDB**	**7006BDF**	**7006BDT**	48.7	22.7	35.5	—	49.5	50.5	1	0.6	0.266
	55	26	1	0.6	32.2	22.0	—	—	1.40	—	14.9	16 000	21 000	**7006CDB**	**7006CDF**	**7006CDT**	24.4	1.6	35.5	—	49.5	50.5	1	0.6	0.266
	62	32	1	0.6	43.3	27.4	45.7	29.7	1.80	1.95	—	10 000	13 000	**7206DB**	**7206DF**	**7206DT**	43.0	11.0	35.5	34.5	56.5	57.5	1	0.6	0.416
	62	32	1	0.6	39.5	25.0	41.6	27.1	1.55	1.65	—	7 700	10 000	**7206BDB**	**7206BDF**	**7206BDT**	55.2	23.2	35.5	34.5	56.5	57.5	1	0.6	0.416
	62	32	1	0.6	46.8	29.5	49.4	32.0	2.05	2.20	14.0	14 000	19 000	**7206CDB**	**7206CDF**	**7206CDT**	28.5	3.5	35.5	34.5	56.5	57.5	1	0.6	0.416
	72	38	1.1	0.6	61.1	37.8	64.8	41.2	2.60	2.85	—	9 200	12 000	**7306DB**	**7306DF**	**7306DT**	49.0	11.0	37	34.5	65	67.5	1	0.6	0.724
	72	38	1.1	0.6	56.1	34.7	59.4	37.9	2.25	2.45	—	6 900	9 200	**7306BDB**	**7306BDF**	**7306BDT**	62.6	24.6	37	34.5	65	67.5	1	0.6	0.724
	72	38	1.1	0.6	65.6	40.5	69.5	44.2	3.00	3.25	13.4	13 000	17 000	**7306CDB**	**7306CDF**	**7306CDT**	32.9	5.1	37	34.5	65	67.5	1	0.6	0.724
	90	46	1.5	1	96.7	56.9	104	63.2	4.35	4.85	—	5 700	8 100	**7406DB**	**7406DF**	**7406DT**	58.5	12.5	38.5	35.5	81.5	84.5	1.5	1	1.37
	90	46	1.5	1	89.7	52.8	96.3	58.6	3.75	4.15	—	4 900	7 300	**7406BDB**	**7406BDF**	**7406BDT**	74.6	28.6	38.5	35.5	81.5	84.5	1.5	1	1.37
35	55	20	0.6	0.3	25.5	19.4	—	—	1.10	—	15.7	15 000	20 000	**7907CDB**	**7907CDF**	**7907CDT**	22.1	2.1	39.5	—	50.5	52.5	0.6	0.3	0.148
	62	28	1	0.6	35.5	25.2	—	—	1.50	—	—	9 800	12 000	**7007DB**	**7007DF**	**7007DT**	42.3	14.3	40.5	—	56.5	57.5	1	0.6	0.340
	62	28	1	0.6	32.0	22.8	—	—	1.30	—	—	7 300	9 800	**7007BDB**	**7007BDF**	**7007BDT**	55.1	27.1	40.5	—	56.5	57.5	1	0.6	0.340
	62	28	1	0.6	38.8	27.4	—	—	1.70	—	15.0	13 000	18 000	**7007CDB**	**7007CDF**	**7007CDT**	27.0	1.0	40.5	—	56.5	57.5	1	0.6	0.340
	72	34	1.1	0.6	57.1	37.3	60.3	40.4	2.45	2.65	—	8 800	11 000	**7207DB**	**7207DF**	**7207DT**	48.5	14.5	42	39.5	65	67.5	1	0.6	0.590
	72	34	1.1	0.6	52.1	34.1	54.9	36.9	2.10	2.25	—	6 600	8 800	**7207BDB**	**7207BDF**	**7207BDT**	62.7	28.7	42	39.5	65	67.5	1	0.6	0.590
	72	34	1.1	0.6	61.7	40.2	65.1	43.5	2.75	3.00	14.0	12 000	16 000	**7207CDB**	**7207CDF**	**7207CDT**	31.6	2.4	42	39.5	65	67.5	1	0.6	0.590
	80	42	1.5	1	71.8	44.0	81.1	52.8	3.05	3.65	—	8 200	10 000	**7307DB**	**7307DF**	**7307DT**	54.8	12.8	43.5	40.5	71.5	74.5	1.5	1	0.950
	80	42	1.5	1	65.9	40.5	74.4	48.6	2.65	3.15	—	6 200	8 200	**7307BDB**	**7307BDF**	**7307BDT**	70.1	28.1	43.5	40.5	71.5	74.5	1.5	1	0.950
	80	42	1.5	1	77.0	47.2	86.9	56.6	3.50	4.20	13.4	11 000	15 000	**7307CDB**	**7307CDF**	**7307CDT**	36.7	5.3	43.5	40.5	71.5	74.5	1.5	1	0.950
	100	50	1.5	1	123	73.9	132	82.1	5.70	6.35	—	5 000	7 200	**7407DB**	**7407DF**	**7407DT**	65.2	15.2	43.5	40.5	91.5	94.5	1.5	1	1.90

[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings.
Limiting speeds of pressed cage bearings should be kept to under 80% of this value.
For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined cages or molded cages.

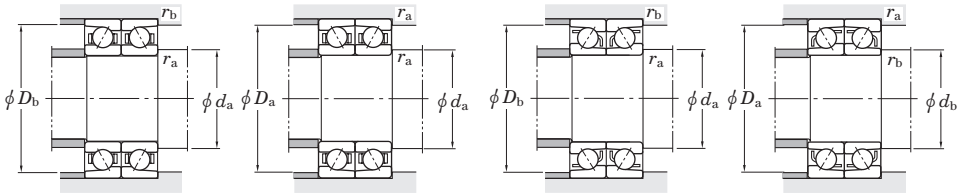
2) B, C or no indication after the bearing number indicates nominal contact angle of 40°, 15° and 30° respectively.
[Remark] Standard cage types used for the above bearings are described earlier in this section.

Angular contact ball bearings (matched pair)

d (35) ~ (50) mm



(With machined cages) (With pressed cages)



(With machined cages) (With pressed cages)

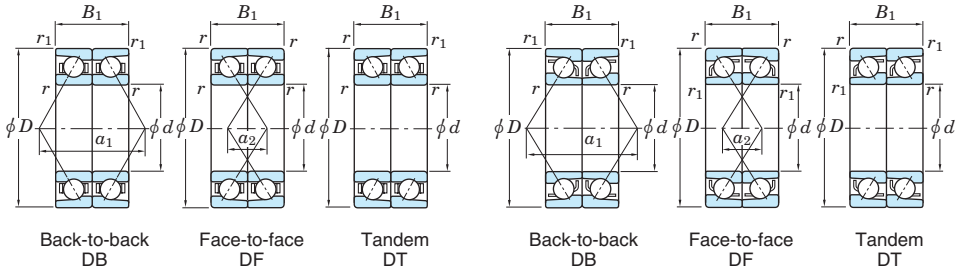
Boundary dimensions (mm)					Basic load ratings (kN)				Fatigue load limits (kN) C_u		Factor	Limiting speeds [1] (min^{-1})		Bearing No. [2]			Load center spread (mm)		Mounting dimensions (mm)						(Refer.) Mass (kg)
					With machined cages		With pressed cages																		
d	D	B_1	r min.	r_1 min.	C_r	C_{0r}	C_r	C_{0r}	With machined cages	With pressed cages	f_0	Grease lub.	Oil lub.	Back-to-back DB	Face-to-face DF	Tandem DT	a_1	a_2	d_a min.	d_b min.	D_a max.	D_b max.	r_a max.	r_b max.	
35	100	50	1.5	1	114	68.6	122	76.2	4.90	5.45	—	4 300	6 500	**7407BDB**	**7407BDF**	**7407BDT**	83.3	33.3	43.5	40.5	91.5	94.5	1.5	1	1.90
40	62	24	0.6	0.3	32.0	24.9	—	—	1.40	—	15.7	13 000	18 000	**7908CDB**	**7908CDF**	**7908CDT**	25.7	1.7	44.5	—	57.5	59.5	0.6	0.3	0.214
	68	30	1	0.6	38.1	29.2	—	—	1.65	—	—	8 900	11 000	**7008DB**	**7008DF**	**7008DT**	46.3	16.3	45.5	—	62.5	63.5	1	0.6	0.420
	68	30	1	0.6	34.2	26.4	—	—	1.45	—	—	6 600	8 900	**7008BDB**	**7008BDF**	**7008BDT**	60.5	30.5	45.5	—	62.5	63.5	1	0.6	0.420
	68	30	1	0.6	41.7	31.8	—	—	1.90	—	15.4	12 000	16 000	**7008CDB**	**7008CDF**	**7008CDT**	29.5	0.5	45.5	—	62.5	63.5	1	0.6	0.420
	80	36	1.1	0.6	68.2	46.7	71.7	50.3	3.00	3.25	—	8 000	10 000	**7208DB**	**7208DF**	**7208DT**	52.7	16.7	47	44.5	73	75.5	1	0.6	0.764
	80	36	1.1	0.6	62.1	42.7	65.2	45.9	2.60	2.80	—	6 000	8 000	**7208BDB**	**7208BDF**	**7208BDT**	68.3	32.3	47	44.5	73	75.5	1	0.6	0.764
	80	36	1.1	0.6	73.8	50.4	77.6	54.3	3.45	3.70	14.2	11 000	15 000	**7208CDB**	**7208CDF**	**7208CDT**	34.1	1.9	47	44.5	73	75.5	1	0.6	0.764
	90	46	1.5	1	87.8	54.9	99.1	65.9	3.85	4.60	—	7 400	9 200	**7308DB**	**7308DF**	**7308DT**	60.5	14.5	48.5	45.5	81.5	84.5	1.5	1	1.31
	90	46	1.5	1	80.6	50.5	91.0	60.6	3.30	3.95	—	5 500	7 400	**7308BDB**	**7308BDF**	**7308BDT**	77.5	31.5	48.5	45.5	81.5	84.5	1.5	1	1.31
	90	46	1.5	1	94.1	58.8	106	70.5	4.40	5.25	13.4	10 000	14 000	**7308CDB**	**7308CDF**	**7308CDT**	40.4	5.6	48.5	45.5	81.5	84.5	1.5	1	1.31
	110	54	2	1	142	87.1	152	96.8	6.70	7.45	—	4 600	6 600	**7408DB**	**7408DF**	**7408DT**	70.9	16.9	50	45.5	100	104.5	2	1	2.46
	110	54	2	1	132	80.8	141	89.8	5.75	6.40	—	3 900	5 900	**7408BDB**	**7408BDF**	**7408BDT**	90.8	36.8	50	45.5	100	104.5	2	1	2.46
45	68	24	0.6	0.3	33.7	28.2	—	—	1.55	—	16.0	12 000	16 000	**7909CDB**	**7909CDF**	**7909CDT**	27.1	3.1	49.5	—	63.5	65.5	0.6	0.3	0.254
	75	32	1	0.6	45.2	35.4	—	—	2.00	—	—	8 000	10 000	**7009DB**	**7009DF**	**7009DT**	50.7	18.7	50.5	—	69.5	70.5	1	0.6	0.520
	75	32	1	0.6	40.6	32.0	—	—	1.75	—	—	6 000	8 000	**7009BDB**	**7009BDF**	**7009BDT**	66.3	34.3	50.5	—	69.5	70.5	1	0.6	0.520
	75	32	1	0.6	49.6	38.5	—	—	2.25	—	15.4	11 000	15 000	**7009CDB**	**7009CDF**	**7009CDT**	32.1	0.1	50.5	—	69.5	70.5	1	0.6	0.520
	85	38	1.1	0.6	76.6	53.2	80.5	57.2	3.40	3.70	—	7 500	9 400	**7209DB**	**7209DF**	**7209DT**	56.0	18.0	52	49.5	78	80.5	1	0.6	0.860
	85	38	1.1	0.6	69.7	48.6	73.2	52.3	2.95	3.20	—	5 600	7 500	**7209BDB**	**7209BDF**	**7209BDT**	72.8	34.8	52	49.5	78	80.5	1	0.6	0.860
	85	38	1.1	0.6	82.9	57.4	87.1	61.8	3.90	4.20	14.2	10 000	14 000	**7209CDB**	**7209CDF**	**7209CDT**	36.2	1.8	52	49.5	78	80.5	1	0.6	0.860
	100	50	1.5	1	112	74.2	119	80.9	5.15	5.60	—	6 600	8 200	**7309DB**	**7309DF**	**7309DT**	67.2	17.2	53.5	50.5	91.5	94.5	1.5	1	1.75
	100	50	1.5	1	103	68.2	109	74.3	4.40	4.85	—	4 900	6 600	**7309BDB**	**7309BDF**	**7309BDT**	86.3	36.3	53.5	50.5	91.5	94.5	1.5	1	1.75
	100	50	1.5	1	120	79.5	127	86.7	5.85	6.40	13.5	9 000	12 000	**7309CDB**	**7309CDF**	**7309CDT**	44.6	5.4	53.5	50.5	91.5	94.5	1.5	1	1.75
	120	58	2	1	173	108	185	120	8.35	9.30	—	4 200	6 000	**7409DB**	**7409DF**	**7409DT**	77.2	19.2	55	50.5	110	114.5	2	1	3.10
	120	58	2	1	160	100	172	111	7.20	8.00	—	3 600	5 400	**7409BDB**	**7409BDF**	**7409BDT**	99.1	41.1	55	50.5	110	114.5	2	1	3.10
50	72	24	0.6	0.3	35.4	31.4	—	—	1.70	—	16.2	11 000	15 000	**7910CDB**	**7910CDF**	**7910CDT**	28.3	4.3	54.5	—	67.5	69.5	0.6	0.3	0.256
	80	32	1	0.6	48.0	40.2	—	—	2.20	—	—	7 300	9 200	**7010DB**	**7010DF**	**7010DT**	53.8	21.8	55.5	—	74.5	75.5	1	0.6	0.580

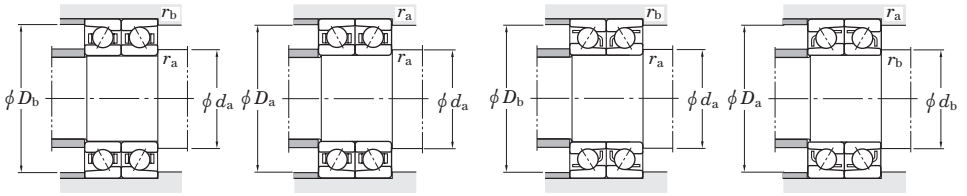
[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings.
Limiting speeds of pressed cage bearings should be kept to under 80% of this value.
For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined cages or molded cages.

2) B, C or no indication after the bearing number indicates nominal contact angle of 40°, 15° and 30° respectively.
[Remark] Standard cage types used for the above bearings are described earlier in this section.

