



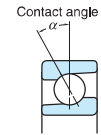
Angular contact ball bearings

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.)

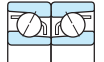
- When this type of bearing is loaded radially, an axial component of force is produced. In this case, two bearings are used together facing one another, or two or more bearings are matched and used. (refer to p. A 38.)
- Tables 1 and 2 list the different types of single-row and matched pair/stack angular contact ball bearings and describe their characteristics. Table 3 shows major types and 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

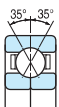


Bore diameter 10 – 110 mm

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	<ul style="list-style-type: none"> 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.
	
(with pressed cage)	
	
(with machined cage)	

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.

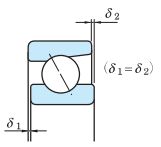
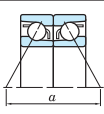
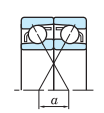
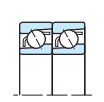


Table 2 Matched pair and stack angular contact ball bearings

Back-to-back arrangement (DB)		<ul style="list-style-type: none"> 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)		<ul style="list-style-type: none"> 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)		<ul style="list-style-type: none"> Carries radial load and axial load in one direction. Suitable for applications which involve a high degree of axial loading.

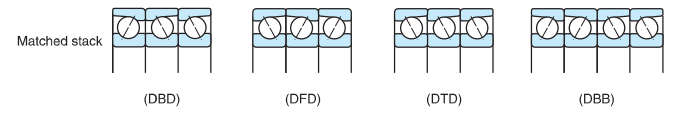






Table 3 Double-row angular contact ball bearings

		<ul style="list-style-type: none"> 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.
(with filling slot) 32, 33	(without filling slot) 52, 53	
		
Shielded 52...ZZ, 53...ZZ	Sealed 52...2RS, 53...2RS	

Boundary dimensions	The dimensions of standard series are as specified in JIS B 1512.																																		
Tolerances	<ul style="list-style-type: none"> 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." <table border="1" data-bbox="1244 1108 1540 1288"> <thead> <tr> <th colspan="6">Special tolerances (K5) Unit : μm</th> </tr> <tr> <th rowspan="2">Nominal bore diameter d (mm)</th> <th rowspan="2">Single plane mean bore diameter (L_{limp}) or single plane mean outside diameter deviation (L_{Dmp})</th> <th colspan="2">class 5</th> <th colspan="2">class 4</th> </tr> <tr> <th>upper</th> <th>lower</th> <th>upper</th> <th>lower</th> </tr> </thead> <tbody> <tr> <td>over</td> <td>up to</td> <td>-1</td> <td>-4</td> <td>-1</td> <td>-3</td> </tr> <tr> <td>50</td> <td>80</td> <td>-1</td> <td>-5</td> <td>-1</td> <td>-4</td> </tr> <tr> <td>80</td> <td>120</td> <td>-1</td> <td>-5</td> <td>-1</td> <td>-4</td> </tr> </tbody> </table>	Special tolerances (K5) Unit : μm						Nominal bore diameter d (mm)	Single plane mean bore diameter (L_{limp}) or single plane mean outside diameter deviation (L_{Dmp})	class 5		class 4		upper	lower	upper	lower	over	up to	-1	-4	-1	-3	50	80	-1	-5	-1	-4	80	120	-1	-5	-1	-4
Special tolerances (K5) Unit : μm																																			
Nominal bore diameter d (mm)	Single plane mean bore diameter (L_{limp}) or single plane mean outside diameter deviation (L_{Dmp})	class 5		class 4																															
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over	up to	-1	-4	-1	-3																														
50	80	-1	-5	-1	-4																														
80	120	-1	-5	-1	-4																														
Internal clearance	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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. <table border="1" data-bbox="1244 1388 1540 1545"> <thead> <tr> <th rowspan="2">Fit</th> <th rowspan="2"></th> <th>class 5</th> <th>class 4</th> </tr> <tr> <th colspan="2">Tolerance class</th> </tr> </thead> <tbody> <tr> <td rowspan="2">With shaft</td> <td>Inner ring rotation</td> <td>js 5</td> <td>js 4</td> </tr> <tr> <td>Outer ring rotation</td> <td>h 5</td> <td>h 4</td> </tr> <tr> <td rowspan="2">With housing</td> <td>Fixed side</td> <td>JS 6</td> <td>JS 5</td> </tr> <tr> <td>Free side</td> <td>H 6</td> <td>H 5</td> </tr> <tr> <td></td> <td>Outer ring rotation</td> <td>M 5</td> <td>M 4</td> </tr> </tbody> </table> <ul style="list-style-type: none"> 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). 	Fit		class 5	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										
Fit				class 5	class 4																														
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With shaft	Inner ring rotation	js 5	js 4																																
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With housing	Fixed side	JS 6	JS 5																																
	Free side	H 6	H 5																																
	Outer ring rotation	M 5	M 4																																

