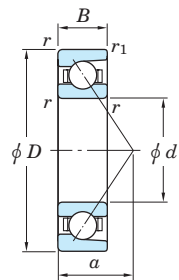
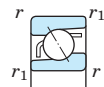


Single-row angular contact ball bearings

d 10 ~ (17) mm



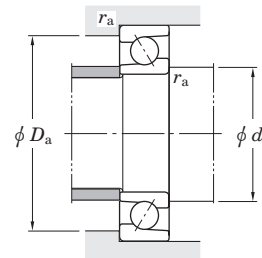
With machined cage



With pressed cage



HAR



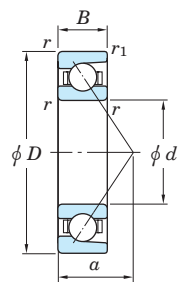
Boundary dimensions (mm)					Basic load ratings (kN)				Factor	Limiting speeds ¹⁾ (min ⁻¹)		Bearing No. ²⁾	Load center (mm) α	Mounting dimensions (mm)			(Refer.) Mass (kg)
d	D	B	$r_{min.}$	$r_{1min.}$	With machined cage		With pressed cage			Grease lub.	Oil lub.			d_a min.	D_a max.	r_a max.	
10	22	6	0.3	0.15	3.00	1.50	—	—	14.2	52 000	69 000	7900C	5.1	12.5	19.5	0.3	0.008
	26	8	0.3	0.15	5.00	2.35	—	—	—	34 000	42 000	7000	9.1	12.5	23.5	0.3	0.021
	26	8	0.3	0.15	4.65	2.15	—	—	—	25 000	33 000	7000B	11.6	12.5	23.5	0.3	0.021
	26	8	0.3	0.15	5.30	2.45	—	—	12.5	47 000	62 000	7000C	6.4	12.5	23.5	0.3	0.021
	30	9	0.6	0.3	4.65	2.20	5.40	2.75	—	29 000	37 000	7200	10.4	14.5	25.5	0.6	0.031
	30	9	0.6	0.3	4.30	2.00	4.95	2.50	—	22 000	29 000	7200B	13.1	14.5	25.5	0.6	0.031
	30	9	0.6	0.3	5.00	2.35	5.80	2.95	13.4	40 000	54 000	7200C	7.2	14.5	25.5	0.6	0.031
	35	11	0.6	0.3	8.50	3.75	9.30	4.30	—	27 000	33 000	7300	12.0	14.5	30.5	0.6	0.054
12	24	6	0.3	0.15	3.20	1.70	—	—	14.7	48 000	62 000	7901C	5.4	14.5	21.5	0.3	0.010
	28	8	0.3	0.15	5.40	2.75	—	—	—	29 000	37 000	7001	9.9	14.5	25.5	0.3	0.024
	28	8	0.3	0.15	4.95	2.50	—	—	—	22 000	29 000	7001B	12.6	14.5	25.5	0.3	0.024
	28	8	0.3	0.15	5.80	2.95	—	—	13.4	40 000	54 000	7001C	6.7	14.5	25.5	0.3	0.024
	32	10	0.6	0.3	7.45	3.65	8.00	4.05	—	27 000	34 000	7201	11.4	16.5	27.5	0.6	0.038
	32	10	0.6	0.3	6.95	3.40	7.40	3.75	—	20 000	27 000	7201B	14.2	16.5	27.5	0.6	0.038
	32	10	0.6	0.3	7.90	3.85	8.50	4.30	12.5	38 000	50 000	7201C	7.9	16.5	27.5	0.6	0.038
	37	12	1	0.6	10.2	4.60	11.2	5.25	—	24 000	31 000	7301	13.1	17.5	31.5	1	0.065
15	28	7	0.3	0.15	4.75	2.65	—	—	14.5	39 000	52 000	7902C	6.4	17.5	25.5	0.3	0.015
	32	9	0.3	0.15	6.10	3.45	—	—	—	26 000	32 000	7002	11.3	17.5	29.5	0.3	0.035
	32	9	0.3	0.15	5.55	3.15	—	—	—	19 000	25 000	7002B	14.6	17.5	29.5	0.3	0.035
	32	9	0.3	0.15	6.60	3.70	—	—	14.1	35 000	47 000	7002C	7.6	17.5	29.5	0.3	0.035
	35	11	0.6	0.3	8.10	4.25	8.10	4.25	—	24 000	29 000	7202	12.9	19.5	30.5	0.6	0.048
	35	11	0.6	0.3	7.45	3.95	7.45	3.95	—	18 000	24 000	7202B	16.2	19.5	30.5	0.6	0.048
	35	11	0.6	0.3	8.65	4.55	8.65	4.55	13.3	33 000	43 000	7202C	8.9	19.5	30.5	0.6	0.048
	42	13	1	0.6	12.5	6.45	13.4	7.20	—	20 000	25 000	7302	15.0	20.5	36.5	1	0.088
17	30	7	0.3	0.15	5.00	2.95	—	—	14.9	36 000	47 000	7903C	6.7	19.5	27.5	0.3	0.016
	35	10	0.3	0.15	6.75	4.15	—	—	—	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.

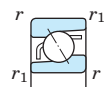
2) B, C or no indication after the bearing number indicates nominal contact angle of 40°, 15° and 30° respectively. [Remark] Standard cage types used for the above bearings are described earlier in this section.