Angular contact ball bearings (matched pair)

d (50) ~ (60) mm



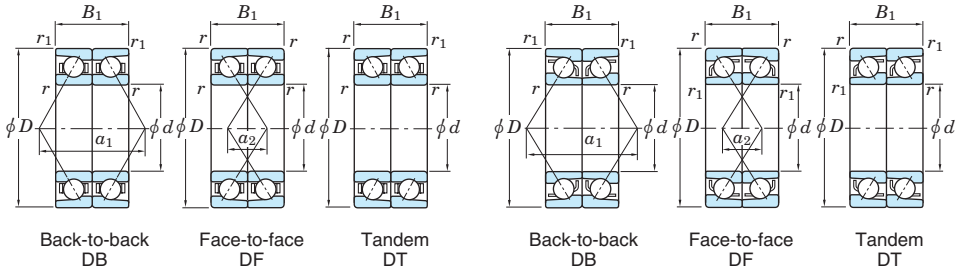


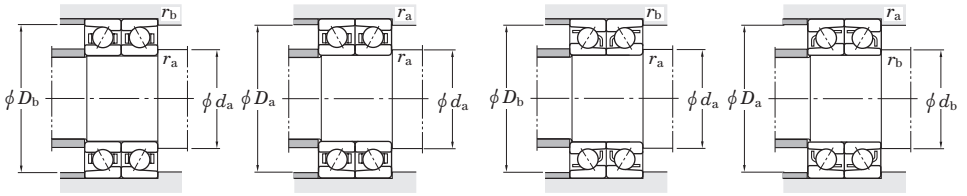
Boundary dimensions (mm)					Basic load ratings (kN)				Fatigue load limits (kN) C_u		Factor	Limiting speeds [1] (min^{-1})		Bearing No. [2]			Load center spread (mm)		Mounting dimensions (mm)						(Refer.) Mass (kg)
					With machined cages		With pressed cages																		
d	D	B_1	r min.	r_1 min.	C_r	C_{0r}	C_r	C_{0r}	With machined cages	With pressed cages	f_0	Grease lub.	Oil lub.	Back-to-back DB	Face-to-face DF	Tandem DT	a_1	a_2	d_a min.	d_b min.	D_a max.	D_b max.	r_a max.	r_b max.	
50	80	32	1	0.6	43.1	36.2	—	—	1.90	—	—	5 500	7 400	**7010BDB**	**7010BDF**	**7010BDT**	70.5	38.5	55.5	—	74.5	75.5	1	0.6	0.580
	80	32	1	0.6	52.7	43.9	—	—	2.50	—	15.7	10 000	13 000	**7010CDB**	**7010CDF**	**7010CDT**	33.6	1.6	55.5	—	74.5	75.5	1	0.6	0.580
	90	40	1.1	0.6	80.0	58.7	83.8	62.9	3.60	3.85	—	6 800	8 500	**7210DB**	**7210DF**	**7210DT**	60.7	20.7	57	54.5	83	85.5	1	0.6	0.970
	90	40	1.1	0.6	72.5	53.5	75.9	57.3	3.15	3.35	—	5 100	6 800	**7210BDB**	**7210BDF**	**7210BDT**	79.2	39.2	57	54.5	83	85.5	1	0.6	0.970
	90	40	1.1	0.6	86.9	63.6	91.0	68.1	4.10	4.40	14.6	9 400	12 000	**7210CDB**	**7210CDF**	**7210CDT**	38.9	1.1	57	54.5	83	85.5	1	0.6	0.970
	110	54	2	1	142	96.3	151	105	6.70	7.35	—	5 800	7 300	**7310DB**	**7310DF**	**7310DT**	74.4	20.4	60	55.5	100	104.5	2	1	2.28
	110	54	2	1	131	88.6	138	96.6	5.80	6.30	—	4 400	5 800	**7310BDB**	**7310BDF**	**7310BDT**	95.8	41.8	60	55.5	100	104.5	2	1	2.28
	110	54	2	1	153	103	162	112	7.70	8.40	13.4	8 000	11 000	**7310CDB**	**7310CDF**	**7310CDT**	49.0	5.0	60	55.5	100	104.5	2	1	2.28
	130	62	2.1	1.1	198	131	—	—	9.85	—	—	3 800	5 500	**7410DB**	**7410DF**	**7410DT**	83.3	21.3	62	—	118	123	2	1	3.84
	130	62	2.1	1.1	183	121	—	—	8.45	—	—	3 300	4 900	**7410BDB**	**7410BDF**	**7410BDT**	106.9	44.9	62	—	118	123	2	1	3.84
55	80	26	1	0.6	40.0	37.0	—	—	1.95	—	16.3	10 000	14 000	**7911CDB**	**7911CDF**	**7911CDT**	31.1	5.1	60.5	—	74.5	75.5	1	0.6	0.356
	90	36	1.1	0.6	63.2	52.5	—	—	2.95	—	—	6 600	8 300	**7011DB**	**7011DF**	**7011DT**	59.9	23.9	62	—	83	85.5	1	0.6	0.840
	90	36	1.1	0.6	56.7	47.5	—	—	2.55	—	—	5 000	6 600	**7011BDB**	**7011BDF**	**7011BDT**	78.8	42.8	62	—	83	85.5	1	0.6	0.840
	90	36	1.1	0.6	69.3	57.3	—	—	3.35	—	15.5	9 100	12 000	**7011CDB**	**7011CDF**	**7011CDT**	37.4	1.4	62	—	83	85.5	1	0.6	0.840
	100	42	1.5	1	98.9	74.2	104	79.6	4.60	4.90	—	6 100	7 600	**7211DB**	**7211DF**	**7211DT**	66.6	24.6	63.5	60.5	91.5	94.5	1.5	1	1.27
	100	42	1.5	1	89.6	67.6	93.8	72.4	3.95	4.25	—	4 600	6 100	**7211BDB**	**7211BDF**	**7211BDT**	87.3	45.3	63.5	60.5	91.5	94.5	1.5	1	1.27
	100	42	1.5	1	107	80.4	112	86.1	5.20	5.60	14.6	8 400	11 000	**7211CDB**	**7211CDF**	**7211CDT**	42.2	0.2	63.5	60.5	91.5	94.5	1.5	1	1.27
	120	58	2	1	164	113	174	123	7.90	8.60	—	5 400	6 700	**7311DB**	**7311DF**	**7311DT**	80.4	22.4	65	60.5	110	114.5	2	1	2.90
	120	58	2	1	151	104	160	113	6.80	7.40	—	4 000	5 400	**7311BDB**	**7311BDF**	**7311BDT**	103.7	45.7	65	60.5	110	114.5	2	1	2.90
	120	58	2	1	176	121	187	132	9.00	9.85	13.4	7 400	9 800	**7311CDB**	**7311CDF**	**7311CDT**	52.9	5.1	65	60.5	110	114.5	2	1	2.90
	140	66	2.1	1.1	241	165	—	—	12.8	—	—	3 500	5 000	**7411DB**	**7411DF**	**7411DT**	89.9	23.9	67	—	128	133	2	1	4.72
	140	66	2.1	1.1	224	153	—	—	11.0	—	—	3 000	4 500	**7411BDB**	**7411BDF**	**7411BDT**	115.7	49.7	67	—	128	133	2	1	4.72
60	85	26	1	0.6	47.2	43.6	—	—	2.35	—	16.3	9 100	13 000	**7912CDB**	**7912CDF**	**7912CDT**	32.6	6.6	65.5	—	79.5	80.5	1	0.6	0.374
	95	36	1.1	0.6	64.8	56.1	—	—	3.10	—	—	6 200	7 700	**7012DB**	**7012DF**	**7012DT**	62.8	26.8	67	—	88	90.5	1	0.6	0.900
	95	36	1.1	0.6	58.1	50.7	—	—	2.70	—	—	4 600	6 200	**7012BDB**	**7012BDF**	**7012BDT**	83.0	47.0	67	—	88	90.5	1	0.6	0.900
	95	36	1.1	0.6	71.2	61.3	—	—	3.50	—	15.7	8 500	11 000	**7012CDB**	**7012CDF**	**7012CDT**	38.8	2.8	67	—	88	90.5	1	0.6	0.900
	110	44	1.5	1	120	91.5	125	98.0	5.65	6.05	—	5 500	6 900	**7212DB**	**7212DF**	**7212DT**	72.3	28.3	68.5	65.5	101.5	104.5	1.5	1	1.64

[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings.
Limiting speeds of pressed cage bearings should be kept to under 80% of this value.
For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined cages or molded cages.

2) B, C or no indication after the bearing number indicates nominal contact angle of 40°, 15° and 30° respectively.
[Remark] Standard cage types used for the above bearings are described earlier in this section.

d (60) ~ (70) mm





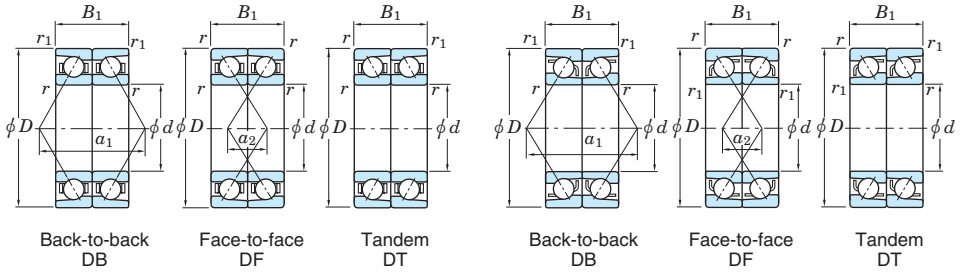
Boundary dimensions (mm)					Basic load ratings (kN)				Fatigue load limits (kN) C_u		Factor	Limiting speeds [1] (min^{-1})		Bearing No. [2]			Load center spread (mm)		Mounting dimensions (mm)					(Refer.) Mass (kg)
					With machined cages		With pressed cages																	
d	D	B_1	r min.	r_1 min.	C_r	C_{0r}	C_r	C_{0r}	With machined cages	With pressed cages	f_0	Grease lub.	Oil lub.	Back-to-back DB	Face-to-face DF	Tandem DT	a_1	a_2	d_a min.	d_b min.	D_a max.	D_b max.	r_a max.	r_b max.	
60	110	44	1.5	1	108	83.3	114	89.2	4.90	5.25	—	4 100	5 500	**7212BDB**	**7212BDF**	**7212BDT**	95.0	51.0	68.5	65.5	101.5	104.5	1.5	1	1.64
	110	44	1.5	1	130	99.0	136	106	6.45	6.90	14.5	7 500	10 000	**7212CDB**	**7212CDF**	**7212CDT**	45.3	1.3	68.5	65.5	101.5	104.5	1.5	1	1.64
	130	62	2.1	1.1	188	131	199	143	9.15	10.0	—	5 000	6 200	**7312DB**	**7312DF**	**7312DT**	86.5	24.5	72	67	118	123	2	1	3.62
	130	62	2.1	1.1	172	121	183	132	7.90	8.60	—	3 700	5 000	**7312BDB**	**7312BDF**	**7312BDT**	111.6	49.6	72	67	118	123	2	1	3.62
	130	62	2.1	1.1	201	141	213	153	10.5	11.4	13.4	6 800	9 100	**7312CDB**	**7312CDF**	**7312CDT**	56.7	5.3	72	67	118	123	2	1	3.62
	150	70	2.1	1.1	262	187	—	—	13.7	—	—	3 200	4 600	**7412DB**	**7412DF**	**7412DT**	97.0	27.0	72	—	138	143	2	1	5.70
	150	70	2.1	1.1	243	173	—	—	11.8	—	—	2 800	4 100	**7412BDB**	**7412BDF**	**7412BDT**	125.1	55.1	72	—	138	143	2	1	5.70
65	90	26	1	0.6	42.2	42.3	—	—	2.20	—	16.5	8 600	12 000	**7913CDB**	**7913CDF**	**7913CDT**	33.8	7.8	70.5	—	84.5	85.5	1	0.6	0.410
	100	36	1.1	0.6	68.3	62.8	—	—	3.40	—	—	5 800	7 200	**7013DB**	**7013DF**	**7013DT**	65.9	29.9	72	—	93	95.5	1	0.6	0.940
	100	36	1.1	0.6	61.2	56.6	—	—	2.95	—	—	4 300	5 800	**7013BDB**	**7013BDF**	**7013BDT**	87.6	51.6	72	—	93	95.5	1	0.6	0.940
	100	36	1.1	0.6	75.2	68.7	—	—	3.85	—	15.9	7 900	11 000	**7013CDB**	**7013CDF**	**7013CDT**	40.2	4.2	72	—	93	95.5	1	0.6	0.940
	120	46	1.5	1	137	108	143	116	6.65	7.10	—	5 200	6 400	**7213DB**	**7213DF**	**7213DT**	76.4	30.4	73.5	70.5	111.5	114.5	1.5	1	2.04
	120	46	1.5	1	124	98.7	129	105	5.80	6.15	—	3 900	5 200	**7213BDB**	**7213BDF**	**7213BDT**	100.6	54.6	73.5	70.5	111.5	114.5	1.5	1	2.04
	120	46	1.5	1	148	117	155	125	7.60	8.10	14.6	7 100	9 400	**7213CDB**	**7213CDF**	**7213CDT**	47.8	1.8	73.5	70.5	111.5	114.5	1.5	1	2.04
	140	66	2.1	1.1	213	151	225	164	10.3	11.3	—	4 600	5 800	**7313DB**	**7313DF**	**7313DT**	92.5	26.5	77	72	128	133	2	1	4.44
	140	66	2.1	1.1	195	139	207	151	8.90	9.70	—	3 500	4 600	**7313BDB**	**7313BDF**	**7313BDT**	119.4	53.4	77	72	128	133	2	1	4.44
	140	66	2.1	1.1	228	161	242	176	11.8	12.9	13.4	6 300	8 500	**7313CDB**	**7313CDF**	**7313CDT**	60.6	5.4	77	72	128	133	2	1	4.44
	160	74	2.1	1.1	282	209	—	—	14.8	—	—	3 000	4 300	**7413DB**	**7413DF**	**7413DT**	102.9	28.9	77	—	148	153	2	1	6.82
	160	74	2.1	1.1	262	194	—	—	12.7	—	—	2 600	3 900	**7413BDB**	**7413BDF**	**7413BDT**	132.7	58.7	77	—	148	153	2	1	6.82
70	100	32	1	0.6	58.8	58.0	—	—	3.05	—	16.4	7 800	11 000	**7914CDB**	**7914CDF**	**7914CDT**	38.8	6.8	75.5	—	94.5	95.5	1	0.6	0.664
	110	40	1.1	0.6	86.7	78.7	—	—	4.30	—	—	5 300	6 600	**7014DB**	**7014DF**	**7014DT**	72.0	32.0	77	—	103	105.5	1	0.6	1.32
	110	40	1.1	0.6	77.7	71.1	—	—	3.75	—	—	4 000	5 300	**7014BDB**	**7014BDF**	**7014BDT**	95.5	55.5	77	—	103	105.5	1	0.6	1.32
	110	40	1.1	0.6	95.3	86.0	—	—	4.90	—	15.7	7 300	9 700	**7014CDB**	**7014CDF**	**7014CDT**	44.1	4.1	77	—	103	105.5	1	0.6	1.32
	125	48	1.5	1	142	111	155	127	6.85	7.80	—	4 900	6 100	**7214DB**	**7214DF**	**7214DT**	80.3	32.3	78.5	75.5	116.5	119.5	1.5	1	2.24
	125	48	1.5	1	128	101	140	116	5.90	6.75	—	3 700	4 900	**7214BDB**	**7214BDF**	**7214BDT**	105.8	57.8	78.5	75.5	116.5	119.5	1.5	1	2.24
	125	48	1.5	1	154	120	168	138	7.75	8.90	14.6	6 700	8 900	**7214CDB**	**7214CDF**	**7214CDT**	50.1	2.1	78.5	75.5	116.5	119.5	1.5	1	2.24
	150	70	2.1	1.1	239	172	253	187	11.4	12.4	—	4 300	5 400	**7314DB**	**7314DF**	**7314DT**	98.5	28.5	82	77	138	143	2	1	5.40

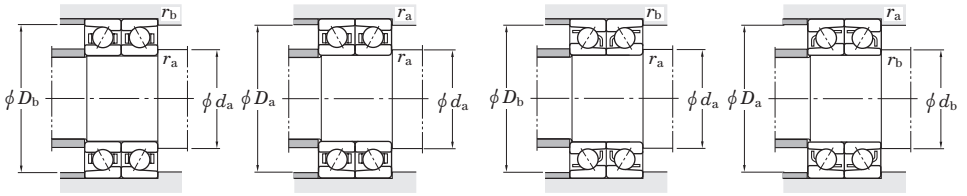
[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings.
Limiting speeds of pressed cage bearings should be kept to under 80% of this value.
For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined cages or molded cages.

2) B, C or no indication after the bearing number indicates nominal contact angle of 40°, 15° and 30° respectively.
[Remark] Standard cage types used for the above bearings are described earlier in this section.

Angular contact ball bearings (matched pair)