Standard cages	<ul style="list-style-type: none"> Pressed cage (supplementary code : //) Copper alloy machined cage (supplementary code : FY) <p>[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.</p>	Application of standard cages			
		Bearing series	Pressed cage	Machined cage	
		79C 79CPA	—	7900C – 7932C 7900CPA – 7932CPA	
		70 70B 70C 70CPA	—	7000 – 7040 7000B – 7040B 7000C – 7040C 7000CPA – 7034CPA	
		72 72B 72C 72CPA	7200 – 7220 7200B – 7220B 7200C – 7220C	7200 – 7240 7200B – 7240B 7200C – 7240C 7200CPA – 7230CPA	
		73 73B 73C	7300 – 7320 7303B – 7320B 7303C – 7320C	7300 – 7340 7303B – 7340B 7303C – 7334C	
		74 74B	7405 – 7409 7405B – 7409B	7404 – 7418 7404B – 7418B	
		32 33	3200 – 3215 3302 – 3313	3216 – 3222 3314 – 3322	
		52 53	5203 – 5214 5304 – 5315	—	

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

Equivalent radial load	Dynamic equivalent radial load $P_r = X F_r + Y F_a$	Contact angle	$i/f_0 F_a^* / C_{0r}$	e	Single-row and tandem arrangement				Back-to-back and face-to-face arrangement			
					$F_a / F_r \leq e$		$F_a / F_r > e$		$F_a / F_r \leq e$		$F_a / F_r > e$	
					X	Y	X	Y	X	Y	X	Y
		15°	0.178 0.357 0.714	0.38 0.40 0.43	1	0	0.44	1.19	1.19	1.19	1.65 1.57 1.46	2.39 2.28 2.11
			1.07 1.43 2.14	0.46 0.47 0.50				1.23 1.19 1.12	1.38 1.34 1.26	0.72	2.00 1.93 1.82	
			3.57 5.35 7.14	0.55 0.56 0.56				1.02 1.00 1.00	1.14 1.12 1.12		1.66 1.63 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 dimension table.

Static equivalent radial load $P_{0r} = X_0 F_r + Y_0 F_a$	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

In reference to single-row and tandem arrangement bearings, when $P_{0r} < F_r$, $P_{0r} = F_r$

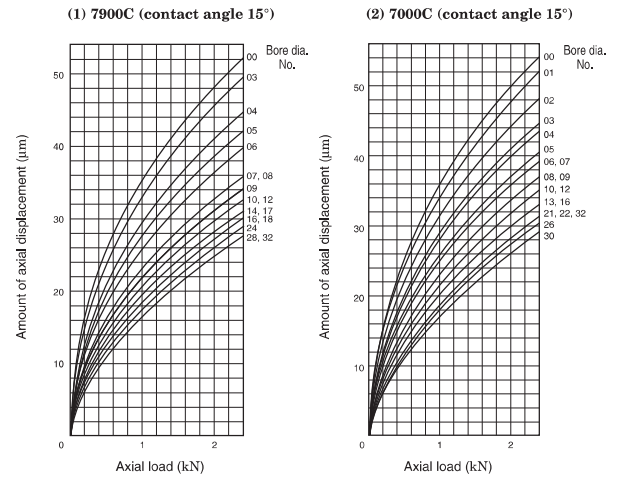
Equivalent radial load	Dynamic equivalent radial load $P_r = X F_r + Y F_a$	Contact angle	e	$F_a / F_r \leq e$		$F_a / F_r > e$		(reference)
				X	Y	X	Y	
		24°	0.66	1	0.95	0.68	1.45	52, 53 series
		32°	0.86	1	0.73	0.62	1.17	32, 33 series