Single-row angular contact ball bearings

d (17) ~ (25) mm



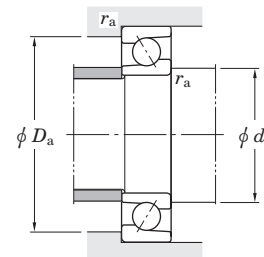
With machined cage



With pressed cage



HAR



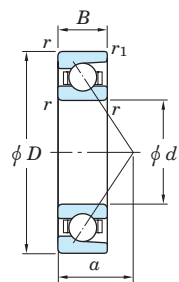
Boundary dimensions (mm)					Basic load ratings (kN)				Factor	Limiting speeds ¹⁾ (min ⁻¹)		Bearing No. ²⁾	Load center (mm) α	Mounting dimensions (mm)			(Refer.) Mass (kg)	
d	D	B	r min.	r1 min.	With machined cage		With pressed cage			Grease lub.	Oil lub.			da min.	Da max.	ra max.		
17	35	10	0.3	0.15	6.10	3.75	—	—	—	17 000	23 000	7003B	16.1	19.5	32.5	0.3	0.045	
	35	10	0.3	0.15	7.30	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	10.2	5.50	10.2	5.50	—	21 000	26 000	7203	14.4	21.5	35.5	0.6	0.070	
	40	12	0.6	0.3	9.35	5.05	9.35	5.05	—	16 000	21 000	7203B	18.2	21.5	35.5	0.6	0.070	
	40	12	0.6	0.3	10.9	5.90	10.9	5.90	13.4	29 000	38 000	7203C	9.9	21.5	35.5	0.6	0.070	
	47	14	1	0.6	14.9	7.90	16.0	8.75	—	18 000	23 000	7303	16.5	22.5	41.5	1	0.120	
	47	14	1	0.6	13.8	7.30	14.8	8.10	—	14 000	18 000	7303B	20.8	22.5	41.5	1	0.120	
	47	14	1	0.6	15.8	8.40	15.8	8.40	12.6	25 000	33 000	7303C	11.4	22.5	41.5	1	0.120	
20	37	9	0.3	0.15	7.30	4.55	—	—	14.9	30 000	39 000	7904C	8.3	22.5	34.5	0.3	0.035	
	42	12	0.6	0.3	10.3	6.10	—	—	—	19 000	24 000	7004	15.1	24.5	37.5	0.6	0.079	
	42	12	0.6	0.3	9.35	5.55	—	—	—	14 000	19 000	7004B	19.2	24.5	37.5	0.6	0.079	
	42	12	0.6	0.3	11.1	6.60	—	—	14.1	26 000	35 000	7004C	10.2	24.5	37.5	0.6	0.079	
	47	14	1	0.6	14.5	8.40	15.4	9.15	—	17 000	22 000	7204	17.0	25.5	41.5	1	0.112	
	47	14	1	0.6	13.3	7.70	14.1	8.40	—	13 000	17 000	7204B	21.5	25.5	41.5	1	0.112	
	47	14	1	0.6	15.5	9.00	16.5	9.80	13.4	24 000	32 000	7204C	11.6	25.5	41.5	1	0.112	
	52	15	1.1	0.6	17.4	9.40	18.7	10.4	—	17 000	21 000	7304	17.9	27	45	1	0.150	
	52	15	1.1	0.6	16.2	8.70	17.3	9.65	—	13 000	17 000	7304B	22.6	27	45	1	0.150	
	52	15	1.1	0.6	18.5	9.95	19.9	11.1	12.6	23 000	31 000	7304C	12.3	27	45	1	0.150	
	72	19	1.1	0.6	35.6	19.1	—	—	—	9 600	13 000	7404	23.1	27	65	1	0.395	
	72	19	1.1	0.6	33.5	17.9	—	—	—	8 500	12 000	7404B	29.2	27	65	1	0.395	
	25	42	9	0.3	0.15	7.80	5.45	—	—	15.5	25 000	33 000	7905C	9.1	27.5	39.5	0.3	0.041
		47	12	0.6	0.3	11.3	7.40	—	—	—	17 000	21 000	7005	16.4	29.5	42.5	0.6	0.091
47		12	0.6	0.3	10.2	6.70	—	—	—	12 000	17 000	7005B	21.1	29.5	42.5	0.6	0.091	
47		12	0.6	0.3	12.3	8.00	—	—	14.7	23 000	30 000	7005C	10.8	29.5	42.5	0.6	0.091	
52		15	1	0.6	15.3	9.50	16.2	10.3	—	15 000	19 000	7205	18.8	30.5	46.5	1	0.135	
52		15	1	0.6	14.0	8.70	14.7	9.40	—	12 000	15 000	7205B	23.9	30.5	46.5	1	0.135	
52		15	1	0.6	16.6	10.2	17.5	11.1	14.0	21 000	28 000	7205C	12.7	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.

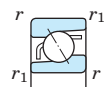
2) B, C or no indication after the bearing number indicates nominal contact angle of 40°, 15° and 30° respectively. [Remark] Standard cage types used for the above bearings are described earlier in this section.

Single-row angular contact ball bearings

d (25) ~ (35) mm



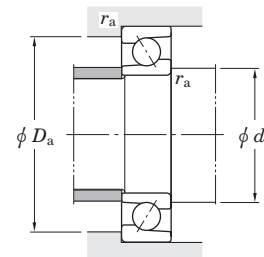
With machined cage



With pressed cage



HAR



Boundary dimensions (mm)					Basic load ratings (kN)				Factor	Limiting speeds ¹⁾ (min ⁻¹)		Bearing No. ²⁾	Load center (mm) α	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.	
25	62	17	1.1	0.6	24.8	14.4	26.4	15.8	—	14 000	17 000	7305	21.1	32	55	1	0.243
	62	17	1.1	0.6	22.9	13.3	24.4	14.6	—	10 000	14 000	7305B	26.8	32	55	1	0.243
	62	17	1.1	0.6	26.4	15.3	28.1	16.8	12.8	19 000	25 000	7305C	14.3	32	55	1	0.243
	80	21	1.5	1	39.7	23.2	42.6	25.7	—	8 200	11 000	7405	26.4	33.5	71.5	1.5	0.527
	80	21	1.5	1	36.9	21.5	39.6	23.9	—	7 300	10 000	7405B	33.6	33.5	71.5	1.5	0.527
30	47	9	0.3	0.15	8.30	6.25	—	—	15.9	22 000	29 000	7906C	9.7	32.5	44.5	0.3	0.046
	55	13	1	0.6	8.70	4.85	—	—	7.9	26 000	40 000	HAR006C	12.2	35.5	49.5	1	0.116
	55	13	1	0.6	14.5	10.1	—	—	—	14 000	18 000	7006	18.8	35.5	49.5	1	0.133
	55	13	1	0.6	13.1	9.20	—	—	—	11 000	14 000	7006B	24.3	35.5	49.5	1	0.133
	55	13	1	0.6	15.8	11.0	—	—	14.9	20 000	26 000	7006C	12.2	35.5	49.5	1	0.133
	62	16	1	0.6	21.3	13.7	22.5	14.8	—	13 000	16 000	7206	21.5	35.5	56.5	1	0.208
	62	16	1	0.6	19.4	12.5	20.5	13.6	—	9 600	13 000	7206B	27.6	35.5	56.5	1	0.208
	62	16	1	0.6	23.0	14.7	24.3	16.0	14.0	18 000	24 000	7206C	14.3	35.5	56.5	1	0.208
	72	19	1.1	0.6	30.1	18.9	31.9	20.6	—	12 000	14 000	7306	24.5	37	65	1	0.362
	72	19	1.1	0.6	27.6	17.4	29.3	19.0	—	8 700	12 000	7306B	31.3	37	65	1	0.362
	72	19	1.1	0.6	32.3	20.3	34.2	22.1	13.4	16 000	21 000	7306C	16.5	37	65	1	0.362
	90	23	1.5	1	47.6	28.4	51.0	31.6	—	7 300	9 700	7406	29.3	38.5	81.5	1.5	0.686
	90	23	1.5	1	44.2	26.4	47.4	29.3	—	6 500	8 900	7406B	37.3	38.5	81.5	1.5	0.686
35	55	10	0.6	0.3	12.5	9.70	—	—	15.7	19 000	25 000	7907C	11.0	39.5	50.5	0.6	0.074
	62	14	1	0.6	9.25	5.55	—	—	8.1	23 000	35 000	HAR007C	13.5	40.5	56.5	1	0.158
	62	14	1	0.6	17.5	12.6	—	—	—	12 000	15 000	7007	21.2	40.5	56.5	1	0.170
	62	14	1	0.6	15.8	11.4	—	—	—	9 200	12 000	7007B	27.6	40.5	56.5	1	0.170
	62	14	1	0.6	19.1	13.7	—	—	15.0	17 000	22 000	7007C	13.5	40.5	56.5	1	0.170
	72	17	1.1	0.6	28.1	18.6	29.7	20.2	—	11 000	14 000	7207	24.2	42	65	1	0.295
	72	17	1.1	0.6	25.6	17.0	27.0	18.5	—	8 300	11 000	7207B	31.4	42	65	1	0.295
	72	17	1.1	0.6	30.4	20.1	32.1	21.7	14.0	15 000	20 000	7207C	15.8	42	65	1	0.295
	80	21	1.5	1	35.4	22.0	39.9	26.4	—	10 000	13 000	7307	27.4	43.5	71.5	1.5	0.475

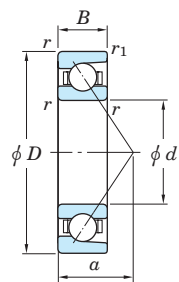
[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings. Limiting speeds of pressed cage bearings should be kept to under 80% of this value. For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined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

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

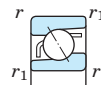
[Remark] Standard cage types used for the above bearings are described earlier in this section.