d (70) ~ (80) mm





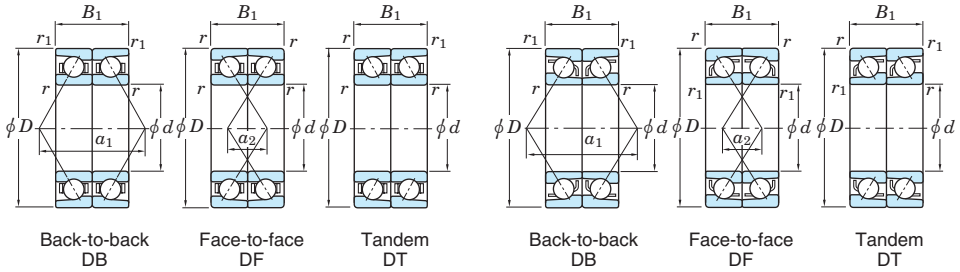
Boundary dimensions (mm)					Basic load ratings (kN)				Fatigue load limits (kN) C_u		Factor	Limiting speeds [1] (min^{-1})		Bearing No. [2]			Load center spread (mm)		Mounting dimensions (mm)						(Refer.) Mass (kg)
					With machined cages		With pressed cages																		
d	D	B_1	r min.	r_1 min.	C_r	C_{0r}	C_r	C_{0r}	With machined cages	With pressed cages	f_0	Grease lub.	Oil lub.	Back-to-back DB	Face-to-face DF	Tandem DT	a_1	a_2	d_a min.	d_b min.	D_a max.	D_b max.	r_a max.	r_b max.	
70	150	70	2.1	1.1	219	158	232	172	9.80	10.7	—	3 200	4 300	**7314BDB**	**7314BDF**	**7314BDT**	127.3	57.3	82	77	138	143	2	1	5.40
	150	70	2.1	1.1	256	184	272	200	13.0	14.2	13.4	5 900	7 900	**7314CDB**	**7314CDF**	**7314CDT**	64.5	5.5	82	77	138	143	2	1	5.40
	180	84	3	1.1	303	230	—	—	10.6	—	—	2 700	3 900	**7414DB**	**7414DF**	**7414DT**	115.3	31.3	84	—	166	173	2.5	1	9.98
	180	84	3	1.1	301	237	—	—	10.9	—	—	2 300	3 500	**7414BDB**	**7414BDF**	**7414BDT**	148.4	64.4	84	—	166	173	2.5	1	9.98
75	105	32	1	0.6	59.7	60.9	—	—	3.15	—	16.5	7 400	9 800	**7915CDB**	**7915CDF**	**7915CDT**	40.1	8.1	80.5	—	99.5	100.5	1	0.6	0.700
	115	40	1.1	0.6	88.6	83.4	—	—	4.50	—	—	5 000	6 300	**7015DB**	**7015DF**	**7015DT**	74.9	34.9	82	—	108	110.5	1	0.6	1.38
	115	40	1.1	0.6	79.3	75.2	—	—	3.95	—	—	3 800	5 000	**7015BDB**	**7015BDF**	**7015BDT**	99.7	59.7	82	—	108	110.5	1	0.6	1.38
	115	40	1.1	0.6	97.6	91.3	—	—	5.10	—	15.9	6 900	9 200	**7015CDB**	**7015CDF**	**7015CDT**	45.5	5.5	82	—	108	110.5	1	0.6	1.38
	130	50	1.5	1	161	130	168	139	7.90	8.40	—	4 600	5 800	**7215DB**	**7215DF**	**7215DT**	84.2	34.2	83.5	80.5	121.5	124.5	1.5	1	2.46
	130	50	1.5	1	146	119	152	127	6.85	7.30	—	3 500	4 600	**7215BDB**	**7215BDF**	**7215BDT**	111.0	61.0	83.5	80.5	121.5	124.5	1.5	1	2.46
	130	50	1.5	1	175	141	183	151	8.95	9.55	14.6	6 400	8 500	**7215CDB**	**7215CDF**	**7215CDT**	52.5	2.5	83.5	80.5	121.5	124.5	1.5	1	2.46
	160	74	2.1	1.1	260	194	276	212	12.4	13.5	—	4 000	5 000	**7315DB**	**7315DF**	**7315DT**	104.9	30.9	87	82	148	153	2	1	6.30
	160	74	2.1	1.1	239	178	253	195	10.7	11.7	—	3 000	4 000	**7315BDB**	**7315BDF**	**7315BDT**	135.6	61.6	87	82	148	153	2	1	6.30
	160	74	2.1	1.1	279	208	296	227	14.2	15.5	13.4	5 500	7 400	**7315CDB**	**7315CDF**	**7315CDT**	68.5	5.5	87	82	148	153	2	1	6.30
	190	90	3	1.1	348	282	—	—	12.6	—	—	2 500	3 600	**7415DB**	**7415DF**	**7415DT**	122.7	32.7	89	—	176	183	2.5	1	11.8
	190	90	3	1.1	322	261	—	—	11.6	—	—	2 200	3 300	**7415BDB**	**7415BDF**	**7415BDT**	157.9	67.9	89	—	176	183	2.5	1	11.8
80	110	32	1	0.6	60.5	63.2	—	—	3.25	—	16.5	7 000	9 300	**7916CDB**	**7916CDF**	**7916CDT**	41.5	9.5	85.5	—	104.5	105.5	1	0.6	0.736
	125	44	1.1	0.6	108	101	—	—	5.50	—	—	4 600	5 800	**7016DB**	**7016DF**	**7016DT**	81.2	37.2	87	—	118	120.5	1	0.6	1.86
	125	44	1.1	0.6	97.1	91.3	—	—	4.75	—	—	3 500	4 600	**7016BDB**	**7016BDF**	**7016BDT**	108.0	64.0	87	—	118	120.5	1	0.6	1.86
	125	44	1.1	0.6	119	111	—	—	6.20	—	15.7	6 400	8 500	**7016CDB**	**7016CDF**	**7016CDT**	49.5	5.5	87	—	118	120.5	1	0.6	1.86
	140	52	2	1	173	143	181	152	8.25	8.80	—	4 300	5 400	**7216DB**	**7216DF**	**7216DT**	89.5	37.5	90	85.5	130	134.5	2	1	3.00
	140	52	2	1	157	130	163	139	7.15	7.60	—	3 200	4 300	**7216BDB**	**7216BDF**	**7216BDT**	118.3	66.3	90	85.5	130	134.5	2	1	3.00
	140	52	2	1	189	155	197	165	9.40	10.0	14.7	5 900	7 900	**7216CDB**	**7216CDF**	**7216CDT**	55.5	3.5	90	85.5	130	134.5	2	1	3.00
	170	78	2.1	1.1	282	218	299	238	13.5	14.7	—	3 800	4 700	**7316DB**	**7316DF**	**7316DT**	111.2	33.2	92	87	158	163	2	1	7.70
	170	78	2.1	1.1	259	200	274	218	11.6	12.7	—	2 800	3 800	**7316BDB**	**7316BDF**	**7316BDT**	143.9	65.9	92	87	158	163	2	1	7.70
	170	78	2.1	1.1	302	233	321	255	15.4	16.8	13.5	5 200	6 900	**7316CDB**	**7316CDF**	**7316CDT**	72.5	5.5	92	87	158	163	2	1	7.70
	200	96	3	1.1	391	332	—	—	14.4	—	—	2 400	3 400	**7416DB**	**7416DF**	**7416DT**	130.0	34.0	94	—	186	193	2.5	1	12.0

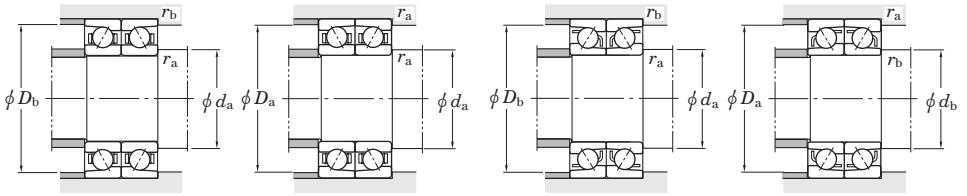
[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings.
Limiting speeds of pressed cage bearings should be kept to under 80% of this value.
For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined cages or molded cages.

2) B, C or no indication after the bearing number indicates nominal contact angle of 40°, 15° and 30° respectively.
[Remark] Standard cage types used for the above bearings are described earlier in this section.

Angular contact ball bearings (matched pair)

d (80) ~ (95) mm





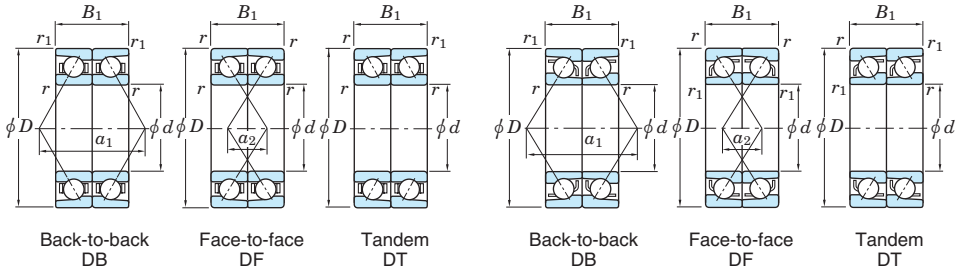
Boundary dimensions (mm)					Basic load ratings (kN)				Fatigue load limits (kN) C_u		Factor	Limiting speeds [1] (min^{-1})		Bearing No. [2]			Load center spread (mm)		Mounting dimensions (mm)						(Refer.) Mass (kg)
					With machined cages		With pressed cages																		
d	D	B_1	r min.	r_1 min.	C_r	C_{0r}	C_r	C_{0r}	With machined cages	With pressed cages	f_0	Grease lub.	Oil lub.	Back-to-back DB	Face-to-face DF	Tandem DT	a_1	a_2	d_a min.	d_b min.	D_a max.	D_b max.	r_a max.	r_b max.	
80	200	96	3	1.1	363	307	—	—	13.3	—	—	2 100	3 100	**7416BDB**	**7416BDF**	**7416BDT**	167.2	71.2	94	—	186	193	2.5	1	12.0
85	120	36	1.1	0.6	79.0	81.3	—	—	4.20	—	16.5	6 500	8 600	**7917CDB**	**7917CDF**	**7917CDT**	45.5	9.5	92	—	113	115.5	1	0.6	1.05
	130	44	1.1	0.6	111	107	—	—	5.55	—	—	4 400	5 500	**7017DB**	**7017DF**	**7017DT**	84.7	40.7	92	—	123	125.5	1	0.6	1.94
	130	44	1.1	0.6	99.2	96.7	—	—	4.85	—	—	3 300	4 400	**7017BDB**	**7017BDF**	**7017BDT**	113.0	69.0	92	—	123	125.5	1	0.6	1.94
	130	44	1.1	0.6	122	117	—	—	6.30	—	15.9	6 000	8 000	**7017CDB**	**7017CDF**	**7017CDT**	51.1	7.1	92	—	123	125.5	1	0.6	1.94
	150	56	2	1	200	167	209	178	9.40	10.0	—	4 000	5 000	**7217DB**	**7217DF**	**7217DT**	95.9	39.9	95	90.5	140	144.5	2	1	3.74
	150	56	2	1	181	152	189	162	8.15	8.70	—	3 000	4 000	**7217BDB**	**7217BDF**	**7217BDT**	126.6	70.6	95	90.5	140	144.5	2	1	3.74
	150	56	2	1	218	181	227	193	10.7	11.4	14.7	5 500	7 400	**7217CDB**	**7217CDF**	**7217CDT**	59.5	3.5	95	90.5	140	144.5	2	1	3.74
	180	82	3	1.1	304	243	322	265	14.6	15.9	—	3 500	4 400	**7317DB**	**7317DF**	**7317DT**	117.5	35.5	99	92	166	173	2.5	1	9.06
	180	82	3	1.1	279	223	295	244	12.6	13.7	—	2 700	3 500	**7317BDB**	**7317BDF**	**7317BDT**	152.2	70.2	99	92	166	173	2.5	1	9.06
	180	82	3	1.1	326	261	346	284	16.7	18.2	13.5	4 900	6 500	**7317CDB**	**7317CDF**	**7317CDT**	76.5	5.5	99	92	166	173	2.5	1	9.06
	210	104	4	1.5	414	360	—	—	15.3	—	—	2 300	3 300	**7417DB**	**7417DF**	**7417DT**	137.5	33.5	103	—	192	201.5	3	1.5	17.1
	210	104	4	1.5	384	334	—	—	14.2	—	—	2 000	3 000	**7417BDB**	**7417BDF**	**7417BDT**	176.2	72.2	103	—	192	201.5	3	1.5	17.1
90	125	36	1.1	0.6	80.3	85.2	—	—	4.25	—	16.6	6 200	8 200	**7918CDB**	**7918CDF**	**7918CDT**	46.8	10.8	97	—	118	120.5	1	0.6	1.10
	140	48	1.5	1	132	127	—	—	6.45	—	—	4 100	5 100	**7018DB**	**7018DF**	**7018DT**	90.4	42.4	98.5	—	131.5	134.5	1.5	1	2.52
	140	48	1.5	1	119	114	—	—	5.60	—	—	3 100	4 100	**7018BDB**	**7018BDF**	**7018BDT**	120.5	72.5	98.5	—	131.5	134.5	1.5	1	2.52
	140	48	1.5	1	146	138	—	—	7.30	—	15.7	5 700	7 500	**7018CDB**	**7018CDF**	**7018CDT**	54.8	6.8	98.5	—	131.5	134.5	1.5	1	2.52
	160	60	2	1	229	193	239	206	10.6	11.3	—	3 800	4 700	**7218DB**	**7218DF**	**7218DT**	102.2	42.2	100	95.5	150	154.5	2	1	4.60
	160	60	2	1	207	176	217	188	9.15	9.80	—	2 800	3 800	**7218BDB**	**7218BDF**	**7218BDT**	134.9	74.9	100	95.5	150	154.5	2	1	4.60
	160	60	2	1	249	209	260	223	12.0	12.8	14.6	5 200	6 900	**7218CDB**	**7218CDF**	**7218CDT**	63.5	3.5	100	95.5	150	154.5	2	1	4.60
	190	86	3	1.1	327	270	346	294	11.8	12.8	—	3 300	4 200	**7318DB**	**7318DF**	**7318DT**	123.9	37.9	104	97	176	183	2.5	1	10.6
	190	86	3	1.1	300	248	317	270	10.8	11.8	—	2 500	3 300	**7318BDB**	**7318BDF**	**7318BDT**	160.5	74.5	104	97	176	183	2.5	1	10.6
	190	86	3	1.1	351	289	372	315	12.6	13.8	13.5	4 600	6 100	**7318CDB**	**7318CDF**	**7318CDT**	80.5	5.5	104	97	176	183	2.5	1	10.6
	225	108	4	1.5	439	393	—	—	16.2	—	—	2 100	3 100	**7418DB**	**7418DF**	**7418DT**	145.0	37.0	108	—	207	216.5	3	1.5	22.8
	225	108	4	1.5	406	364	—	—	15.0	—	—	1 800	2 800	**7418BDB**	**7418BDF**	**7418BDT**	186.2	78.2	108	—	207	216.5	3	1.5	22.8
95	130	36	1.1	0.6	81.6	88.3	—	—	4.30	—	16.5	5 900	7 900	**7919CDB**	**7919CDF**	**7919CDT**	48.1	12.1	102	—	123	125.5	1	0.6	1.15
	145	48	1.5	1	135	134	—	—	6.55	—	—	3 900	4 800	**7019DB**	**7019DF**	**7019DT**	94.5	46.5	103.5	—	136.5	139.5	1.5	1	2.64

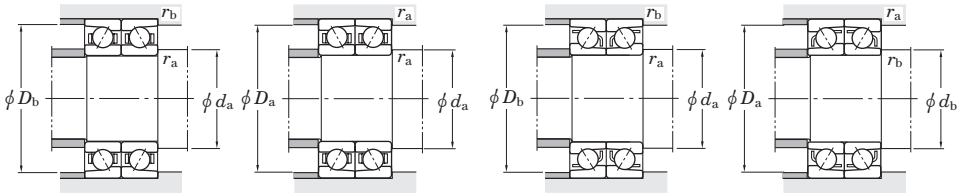
[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings.
Limiting speeds of pressed cage bearings should be kept to under 80% of this value.
For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined cages or molded cages.

2) B, C or no indication after the bearing number indicates nominal contact angle of 40°, 15° and 30° respectively.
[Remark] Standard cage types used for the above bearings are described earlier in this section.

Angular contact ball bearings (matched pair)

d (95) ~ (105) mm





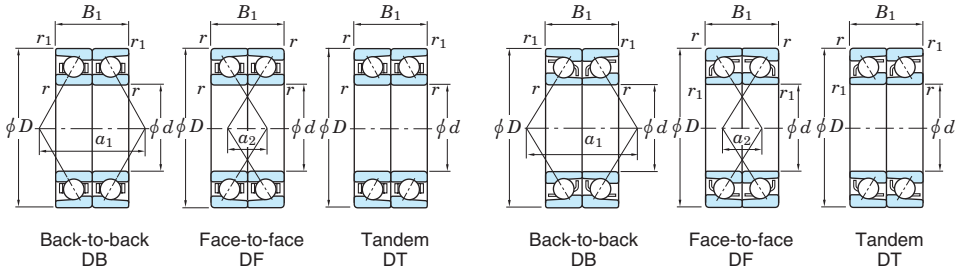
Boundary dimensions (mm)					Basic load ratings (kN)				Fatigue load limits (kN) C_u		Factor	Limiting speeds [1] (min^{-1})		Bearing No. [2]			Load center spread (mm)		Mounting dimensions (mm)						(Refer.) Mass (kg)
					With machined cages		With pressed cages																		
d	D	B_1	r min.	r_1 min.	C_r	C_{0r}	C_r	C_{0r}	With machined cages	With pressed cages	f_0	Grease lub.	Oil lub.	Back-to-back DB	Face-to-face DF	Tandem DT	a_1	a_2	d_a min.	d_b min.	D_a max.	D_b max.	r_a max.	r_b max.	
95	145	48	1.5	1	121	121	—	—	5.70	—	—	2 900	3 900	**7019BDB**	**7019BDF**	**7019BDT**	126.4	78.4	103.5	—	136.5	139.5	1.5	1	2.64
	145	48	1.5	1	149	147	—	—	7.40	—	15.9	5 300	7 100	**7019CDB**	**7019CDF**	**7019CDT**	56.7	8.7	103.5	—	136.5	139.5	1.5	1	2.64
	170	64	2.1	1.1	248	207	260	221	11.0	11.8	—	3 500	4 400	**7219DB**	**7219DF**	**7219DT**	108.5	44.5	107	102	158	163	2	1	5.56
	170	64	2.1	1.1	224	188	235	201	9.55	10.2	—	2 700	3 500	**7219BDB**	**7219BDF**	**7219BDT**	143.2	79.2	107	102	158	163	2	1	5.56
	170	64	2.1	1.1	269	224	282	240	12.6	13.5	14.6	4 900	6 500	**7219CDB**	**7219CDF**	**7219CDT**	67.5	3.5	107	102	158	163	2	1	5.56
	200	90	3	1.1	350	298	371	325	12.7	13.8	—	3 200	4 000	**7319DB**	**7319DF**	**7319DT**	130.2	40.2	109	102	186	193	2.5	1	12.2
	200	90	3	1.1	321	273	340	298	11.6	12.7	—	2 400	3 200	**7319BDB**	**7319BDF**	**7319BDT**	168.8	78.8	109	102	186	193	2.5	1	12.2
	200	90	3	1.1	376	319	398	348	13.6	14.8	13.5	4 400	5 800	**7319CDB**	**7319CDF**	**7319CDT**	84.5	5.5	109	102	186	193	2.5	1	12.2
100	140	40	1.1	0.6	113	117	—	—	5.65	—	16.3	5 500	7 400	**7920CDB**	**7920CDF**	**7920CDT**	52.1	12.1	107	—	133	135.5	1	0.6	1.55
	150	48	1.5	1	139	141	—	—	6.75	—	—	3 800	4 700	**7020DB**	**7020DF**	**7020DT**	96.2	48.2	108.5	—	141.5	144.5	1.5	1	2.74
	150	48	1.5	1	124	127	—	—	5.90	—	—	2 800	3 800	**7020BDB**	**7020BDF**	**7020BDT**	128.9	80.9	108.5	—	141.5	144.5	1.5	1	2.74
	150	48	1.5	1	153	154	—	—	7.65	—	16.0	5 200	6 900	**7020CDB**	**7020CDF**	**7020CDT**	57.5	9.5	108.5	—	141.5	144.5	1.5	1	2.74
	180	68	2.1	1.1	279	235	292	252	12.2	13.0	—	3 300	4 100	**7220DB**	**7220DF**	**7220DT**	115.4	47.4	112	—	168	173	2	1	6.64
	180	68	2.1	1.1	252	214	264	229	10.5	11.3	—	2 500	3 300	**7220BDB**	**7220BDF**	**7220BDT**	152.3	84.3	112	—	168	173	2	1	6.64
	180	68	2.1	1.1	303	254	317	273	13.9	14.8	14.6	4 600	6 100	**7220CDB**	**7220CDF**	**7220CDT**	71.8	3.8	112	107	168	173	2	1	6.64
	215	94	3	1.1	373	323	421	387	13.2	15.9	—	2 900	3 600	**7320DB**	**7320DF**	**7320DT**	138.8	44.8	114	—	201	208	2.5	1	15.1
	215	94	3	1.1	342	297	386	356	12.2	14.6	—	2 200	2 900	**7320BDB**	**7320BDF**	**7320BDT**	180.4	86.4	114	—	201	208	2.5	1	15.1
	215	94	3	1.1	400	346	451	415	14.2	17.0	13.4	4 000	5 300	**7320CDB**	**7320CDF**	**7320CDT**	89.6	4.4	114	107	201	208	2.5	1	15.1
105	145	40	1.1	0.6	115	123	—	—	5.75	—	16.4	5 300	7 100	**7921CDB**	**7921CDF**	**7921CDT**	53.5	13.5	112	—	138	140.5	1	0.6	1.62
	160	52	2	1	162	164	—	—	7.60	—	—	3 500	4 400	**7021DB**	**7021DF**	**7021DT**	103.7	51.7	115	—	150	154.5	2	1	3.46
	160	52	2	1	145	148	—	—	6.65	—	—	2 600	3 500	**7021BDB**	**7021BDF**	**7021BDT**	137.2	85.2	115	—	150	154.5	2	1	3.46
	160	52	2	1	178	179	—	—	8.60	—	15.9	4 800	6 400	**7021CDB**	**7021CDF**	**7021CDT**	62.0	10.0	115	—	150	154.5	2	1	3.46
	190	72	2.1	1.1	303	265	—	—	13.4	—	—	3 100	3 900	**7221DB**	**7221DF**	**7221DT**	122.1	50.1	117	—	178	183	2	1	7.90
	190	72	2.1	1.1	275	241	—	—	11.6	—	—	2 300	3 100	**7221BDB**	**7221BDF**	**7221BDT**	161.0	89.0	117	—	178	183	2	1	7.90
	190	72	2.1	1.1	330	287	—	—	15.2	—	14.6	4 300	5 700	**7221CDB**	**7221CDF**	**7221CDT**	75.9	3.9	117	—	178	183	2	1	7.90
	225	98	3	1.1	422	386	—	—	15.5	—	—	2 800	3 500	**7321DB**	**7321DF**	**7321DT**	144.3	46.3	119	—	211	218	2.5	1	17.2
	225	98	3	1.1	387	355	—	—	14.3	—	—	2 100	2 800	**7321BDB**	**7321BDF**	**7321BDT**	187.5	89.5	119	—	211	218	2.5	1	17.2