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

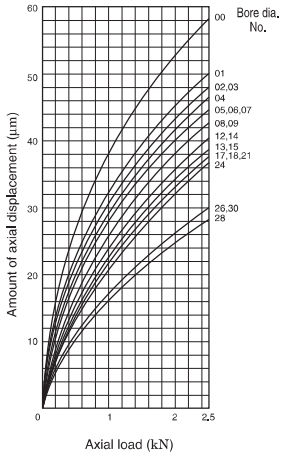
[Note] In angular contact ball bearings, slippage occurs between the balls and raceways under too small a load, causing smearing to develop. Matched pair bearings may develop smearing when the ratio of the axial load to the radial load exceeds the value of e ($F_a / F_r > e$), as listed in the specification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

[Reference] Relationship between axial load and axial displacement

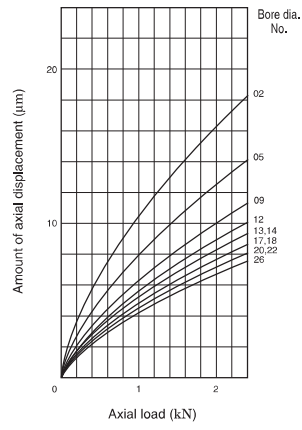
Diagrams (1) to (9) illustrate the relationship between axial load and axial displacement.



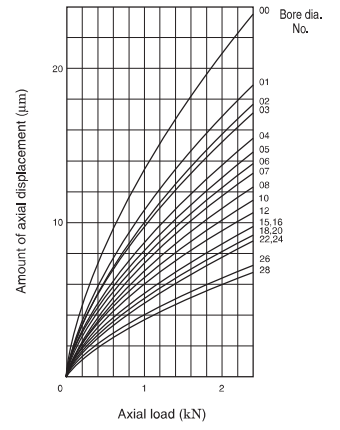
(3) 7200C (contact angle 15°)



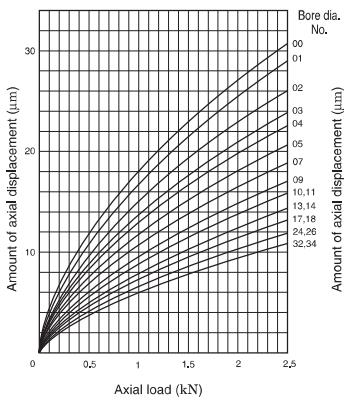
(6) 7000B (contact angle 40°)



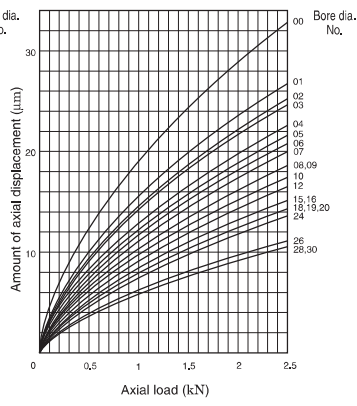
(7) 7200B (contact angle 40°)



(4) 7000 (contact angle 30°)

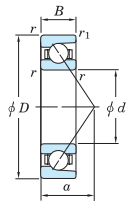


(5) 7200 (contact angle 30°)



Single-row angular contact ball bearings

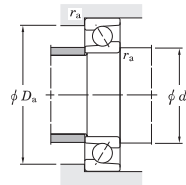
d 10 ~ (17) mm



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) a	Mounting dimensions (mm)			(Refer.) Mass (kg)						
	d	D	B	r min.	r ₁ min.	C _r					C _{0r}	C _r	C _{0r}		C _u	f ₀	Grease lub.	Oil lub.	d _a min.	D _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	

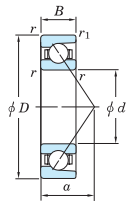
[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings. Limiting speeds of pressed cage bearings should be kept to under 80% of this value. For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined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