Single-row angular contact ball bearings

d (35) ~ (45) mm



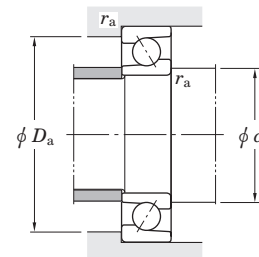
With machined cage



With pressed cage



HAR



Boundary dimensions (mm)					Basic load ratings (kN)				Factor	Limiting speeds ¹⁾ (min ⁻¹)		Bearing No. ²⁾	Load center (mm) α	Mounting dimensions (mm)			(Refer.) Mass (kg)
d	D	B	r _{min.}	r _{1 min.}	With machined cage		With pressed cage			Grease lub.	Oil lub.			d _{a min.}	D _{a max.}	r _{a max.}	
35	80	21	1.5	1	32.5	20.2	36.6	24.3	—	7 700	10 000	7307B	35.0	43.5	71.5	1.5	0.475
	80	21	1.5	1	37.9	23.6	42.8	28.3	13.4	14 000	19 000	7307C	18.3	43.5	71.5	1.5	0.475
	100	25	1.5	1	60.4	37.0	64.8	41.1	—	6 500	8 600	7407	32.6	43.5	91.5	1.5	0.950
	100	25	1.5	1	56.2	34.3	60.2	38.1	—	5 700	7 900	7407B	41.7	43.5	91.5	1.5	0.950
40	62	12	0.6	0.3	15.7	12.4	—	—	15.7	17 000	22 000	7908C	12.8	44.5	57.5	0.6	0.107
	62	12	0.6	0.3	6.35	4.05	—	—	8.4	22 000	33 000	HAR908C	12.8	44.5	57.5	0.6	0.115
	68	15	1	0.6	9.70	6.20	—	—	8.2	20 000	31 000	HAR008C	14.7	45.5	62.5	1	0.200
	68	15	1	0.6	18.7	14.6	—	—	—	11 000	14 000	7008	23.2	45.5	62.5	1	0.210
	68	15	1	0.6	16.8	13.2	—	—	—	8 300	11 000	7008B	30.2	45.5	62.5	1	0.210
	68	15	1	0.6	20.5	15.9	—	—	15.4	15 000	20 000	7008C	14.8	45.5	62.5	1	0.210
	80	18	1.1	0.6	33.6	23.3	35.3	25.1	—	10 000	12 000	7208	26.3	47	73	1	0.382
	80	18	1.1	0.6	30.6	21.3	32.1	23.0	—	7 500	10 000	7208B	34.2	47	73	1	0.382
	80	18	1.1	0.6	36.4	25.2	38.2	27.1	14.2	14 000	18 000	7208C	17.0	47	73	1	0.382
	90	23	1.5	1	43.2	27.4	48.8	32.9	—	9 200	12 000	7308	30.3	48.5	81.5	1.5	0.657
	90	23	1.5	1	39.7	25.2	44.8	30.3	—	6 900	9 200	7308B	38.8	48.5	81.5	1.5	0.657
	90	23	1.5	1	46.3	29.4	52.3	35.3	13.4	13 000	17 000	7308C	20.2	48.5	81.5	1.5	0.657
110	27	2	1	69.9	43.5	75.0	48.4	—	5 900	7 900	7408	35.5	50	100	2	1.23	
110	27	2	1	64.9	40.4	69.6	44.9	—	5 200	7 200	7408B	45.4	50	100	2	1.23	
45	68	12	0.6	0.3	16.6	14.1	—	—	16.0	15 000	20 000	7909C	13.6	49.5	63.5	0.6	0.127
	68	12	0.6	0.3	6.80	4.70	—	—	8.5	19 000	30 000	HAR909C	13.6	49.5	63.5	0.6	0.136
	75	16	1	0.6	10.9	7.10	—	—	8.3	18 000	28 000	HAR009C	16.0	50.5	69.5	1	0.251
	75	16	1	0.6	22.2	17.7	—	—	—	10 000	12 000	7009	25.3	50.5	69.5	1	0.260
	75	16	1	0.6	20.0	16.0	—	—	—	7 500	10 000	7009B	33.2	50.5	69.5	1	0.260
	75	16	1	0.6	24.4	19.3	—	—	15.4	14 000	18 000	7009C	16.0	50.5	69.5	1	0.260
	85	19	1.1	0.6	37.7	26.6	39.6	28.6	—	9 400	12 000	7209	28.0	52	78	1	0.430
	85	19	1.1	0.6	34.3	24.3	36.1	26.1	—	7 000	9 400	7209B	36.4	52	78	1	0.430
	85	19	1.1	0.6	40.8	28.7	42.9	30.9	14.2	13 000	17 000	7209C	18.1	52	78	1	0.430

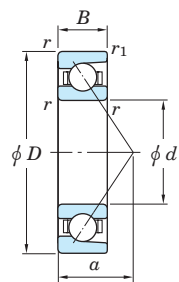
[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings. Limiting speeds of pressed cage bearings should be kept to under 80% of this value. For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined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

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

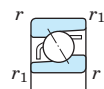
[Remark] Standard cage types used for the above bearings are described earlier in this section.

Single-row angular contact ball bearings

d (45) ~ (55) mm



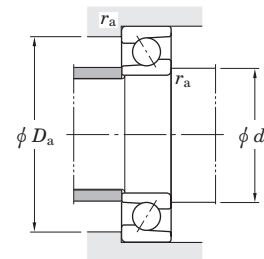
With machined cage



With pressed cage



HAR



Boundary dimensions (mm)					Basic load ratings (kN)				Factor	Limiting speeds ¹⁾ (min ⁻¹)		Bearing No. ²⁾	Load center (mm) α	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.	
45	100	25	1.5	1	55.1	37.1	58.4	40.4	—	8 200	10 000	7309	33.6	53.5	91.5	1.5	0.875
	100	25	1.5	1	50.6	34.1	53.6	37.2	—	6 200	8 200	7309B	43.1	53.5	91.5	1.5	0.875
	100	25	1.5	1	59.2	39.7	62.7	43.4	13.5	11 000	15 000	7309C	22.3	53.5	91.5	1.5	0.875
	120	29	2	1	84.9	53.8	91.1	59.8	—	5 400	7 100	7409	38.6	55	110	2	1.55
	120	29	2	1	78.9	50.0	84.7	55.5	—	4 800	6 600	7409B	49.5	55	110	2	1.55
50	72	12	0.6	0.3	17.4	15.7	—	—	16.2	14 000	18 000	7910C	14.2	54.5	67.5	0.6	0.128
	72	12	0.6	0.3	9.10	6.30	—	—	8.5	18 000	28 000	HAR910C	14.2	54.5	67.5	0.6	0.131
	80	16	1	0.6	11.4	7.85	—	—	8.4	17 000	26 000	HAR010C	16.7	55.5	74.5	1	0.273
	80	16	1	0.6	23.6	20.1	—	—	—	9 200	11 000	7010	26.9	55.5	74.5	1	0.290
	80	16	1	0.6	21.2	18.1	—	—	—	6 900	9 200	7010B	35.3	55.5	74.5	1	0.290
	80	16	1	0.6	26.0	21.9	—	—	15.7	13 000	17 000	7010C	16.8	55.5	74.5	1	0.290
	90	20	1.1	0.6	39.4	29.4	41.3	31.5	—	8 500	11 000	7210	30.4	57	83	1	0.485
	90	20	1.1	0.6	35.7	26.7	37.4	28.6	—	6 400	8 500	7210B	39.6	57	83	1	0.485
	90	20	1.1	0.6	42.8	31.8	44.8	34.1	14.6	12 000	16 000	7210C	19.4	57	83	1	0.485
	110	27	2	1	70.1	48.1	74.3	52.5	—	7 300	9 100	7310	37.2	60	100	2	1.14
	110	27	2	1	64.4	44.3	68.2	48.3	—	5 500	7 300	7310B	47.9	60	100	2	1.14
	110	27	2	1	75.1	51.6	79.6	56.2	13.4	10 000	13 000	7310C	24.5	60	100	2	1.14
	130	31	2.1	1.1	97.4	65.3	—	—	—	4 900	6 600	7410	41.6	62	118	2	1.92
	130	31	2.1	1.1	90.2	60.4	—	—	—	4 400	6 000	7410B	53.5	62	118	2	1.92
55	80	13	1	0.6	19.7	18.5	—	—	16.3	13 000	17 000	7911C	15.5	60.5	74.5	1	0.178
	80	13	1	0.6	10.1	7.65	—	—	8.6	16 000	25 000	HAR911C	15.5	60.5	74.5	1	0.189
	90	18	1.1	0.6	14.1	9.90	—	—	8.4	15 000	23 000	HAR011C	18.7	62	83	1	0.403
	90	18	1.1	0.6	31.1	26.3	—	—	—	8 300	10 000	7011	29.9	62	83	1	0.420
	90	18	1.1	0.6	27.9	23.7	—	—	—	6 200	8 300	7011B	39.4	62	83	1	0.420
	90	18	1.1	0.6	34.1	28.6	—	—	15.5	11 000	15 000	7011C	18.7	62	83	1	0.420
	100	21	1.5	1	48.7	37.1	51.0	39.8	—	7 600	9 500	7211	33.3	63.5	91.5	1.5	0.635
	100	21	1.5	1	44.1	33.8	46.2	36.2	—	5 700	7 600	7211B	43.6	63.5	91.5	1.5	0.635