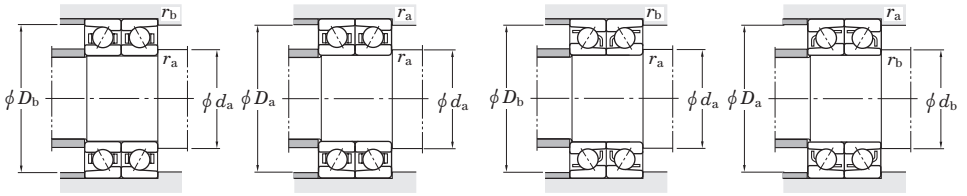
[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings.
Limiting speeds of pressed cage bearings should be kept to under 80% of this value.
For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined cages or molded cages.

2) B, C or no indication after the bearing number indicates nominal contact angle of 40°, 15° and 30° respectively.
[Remark] Standard cage types used for the above bearings are described earlier in this section.

Angular contact ball bearings (matched pair)

d (105) ~ (130) mm





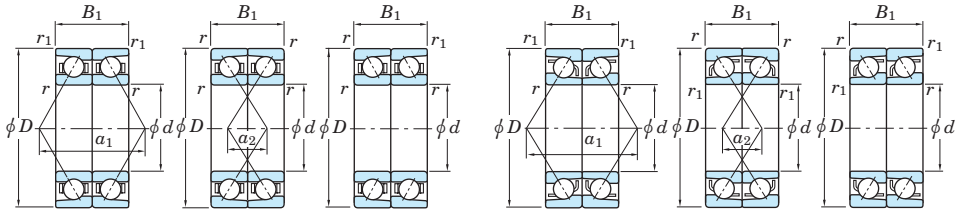
Boundary dimensions (mm)					Basic load ratings (kN)				Fatigue load limits (kN) C_u		Factor	Limiting speeds [1] (min^{-1})		Bearing No. [2]			Load center spread (mm)		Mounting dimensions (mm)						(Refer.) Mass (kg)
					With machined cages		With pressed cages																		
d	D	B_1	r min.	r_1 min.	C_r	C_{0r}	C_r	C_{0r}	With machined cages	With pressed cages	f_0	Grease lub.	Oil lub.	Back-to-back DB	Face-to-face DF	Tandem DT	a_1	a_2	d_a min.	d_b min.	D_a max.	D_b max.	r_a max.	r_b max.	
105	225	98	3	1.1	452	413	—	—	16.6	—	13.4	3 900	5 100	**7321CDB**	**7321CDF**	**7321CDT**	93.2	4.8	119	—	211	218	2.5	1	17.2
110	150	40	1.1	0.6	117	129	—	—	5.85	—	16.5	5 100	6 800	**7922CDB**	**7922CDF**	**7922CDT**	54.8	14.8	117	—	143	145.5	1	0.6	1.68
	170	56	2	1	187	186	—	—	8.55	—	—	3 300	4 200	**7022DB**	**7022DF**	**7022DT**	108.9	52.9	120	—	160	164.5	2	1	4.28
	170	56	2	1	167	167	—	—	7.45	—	—	2 500	3 300	**7022BDB**	**7022BDF**	**7022BDT**	145.5	89.5	120	—	160	164.5	2	1	4.28
	170	56	2	1	205	203	—	—	9.70	—	15.7	4 600	6 100	**7022CDB**	**7022CDF**	**7022CDT**	65.5	9.5	120	—	160	164.5	2	1	4.28
	200	76	2.1	1.1	329	297	—	—	14.6	—	—	3 000	3 700	**7222DB**	**7222DF**	**7222DT**	128.7	52.7	122	—	188	193	2	1	9.30
	200	76	2.1	1.1	298	270	—	—	12.7	—	—	2 200	3 000	**7222BDB**	**7222BDF**	**7222BDT**	169.7	93.7	122	—	188	193	2	1	9.30
	200	76	2.1	1.1	357	321	—	—	16.7	—	14.5	4 100	5 400	**7222CDB**	**7222CDF**	**7222CDT**	80.1	4.1	122	—	188	193	2	1	9.30
	240	100	3	1.1	472	452	—	—	17.5	—	—	2 600	3 200	**7322DB**	**7322DF**	**7322DT**	152.7	52.7	124	—	226	233	2.5	1	20.2
	240	100	3	1.1	433	416	—	—	16.1	—	—	1 900	2 600	**7322BDB**	**7322BDF**	**7322BDT**	199.3	99.3	124	—	226	233	2.5	1	20.2
	240	100	3	1.1	505	484	—	—	18.8	—	13.4	3 500	4 700	**7322CDB**	**7322CDF**	**7322CDT**	97.7	2.3	124	—	226	233	2.5	1	20.2
120	165	44	1.1	0.6	146	162	—	—	7.10	—	16.5	4 700	6 200	**7924CDB**	**7924CDF**	**7924CDT**	60.2	16.2	127	—	158	160.5	1	0.6	2.30
	180	56	2	1	196	206	—	—	9.00	—	—	3 100	3 900	**7024DB**	**7024DF**	**7024DT**	114.6	58.6	130	—	170	174.5	2	1	4.54
	180	56	2	1	176	186	—	—	7.85	—	—	2 300	3 100	**7024BDB**	**7024BDF**	**7024BDT**	153.9	97.9	130	—	170	174.5	2	1	4.54
	180	56	2	1	216	226	—	—	10.2	—	16.0	4 300	5 700	**7024CDB**	**7024CDF**	**7024CDT**	68.2	12.2	130	—	170	174.5	2	1	4.54
	215	80	2.1	1.1	354	332	—	—	15.7	—	—	2 700	3 400	**7224DB**	**7224DF**	**7224DT**	137.0	57.0	132	—	203	208	2	1	11.0
	215	80	2.1	1.1	321	302	—	—	13.6	—	—	2 100	2 800	**7224BDB**	**7224BDF**	**7224BDT**	180.5	100.5	132	—	203	208	2	1	11.0
	215	80	2.1	1.1	385	359	—	—	17.9	—	14.6	3 800	5 000	**7224CDB**	**7224CDF**	**7224CDT**	85.0	5.0	132	—	203	208	2	1	11.0
	260	110	3	1.1	500	504	—	—	18.9	—	—	2 400	3 000	**7324DB**	**7324DF**	**7324DT**	164.7	54.7	134	—	246	253	2.5	1	25.2
	260	110	3	1.1	457	462	—	—	17.3	—	—	1 800	2 400	**7324BDB**	**7324BDF**	**7324BDT**	214.4	104.4	134	—	246	253	2.5	1	25.2
	260	110	3	1.1	538	542	—	—	20.3	—	13.7	3 300	4 400	**7324CDB**	**7324CDF**	**7324CDT**	105.9	4.1	134	—	246	253	2.5	1	25.2
130	180	48	1.5	1	177	200	—	—	8.45	—	16.4	4 300	5 700	**7926CDB**	**7926CDF**	**7926CDT**	65.5	17.5	138.5	—	171.5	174.5	1.5	1	3.00
	200	66	2	1	238	251	—	—	10.5	—	—	2 800	3 500	**7026DB**	**7026DF**	**7026DT**	128.3	62.3	140	—	190	194.5	2	1	6.86
	200	66	2	1	213	226	—	—	9.20	—	—	2 100	2 800	**7026BDB**	**7026BDF**	**7026BDT**	171.5	105.5	140	—	190	194.5	2	1	6.86
	200	66	2	1	262	274	—	—	11.9	—	15.9	3 900	5 100	**7026CDB**	**7026CDF**	**7026CDT**	77.2	11.2	140	—	190	194.5	2	1	6.86
	230	80	3	1.1	398	395	—	—	15.2	—	—	2 500	3 200	**7226DB**	**7226DF**	**7226DT**	143.9	63.9	144	—	216	223	2.5	1	12.4

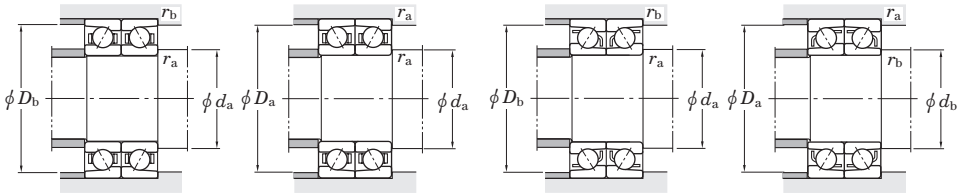
[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings.
Limiting speeds of pressed cage bearings should be kept to under 80% of this value.
For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined cages or molded cages.

2) B, C or no indication after the bearing number indicates nominal contact angle of 40°, 15° and 30° respectively.
[Remark] Standard cage types used for the above bearings are described earlier in this section.

Angular contact ball bearings (matched pair)

d (130) ~ (160) mm





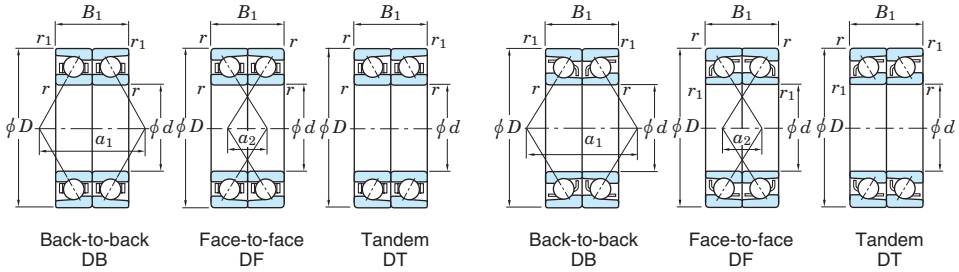
Boundary dimensions (mm)					Basic load ratings (kN)				Fatigue load limits (kN) C_u		Factor	Limiting speeds [1] (min^{-1})		Bearing No. [2]			Load center spread (mm)		Mounting dimensions (mm)						(Refer.) Mass (kg)
					With machined cages		With pressed cages																		
d	D	B_1	r min.	r_1 min.	C_r	C_{0r}	C_r	C_{0r}	With machined cages	With pressed cages	f_0	Grease lub.	Oil lub.	Back-to-back DB	Face-to-face DF	Tandem DT	a_1	a_2	d_a min.	d_b min.	D_a max.	D_b max.	r_a max.	r_b max.	
130	230	80	3	1.1	360	360	—	—	13.9	—	—	1 900	2 500	**7226BDB**	**7226BDF**	**7226BDT**	191.0	111.0	144	—	216	223	2.5	1	12.4
	230	80	3	1.1	433	428	—	—	16.5	—	14.7	3 500	4 700	**7226CDB**	**7226CDF**	**7226CDT**	88.2	8.2	144	—	216	223	2.5	1	12.4
	280	116	4	1.5	611	659	—	—	23.7	—	—	2 200	2 700	**7326DB**	**7326DF**	**7326DT**	177.5	61.5	148	—	262	271.5	3	1.5	30.8
	280	116	4	1.5	507	536	—	—	19.4	—	—	1 600	2 200	**7326BDB**	**7326BDF**	**7326BDT**	230.0	114.0	148	—	262	271.5	3	1.5	30.8
	280	116	4	1.5	597	629	—	—	22.7	—	13.7	3 000	4 000	**7326CDB**	**7326CDF**	**7326CDT**	112.9	3.1	148	—	262	271.5	3	1.5	30.8
140	190	48	1.5	1	179	210	—	—	8.45	—	16.6	4 000	5 400	**7928CDB**	**7928CDF**	**7928CDT**	68.2	20.2	148.5	—	181.5	184.5	1.5	1	3.18
	210	66	2	1	243	265	—	—	10.6	—	—	2 600	3 300	**7028DB**	**7028DF**	**7028DT**	134.1	68.1	150	—	200	204.5	2	1	7.28
	210	66	2	1	217	237	—	—	9.25	—	—	2 000	2 600	**7028BDB**	**7028BDF**	**7028BDT**	179.8	113.8	150	—	200	204.5	2	1	7.28
	210	66	2	1	268	290	—	—	12.0	—	16.0	3 600	4 800	**7028CDB**	**7028CDF**	**7028CDT**	79.9	13.9	150	—	200	204.5	2	1	7.28
	250	84	3	1.1	443	468	—	—	17.3	—	—	2 300	2 900	**7228DB**	**7228DF**	**7228DT**	154.6	70.6	154	—	236	243	2.5	1	15.5
	250	84	3	1.1	401	426	—	—	15.7	—	—	1 700	2 300	**7228BDB**	**7228BDF**	**7228BDT**	205.6	121.6	154	—	236	243	2.5	1	15.5
	250	84	3	1.1	483	508	—	—	18.8	—	14.8	3 200	4 300	**7228CDB**	**7228CDF**	**7228CDT**	94.2	10.2	154	—	236	243	2.5	1	15.5
	300	124	4	1.5	668	748	—	—	26.1	—	—	2 000	2 500	**7328DB**	**7328DF**	**7328DT**	189.0	65.0	158	—	282	291.5	3	1.5	37.6
	300	124	4	1.5	613	688	—	—	24.0	—	—	1 500	2 000	**7328BDB**	**7328BDF**	**7328BDT**	246.6	122.6	158	—	282	291.5	3	1.5	37.6
	300	124	4	1.5	717	802	—	—	27.9	—	13.4	2 800	3 700	**7328CDB**	**7328CDF**	**7328CDT**	120.9	3.1	158	—	282	291.5	3	1.5	37.6
150	210	56	2	1	241	263	—	—	10.9	—	16.3	3 700	4 900	**7930CDB**	**7930CDF**	**7930CDT**	76.2	20.2	160	—	200	204.5	2	1	4.94
	225	70	2.1	1.1	278	308	—	—	11.9	—	—	2 400	3 000	**7030DB**	**7030DF**	**7030DT**	144.2	74.2	162	—	213	218	2	1	8.86
	225	70	2.1	1.1	249	275	—	—	10.4	—	—	1 800	2 400	**7030BDB**	**7030BDF**	**7030BDT**	192.3	122.3	162	—	213	218	2	1	8.86
	225	70	2.1	1.1	306	337	—	—	13.4	—	16.1	3 300	4 400	**7030CDB**	**7030CDF**	**7030CDT**	85.6	15.6	162	—	213	218	2	1	8.86
	270	90	3	1.1	504	560	—	—	19.9	—	—	2 100	2 700	**7230DB**	**7230DF**	**7230DT**	166.3	76.3	164	—	256	263	2.5	1	19.5
	270	90	3	1.1	456	509	—	—	18.1	—	—	1 600	2 100	**7230BDB**	**7230BDF**	**7230BDT**	221.2	131.2	164	—	256	263	2.5	1	19.5
	270	90	3	1.1	549	607	—	—	21.6	—	14.7	2 900	3 900	**7230CDB**	**7230CDF**	**7230CDT**	101.3	11.3	164	—	256	263	2.5	1	19.5
	320	130	4	1.5	706	829	—	—	27.9	—	—	1 900	2 300	**7330DB**	**7330DF**	**7330DT**	200.7	70.7	168	—	302	311.5	3	1.5	44.8
	320	130	4	1.5	645	760	—	—	25.6	—	—	1 400	1 900	**7330BDB**	**7330BDF**	**7330BDT**	262.2	132.2	168	—	302	311.5	3	1.5	44.8
	320	130	4	1.5	760	891	—	—	30.0	—	13.7	2 600	3 400	**7330CDB**	**7330CDF**	**7330CDT**	128.0	2.0	168	—	302	311.5	3	1.5	44.8
160	220	56	2	1	245	289	—	—	10.9	—	16.5	3 500	4 700	**7932CDB**	**7932CDF**	**7932CDT**	78.9	22.9	170	—	210	214.5	2	1	5.20

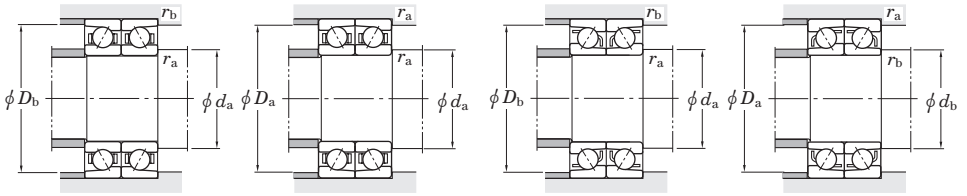
[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings.
Limiting speeds of pressed cage bearings should be kept to under 80% of this value.
For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined cages or molded cages.