Single-row angular contact ball bearings

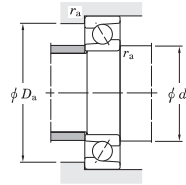
d (17) ~ (25) mm



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) a	Mounting dimensions (mm)			(Refer.) Mass (kg)								
	d	D	B	r min.	r1 min.	C _r					C _{0r}	C _r	C _{0r}		C _u	f ₀	Grease lub.	Oil lub.	d _a min.	D _a max.	r _a max.	
17	35	10	0.3	0.15	7.60	3.75	—	—	—	—	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	—	—	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

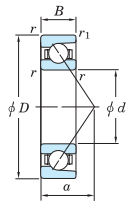
[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings. Limiting speeds of pressed cage bearings should be kept to under 80% of this value. For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined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

Single-row angular contact ball bearings

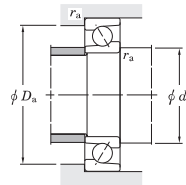
d (25) ~ (35) mm



With machined cage



With pressed cage



Boundary dimensions (mm)	Basic load ratings (kN)				Fatigue load limits (kN)		Factor	Limiting speeds ¹⁾ (min ⁻¹)	Load center (mm) a	Mounting dimensions (mm)			(Refer.) Mass (kg)									
	d	D	B	r min.	r1 min.	With machined cage				With pressed cage	Grease lub.	Oil lub.		Bearing No. ²⁾	da min.	Da max.	ra 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	

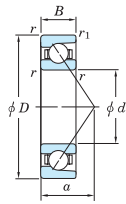
[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings. Limiting speeds of pressed cage bearings should be kept to under 80% of this value. For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined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

Single-row angular contact ball bearings

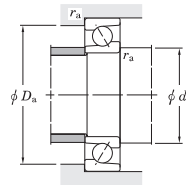
d (35) ~ 45 mm



With machined cage



With pressed cage



Boundary dimensions (mm)	Basic load ratings (kN)				Fatigue load limits (kN)		Factor f_0	Limiting speeds ¹⁾ (min ⁻¹)	Bearing No. ²⁾	Load center (mm) a	Mounting dimensions (mm)			(Refer.) Mass (kg)					
	d	D	B	$r_{min.}$	r_1 min.	With machined cage C_r					With pressed cage C_{Or}	With machined cage C_u	With pressed cage C_{Ur}		Grease lub.	Oil lub.	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	59.3	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

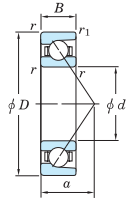
[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings.
Limiting speeds of pressed cage bearings should be kept to under 80% of this value.
For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined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