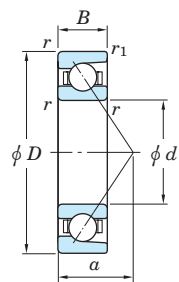
[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings. Limiting speeds of pressed cage bearings should be kept to under 80% of this value. For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined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

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

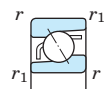
[Remark] Standard cage types used for the above bearings are described earlier in this section.

Single-row angular contact ball bearings

d (55) ~ (65) mm



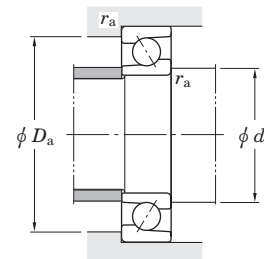
With machined cage



With pressed cage



HAR



Boundary dimensions (mm)					Basic load ratings (kN)				Factor	Limiting speeds ¹⁾ (min ⁻¹)		Bearing No. ²⁾	Load center (mm) α	Mounting dimensions (mm)			(Refer.) Mass (kg)
d	D	B	r _{min.}	r _{1 min.}	With machined cage		With pressed cage			Grease lub.	Oil lub.			d _{a min.}	D _{a max.}	r _{a max.}	
55	100	21	1.5	1	52.9	40.2	55.4	43.1	14.6	11 000	14 000	7211C	21.1	63.5	91.5	1.5	0.635
	120	29	2	1	80.9	56.5	85.8	61.7	—	6 700	8 400	7311	40.2	65	110	2	1.45
	120	29	2	1	74.3	52.0	78.7	56.7	—	5 000	6 700	7311B	51.8	65	110	2	1.45
	120	29	2	1	86.8	60.6	91.9	66.1	13.4	9 300	12 000	7311C	26.4	65	110	2	1.45
	140	33	2.1	1.1	118	82.4	—	—	—	4 500	6 000	7411	45.0	67	128	2	2.36
	140	33	2.1	1.1	110	76.5	—	—	—	4 000	5 500	7411B	57.8	67	128	2	2.36
60	85	13	1	0.6	23.2	21.8	—	—	16.3	12 000	16 000	7912C	16.3	65.5	79.5	1	0.187
	85	13	1	0.6	9.95	7.75	—	—	8.6	15 000	23 000	HAR912C	16.2	65.5	79.5	1	0.202
	95	18	1.1	0.6	14.7	10.8	—	—	8.5	14 000	22 000	HAR012C	19.4	67	88	1	0.433
	95	18	1.1	0.6	31.9	28.1	—	—	—	7 700	9 700	7012	31.4	67	88	1	0.450
	95	18	1.1	0.6	28.6	25.3	—	—	—	5 800	7 700	7012B	41.5	67	88	1	0.450
	95	18	1.1	0.6	35.0	30.6	—	—	15.7	11 000	14 000	7012C	19.4	67	88	1	0.450
	110	22	1.5	1	58.9	45.7	61.7	49.0	—	6 900	8 600	7212	36.1	68.5	101.5	1.5	0.820
	110	22	1.5	1	53.4	41.6	55.9	44.6	—	5 100	6 900	7212B	47.5	68.5	101.5	1.5	0.820
	110	22	1.5	1	64.0	49.5	67.0	53.0	14.5	9 500	13 000	7212C	22.7	68.5	101.5	1.5	0.820
	130	31	2.1	1.1	92.5	65.6	98.1	71.6	—	6 200	7 700	7312	43.2	72	118	2	1.81
	130	31	2.1	1.1	84.9	60.3	90.0	65.8	—	4 600	6 200	7312B	55.8	72	118	2	1.81
	130	31	2.1	1.1	99.2	70.3	105	76.7	13.4	8 600	11 000	7312C	28.4	72	118	2	1.81
	150	35	2.1	1.1	129	93.6	—	—	—	4 100	5 500	7412	48.5	72	138	2	2.85
	150	35	2.1	1.1	119	86.7	—	—	—	3 700	5 100	7412B	62.6	72	138	2	2.85
65	90	13	1	0.6	20.8	21.2	—	—	16.5	11 000	15 000	7913C	16.9	70.5	84.5	1	0.205
	90	13	1	0.6	11.8	9.45	—	—	8.6	14 000	22 000	HAR913C	16.9	70.5	84.5	1	0.212
	100	18	1.1	0.6	15.3	11.8	—	—	8.5	13 000	21 000	HAR013C	20.1	72	93	1	0.462
	100	18	1.1	0.6	33.7	31.4	—	—	—	7 200	9 000	7013	33.0	72	93	1	0.470
	100	18	1.1	0.6	30.1	28.3	—	—	—	5 400	7 200	7013B	43.8	72	93	1	0.470
	100	18	1.1	0.6	37.1	34.3	—	—	15.9	10 000	13 000	7013C	20.1	72	93	1	0.470
	120	23	1.5	1	67.3	54.2	70.2	57.8	—	6 400	8 000	7213	38.2	73.5	111.5	1.5	1.02

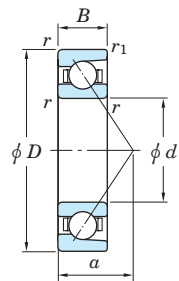
[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings. Limiting speeds of pressed cage bearings should be kept to under 80% of this value. For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined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

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

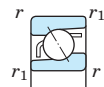
[Remark] Standard cage types used for the above bearings are described earlier in this section.