2) B, C or no indication after the bearing number indicates nominal contact angle of 40°, 15° and 30° respectively.
[Remark] Standard cage types used for the above bearings are described earlier in this section.

Angular contact ball bearings (matched pair)

d (160) ~ (180) mm





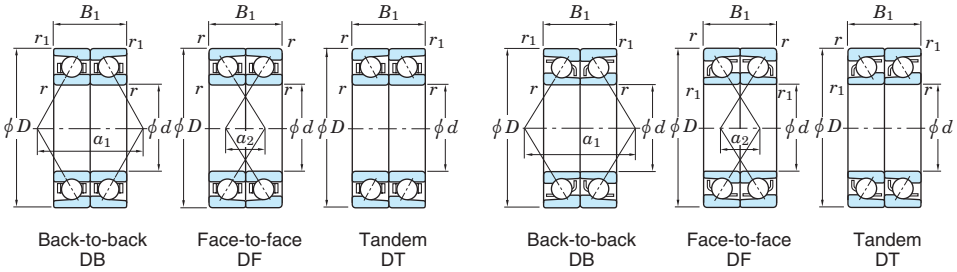
Boundary dimensions (mm)					Basic load ratings (kN)				Fatigue load limits (kN) C_u		Factor	Limiting speeds [1] (min^{-1})		Bearing No. [2]			Load center spread (mm)		Mounting dimensions (mm)						(Refer.) Mass (kg)
					With machined cages		With pressed cages																		
d	D	B_1	r min.	r_1 min.	C_r	C_{0r}	C_r	C_{0r}	With machined cages	With pressed cages	f_0	Grease lub.	Oil lub.	Back-to-back DB	Face-to-face DF	Tandem DT	a_1	a_2	d_a min.	d_b min.	D_a max.	D_b max.	r_a max.	r_b max.	
160	240	76	2.1	1.1	315	353	—	—	13.3	—	—	2 300	2 800	**7032DB**	**7032DF**	**7032DT**	153.5	77.5	172	—	228	233	2	1	10.9
	240	76	2.1	1.1	282	316	—	—	11.6	—	—	1 700	2 300	**7032BDB**	**7032BDF**	**7032BDT**	205.8	129.8	172	—	228	233	2	1	10.9
	240	76	2.1	1.1	347	386	—	—	15.0	—	16.0	3 100	4 100	**7032CDB**	**7032CDF**	**7032CDT**	91.6	15.6	172	—	228	233	2	1	10.9
	290	96	3	1.1	468	525	—	—	18.1	—	—	2 000	2 500	**7232DB**	**7232DF**	**7232DT**	177.9	81.9	174	—	276	283	2.5	1	24.2
	290	96	3	1.1	482	557	—	—	19.2	—	—	1 500	2 000	**7232BDB**	**7232BDF**	**7232BDT**	236.8	140.8	174	—	276	283	2.5	1	24.2
	290	96	3	1.1	511	665	—	—	19.7	—	15.2	2 700	3 600	**7232CDB**	**7232CDF**	**7232CDT**	108.3	12.3	174	—	276	283	2.5	1	24.2
	340	136	4	1.5	741	909	—	—	29.7	—	—	1 700	2 200	**7332DB**	**7332DF**	**7332DT**	212.3	76.3	178	—	322	331.5	3	1.5	52.8
	340	136	4	1.5	675	831	—	—	27.2	—	—	1 300	1 700	**7332BDB**	**7332BDF**	**7332BDT**	277.8	141.8	178	—	322	331.5	3	1.5	52.8
	340	136	4	1.5	800	980	—	—	32.0	—	14.0	2 400	3 200	**7332CDB**	**7332CDF**	**7332CDT**	135.0	1.0	168.5	—	322	331.5	3	1.5	52.8
170	230	56	2	1	255	302	—	—	11.5	—	16.6	3 100	4 100	**7934CDB**	**7934CDF**	**7934CDT**	81.6	25.6	180	—	220	224.5	2	1	6.42
	260	84	2.1	1.1	377	429	—	—	15.8	—	—	2 100	2 600	**7034DB**	**7034DF**	**7034DT**	166.2	82.2	182	—	248	253	2	1	15.2
	260	84	2.1	1.1	338	386	—	—	13.8	—	—	1 600	2 100	**7034BDB**	**7034BDF**	**7034BDT**	222.4	138.4	182	—	248	253	2	1	15.5
	260	84	2.1	1.1	415	469	—	—	17.9	—	15.9	2 900	3 800	**7034CDB**	**7034CDF**	**7034CDT**	99.6	15.6	182	—	248	253	2	1	15.1
	310	104	4	1.5	552	661	—	—	22.0	—	—	1 800	2 300	**7234DB**	**7234DF**	**7234DT**	190.6	86.6	188	—	292	301.5	3	1.5	30.2
	310	104	4	1.5	497	600	—	—	20.0	—	—	1 400	1 800	**7234BDB**	**7234BDF**	**7234BDT**	253.4	149.4	188	—	292	301.5	3	1.5	30.2
	310	104	4	1.5	603	719	—	—	24.0	—	15.1	2 500	3 300	**7234CDB**	**7234CDF**	**7234CDT**	116.3	12.3	188	—	292	301.5	3	1.5	30.2
	360	144	4	1.5	789	969	—	—	30.7	—	—	1 600	2 000	**7334DB**	**7334DF**	**7334DT**	225.0	81.0	188	—	342	351.5	3	1.5	62.4
	360	144	4	1.5	721	888	—	—	28.2	—	—	1 200	1 600	**7334BDB**	**7334BDF**	**7334BDT**	294.4	150.4	188	—	342	351.5	3	1.5	62.4
	360	144	4	1.5	849	1 040	—	—	33.1	—	13.8	2 200	3 000	**7334CDB**	**7334CDF**	**7334CDT**	143.0	1.0	188	—	342	351.5	3	1.5	62.4
180	250	66	2	1	325	375	—	—	14.1	—	16.4	2 800	3 700	**7936CDB**	**7936CDF**	**7936CDT**	90.6	24.6	190	—	240	244.5	2	1	9.36
	280	92	2.1	1.1	430	506	—	—	18.3	—	—	1 900	2 400	**7036DB**	**7036DF**	**7036DT**	178.8	86.8	192	—	268	273	2	1	20.2
	280	92	2.1	1.1	385	457	—	—	15.9	—	—	1 400	1 900	**7036BDB**	**7036BDF**	**7036BDT**	239.0	147.0	192	—	268	273	2	1	20.4
	280	92	2.1	1.1	473	553	—	—	20.7	—	15.7	2 600	3 500	**7036CDB**	**7036CDF**	**7036CDT**	107.6	15.6	192	—	268	273	2	1	19.9
	320	104	4	1.5	596	724	—	—	23.7	—	—	1 700	2 200	**7236DB**	**7236DF**	**7236DT**	196.3	92.3	198	—	302	311.5	3	1.5	31.4
	320	104	4	1.5	538	657	—	—	21.5	—	—	1 300	1 700	**7236BDB**	**7236BDF**	**7236BDT**	261.8	157.8	198	—	302	311.5	3	1.5	31.4
	320	104	4	1.5	650	786	—	—	25.7	—	14.9	2 400	3 200	**7236CDB**	**7236CDF**	**7236CDT**	119.0	15.0	198	—	302	311.5	3	1.5	31.4
	380	150	4	1.5	831	1 070	—	—	33.0	—	—	1 500	1 900	**7336DB**	**7336DF**	**7336DT**	236.7	86.7	198	—	362	371.5	3	1.5	80.0

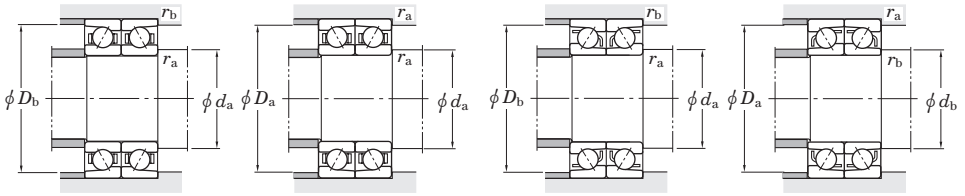
[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings.
Limiting speeds of pressed cage bearings should be kept to under 80% of this value.
For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined cages or molded cages.

2) B, C or no indication after the bearing number indicates nominal contact angle of 40°, 15° and 30° respectively.
[Remark] Standard cage types used for the above bearings are described earlier in this section.

Angular contact ball bearings (matched pair)

d (180) ~ 240 mm





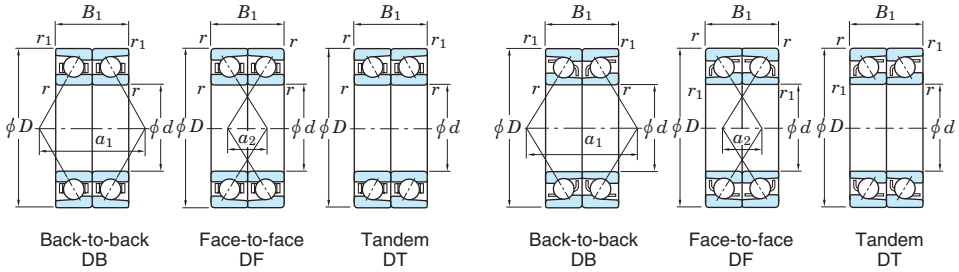
Boundary dimensions (mm)					Basic load ratings (kN)				Fatigue load limits (kN) C_u		Factor	Limiting speeds [1] (min^{-1})		Bearing No. [2]			Load center spread (mm)		Mounting dimensions (mm)						(Refer.) Mass (kg)
					With machined cages		With pressed cages																		
d	D	B_1	r min.	r_1 min.	C_r	C_{0r}	C_r	C_{0r}	With machined cages	With pressed cages	f_0	Grease lub.	Oil lub.	Back-to-back DB	Face-to-face DF	Tandem DT	a_1	a_2	d_a min.	d_b min.	D_a max.	D_b max.	r_a max.	r_b max.	
180	380	150	4	1.5	757	976	—	—	30.1	—	—	1 100	1 500	**7336BDB**	**7336BDF**	**7336BDT**	309.9	159.9	198	—	362	371.5	3	1.5	80.0
190	260	66	2	1	322	394	—	—	13.7	—	16.5	2 700	3 600	**7938CDB**	**7938CDF**	**7938CDT**	93.3	27.3	200	—	250	254.5	2	1	9.66
	290	92	2.1	1.1	441	535	—	—	18.7	—	—	1 800	2 300	**7038DB**	**7038DF**	**7038DT**	184.6	92.6	202	—	278	283	2	1	21.6
	290	92	2.1	1.1	395	483	—	—	16.3	—	—	1 400	1 800	**7038BDB**	**7038BDF**	**7038BDT**	247.4	155.4	202	—	278	283	2	1	21.6
	290	92	2.1	1.1	485	585	—	—	21.1	—	15.9	2 500	3 300	**7038CDB**	**7038CDF**	**7038CDT**	110.3	18.3	202	—	278	283	2	1	21.6
	340	110	4	1.5	616	779	—	—	24.7	—	—	1 600	2 000	**7238DB**	**7238DF**	**7238DT**	208.0	98.0	208	—	322	331.5	3	1.5	37.6
	340	110	4	1.5	555	706	—	—	22.4	—	—	1 200	1 600	**7238BDB**	**7238BDF**	**7238BDT**	277.4	167.4	208	—	322	331.5	3	1.5	37.6
	340	110	4	1.5	673	848	—	—	26.9	—	15.1	2 200	3 000	**7238CDB**	**7238CDF**	**7238CDT**	126.0	16.0	208	—	322	331.5	3	1.5	37.6
	400	156	5	2	914	1 200	—	—	36.0	—	—	1 400	1 800	**7338DB**	**7338DF**	**7338DT**	248.3	92.3	212	—	378	390	4	2	91.0
	400	156	5	2	835	1 100	—	—	33.0	—	—	1 100	1 400	**7338BDB**	**7338BDF**	**7338BDT**	325.5	169.5	212	—	378	390	4	2	91.0
200	280	76	2.1	1.1	415	509	—	—	17.4	—	16.3	2 500	3 300	**7940CDB**	**7940CDF**	**7940CDT**	102.3	26.3	212	—	268	273	2	1	13.7
	310	102	2.1	1.1	495	618	—	—	20.0	—	—	1 700	2 100	**7040DB**	**7040DF**	**7040DT**	198.3	96.3	212	—	298	303	2	1	25.4
	310	102	2.1	1.1	443	558	—	—	18.1	—	—	1 300	1 700	**7040BDB**	**7040BDF**	**7040BDT**	265.0	163.0	212	—	298	303	2	1	25.4
	310	102	2.1	1.1	544	676	—	—	21.9	—	15.7	2 300	3 100	**7040CDB**	**7040CDF**	**7040CDT**	119.3	17.3	212	—	298	303	2	1	25.4
	360	116	4	1.5	658	847	—	—	26.2	—	—	1 500	1 900	**7240DB**	**7240DF**	**7240DT**	219.7	103.7	218	—	342	351.5	3	1.5	44.8
	360	116	4	1.5	593	768	—	—	23.7	—	—	1 100	1 500	**7240BDB**	**7240BDF**	**7240BDT**	292.9	176.9	218	—	342	351.5	3	1.5	44.8
	360	116	4	1.5	718	921	—	—	28.4	—	15.1	2 100	2 800	**7240CDB**	**7240CDF**	**7240CDT**	133.0	17.0	218	—	342	351.5	3	1.5	44.8
	420	160	5	2	964	1 320	—	—	38.6	—	—	1 300	1 700	**7340DB**	**7340DF**	**7340DT**	259.0	99.0	222	—	398	410	4	2	104
	420	160	5	2	878	1 200	—	—	35.3	—	—	1 000	1 300	**7340BDB**	**7340BDF**	**7340BDT**	340.1	180.1	222	—	398	410	4	2	104
220	340	112	3	1.1	543	705	—	—	21.8	—	—	1 500	1 900	**7044DB**	**7044DF**	—	217.8	105.8	234	—	326	333	2.5	1	37.0
	340	112	3	1.1	486	636	—	—	19.6	—	—	1 100	1 500	**7044BDB**	**7044BDF**	—	290.9	178.9	234	—	326	333	2.5	1	37.8
240	360	112	3	1.1	591	751	—	—	24.6	—	—	1 400	1 700	**7048DB**	**7048DF**	—	229.2	117.2	254	—	346	353	2.5	1	39.4
	360	112	3	1.1	528	677	—	—	22.2	—	—	1 000	1 400	**7048BDB**	**7048BDF**	—	307.7	195.7	254	—	346	353	2.5	1	40.2
	440	144	4	1.5	819	1 190	—	—	33.4	—	—	1 200	1 500	**7248DB**	**7248DF**	—	268.3	124.3	258	—	422	431.5	3	1.5	104
	440	144	4	1.5	736	1 080	—	—	30.2	—	—	890	1 200	**7248BDB**	**7248BDF**	—	357.3	213.3	258	—	422	431.5	3	1.5	106

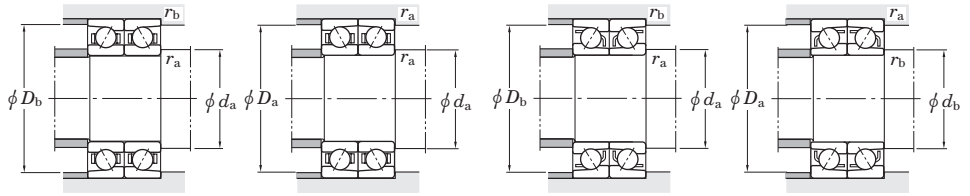
[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings.
Limiting speeds of pressed cage bearings should be kept to under 80% of this value.
For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined cages or molded cages.