Single-row angular contact ball bearings

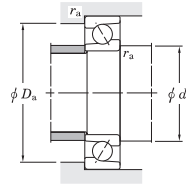
d 50 ~ (60) mm



With machined cage



With pressed cage



Boundary dimensions (mm)	Basic load ratings (kN)				Fatigue load limits (kN)		Factor	Limiting speeds ¹⁾ (min ⁻¹)	Load center (mm)	Mounting dimensions (mm)			(Refer.) Mass (kg)				
	d	D	B	r min.	r ₁ min.	C _r				C _{0r}	C _r	C _{0r}		C _u	f ₀	Grease lub.	Oil lub.
50	72	12	0.6	0.3	21.8	15.7	—	—	14 000	18 000	7910C	14.2	54.5	67.5	0.6	0.128	
	80	16	1	0.6	29.5	20.1	—	—	9 200	11 000	7010	26.9	55.5	74.5	1	0.290	
	80	16	1	0.6	26.5	18.1	—	—	6 900	9 200	7010B	35.3	55.5	74.5	1	0.290	
	80	16	1	0.6	32.5	21.9	—	—	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	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	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	12 000	16 000	7210C	19.4	57	83	1	0.485	
	110	27	2	1	87.6	48.1	92.9	52.5	7 300	9 100	7310	37.2	60	100	2	1.14	
	110	27	2	1	80.5	44.3	85.3	48.3	5 500	7 300	7310B	47.9	60	100	2	1.14	
	110	27	2	1	93.9	51.6	99.5	56.2	10 000	13 000	7310C	24.5	60	100	2	1.14	
	130	31	2.1	1.1	122	65.3	—	—	4 900	6 600	7410	41.6	62	118	2	1.92	
	130	31	2.1	1.1	113	60.4	—	—	4 400	6 000	7410B	53.5	62	118	2	1.92	
55	80	13	1	0.6	24.6	18.5	—	—	13 000	17 000	7911C	15.5	60.5	74.5	1	0.178	
	90	18	1.1	0.6	38.9	26.3	—	—	8 300	10 000	7011	29.9	62	83	1	0.420	
	90	18	1.1	0.6	34.9	23.7	—	—	6 200	8 300	7011B	39.4	62	83	1	0.420	
	90	18	1.1	0.6	42.6	28.6	—	—	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	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	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	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	6 700	8 400	7311	40.2	65	110	2	1.45	
	120	29	2	1	92.9	52.0	98.4	56.7	5 000	6 700	7311B	51.8	65	110	2	1.45	
	120	29	2	1	108	60.6	115	66.1	9 300	12 000	7311C	26.4	65	110	2	1.45	
	140	33	2.1	1.1	148	82.4	—	—	4 500	6 000	7411	45.0	67	128	2	2.36	
	140	33	2.1	1.1	138	76.5	—	—	4 000	5 500	7411B	57.8	67	128	2	2.36	
60	85	13	1	0.6	29.0	21.8	—	—	12 000	16 000	7912C	16.3	65.5	79.5	1	0.187	
	95	18	1.1	0.6	39.9	28.1	—	—	7 700	9 700	7012	31.4	67	88	1	0.450	
	95	18	1.1	0.6	35.7	25.3	—	—	5 800	7 700	7012B	41.5	67	88	1	0.450	

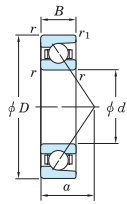
[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings. Limiting speeds of pressed cage bearings should be kept to under 80% of this value. For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined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

Single-row angular contact ball bearings

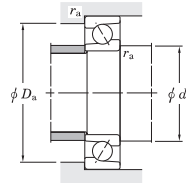
d (60) ~ (70) mm



With machined cage



With pressed cage



Boundary dimensions (mm)	Basic load ratings (kN)				Fatigue load limits (kN)		Factor	Limiting speeds ¹⁾ (min ⁻¹)	Load center (mm)	Mounting dimensions (mm)			(Refer.) Mass (kg)							
	d	D	B	r min.	r1 min.	C _r				C _{0r}	C _r	C _{0r}		C _u	f ₀	Grease lub.	Oil lub.	Bearing No. ²⁾	a	d _a min.
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	65.3	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	57.3	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	

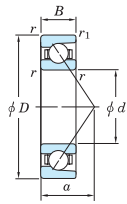
[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings. Limiting speeds of pressed cage bearings should be kept to under 80% of this value. For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined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

Single-row angular contact ball bearings

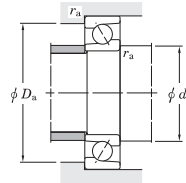
d (70) ~ (80) mm



With machined cage



With pressed cage



Boundary dimensions (mm)	Basic load ratings (kN)				Fatigue load limits (kN)		Factor	Limiting speeds ¹⁾ (min ⁻¹)	Load center (mm)	Mounting dimensions (mm)			(Refer.) Mass (kg)						
	d	D	B	r min.	r1 min.	With machined cage				With pressed cage	Grease lub.	Oil lub.		Bearing No. ²⁾	da min.	Da max.	ra 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

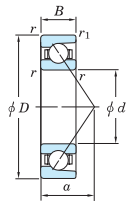
[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings. Limiting speeds of pressed cage bearings should be kept to under 80% of this value. For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined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