Single-row angular contact ball bearings

d (65) ~ (75) mm



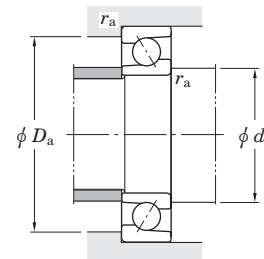
With machined cage



With pressed cage



HAR



Boundary dimensions (mm)					Basic load ratings (kN)				Factor	Limiting speeds ¹⁾ (min ⁻¹)		Bearing No. ²⁾	Load center (mm) α	Mounting dimensions (mm)			(Refer.) Mass (kg)
d	D	B	r _{min.}	r _{1 min.}	With machined cage		With pressed cage			Grease lub.	Oil lub.			d _{a min.}	D _{a max.}	r _{a max.}	
65	120	23	1.5	1	60.9	49.3	63.6	52.6	—	4 800	6 400	7213B	50.3	73.5	111.5	1.5	1.02
	120	23	1.5	1	73.1	58.7	76.3	62.6	14.6	8 900	12 000	7213C	23.9	73.5	111.5	1.5	1.02
	140	33	2.1	1.1	105	75.3	111	82.2	—	5 800	7 200	7313	46.3	77	128	2	2.22
	140	33	2.1	1.1	96.1	69.3	102	75.6	—	4 300	5 800	7313B	59.7	77	128	2	2.22
	140	33	2.1	1.1	112	80.7	119	88.1	13.4	8 000	11 000	7313C	30.3	77	128	2	2.22
	160	37	2.1	1.1	139	104	—	—	—	3 900	5 200	7413	51.4	77	148	2	3.41
	160	37	2.1	1.1	129	96.8	—	—	—	3 500	4 800	7413B	66.3	77	148	2	3.41
70	100	16	1	0.6	28.9	29.0	—	—	16.4	10 000	12 000	7914C	19.4	75.5	94.5	1	0.332
	100	16	1	0.6	12.9	10.5	—	—	8.7	13 000	20 000	HAR914C	19.4	75.5	94.5	1	0.356
	110	20	1.1	0.6	20.7	15.5	—	—	8.4	12 000	19 000	HAR014C	22.1	77	103	1	0.629
	110	20	1.1	0.6	42.7	39.4	—	—	—	6 600	8 300	7014	36.0	77	103	1	0.660
	110	20	1.1	0.6	38.3	35.5	—	—	—	5 000	6 600	7014B	47.8	77	103	1	0.660
	110	20	1.1	0.6	46.9	43.0	—	—	15.7	9 200	12 000	7014C	22.1	77	103	1	0.660
	125	24	1.5	1	69.8	55.6	76.3	63.5	—	6 100	7 600	7214	40.2	78.5	116.5	1.5	1.12
	125	24	1.5	1	63.2	50.6	69.1	57.8	—	4 600	6 100	7214B	52.9	78.5	116.5	1.5	1.12
	125	24	1.5	1	75.9	60.2	83.0	68.8	14.6	8 400	11 000	7214C	25.1	78.5	116.5	1.5	1.12
	150	35	2.1	1.1	118	85.8	125	93.6	—	5 400	6 700	7314	49.3	82	138	2	2.70
	150	35	2.1	1.1	108	78.9	114	86.0	—	4 000	5 400	7314B	63.7	82	138	2	2.70
	150	35	2.1	1.1	126	91.9	134	100	13.4	7 500	9 900	7314C	32.2	82	138	2	2.70
	180	42	3	1.1	149	115	—	—	—	3 500	4 600	7414	57.6	84	166	2.5	4.99
	180	42	3	1.1	148	119	—	—	—	3 100	4 300	7414B	74.2	84	166	2.5	4.99
75	105	16	1	0.6	29.4	30.5	—	—	16.5	9 300	12 000	7915C	20.1	80.5	99.5	1	0.350
	105	16	1	0.6	13.3	11.2	—	—	8.7	12 000	19 000	HAR915C	20.1	80.5	99.5	1	0.370
	115	20	1.1	0.6	21.1	16.2	—	—	8.5	12 000	18 000	HAR015C	22.7	82	108	1	0.665
	115	20	1.1	0.6	43.6	41.7	—	—	—	6 300	7 800	7015	37.4	82	108	1	0.690
	115	20	1.1	0.6	39.1	37.6	—	—	—	4 700	6 300	7015B	49.9	82	108	1	0.690
	115	20	1.1	0.6	48.0	45.6	—	—	15.9	8 700	11 000	7015C	22.7	82	108	1	0.690

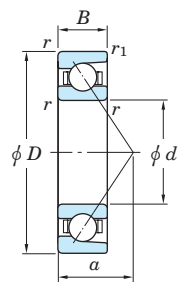
[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings. Limiting speeds of pressed cage bearings should be kept to under 80% of this value. For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined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

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

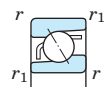
[Remark] Standard cage types used for the above bearings are described earlier in this section.

Single-row angular contact ball bearings

d (75) ~ (85) mm



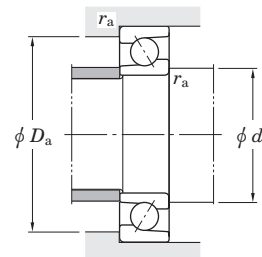
With machined cage



With pressed cage



HAR



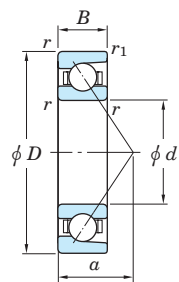
Boundary dimensions (mm)					Basic load ratings (kN)				Factor	Limiting speeds ¹⁾ (min ⁻¹)		Bearing No. ²⁾	Load center (mm) a	Mounting dimensions (mm)			(Refer.) Mass (kg)
d	D	B	r min.	r_1 min.	With machined cage		With pressed cage			Grease lub.	Oil lub.			d_a min.	D_a max.	r_a max.	
75	130	25	1.5	1	79.2	65.2	82.7	69.5	—	5 800	7 200	7215	42.1	83.5	121.5	1.5	1.23
	130	25	1.5	1	71.7	59.3	74.9	63.3	—	4 300	5 800	7215B	55.5	83.5	121.5	1.5	1.23
	130	25	1.5	1	86.1	70.6	89.9	75.3	14.6	8 000	11 000	7215C	26.2	83.5	121.5	1.5	1.23
	160	37	2.1	1.1	128	97.0	136	106	—	5 000	6 300	7315	52.4	87	148	2	3.15
	160	37	2.1	1.1	118	89.2	125	97.3	—	3 800	5 000	7315B	67.8	87	148	2	3.15
	160	37	2.1	1.1	137	104	146	113	13.4	7 000	9 200	7315C	34.2	87	148	2	3.15
	190	45	3	1.1	171	141	—	—	—	3 300	4 400	7415	61.3	89	176	2.5	5.90
	190	45	3	1.1	158	131	—	—	—	2 900	4 000	7415B	78.9	89	176	2.5	5.90
80	110	16	1	0.6	29.8	31.6	—	—	16.5	8 800	11 000	7916C	20.7	85.5	104.5	1	0.368
	110	16	1	0.6	13.6	11.9	—	—	8.8	12 000	18 000	HAR916C	20.7	85.5	104.5	1	0.398
	125	22	1.1	0.6	24.7	19.2	—	—	8.4	10 000	16 000	HAR016C	24.7	87	118	1	0.903
	125	22	1.1	0.6	53.4	50.6	—	—	—	5 800	7 200	7016	40.6	87	118	1	0.930
	125	22	1.1	0.6	47.8	45.7	—	—	—	4 300	5 800	7016B	54.0	87	118	1	0.930
	125	22	1.1	0.6	58.7	55.3	—	—	15.7	8 000	11 000	7016C	24.7	87	118	1	0.930
	140	26	2	1	85.3	71.5	89.0	76.2	—	5 400	6 700	7216	44.8	90	130	2	1.50
	140	26	2	1	77.1	65.0	80.5	69.3	—	4 000	5 400	7216B	59.2	90	130	2	1.50
	140	26	2	1	92.8	77.5	96.9	82.7	14.7	7 500	9 900	7216C	27.7	90	130	2	1.50
	170	39	2.1	1.1	139	109	147	119	—	4 700	5 900	7316	55.6	92	158	2	3.85
	170	39	2.1	1.1	127	100	135	109	—	3 500	4 700	7316B	71.9	92	158	2	3.85
	170	39	2.1	1.1	149	117	158	127	13.5	6 500	8 600	7316C	36.2	92	158	2	3.85
	200	48	3	1.1	193	166	—	—	—	3 100	4 100	7416	65.0	94	186	2.5	6.00
	200	48	3	1.1	179	154	—	—	—	2 700	3 800	7416B	83.6	94	186	2.5	6.00
85	120	18	1.1	0.6	38.9	40.6	—	—	16.5	8 100	11 000	7917C	22.7	92	113	1	0.523
	120	18	1.1	0.6	16.3	14.2	—	—	8.7	10 000	16 000	HAR917C	22.7	92	113	1	0.570
	130	22	1.1	0.6	25.1	20.1	—	—	8.5	9 700	15 000	HAR017C	25.4	92	123	1	0.947
	130	22	1.1	0.6	54.6	53.7	—	—	—	5 500	6 800	7017	42.3	92	123	1	0.970
	130	22	1.1	0.6	48.8	48.4	—	—	—	4 100	5 500	7017B	56.5	92	123	1	0.970

[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.