2) B, C or no indication after the bearing number indicates nominal contact angle of 40°, 15° and 30° respectively.
[Remark] Standard cage types used for the above bearings are described earlier in this section.

Angular contact ball bearings (matched pair)

d 260 ~ 380 mm





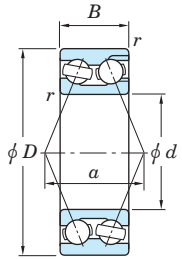
Boundary dimensions (mm)					Basic load ratings (kN)				Fatigue load limits (kN) C_u		Factor	Limiting speeds [1] (min^{-1})		Bearing No. [2]			Load center spread (mm)		Mounting dimensions (mm)						(Refer.) Mass (kg)
					With machined cages		With pressed cages																		
d	D	B_1	r min.	r_1 min.	C_r	C_{0r}	C_r	C_{0r}	With machined cages	With pressed cages	f_0	Grease lub.	Oil lub.	Back-to-back DB	Face-to-face DF	Tandem DT	a_1	a_2	d_a min.	d_b min.	D_a max.	D_b max.	r_a max.	r_b max.	
260	400	130	4	1.5	661	956	—	—	27.1	—	—	1 200	1 500	**7052DB**	**7052DF**	—	256.7	126.7	278	—	382	391.5	3	1.5	57.4
	400	130	4	1.5	592	862	—	—	24.4	—	—	910	1 200	**7052BDB**	**7052BDF**	—	341.9	211.9	278	—	382	391.5	3	1.5	58.6
280	420	130	4	1.5	675	1 010	—	—	27.9	—	—	1 100	1 400	**7056DB**	**7056DF**	—	267.1	137.1	298	—	402	411.5	3	1.5	60.8
	420	130	4	1.5	623	906	—	—	26.2	—	—	850	1 100	**7056BDB**	**7056BDF**	—	358.7	228.7	298	—	402	411.5	3	1.5	62.0
300	460	148	4	1.5	866	1 360	—	—	36.0	—	—	1 000	1 300	**7060DB**	**7060DF**	—	293.4	145.4	318	—	442	451.5	3	1.5	87.4
	460	148	4	1.5	776	1 230	—	—	32.5	—	—	770	1 000	**7060BDB**	**7060BDF**	—	392.9	244.9	318	—	442	451.5	3	1.5	89.8
320	480	148	4	1.5	887	1 440	—	—	37.3	—	—	950	1 200	**7064DB**	**7064DF**	—	304.9	156.9	338	—	462	471.5	3	1.5	92.0
	480	148	4	1.5	795	1 300	—	—	33.6	—	—	710	950	**7064BDB**	**7064BDF**	—	409.6	261.6	338	—	462	471.5	3	1.5	94.4
340	520	164	5	2	1 020	1 720	—	—	42.9	—	—	860	1 100	**7068DB**	**7068DF**	—	330.3	166.3	362	—	498	510	4	2	124
	520	164	5	2	914	1 550	—	—	38.7	—	—	640	860	**7068BDB**	**7068BDF**	—	442.8	278.8	362	—	498	510	4	2	127
360	540	164	5	2	1 050	1 830	—	—	44.5	—	—	800	1 000	**7072DB**	**7072DF**	—	341.8	177.8	382	—	518	530	4	2	129
	540	164	5	2	937	1 650	—	—	40.1	—	—	600	800	**7072BDB**	**7072BDF**	—	459.6	295.6	382	—	518	530	4	2	132
380	560	164	5	2	1 070	1 930	—	—	46.0	—	—	750	940	**7076DB**	**7076DF**	—	353.4	189.4	402	—	538	550	4	2	134
	560	164	5	2	959	1 740	—	—	41.5	—	—	560	750	**7076BDB**	**7076BDF**	—	476.4	312.4	402	—	538	550	4	2	138

[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings.
Limiting speeds of pressed cage bearings should be kept to under 80% of this value.
For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined cages or molded cages.

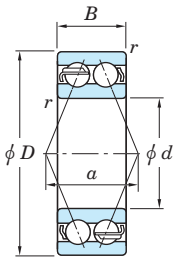
2) B or no indication after the bearing number indicates nominal contact angle of 40° and 30° respectively.

[Remark] Standard cage types used for the above bearings are described earlier in this section.

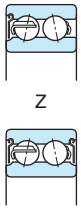
d 10 ~ (40) mm



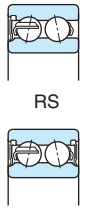
32, 33 series
(With filling slot)



Open

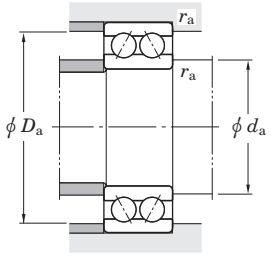


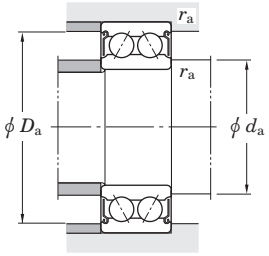
Shielded



Contact sealed

52, 53 series
(Without filling slot)



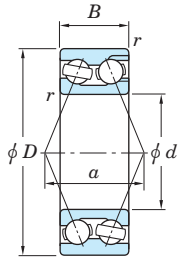


Boundary dimensions (mm)				Basic load ratings (kN)				Fatigue load limits (kN)		Limiting speeds (min^{-1})			Bearing No.			Load center spread (mm)	Mounting dimensions [1] (mm)				(Refer.)
				Open		Shielded/sealed		C_u		Grease lub.		Oil lub.									Mass
d	D	B	r min.	C_r	C_{0r}	C_r	C_{0r}	(Open)	(Shielded/sealed)	Open Z, ZZ	(RS, 2RS)	Open Z	Open	Shielded	Sealed	Open a	d_a min.	d_a max.	D_a max.	r_a max.	(kg)
10	30	14.3	0.6	9.15	5.35	—	—	0.280	—	15 000	—	20 000	**3200**	—	—	19.5	14.5	—	25.5	0.6	0.052
12	32	15.9	0.6	12.1	7.15	—	—	0.370	—	14 000	—	18 000	**3201**	—	—	21.7	16.5	—	27.5	0.6	0.063
15	35	15.9	0.6	12.1	7.45	—	—	0.390	—	12 000	—	16 000	**3202**	—	—	23.6	19.5	—	30.5	0.6	0.072
	42	19	1	19.0	11.9	—	—	0.610	—	10 000	—	14 000	**3302**	—	—	27.6	20.5	—	36.5	1	0.132
17	40	17.5	0.6	17.2	10.8	—	—	0.560	—	11 000	—	14 000	**3203**	—	—	26.6	21.5	—	35.5	0.6	0.100
	40	17.5	0.6	16.5	8.15	15.9	8.35	0.420	0.430	11 000	11 000	14 000	**5203**	**5203 ZZ**	**5203 2RS**	20.0	21.5	23.5	35.5	0.6	0.091
	47	22.2	1	23.0	17.1	—	—	0.760	—	9 400	—	13 000	**3303**	—	—	31.0	22.5	—	41.5	1	0.192
20	47	20.6	1	21.5	15.0	—	—	0.770	—	9 000	—	12 000	**3204**	—	—	31.5	25.5	—	41.5	1	0.170
	47	20.6	1	24.6	12.5	20.0	10.8	0.640	0.560	8 800	8 800	12 000	**5204**	**5204 ZZ**	**5204 2RS**	23.5	25.5	26.6	41.5	1	0.158
	52	22.2	1.1	26.0	18.4	—	—	0.950	—	8 200	—	11 000	**3304**	—	—	33.8	27	—	45	1	0.230
	52	22.2	1.1	30.9	15.0	24.7	12.8	0.780	0.660	8 300	8 300	11 000	**5304**	**5304 ZZ**	**5304 2RS**	25.9	27	28.3	45	1	0.230
25	52	20.6	1	23.7	18.2	—	—	0.940	—	7 800	—	10 000	**3205**	—	—	34.4	30.5	—	46.5	1	0.190
	52	20.6	1	26.7	14.8	23.6	13.8	0.760	0.710	7 700	7 700	10 000	**5205**	**5205 ZZ**	**5205 2RS**	26.1	30.5	32.3	46.5	1	0.190
	62	25.4	1.1	36.2	26.5	—	—	1.35	—	6 800	—	9 100	**3305**	—	—	40.5	32	—	55	1	0.369
	62	25.4	1.1	40.9	20.8	34.3	18.5	1.05	0.960	6 900	6 900	9 200	**5305**	**5305 ZZ**	**5305 2RS**	31.1	32	33.4	55	1	0.340
30	62	23.8	1	34.1	27.0	—	—	1.40	—	6 500	—	8 700	**3206**	—	—	40.7	35.5	—	56.5	1	0.320
	62	23.8	1	37.2	21.3	31.7	18.3	1.10	0.950	6 400	6 400	8 600	**5206**	**5206 ZZ**	**5206 2RS**	30.8	35.5	38.6	56.5	1	0.290
	72	30.2	1.1	47.7	36.1	—	—	1.85	—	5 800	—	7 800	**3306**	—	—	47.2	37	—	65	1	0.585
	72	30.2	1.1	51.2	28.5	42.9	25.2	1.45	1.30	5 800	5 800	7 700	**5306**	**5306 ZZ**	**5306 2RS**	36.2	37	41.3	65	1	0.510
35	72	27	1.1	46.0	37.5	—	—	1.95	—	5 600	—	7 500	**3207**	—	—	46.9	42	—	65	1	0.480
	72	27	1.1	49.0	29.0	39.7	24.6	1.50	1.25	5 500	5 500	7 300	**5207**	**5207 ZZ**	**5207 2RS**	36.1	42	43.9	65	1	0.430
	80	34.9	1.5	60.7	46.8	—	—	2.40	—	5 200	—	7 000	**3307**	—	—	53.4	43.5	—	71.5	1.5	0.816
	80	34.9	1.5	64.0	36.2	57.6	32.8	1.85	1.70	5 100	5 100	6 800	**5307**	**5307 ZZ**	**5307 2RS**	41.0	43.5	45.5	71.5	1.5	0.790
40	80	30.2	1.1	52.4	43.9	—	—	2.25	—	5 000	—	6 700	**3208**	—	—	52.6	47	—	73	1	0.650
	80	30.2	1.1	55.5	33.6	45.7	29.1	1.75	1.50	5 000	5 000	6 700	**5208**	**5208 ZZ**	**5208 2RS**	39.2	47	49.5	73	1	0.570

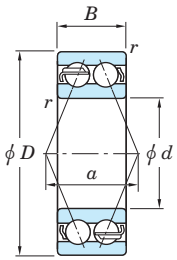
[Note] 1) The maximum value of d_a is applied to shielded and sealed type bearings.

[Remark] Standard cage types used for the above bearings are described earlier in this section.

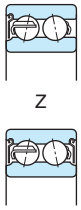
d (40) ~ 70 mm



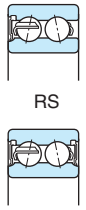
32, 33 series
(With filling slot)



Open

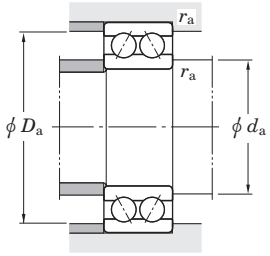


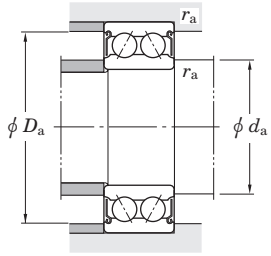
Shielded



Contact sealed

52, 53 series
(Without filling slot)



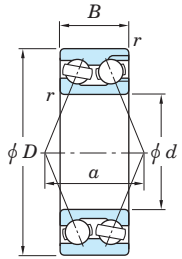


Boundary dimensions (mm)				Basic load ratings (kN) Open		Shielded/sealed		Fatigue load limits (kN) C_u		Limiting speeds (min^{-1}) Grease lub.		Oil lub.	Bearing No.			Load center spread (mm) Open	Mounting dimensions [1] (mm)				(Refer.) Mass (kg)
d	D	B	r min.	C_r	C_{0r}	C_r	C_{0r}	(Open)	(Shielded/sealed)	Open Z, ZZ	(RS, 2RS)	Open Z	Open	Shielded	Sealed	a	d_a min.	d_a max.	D_a max.	r_a max.	
40	90	36.5	1.5	67.6	53.8	—	—	2.80	—	4 600	—	6 100	**3308**	—	—	58.9	48.5	—	81.5	1.5	1.07
	90	36.5	1.5	78.3	45.4	64.3	37.8	2.35	1.95	4 600	4 600	6 100	**5308**	**5308 ZZ**	**5308 2RS**	44.9	48.5	52.1	81.5	1.5	1.05
45	85	30.2	1.1	56.8	51.4	—	—	2.65	—	4 600	—	6 100	**3209**	—	—	56.3	52	—	78	1	0.710
	85	30.2	1.1	62.3	38.4	52.1	33.9	2.00	1.75	4 600	4 600	6 100	**5209**	**5209 ZZ**	**5209 2RS**	42.2	52	55.3	78	1	0.620
	100	39.7	1.5	82.6	67.3	—	—	3.50	—	4 100	—	5 500	**3309**	—	—	65.6	53.5	—	91.5	1.5	1.42
	100	39.7	1.5	93.8	55.7	86.1	51.4	2.90	2.65	4 100	4 100	5 500	**5309**	**5309 ZZ**	**5309 2RS**	51.0	53.5	58.2	91.5	1.5	1.42
50	90	30.2	1.1	56.4	52.1	—	—	2.70	—	4 300	—	5 700	**3210**	—	—	58.8	57	—	83	1	0.760
	90	30.2	1.1	66.7	43.6	55.2	37.9	2.25	1.95	4 300	4 300	5 600	**5210**	**5210 ZZ**	**5210 2RS**	44.5	57	58.9	83	1	0.670
	110	44.4	2	108	88.6	—	—	4.60	—	3 800	—	5 000	**3310**	—	—	71.7	60	—	100	2	1.95
	110	44.4	2	111	67.0	102	62.2	3.45	3.20	3 600	3 600	4 800	**5310**	**5310 ZZ**	**5310 2RS**	56.6	60	64.4	100	2	1.93
55	100	33.3	1.5	63.6	60.2	—	—	3.10	—	3 900	—	5 100	**3211**	—	—	65.0	63.5	—	91.5	1.5	1.05
	100	33.3	1.5	82.3	55.2	66.1	44.7	2.85	2.30	3 800	3 800	5 100	**5211**	**5211 ZZ**	**5211 2RS**	50.2	63.5	66.2	91.5	1.5	0.960
	120	49.2	2	126	106	—	—	5.45	—	3 400	—	4 500	**3311**	—	—	79.3	65	—	110	2	2.53
	120	49.2	2	138	85.1	120	74.3	4.40	3.85	3 300	3 300	4 500	**5311**	**5311 ZZ**	**5311 2RS**	61.6	65	71.8	110	2	2.30
60	110	36.5	1.5	80.0	76.8	—	—	3.95	—	3 500	—	4 700	**3212**	—	—	71.3	68.5	—	101.5	1.5	1.40
	110	36.5	1.5	93.0	60.8	78.3	55.9	3.15	2.90	3 500	3 500	4 700	**5212**	**5212 ZZ**	**5212 2RS**	53.8	68.5	74.1	101.5	1.5	1.36
	130	54	2.1	156	132	—	—	6.85	—	3 100	—	4 200	**3312**	—	—	87.4	72	—	118	2	3.24
	130	54	2.1	157	98.7	138	87.1	5.10	4.50	3 100	3 100	4 100	**5312**	**5312 ZZ**	**5312 2RS**	67.2	72	79.2	118	2	3.16
65	120	38.1	1.5	95.5	97.4	—	—	5.05	—	3 200	—	4 300	**3213**	—	—	76.8	73.5	—	111.5	1.5	1.75
	120	38.1	1.5	109	75.3	86.5	63.1	3.90	3.25	3 200	3 200	4 300	**5213**	**5213 ZZ**	**5213 2RS**	58.8	73.5	79.0	111.5	1.5	1.66
	140	58.7	2.1	177	153	—	—	7.80	—	2 900	—	3 900	**3313**	—	—	92.7	77	—	128	2	4.08
	140	58.7	2.1	178	113	178	113	5.75	5.75	2 900	2 900	3 900	**5313**	**5313 ZZ**	**5313 2RS**	70.9	77	85.9	128	2	3.91
70	125	39.7	1.5	97.4	96.4	—	—	5.00	—	3 100	—	4 100	**3214**	—	—	80.7	78.5	—	116.5	1.5	1.92
	125	39.7	1.5	118	82.6	95.4	70.3	4.25	3.65	3 100	3 100	4 100	**5214**	**5214 ZZ**	**5214 2RS**	61.4	78.5	83.5	116.5	1.5	1.81
	150	63.5	2.1	188	160	—	—	7.90	—	2 700	—	3 600	**3314**	—	—	99.7	82	—	138	2	5.04
	150	63.5	2.1	200	129	200	129	6.35	6.35	2 700	2 700	3 600	**5314**	**5314 ZZ**	**5314 2RS**	76.0	82	92.9	138	2	4.89

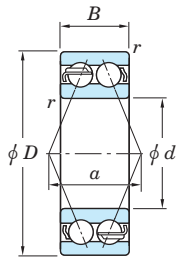
[Note] 1) The maximum value of d_a is applied to shielded and sealed type bearings.