Single-row angular contact ball bearings

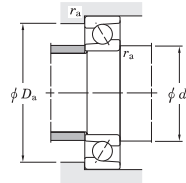
d (80) ~ 90 mm



With machined cage



With pressed cage



Boundary dimensions (mm)	Basic load ratings (kN)				Fatigue load limits (kN)		Factor	Limiting speeds ¹⁾ (min ⁻¹)	Load center (mm)	Mounting dimensions (mm)			(Refer.) Mass (kg)						
	d	D	B	r min.	r1 min.	With machined cage				With pressed cage	Grease lub.	Oil lub.		Bearing No. ²⁾	a	da min.	Da max.	ra 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	—	—	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	126	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

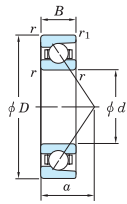
[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings. Limiting speeds of pressed cage bearings should be kept to under 80% of this value. For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined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

Single-row angular contact ball bearings

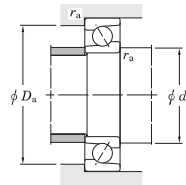
d 95 ~ (105) mm



With machined cage



With pressed cage



Boundary dimensions (mm)	Basic load ratings (kN)				Fatigue load limits (kN)		Factor	Limiting speeds ¹⁾ (min ⁻¹)	Load center (mm)	Mounting dimensions (mm)			(Refer.) Mass (kg)					
	d	D	B	r min.	r1 min.	Cr				Cor	Cr	Cor		Ca	Da min.	Da max.	ra 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

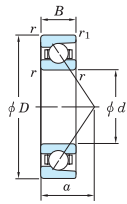
[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings. Limiting speeds of pressed cage bearings should be kept to under 80% of this value. For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined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

Single-row angular contact ball bearings

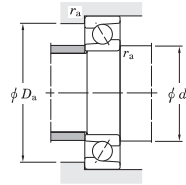
d (105) ~ (130) mm



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) a	Mounting dimensions (mm)			(Refer.) Mass (kg)	
	d	D	B	r min.	r1 min.	With machined cage		With pressed cage	Grease lub.			Oil lub.	d _a min.	D _a max.		r _a max.
105	190	36	2.1	1.1	203	143	—	—	5 400	7 200	7221C	38.0	117	178	2	3.95
	225	49	3	1.1	260	193	—	—	3 500	4 400	7321	72.1	119	211	2.5	8.62
	225	49	3	1.1	238	177	—	—	2 600	3 500	7321B	93.7	119	211	2.5	8.62
	225	49	3	1.1	278	207	—	—	4 800	6 400	7321C	46.6	119	211	2.5	8.62
110	150	20	1.1	0.6	72.2	64.4	—	—	6 400	8 500	7922C	27.4	117	143	1	0.840
	170	28	2	1	115	92.8	—	—	4 200	5 200	7022	54.4	120	160	2	2.14
	170	28	2	1	103	83.7	—	—	3 100	4 200	7022B	72.7	120	160	2	2.14
	170	28	2	1	126	101	—	—	5 800	7 700	7022C	32.8	120	160	2	2.14
	200	38	2.1	1.1	202	148	—	—	3 700	4 600	7222	64.3	122	188	2	4.65
	200	38	2.1	1.1	183	135	—	—	2 800	3 700	7222B	84.9	122	188	2	4.65
	200	38	2.1	1.1	220	160	—	—	5 100	6 800	7222C	40.0	122	188	2	4.65
	240	50	3	1.1	290	226	—	—	3 200	4 000	7322	76.4	124	226	2.5	10.1
	240	50	3	1.1	266	208	—	—	2 400	3 200	7322B	99.6	124	226	2.5	10.1
	240	50	3	1.1	311	242	—	—	4 500	5 900	7322C	48.8	124	226	2.5	10.1
120	165	22	1.1	0.6	89.7	81.2	—	—	5 900	7 800	7924C	30.1	127	158	1	1.15
	180	28	2	1	121	103	—	—	3 900	4 900	7024	57.3	130	170	2	2.27
	180	28	2	1	108	93.0	—	—	2 900	3 900	7024B	76.9	130	170	2	2.27
	180	28	2	1	133	113	—	—	5 400	7 100	7024C	34.1	130	170	2	2.27
	215	40	2.1	1.1	218	166	—	—	3 400	4 300	7224	68.5	132	203	2	5.49
	215	40	2.1	1.1	197	151	—	—	2 600	3 400	7224B	90.3	132	203	2	5.49
	215	40	2.1	1.1	237	180	—	—	4 800	6 300	7224C	42.5	132	203	2	5.49
	260	55	3	1.1	308	252	—	—	3 000	3 700	7324	82.3	134	246	2.5	12.6
	260	55	3	1.1	282	231	—	—	2 200	3 000	7324B	107.2	134	246	2.5	12.6
	260	55	3	1.1	331	271	—	—	4 100	5 500	7324C	53.0	134	246	2.5	12.6
130	180	24	1.5	1	109	99.9	—	—	5 400	7 100	7926C	32.8	138.5	171.5	1.5	1.50
	200	33	2	1	147	125	—	—	3 500	4 400	7026	64.1	140	190	2	3.43