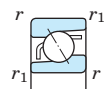
2) B, C or no indication after the bearing number indicates nominal contact angle of 40°, 15° and 30° respectively. [Remark] Standard cage types used for the above bearings are described earlier in this section.

Single-row angular contact ball bearings

d (85) ~ (95) mm



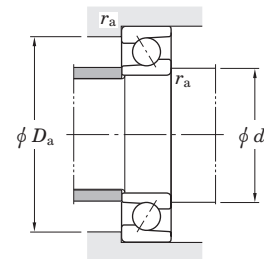
With machined cage



With pressed cage



HAR



Boundary dimensions (mm)					Basic load ratings (kN)				Factor	Limiting speeds ¹⁾ (min ⁻¹)		Bearing No. ²⁾	Load center (mm) α	Mounting dimensions (mm)			(Refer.) Mass (kg)
d	D	B	r _{min.}	r _{1 min.}	With machined cage		With pressed cage			Grease lub.	Oil lub.			d _{a min.}	D _{a max.}	r _{a max.}	
85	130	22	1.1	0.6	60.1	58.7	—	—	15.9	7 600	10 000	7017C	25.5	92	123	1	0.970
	150	28	2	1	98.6	83.6	103	89.2	—	5 000	6 300	7217	47.9	95	140	2	1.87
	150	28	2	1	89.2	76.0	93.1	81.1	—	3 800	5 000	7217B	63.3	95	140	2	1.87
	150	28	2	1	107	90.6	112	96.6	14.7	7 000	9 200	7217C	29.7	95	140	2	1.87
	180	41	3	1.1	150	122	159	133	—	4 400	5 500	7317	58.8	99	166	2.5	4.53
	180	41	3	1.1	137	112	145	122	—	3 300	4 400	7317B	76.1	99	166	2.5	4.53
	180	41	3	1.1	161	130	170	142	13.5	6 100	8 100	7317C	38.3	99	166	2.5	4.53
	210	52	4	1.5	204	180	—	—	—	3 000	3 900	7417	68.7	103	192	3	8.54
	210	52	4	1.5	189	167	—	—	—	2 600	3 600	7417B	88.1	103	192	3	8.54
	90	125	18	1.1	0.6	39.6	42.6	—	—	16.6	7 800	10 000	7918C	23.4	97	118	1
125		18	1.1	0.6	16.8	15.1	—	—	8.8	9 700	15 000	HAR918C	23.4	97	118	1	0.598
140		24	1.5	1	32.8	26.1	—	—	8.4	9 100	14 000	HAR018C	27.4	98.5	131.5	1.5	1.21
140		24	1.5	1	65.2	63.3	—	—	—	5 100	6 400	7018	45.2	98.5	131.5	1.5	1.26
140		24	1.5	1	58.4	57.1	—	—	—	3 900	5 100	7018B	60.2	98.5	131.5	1.5	1.26
140		24	1.5	1	71.7	69.1	—	—	15.7	7 100	9 400	7018C	27.4	98.5	131.5	1.5	1.26
160		30	2	1	113	96.7	118	103	—	4 700	5 900	7218	51.1	100	150	2	2.30
160		30	2	1	102	88.0	107	93.8	—	3 500	4 700	7218B	67.4	100	150	2	2.30
160		30	2	1	123	105	128	112	14.6	6 500	8 600	7218C	31.7	100	150	2	2.30
190		43	3	1.1	161	135	171	147	—	4 200	5 200	7318	61.9	104	176	2.5	5.30
190		43	3	1.1	148	124	156	135	—	3 100	4 200	7318B	80.2	104	176	2.5	5.30
190		43	3	1.1	173	145	183	158	13.5	5 800	7 700	7318C	40.3	104	176	2.5	5.30
225		54	4	1.5	216	196	—	—	—	2 800	3 700	7418	72.5	108	207	3	11.4
225		54	4	1.5	200	182	—	—	—	2 500	3 400	7418B	93.1	108	207	3	11.4
95		130	18	1.1	0.6	40.2	44.1	—	—	16.5	7 400	9 800	7919C	24.1	102	123	1
	130	18	1.1	0.6	17.3	16.0	—	—	8.8	9 300	14 000	HAR919C	24.1	102	123	1	0.626
	145	24	1.5	1	33.4	27.2	—	—	8.5	8 700	13 000	HAR019C	28.1	103.5	136.5	1.5	1.28
	145	24	1.5	1	66.6	67.1	—	—	—	4 800	6 000	7019	47.2	103.5	136.5	1.5	1.32

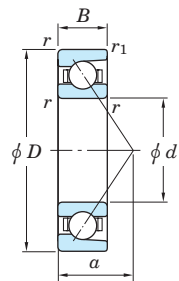
[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings. Limiting speeds of pressed cage bearings should be kept to under 80% of this value. For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined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

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

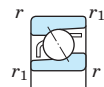
[Remark] Standard cage types used for the above bearings are described earlier in this section.