[Remark] Standard cage types used for the above bearings are described earlier in this section.

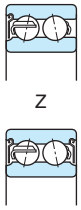
d 75 ~ 110 mm



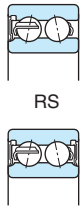
32, 33 series
(With filling slot)



Open

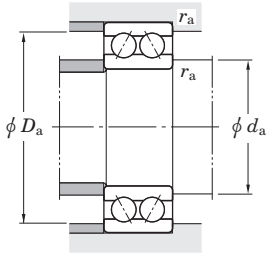


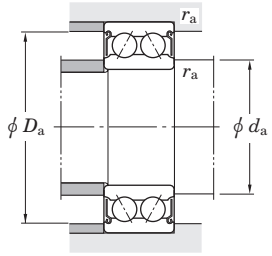
Shielded



Contact sealed

52, 53 series
(Without filling slot)





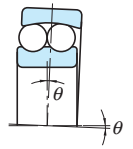
Boundary dimensions (mm)				Basic load ratings (kN)				Fatigue load limits (kN)		Limiting speeds (min^{-1})			Bearing No.			Load center spread (mm)	Mounting dimensions [1] (mm)				(Refer.) Mass
				Open		Shielded/sealed		C_u		Grease lub.		Oil lub.					d_a		D_a	r_a	
d	D	B	r min.	C_r	C_{0r}	C_r	C_{0r}	(Open)	(Shielded/sealed)	Open Z, ZZ	(RS, 2RS)	Open Z	Open	Shielded	Sealed	Open a	min.	max.	max.	max.	(kg)
75	130	41.3	1.5	116	120	—	—	6.15	—	2 900	—	3 900	**3215**	—	—	84.7	83.5	—	121.5	1.5	2.10
	160	68.3	2.1	211	189	—	—	9.00	—	2 500	—	3 300	**3315**	—	—	108.7	87	—	148	2	6.16
	160	68.3	2.1	218	147	218	147	6.95	6.95	2 500	2 500	3 300	**5315**	**5315 ZZ**	**5315 2RS**	81.5	87	99.6	148	2	5.97
80	140	44.4	2	122	121	—	—	5.95	—	2 700	—	3 600	**3216**	—	—	90.7	90	—	130	2	2.64
	170	68.3	2.1	230	213	—	—	9.85	—	2 400	—	3 100	**3316**	—	—	113.1	92	—	158	2	6.93
85	150	49.2	2	143	143	—	—	6.80	—	2 500	—	3 400	**3217**	—	—	98.4	95	—	140	2	3.39
	180	73	3	235	219	—	—	9.80	—	2 200	—	3 000	**3317**	—	—	118.8	99	—	166	2.5	8.30
90	160	52.4	2	165	167	—	—	7.70	—	2 400	—	3 100	**3218**	—	—	104.1	100	—	150	2	4.14
	190	73	3	256	242	—	—	10.6	—	2 100	—	2 800	**3318**	—	—	125.5	104	—	176	2.5	9.23
95	170	55.6	2.1	189	193	—	—	8.65	—	2 200	—	3 000	**3219**	—	—	110.6	107	—	158	2	5.00
	200	77.8	3	273	270	—	—	14.9	—	2 000	—	2 600	**3319**	—	—	132.2	109	—	186	2.5	10.9
100	180	60.3	2.1	215	221	—	—	9.65	—	2 100	—	2 800	**3220**	—	—	116.8	112	—	168	2	6.10
	215	82.6	3	312	324	—	—	17.4	—	1 800	—	2 500	**3320**	—	—	140.4	114	—	201	2.5	13.5
105	190	65.1	2.1	227	237	—	—	11.5	—	2 000	—	2 600	**3221**	—	—	124.2	117	—	178	2	7.37
	225	87.3	3	331	354	—	—	18.5	—	1 800	—	2 300	**3321**	—	—	148.1	119	—	211	2.5	15.6
110	200	69.8	2.1	251	263	—	—	10.9	—	1 900	—	2 500	**3222**	—	—	131.4	122	—	188	2	8.80
	240	92.1	3	352	388	—	—	15.1	—	1 600	—	2 200	**3322**	—	—	156.4	124	—	226	2.5	18.9

[Note] 1) The maximum value of d_a is applied to shielded and sealed type bearings.

[Remark] Standard cage types used for the above bearings are described earlier in this section.

Self-aligning ball bearings

Self-aligning ball bearings have a spherical outer ring raceway, the center of whose curvature meets that of the bearing itself, so that the inner ring, balls and cage continue to rotate, aligning themselves if they have become misaligned within design limits.



θ : Allowable aligning angle

This type of bearing is suitable when the displacement of the centers around which the shaft and housing rotate and shaft deflection are likely to occur.

Bearings with a tapered bore can easily be fit to the shaft with an adapter assembly.

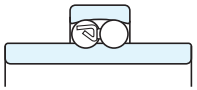
Self-aligning ball bearings

Cylindrical bore Tapered bore

Bore diameter **10 – 90** mm

Sealed type

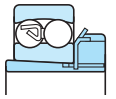
Bore diameter **10 – 55** mm



Extended inner ring type

Bore diameter **20 – 60** mm

Adapter assemblies



Bore diameter **17 – 80** mm

Boundary dimensions	The dimensions of standard series are as specified in JIS B 1512.
Tolerances	As specified in JIS B 1514-1, class 0. (refer to Table 7-3 on pp. A 60 – A 63.)
Radial internal clearance	As specified in JIS B 1520. (refer to Table 10-6 on p. A 105.)
Recommended fits	Refer to Table 9-4 on pp. A 91, 92.
Standard cages	• Staggered type pressed steel cage (application : all dimensional range of 12, 13, 112, 113, 22...2RS and 23...2RS series) • Snap type pressed steel cage (application : all dimensional range of 22 series and those of No. 2300 thru 2316.)
Allowable aligning angle	· 12 and 22 series.....0.044 rad (2.5°) · 13 and 23 series.....0.052 rad (3°) · 22...2RS and 23...2RS series.....0.026 rad (1.5°)

Dynamic equivalent radial load

$P_r = XF_r + YF_a$

$F_a/F_r \leqq e$		$F_a/F_r > e$	
X	Y	X	Y
1	Y_1	0.65	Y_2

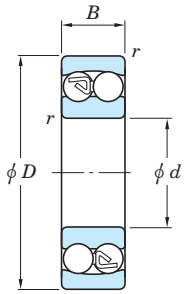
Static equivalent radial load

$P_{0r} = F_r + Y_0F_a$

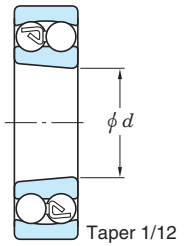
Refer to the bearing specification table for values of e, Y_1, Y_2 and Y_0.

Self-aligning ball bearings
open type

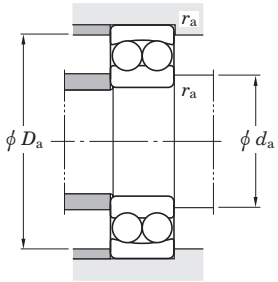
d **10 ~ (35) mm**



Cylindrical bore



Tapered bore

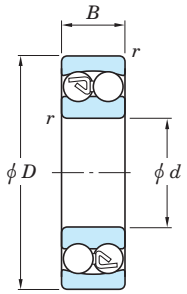


Boundary dimensions (mm)				Basic load ratings (kN)		Fatigue load limit (kN)	Limiting speeds (min^{-1})		Bearing No.		Mounting dimensions (mm)			Con-stant	Axial load factors			(Refer.) Mass (kg)	
d	D	B	r min.	C_r	C_{0r}	C_u	Grease lub.	Oil lub.	Cylindrical bore	Tapered bore	d_a min.	D_a max.	r_a max.	e	Y_1	Y_2	Y_0	Cylindrical bore	Tapered bore
10	30	9	0.6	5.50	1.20	0.08	23 000	28 000	**1200**	—	14	26	0.6	0.33	1.92	2.97	2.01	0.034	—
	30	14	0.6	7.40	1.60	0.10	23 000	29 000	**2200**	—	14	26	0.6	0.59	1.07	1.65	1.12	0.047	—
12	32	10	0.6	5.60	1.25	0.08	21 000	26 000	**1201**	—	16	28	0.6	0.33	1.89	2.93	1.98	0.040	—
	32	14	0.6	7.65	1.75	0.11	21 000	26 000	**2201**	—	16	28	0.6	0.53	1.18	1.83	1.24	0.053	—
15	35	11	0.6	7.45	1.75	0.11	18 000	22 000	**1202**	—	19	31	0.6	0.33	1.90	2.95	2.00	0.049	—
	35	14	0.6	7.70	1.85	0.12	18 000	22 000	**2202**	—	19	31	0.6	0.50	1.27	1.97	1.33	0.060	—
	42	13	1	9.55	2.30	0.14	16 000	20 000	**1302**	—	20	37	1	0.34	1.86	2.88	1.95	0.094	—
	42	17	1	12.1	2.90	0.18	14 000	20 000	**2302**	—	20	37	1	0.50	1.27	1.96	1.33	0.114	—
17	40	12	0.6	7.90	2.05	0.13	16 000	20 000	**1203**	—	21	36	0.6	0.31	2.03	3.14	2.12	0.073	—
	40	16	0.6	9.80	2.40	0.15	16 000	20 000	**2203**	—	21	36	0.6	0.50	1.27	1.96	1.33	0.088	—
	47	14	1	12.5	3.20	0.20	14 000	17 000	**1303**	—	22	42	1	0.33	1.92	2.97	2.01	0.130	—
	47	19	1	14.5	3.60	0.23	13 000	18 000	**2303**	—	22	42	1	0.49	1.28	1.98	1.34	0.158	—
20	47	14	1	9.90	2.65	0.16	14 000	17 000	**1204**	**1204K**	25	42	1	0.29	2.16	3.35	2.27	0.120	0.118
	47	18	1	12.6	3.25	0.21	14 000	17 000	**2204**	**2204K**	25	42	1	0.48	1.31	2.02	1.37	0.140	0.136
	52	15	1.1	12.4	3.35	0.21	13 000	15 000	**1304**	**1304K**	26.5	45.5	1	0.30	2.12	3.28	2.22	0.163	0.161
	52	21	1.1	18.0	4.65	0.30	11 000	15 000	**2304**	**2304K**	26.5	45.5	1	0.49	1.29	2.00	1.35	0.209	0.205
25	52	15	1	12.1	3.30	0.21	12 000	14 000	**1205**	**1205K**	30	47	1	0.28	2.28	3.52	2.39	0.141	0.138
	52	18	1	12.6	3.50	0.22	12 000	15 000	**2205**	**2205K**	30	47	1	0.40	1.58	2.45	1.66	0.163	0.158
	62	17	1.1	18.0	5.05	0.32	9 900	12 000	**1305**	**1305K**	31.5	55.5	1	0.27	2.31	3.57	2.42	0.257	0.252
	62	24	1.1	24.5	6.55	0.42	9 400	13 000	**2305**	**2305K**	31.5	55.5	1	0.46	1.36	2.10	1.42	0.335	0.327
30	62	16	1	15.6	4.70	0.29	9 900	12 000	**1206**	**1206K**	35	57	1	0.25	2.55	3.94	2.67	0.220	0.216
	62	20	1	15.5	4.65	0.29	10 000	12 000	**2206**	**2206K**	35	57	1	0.35	1.79	2.77	1.87	0.260	0.254
	72	19	1.1	21.3	6.30	0.40	8 700	11 000	**1306**	**1306K**	36.5	65.5	1	0.26	2.40	3.72	2.52	0.387	0.381
	72	27	1.1	31.5	8.70	0.55	8 000	11 000	**2306**	**2306K**	36.5	65.5	1	0.44	1.44	2.23	1.51	0.500	0.489
35	72	17	1.1	15.8	5.15	0.32	8 500	10 000	**1207**	**1207K**	41.5	65.5	1	0.23	2.71	4.20	2.84	0.323	0.317

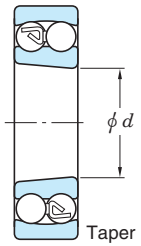
[Remark] Standard cage types used for the above bearings are described earlier in this section.

Self-aligning ball bearings
open type

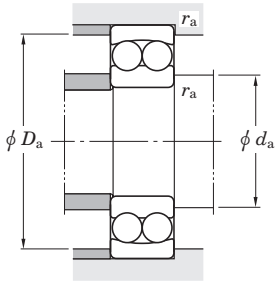
d (35) ~ 65 mm



Cylindrical bore



Tapered bore

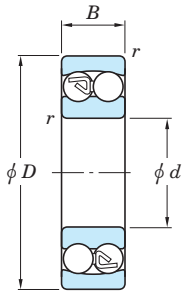


Boundary dimensions (mm)				Basic load ratings (kN)		Fatigue load limit (kN)	Limiting speeds (min^{-1})		Bearing No.		Mounting dimensions (mm)			Con-stant	Axial load factors			(Refer.) Mass (kg)	
d	D	B	r min.	C_r	C_{0r}	C_u	Grease lub.	Oil lub.	Cylindrical bore	Tapered bore	d_a min.	D_a max.	r_a max.	e	Y_1	Y_2	Y_0	Cylindrical bore	Tapered bore
35	72	23	1.1	21.6	6.65	0.42	8 500	10 000	**2207**	**2207K**	41.5	65.5	1	0.37	1.71	2.65	1.79	0.403	0.396
	80	21	1.5	25.1	7.95	0.49	7 600	9 300	**1307**	**1307K**	43	72	1.5	0.25	2.48	3.84	2.60	0.510	0.502
	80	31	1.5	39.5	11.1	0.71	7 100	9 800	**2307**	**2307K**	43	72	1.5	0.45	1.39	2.15	1.46	0.675	0.657
40	80	18	1.1	19.2	6.50	0.41	7 500	9 200	**1208**	**1208K**	46.5	73.5	1	0.22	2.83	4.38	2.97	0.417	0.411
	80	23	1.1	22.4	7.35	0.46	7 600	9 300	**2208**	**2208K**	46.5	73.5	1	0.33	1.92	2.96	2.01	0.505	0.494
	90	23	1.5	29.6	9.80	0.61	6 900	8 400	**1308**	**1308K**	48	82	1.5	0.25	2.57	3.98	2.69	0.715	0.704
	90	33	1.5	44.9	13.4	0.85	6 200	8 600	**2308**	**2308K**	48	82	1.5	0.43	1.47	2.27	1.54	0.925	0.903
45	85	19	1.1	21.8	7.35	0.46	7 000	8 500	**1209**	**1209K**	51.5	78.5	1	0.21	2.94	4.56	3.09	0.465	0.459
	85	23	1.1	23.3	8.15	0.51	7 000	8 500	**2209**	**2209K**	51.5	78.5	1	0.30	2.09	3.23	2.19	0.545	0.533
	100	25	1.5	38.1	12.9	0.80	6 100	7 500	**1309**	**1309K**	53	92	1.5	0.25	2.56	3.95	2.68	0.957	0.942
	100	36	1.5	54.4	16.6	1.05	5 600	7 700	**2309**	**2309K**	53	92	1.5	0.42	1.51	2.33	1.58	1.23	1.20
50	90	20	1.1	22.7	8.10	0.51	6 500	7 900	**1210**	**1210K**	56.5	83.5	1	0.21	3.07	4.76	3.22	0.525	0.515
	90	23	1.1	23.3	8.50	0.53	6 500	7 900	**2210**	**2210K**	56.5	83.5	1	0.27	2.33	3.61	2.45	0.590	0.577
	110	27	2	43.4	14.2	0.89	5 600	6 800	**1310**	**1310K**	59	101	2	0.23	2.70	4.17	2.83	1.21	1.19
	110	40	2	64.6	20.1	1.25	5 100	7 000	**2310**	**2310K**	59	101	2	0.40	1.56	2.41	1.63	1.64	1.60
55	100	21	1.5	26.8	10.0	0.63	5 800	7 100	**1211**	**1211K**	63	92	1.5	0.20	3.19	4.94	3.34	0.705	0.693
	100	25	1.5	26.5	9.95	0.62	5 800	7 100	**2211**	**2211K**	63	92	1.5	0.27	2.35	3.64	2.47	0.810	0.792
	120	29	2	51.3	18.1	1.10	5 000	6 200	**1311**	**1311K**	64	111	2	0.23	2.70	4.18	2.83	1.58	1.56
	120	43	2	75.4	23.8	1.50	4 600	6 400	**2311**	**2311K**	64	111	2	0.41	1.53	2.37	1.60	2.10	2.05
60	110	22	1.5	30.2	11.6	0.73	5 200	6 400	**1212**	**1212K**	68	102	1.5	0.19	3.37	5.22	3.53	0.900	0.885
	110	28	1.5	34.1	12.5	0.80	5 300	6 500	**2212**	**2212K**	68	102	1.5	0.28	2.26	3.49	2.36	1.09	1.07
	130	31	2.1	57.1	20.8	1.30	4 500	5 500	**1312**	**1312K**	71	119	2	0.22	2.91	4.50	3.05	1.96	1.93
	130	46	2.1	87.3	28.1	1.80	4 200	5 800	**2312**	**2312K**	71	119	2	0.39	1.62	2.51	1.70	2.60	2.53
65	120	23	1.5	31.0	12.4	0.79	4 800	5 800	**1213**	**1213K**	73	112	1.5	0.17	3.67	5.68	3.84	1.15	1.13
	120	31	1.5	43.6	16.4	1.05	4 900	5 900	**2213**	**2213K**	73	112	1.5	0.28	2.24	3.47	2.35	1.46	1.43
	140	33	2.1	61.7	22.9	1.40	4 300	5 200	**1313**	**1313K**	76	129	2	0.23	2.73	4.23	2.86	2.45	2.41

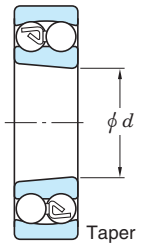
[Remark] Standard cage types used for the above bearings are described earlier in this section.