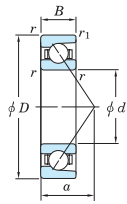
[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings. Limiting speeds of pressed cage bearings should be kept to under 80% of this value. For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined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

Single-row angular contact ball bearings

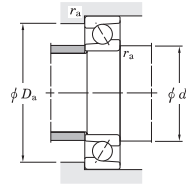
d (130) ~ (150) mm



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) a	Mounting dimensions (mm)			(Refer.) Mass (kg)					
	d	D	B	r _{min.}	r _{1 min.}	C _r		C _{0r}	C _r			C _{0r}	C _u [With machined cage]	C _u [With pressed cage]		f ₀	Grease lub.	Oil lub.	d _{a min.}	D _{a max.}
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

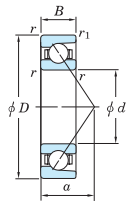
[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings.
Limiting speeds of pressed cage bearings should be kept to under 80% of this value.
For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined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

Single-row angular contact ball bearings

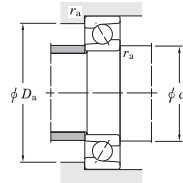
d (150) ~ (180) mm



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) a	Mounting dimensions (mm)			(Refer.) Mass (kg)				
	d	D	B	r min.	r1 min.	C _r		C _{0r}	C _r			C _{0r}	C _u	f ₀		Grease lub.	Oil lub.	d _a min.	D _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

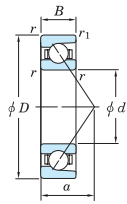
[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings. Limiting speeds of pressed cage bearings should be kept to under 80% of this value. For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined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

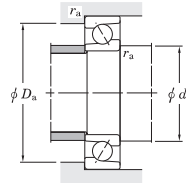
d (180) ~ (240) mm



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) a	Mounting dimensions (mm)			(Refer.) Mass (kg)	
	d	D	B	r min.	r1 min.	With machined cage		With pressed cage	Grease lub.			Oil lub.	da min.	Da max.		ra max.
180	320	52	4	1.5	331	329	—	—	1 600	2 200	7236B	130.9	198	302	3	15.7
	320	52	4	1.5	400	393	—	—	3 000	4 000	7236C	59.5	198	302	3	15.7
	380	75	4	1.5	512	534	—	—	1 900	2 400	7336	118.3	198	362	3	40.0
	380	75	4	1.5	466	488	—	—	1 400	1 900	7336B	155.0	198	362	3	40.0
190	260	33	2	1	198	197	—	—	3 300	4 500	7938C	46.6	200	250	2	4.83
	290	46	2.1	1.1	271	268	—	—	2 300	2 800	7038	92.3	202	278	2	10.8
	290	46	2.1	1.1	243	241	—	—	1 700	2 300	7038B	123.7	202	278	2	10.8
	290	46	2.1	1.1	299	293	—	—	3 100	4 200	7038C	55.2	202	278	2	10.8
	340	55	4	1.5	379	390	—	—	2 000	2 500	7238	104.0	208	322	3	18.8
	340	55	4	1.5	341	353	—	—	1 500	2 000	7238B	138.7	208	322	3	18.8
	340	55	4	1.5	414	424	—	—	2 800	3 700	7238C	63.0	208	322	3	18.8
	400	78	5	2	563	598	—	—	1 800	2 200	7338	124.2	212	378	4	45.5
	400	78	5	2	514	548	—	—	1 300	1 800	7338B	162.8	212	378	4	45.5
	200	280	38	2.1	1.1	256	255	—	—	3 100	4 100	7940C	51.2	212	268	2
310		51	2.1	1.1	304	309	—	—	2 100	2 600	7040	99.1	212	298	2	12.7
310		51	2.1	1.1	273	279	—	—	1 600	2 100	7040B	132.5	212	298	2	12.7
310		51	2.1	1.1	335	338	—	—	2 900	3 900	7040C	59.7	212	298	2	12.7
360		58	4	1.5	405	423	—	—	1 900	2 400	7240	109.8	218	342	3	22.4
360		58	4	1.5	365	384	—	—	1 400	1 900	7240B	146.5	218	342	3	22.4
360		58	4	1.5	442	460	—	—	2 600	3 500	7240C	66.5	218	342	3	22.4
420		80	5	2	593	658	—	—	1 700	2 100	7340	129.5	222	398	4	52.0
420		80	5	2	541	602	—	—	1 200	1 700	7340B	170.1	222	398	4	52.0
220		340	56	3	1.1	334	353	—	—	1 900	2 400	7044	108.9	234	326	2.5
	340	56	3	1.1	299	318	—	—	1 400	1 900	7044B	145.5	234	326	2.5	18.9
240	360	56	3	1.1	364	375	—	—	1 700	2 200	7048	114.6	254	346	2.5	19.7
	360	56	3	1.1	325	338	—	—	1 300	1 700	7048B	153.9	254	346	2.5	20.1