Single-row angular contact ball bearings

d (95) ~ (105) mm



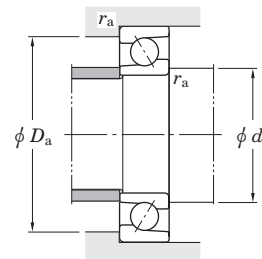
With machined cage



With pressed cage



HAR



Boundary dimensions (mm)					Basic load ratings (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.	
95	145	24	1.5	1	59.6	60.5	—	—	—	3 600	4 800	7019B	63.2	103.5	136.5	1.5	1.32
	145	24	1.5	1	73.4	73.4	—	—	15.9	6 700	8 900	7019C	28.3	103.5	136.5	1.5	1.32
	170	32	2.1	1.1	122	103	128	111	—	4 400	5 500	7219	54.3	107	158	2	2.78
	170	32	2.1	1.1	111	94.0	116	101	—	3 300	4 400	7219B	71.6	107	158	2	2.78
	170	32	2.1	1.1	133	112	139	120	14.6	6 100	8 100	7219C	33.8	107	158	2	2.78
	200	45	3	1.1	172	149	183	162	—	4 000	4 900	7319	65.1	109	186	2.5	6.12
	200	45	3	1.1	158	137	167	149	—	3 000	4 000	7319B	84.4	109	186	2.5	6.12
	200	45	3	1.1	185	160	196	174	13.5	5 500	7 300	7319C	42.3	109	186	2.5	6.12
100	140	20	1.1	0.6	55.6	58.5	—	—	16.3	7 000	9 200	7920C	26.1	107	133	1	0.773
	140	20	1.1	0.6	24.2	21.7	—	—	8.7	8 700	13 000	HAR920C	26.1	107	133	1	0.839
	150	24	1.5	1	34.0	28.4	—	—	8.5	8 400	13 000	HAR020C	28.7	108.5	141.5	1.5	1.32
	150	24	1.5	1	68.4	70.6	—	—	—	4 700	5 900	7020	48.1	108.5	141.5	1.5	1.37
	150	24	1.5	1	61.2	63.6	—	—	—	3 500	4 700	7020B	64.4	108.5	141.5	1.5	1.37
	150	24	1.5	1	75.3	77.2	—	—	16.0	6 500	8 600	7020C	28.7	108.5	141.5	1.5	1.37
	180	34	2.1	1.1	137	117	144	126	—	4 100	5 200	7220	57.7	112	168	2	3.32
	180	34	2.1	1.1	124	107	130	115	—	3 100	4 200	7220B	76.2	112	168	2	3.32
	180	34	2.1	1.1	149	127	156	136	14.6	5 700	7 600	7220C	35.9	112	168	2	3.32
	215	47	3	1.1	184	161	207	194	—	3 600	4 600	7320	69.4	114	201	2.5	7.53
	215	47	3	1.1	168	148	190	178	—	2 700	3 600	7320B	90.2	114	201	2.5	7.53
	215	47	3	1.1	197	173	222	208	13.4	5 000	6 700	7320C	44.8	114	201	2.5	7.53
105	145	20	1.1	0.6	56.7	61.5	—	—	16.4	6 700	8 800	7921C	26.7	112	138	1	0.810
	145	20	1.1	0.6	24.9	23.1	—	—	8.7	8 400	13 000	HAR921C	26.7	112	138	1	0.874
	160	26	2	1	38.6	32.5	—	—	8.5	7 900	12 000	HAR021C	30.8	115	150	2	1.68
	160	26	2	1	79.8	81.9	—	—	—	4 400	5 500	7021	51.8	115	150	2	1.73
	160	26	2	1	71.4	73.8	—	—	—	3 300	4 400	7021B	68.6	115	150	2	1.73
	160	26	2	1	87.8	89.6	—	—	15.9	6 000	8 000	7021C	31.0	115	150	2	1.73
	190	36	2.1	1.1	149	132	—	—	—	3 900	4 900	7221	61.0	117	178	2	3.95

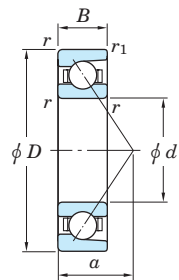
[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings. Limiting speeds of pressed cage bearings should be kept to under 80% of this value. For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined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

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

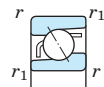
[Remark] Standard cage types used for the above bearings are described earlier in this section.

Single-row angular contact ball bearings

d (105) ~ (120) mm



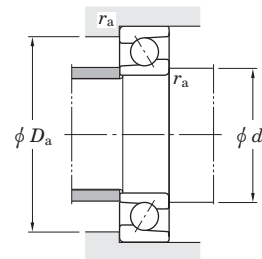
With machined cage



With pressed cage



HAR



Boundary dimensions (mm)					Basic load ratings (kN)				Factor	Limiting speeds ¹⁾ (min ⁻¹)		Bearing No. ²⁾	Load center (mm) α	Mounting dimensions (mm)			(Refer.) Mass (kg)
d	D	B	$r_{min.}$	$r_{1min.}$	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	135	121	—	—	—	2 900	3 900	7221B	80.5	117	178	2	3.95
	190	36	2.1	1.1	162	143	—	—	14.6	5 400	7 200	7221C	38.0	117	178	2	3.95
	225	49	3	1.1	208	193	—	—	—	3 500	4 400	7321	72.1	119	211	2.5	8.62
	225	49	3	1.1	191	177	—	—	—	2 600	3 500	7321B	93.7	119	211	2.5	8.62
	225	49	3	1.1	223	207	—	—	13.4	4 800	6 400	7321C	46.6	119	211	2.5	8.62
110	150	20	1.1	0.6	57.7	64.4	—	—	16.5	6 400	8 500	7922C	27.4	117	143	1	0.840
	150	20	1.1	0.6	25.1	23.8	—	—	8.7	8 000	12 000	HAR922C	27.4	117	143	1	0.909
	170	28	2	1	43.4	37.0	—	—	8.5	7 500	12 000	HAR022C	32.8	120	160	2	2.11
	170	28	2	1	91.9	92.8	—	—	—	4 200	5 200	7022	54.4	120	160	2	2.14
	170	28	2	1	82.3	83.7	—	—	—	3 100	4 200	7022B	72.7	120	160	2	2.14
	170	28	2	1	101	101	—	—	15.7	5 800	7 700	7022C	32.8	120	160	2	2.14
	200	38	2.1	1.1	162	148	—	—	—	3 700	4 600	7222	64.3	122	188	2	4.65
	200	38	2.1	1.1	147	135	—	—	—	2 800	3 700	7222B	84.9	122	188	2	4.65
	200	38	2.1	1.1	176	160	—	—	14.5	5 100	6 800	7222C	40.0	122	188	2	4.65
	240	50	3	1.1	232	226	—	—	—	3 200	4 000	7322	76.4	124	226	2.5	10.1
240	50	3	1.1	213	208	—	—	—	2 400	3 200	7322B	99.6	124	226	2.5	10.1	
240	50	3	1.1	249	242	—	—	13.4	4 500	5 900	7322C	48.8	124	226	2.5	10.1	
120	165	22	1.1	0.6	71.7	81.2	—	—	16.5	5 900	7 800	7924C	30.1	127	158	1	1.15
	165	22	1.1	0.6	29.4	28.4	—	—	8.8	7 300	11 000	HAR924C	30.1	127	158	1	1.25
	180	28	2	1	44.9	39.9	—	—	8.5	7 000	11 000	HAR024C	34.1	130	170	2	2.26
	180	28	2	1	96.6	103	—	—	—	3 900	4 900	7024	57.3	130	170	2	2.27
	180	28	2	1	86.4	93.0	—	—	—	2 900	3 900	7024B	76.9	130	170	2	2.27
	180	28	2	1	106	113	—	—	16.0	5 400	7 100	7024C	34.1	130	170	2	2.27
	215	40	2.1	1.1	174	166	—	—	—	3 400	4 300	7224	68.5	132	203	2	5.49
	215	40	2.1	1.1	158	151	—	—	—	2 600	3 400	7224B	90.3	132	203	2	5.49
	215	40	2.1	1.1	190	180	—	—	14.6	4 800	6 300	7224C	42.5	132	203	2	5.49
	260	55	3	1.1	246	252	—	—	—	3 000	3 700	7324	82.3	134	246	2.5	12.6

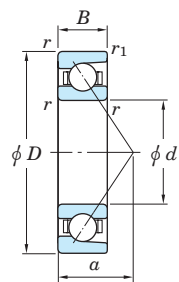
[Notes] 1) Limiting speeds shown above are applicable to machined cage bearings. Limiting speeds of pressed cage bearings should be kept to under 80% of this value. For bearings with 15° contact angle, this figure is applied to the high precision bearings ranked higher than class 5, used with machined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

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

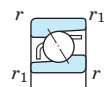
[Remark] Standard cage types used for the above bearings are described earlier in this section.