Self-aligning ball bearings
open type

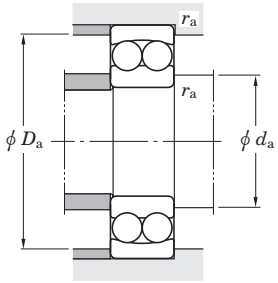
d 70 ~ 90 mm



Cylindrical bore



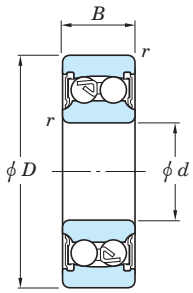
Tapered bore

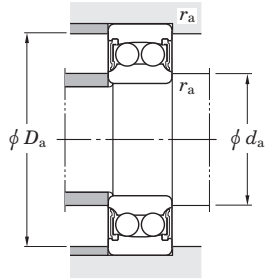


Boundary dimensions (mm)				Basic load ratings (kN)		Fatigue load limit (kN)	Limiting speeds (min^{-1})		Bearing No.		Mounting dimensions (mm)			Con-stant	Axial load factors			(Refer.) Mass (kg)	
d	D	B	r min.	C_r	C_{0r}	C_u	Grease lub.	Oil lub.	Cylindrical bore	Tapered bore	d_a min.	D_a max.	r_a max.	e	Y_1	Y_2	Y_0	Cylindrical bore	Tapered bore
70	125	24	1.5	34.7	13.7	0.87	4 600	5 700	**1214**	—	78	117	1.5	0.18	3.48	5.38	3.64	1.26	—
	150	35	2.1	74.0	27.6	1.65	4 000	4 900	**1314**	—	81	139	2	0.22	2.84	4.40	2.98	2.99	—
75	130	25	1.5	38.8	15.5	0.97	4 300	5 300	**1215**	**1215K**	83	122	1.5	0.17	3.60	5.58	3.77	1.36	1.34
	160	37	2.1	78.9	29.9	1.70	4 000	4 900	**1315**	**1315K**	86	149	2	0.23	2.80	4.33	2.93	3.56	3.51
80	140	26	2	39.7	16.9	1.00	4 000	4 900	**1216**	**1216K**	89	131	2	0.16	3.90	6.03	4.08	1.67	1.64
	170	39	2.1	88.1	32.9	1.85	3 500	4 300	**1316**	**1316K**	91	159	2	0.22	2.90	4.49	3.04	4.18	4.12
85	150	28	2	49.2	20.5	1.20	3 800	4 600	**1217**	**1217K**	94	141	2	0.17	3.61	5.59	3.78	2.07	2.04
	180	41	3	97.3	37.8	2.05	3 300	4 000	**1317**	**1317K**	98	167	2.5	0.22	2.93	4.53	3.07	4.98	4.91
90	160	30	2	56.8	23.4	1.30	3 500	4 300	**1218**	**1218K**	99	151	2	0.17	3.69	5.70	3.86	2.52	2.48
	190	43	3	116	44.7	2.35	3 100	3 800	**1318**	**1318K**	103	177	2.5	0.22	2.81	4.35	2.94	5.80	5.71

[Remark] Standard cage types used for the above bearings are described earlier in this section.

d 10 ~ 55 mm



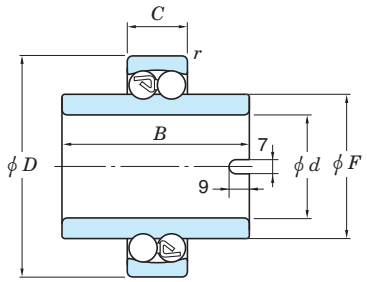


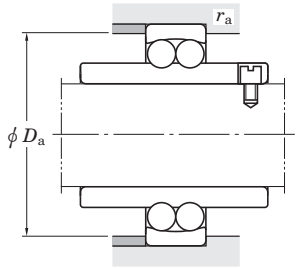
Boundary dimensions (mm)				Basic load ratings (kN)		Fatigue load limit (kN)	Limiting speed (min^{-1})	Bearing No.		Mounting dimensions (mm)				Constant	Axial load factors			(Refer.) Mass
d	D	B	r min.	C_r	C_{0r}	C_u	Grease lub.			d_a min.	d_a max.	D_a max.	r_a max.	e	Y_1	Y_2	Y_0	(kg)
10	30	14	0.6	5.50	1.20	0.08	15 000	**2200 2RS**		13.7	13.7	25	0.6	0.33	1.92	2.97	2.01	0.047
12	32	14	0.6	5.60	1.25	0.08	14 000	**2201 2RS**		15.2	15.2	27	0.6	0.33	1.89	2.93	1.98	0.053
15	35	14	0.6	7.45	1.75	0.11	12 000	**2202 2RS**		18.0	18.0	30	0.6	0.33	1.90	2.95	2.00	0.060
	42	17	1	9.55	2.30	0.14	11 000	**2302 2RS**		20.0	20.0	36	1	0.34	1.86	2.88	1.95	0.114
17	40	16	0.6	7.90	2.05	0.13	11 000	**2203 2RS**		20.2	20.2	35	0.6	0.31	2.03	3.14	2.12	0.088
	47	19	1	12.5	3.20	0.20	9 400	**2303 2RS**		22.1	22.1	41	1	0.33	1.92	2.97	2.01	0.158
20	47	18	1	9.90	2.65	0.16	9 100	**2204 2RS**		24.1	24.1	41	1	0.29	2.16	3.35	2.27	0.140
	52	21	1.1	12.4	3.35	0.21	8 300	**2304 2RS**		26.2	26.2	45	1	0.30	2.12	3.28	2.22	0.209
25	52	18	1	12.1	3.30	0.21	7 900	**2205 2RS**		29.4	29.4	46	1	0.28	2.28	3.52	2.39	0.163
	62	24	1.1	18.0	5.05	0.32	6 600	**2305 2RS**		32	33.9	55	1	0.27	2.31	3.57	2.42	0.335
30	62	20	1	15.6	4.70	0.29	6 600	**2206 2RS**		35.5	35.5	56	1	0.25	2.55	3.94	2.67	0.260
	72	27	1.1	21.3	6.30	0.40	5 800	**2306 2RS**		37	37.8	65	1	0.26	2.40	3.72	2.52	0.500
35	72	23	1.1	15.8	5.15	0.32	5 700	**2207 2RS**		40.9	40.9	65	1	0.23	2.71	4.20	2.84	0.403
	80	31	1.5	25.1	7.95	0.49	5 100	**2307 2RS**		43.5	45.0	71.5	1.5	0.25	2.48	3.84	2.60	0.675
40	80	23	1.1	19.2	6.50	0.41	5 000	**2208 2RS**		47	48.1	73	1	0.22	2.83	4.38	2.97	0.505
	90	33	1.5	29.6	9.80	0.61	4 600	**2308 2RS**		48.5	49.6	81.5	1.5	0.25	2.57	3.98	2.69	0.925
45	85	23	1.1	21.8	7.35	0.46	4 600	**2209 2RS**		52	52.4	78	1	0.21	2.94	4.56	3.09	0.545
	100	36	1.5	38.1	12.9	0.80	4 100	**2309 2RS**		53.5	56.6	91.5	1.5	0.25	2.56	3.95	2.68	1.23
50	90	23	1.1	22.7	8.10	0.51	4 300	**2210 2RS**		56.5	56.5	83	1	0.21	3.07	4.76	3.22	0.590
	110	40	2	43.4	14.2	0.89	3 700	**2310 2RS**		60	62.5	100	2	0.23	2.70	4.17	2.83	1.64
55	100	25	1.5	26.8	10.0	0.63	3 900	**2211 2RS**		63.5	63.5	91.5	1.5	0.20	3.19	4.94	3.34	0.810

[Remark] Standard cage types used for the above bearings are described earlier in this section.

Self-aligning ball bearings extended inner ring type

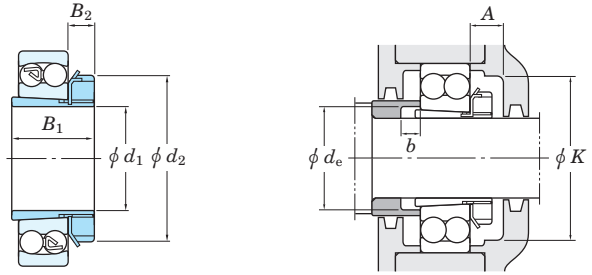
d 20 ~ 60 mm





Boundary dimensions (mm)						Basic load ratings (kN)		Fatigue load limit (kN)	Limiting speeds (min^{-1})		Bearing No.		Mounting dimensions (mm)		Constant	Axial load factors			(Refer.) Mass (kg)
d	D	B	C	F	r min.	C_r	C_{0r}	C_u	Grease lub.	Oil lub.			D_a max.	r_a max.	e	Y_1	Y_2	Y_0	
20	47	40	14	29.2	1	9.90	2.65	0.16	14 000	17 000	**11204**		42	1	0.29	2.16	3.35	2.27	0.191
	52	44	15	31.5	1.1	12.4	3.35	0.21	13 000	15 000	**11304**		45.5	1	0.30	2.12	3.28	2.22	0.266
25	52	44	15	33.3	1	12.1	3.30	0.21	12 000	14 000	**11205**		47	1	0.28	2.28	3.52	2.39	0.226
	62	48	17	38	1.1	18.0	5.05	0.32	9 900	12 000	**11305**		55.5	1	0.27	2.31	3.57	2.42	0.445
30	62	48	16	40.1	1	15.6	4.70	0.29	9 900	12 000	**11206**		57	1	0.25	2.55	3.94	2.67	0.360
	72	52	19	45	1.1	21.3	6.30	0.40	8 700	11 000	**11306**		65.5	1	0.26	2.40	3.72	2.52	0.614
35	72	52	17	47.7	1.1	15.8	5.15	0.32	8 500	10 000	**11207**		65.5	1	0.23	2.71	4.20	2.84	0.556
	80	56	21	51.7	1.5	25.1	7.95	0.49	7 600	9 300	**11307**		72	1.5	0.25	2.48	3.84	2.60	0.821
40	80	56	18	54	1.1	19.2	6.50	0.41	7 500	9 200	**11208**		73.5	1	0.22	2.83	4.38	2.97	0.733
	90	58	23	57.7	1.5	29.6	9.80	0.61	6 900	8 400	**11308**		82	1.5	0.25	2.57	3.98	2.69	1.09
45	85	58	19	57.7	1.1	21.8	7.35	0.46	7 000	8 500	**11209**		78.5	1	0.21	2.94	4.56	3.09	0.793
	100	60	25	63.9	1.5	38.1	12.9	0.80	6 100	7 500	**11309**		92	1.5	0.25	2.56	3.95	2.68	1.40
50	90	58	20	62.7	1.1	22.7	8.10	0.51	6 500	7 900	**11210**		83.5	1	0.21	3.07	4.76	3.22	0.875
	110	62	27	70.3	2	43.4	14.2	0.89	5 600	6 800	**11310**		102	2	0.23	2.70	4.17	2.83	1.74
55	100	60	21	70.3	1.5	26.8	10.0	0.63	5 800	7 100	**11211**		93.5	1.5	0.20	3.19	4.94	3.34	1.16
60	110	62	22	78	1.5	30.2	11.6	0.73	5 200	6 400	**11212**		103.5	1.5	0.19	3.37	5.22	3.53	1.52

d_1 17 ~ (45) mm



Boundary dimensions (mm) d_1	B_1	d_2	B_2	Brg. bore d (mm)	Designations Bearing + **adapter ass'y**	Mounting dimensions (mm) A min.	K min.	d_e min.	b min.	Mass Brg.+adapter ass'y (kg)	(Refer.) Adapter sleeve No.	Locknut No.
17	24	32	7	20	1204K+**H204X**	—	—	23	5	0.162	A204X	AN04
	28	32	7	20	2204K+**H304X**	—	—	24	5	0.185	A304X	AN04
	28	32	7	20	1304K+**H304X**	—	—	24	8	0.210	A304X	AN04
	31	32	7	20	2304K+**H2304X**	—	—	24	5	0.257	A2304X	AN04
20	26	38	8	25	1205K+**H205X**	15	45	28	5	0.218	A205X	AN05
	29	38	8	25	2205K+**H305X**	15	45	29	5	0.243	A305X	AN05
	29	38	8	25	1305K+**H305X**	15	45	29	6	0.337	A305X	AN05
	35	38	8	25	2305K+**H2305X**	15	45	29	5	0.424	A2305X	AN05
25	27	45	8	30	1206K+**H206X**	15	50	33	5	0.320	A206X	AN06
	31	45	8	30	2206K+**H306X**	15	50	34	5	0.368	A306X	AN06
	31	45	8	30	1306K+**H306X**	15	50	34	6	0.495	A306X	AN06
	38	45	8	30	2306K+**H2306X**	15	50	35	5	0.620	A2306X	AN06
30	29	52	9	35	1207K+**H207X**	17	58	38	5	0.462	A207X	AN07
	35	52	9	35	2207K+**H307X**	17	58	39	5	0.557	A307X	AN07
	35	52	9	35	1307K+**H307X**	17	58	39	7	0.663	A307X	AN07
	43	52	9	35	2307K+**H2307X**	17	58	40	5	0.843	A2307X	AN07
35	31	58	10	40	1208K+**H208X**	17	65	44	5	0.597	A208X	AN08
	36	58	10	40	2208K+**H308X**	17	65	44	5	0.696	A308X	AN08
	36	58	10	40	1308K+**H308X**	17	65	44	5	0.906	A308X	AN08
	46	58	10	40	2308K+**H2308X**	17	65	45	5	1.14	A2308X	AN08
40	33	65	11	45	1209K+**H209X**	17	72	49	5	0.701	A209X	AN09
	39	65	11	45	2209K+**H309X**	17	72	49	8	0.798	A309X	AN09
	39	65	11	45	1309K+**H309X**	17	72	49	5	1.21	A309X	AN09
	50	65	11	45	2309K+**H2309X**	17	72	50	5	1.51	A2309X	AN09
45	35	70	12	50	1210K+**H210X**	19	76	53	5	0.804	A210X	AN10
	42	70	12	50	2210K+**H310X**	19	76	54	10	0.896	A310X	AN10

d_1 (45) ~ 80 mm

Boundary dimensions (mm) d_1	B_1	d_2	B_2	Brg. bore d (mm)	Designations Bearing + **adapter ass'y**	Mounting dimensions (mm) A min.	K min.	d_e min.	b min.	Mass Brg.+adapter ass'y (kg)	(Refer.) Adapter sleeve No.	Locknut No.
45	42	70	12	50	1310K+**H310X**	19	76	54	5	1.51	A310X	AN10
	55	70	12	50	2310K+**H2310X**	19	76	56	5	1.98	A2310X	AN10
50	37	75	12	55	1211K+**H211X**	19	85	60	6	1.02	A211X	AN11
	45	75	12	55	2211K+**H311X**	19	85	60	11	1.16	A311X	AN11
	45	75	12	55	1311K+**H311X**	19	85	60	6	1.93	A311X	AN11
	59	75	12	55	2311K+**H2311X**	19	85	61	6	2.50	A2311X	AN11
55	38	80	13	60	1212K+**H212X**	20	90	61	5	1.25	A212X	AN12
	47	80	13	60	2212K+**H312X**	20	90	65	9	1.49	A312X	AN12
	47	80	13	60	1312K+**H312X**	20	90	65	5	2.35	A312X	AN12
	62	80	13	60	2312K+**H2312X**	20	90	66	5	3.04	A2312X	AN12
60	40	85	14	65	1213K+**H213X**	21	96	70	5	1.56	A213X	AN13
	50	85	14	65	2213K+**H313X**	21	96	70	8	1.92	A313X	AN13
	50	85	14	65	1313K+**H313X**	21	96	70	5	2.90	A313X	AN13
65	43	98	15	75	1215K+**H215X**	23	110	80	5	2.09	A215X	AN15
	55	98	15	75	1315K+**H315X**	23	110	80	5	4.40	A315X	AN15
70	46	105	17	80	1216K+**H216X**	25	120	85	5	2.57	A216X	AN16
	59	105	17	80	1316K+**H316X**	25	120	86	5	5.21	A316X	AN16
75	50	110	18	85	1217K+**H217X**	27	128	90	6	3.11	A217X	AN17
	63	110	18	85	1317K+**H317X**	27	128	91	6	6.15	A317X	AN17
80	52	120	18	90	1218K+**H218X**	28	139	95	6	3.75	A218X	AN18
	65	120	18	90	1318K+**H318X**	28	139	96	6	7.16	A318X	AN18