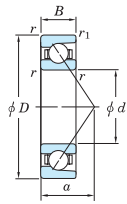
[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings. Limiting speeds of pressed cage bearings should be kept to under 80% of this value. For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined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

Single-row angular contact ball bearings

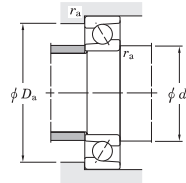
d (240) ~ 380 mm



With machined cage



With pressed cage



Boundary dimensions (mm)	Basic load ratings (kN)				Fatigue load limits (kN)		Factor	Limiting speeds ¹⁾ (min ⁻¹)		Load center (mm) a	Mounting dimensions (mm)			(Refer.) Mass (kg)		
	d	D	B	r min.	r1 min.	With machined cage		With pressed cage	Grease lub.		Oil lub.	Bearing No. ²⁾	da min.		Da max.	ra max.
240	440	72	4	1.5	504	595	—	—	1 500	1 800	7248 7248B	134.2	258	422	3	51.8
	440	72	4	1.5	453	539	—	—	1 100	1 500		178.6	258	422	3	52.8
260	400	65	4	1.5	407	478	—	—	1 500	1 900	7052 7052B	128.4	278	382	3	28.7
	400	65	4	1.5	364	431	—	—	1 100	1 500		171.0	278	382	3	29.3
280	420	65	4	1.5	415	507	—	—	1 400	1 800	7056 7056B	133.5	298	402	3	30.4
	420	65	4	1.5	384	453	—	—	1 100	1 400		179.3	298	402	3	31.0
300	460	74	4	1.5	533	680	—	—	1 300	1 600	7060 7060B	146.7	318	442	3	43.7
	460	74	4	1.5	478	613	—	—	960	1 300		196.4	318	442	3	44.9
320	480	74	4	1.5	546	722	—	—	1 200	1 500	7064 7064B	152.5	338	462	3	46.0
	480	74	4	1.5	489	651	—	—	890	1 200		204.8	338	462	3	47.2
340	520	82	5	2	628	861	—	—	1 100	1 300	7068 7068B	165.1	362	498	4	61.8
	520	82	5	2	563	777	—	—	800	1 100		221.4	362	498	4	63.3
360	540	82	5	2	644	913	—	—	1 000	1 300	7072 7072B	170.9	382	518	4	64.6
	540	82	5	2	577	824	—	—	750	1 000		229.8	382	518	4	66.2
380	560	82	5	2	660	966	—	—	940	1 200	7076 7076B	176.7	402	538	4	67.2
	560	82	5	2	590	870	—	—	700	940		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.