Single-row angular contact ball bearings

d (120) ~ 140 mm



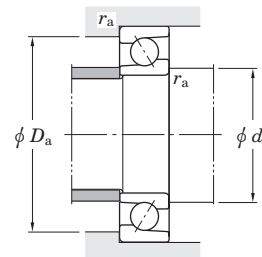
With machined cage



With pressed cage



HAR



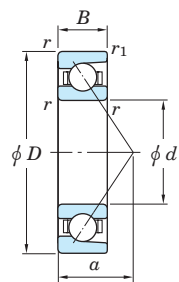
Boundary dimensions (mm)					Basic load ratings (kN)				Factor	Limiting speeds ¹⁾ (min ⁻¹)		Bearing No. ²⁾	Load center (mm) a	Mounting dimensions (mm)			(Refer.) Mass (kg)
d	D	B	$r_{min.}$	$r_{1min.}$	With machined cage		With pressed cage			Grease lub.	Oil lub.			d_a min.	D_a max.	r_a max.	
120	260	55	3	1.1	225	231	—	—	—	2 200	3 000	7324B	107.2	134	246	2.5	12.6
	260	55	3	1.1	265	271	—	—	13.7	4 100	5 500	7324C	53.0	134	246	2.5	12.6
130	180	24	1.5	1	87.2	99.9	—	—	16.4	5 400	7 100	7926C	32.8	138.5	171.5	1.5	1.50
	180	24	1.5	1	35.1	35.1	—	—	8.8	6 700	10 000	HAR926C	32.8	138.5	171.5	1.5	1.66
	200	33	2	1	56.3	48.4	—	—	8.5	6 300	9 800	HAR026C	38.6	140	190	2	3.38
	200	33	2	1	117	125	—	—	—	3 500	4 400	7026	64.1	140	190	2	3.43
	200	33	2	1	105	113	—	—	—	2 600	3 500	7026B	85.7	140	190	2	3.43
	200	33	2	1	129	137	—	—	15.9	4 800	6 400	7026C	38.6	140	190	2	3.43
	230	40	3	1.1	196	198	—	—	—	3 200	4 000	7226	72.0	144	216	2.5	6.21
	230	40	3	1.1	177	180	—	—	—	2 400	3 200	7226B	95.5	144	216	2.5	6.21
	230	40	3	1.1	213	214	—	—	14.7	4 400	5 800	7226C	44.1	144	216	2.5	6.21
	280	58	4	1.5	301	329	—	—	—	2 700	3 400	7326	88.8	148	262	3	15.4
	280	58	4	1.5	250	268	—	—	—	2 100	2 700	7326B	115.0	148	262	3	15.4
	280	58	4	1.5	294	314	—	—	13.7	3 800	5 000	7326C	56.5	148	262	3	15.4
140	190	24	1.5	1	88.3	105	—	—	16.6	5 100	6 700	7928C	34.1	148.5	181.5	1.5	1.59
	190	24	1.5	1	35.2	36.2	—	—	8.8	6 300	9 800	HAR928C	34.1	148.5	181.5	1.5	1.76
	210	33	2	1	61.3	56.2	—	—	8.5	6 000	9 200	HAR028C	39.9	150	200	2	3.62
	210	33	2	1	120	133	—	—	—	3 300	4 100	7028	67.0	150	200	2	3.64
	210	33	2	1	107	119	—	—	—	2 500	3 300	7028B	89.9	150	200	2	3.64
	210	33	2	1	132	145	—	—	16.0	4 500	6 000	7028C	39.9	150	200	2	3.64
	250	42	3	1.1	218	234	—	—	—	2 900	3 600	7228	77.3	154	236	2.5	7.76
	250	42	3	1.1	197	213	—	—	—	2 200	2 900	7228B	102.8	154	236	2.5	7.76
	250	42	3	1.1	238	254	—	—	14.8	4 000	5 300	7228C	47.1	154	236	2.5	7.76
	300	62	4	1.5	329	374	—	—	—	2 500	3 200	7328	94.5	158	282	3	18.8
	300	62	4	1.5	302	344	—	—	—	1 900	2 500	7328B	123.3	158	282	3	18.8
	300	62	4	1.5	353	401	—	—	13.4	3 500	4 600	7328C	60.5	158	282	3	18.8

[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.

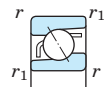
2) B, C or no indication after the bearing number indicates nominal contact angle of 40°, 15° and 30° respectively.
[Remark] Standard cage types used for the above bearings are described earlier in this section.

Single-row angular contact ball bearings

d 150 ~ (170) mm



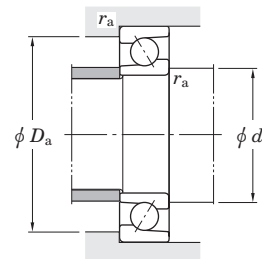
With machined cage



With pressed cage



HAR



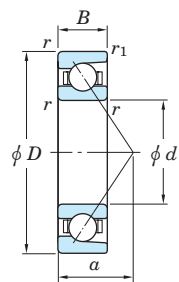
Boundary dimensions (mm)					Basic load ratings (kN)				Factor	Limiting speeds ¹⁾ (min ⁻¹)		Bearing No. ²⁾	Load center (mm) α	Mounting dimensions (mm)			(Refer.) Mass (kg)
d	D	B	r _{min.}	r _{1 min.}	With machined cage		With pressed cage			Grease lub.	Oil lub.			d _{a min.}	D _{a max.}	r _{a max.}	
150	210	28	2	1	115	132	—	—	16.3	4 700	6 200	7930C	38.1	160	200	2	2.47
	210	28	2	1	48.9	48.9	—	—	8.7	5 800	9 000	HAR930C	38.1	160	200	2	2.68
	225	35	2	1	72.2	66.1	—	—	8.5	5 300	8 200	HAR030C	42.6	160	215	2	4.36
	225	35	2.1	1.1	137	154	—	—	—	3 000	3 800	7030	72.1	162	213	2	4.43
	225	35	2.1	1.1	122	138	—	—	—	2 300	3 000	7030B	96.2	162	213	2	4.43
	225	35	2.1	1.1	151	169	—	—	16.1	4 200	5 500	7030C	42.8	162	213	2	4.43
	270	45	3	1.1	248	280	—	—	—	2 700	3 300	7230	83.1	164	256	2.5	9.75
	270	45	3	1.1	225	254	—	—	—	2 000	2 700	7230B	110.6	164	256	2.5	9.75
	270	45	3	1.1	270	303	—	—	14.7	3 700	4 900	7230C	50.6	164	256	2.5	9.75
	320	65	4	1.5	348	414	—	—	—	2 300	2 900	7330	100.3	168	302	3	22.4
	320	65	4	1.5	318	380	—	—	—	1 800	2 300	7330B	131.1	168	302	3	22.4
	320	65	4	1.5	374	445	—	—	13.7	3 200	4 300	7330C	64.0	168	302	3	22.4
160	220	28	2	1	120	144	—	—	16.5	4 400	5 800	7932C	39.5	170	210	2	2.60
	220	28	2	1	50.2	51.8	—	—	8.8	5 200	8 100	HAR932C	39.5	170	210	2	2.83
	240	38	2.1	1.1	78.3	72.7	—	—	8.5	5 000	7 700	HAR032C	45.8	172	228	2	5.40
	240	38	2.1	1.1	155	176	—	—	—	2 800	3 500	7032	76.8	172	228	2	5.45
	240	38	2.1	1.1	139	158	—	—	—	2 100	2 800	7032B	102.9	172	228	2	5.45
	240	38	2.1	1.1	171	193	—	—	16.0	3 900	5 200	7032C	45.8	172	228	2	5.45
	290	48	3	1.1	230	263	—	—	—	2 500	3 100	7232	89.0	174	276	2.5	12.1
	290	48	3	1.1	238	279	—	—	—	1 800	2 500	7232B	118.4	174	276	2.5	12.1
	290	48	3	1.1	287	333	—	—	15.2	3 400	4 500	7232C	54.1	174	276	2.5	12.1
	340	68	4	1.5	365	455	—	—	—	2 200	2 700	7332	106.2	178	322	3	26.4
	340	68	4	1.5	332	416	—	—	—	1 600	2 200	7332B	138.9	178	322	3	26.4
	340	68	4	1.5	394	490	—	—	14.0	3 000	4 000	7332C	67.5	168.5	322	3	26.4
170	230	28	2	1	122	151	—	—	16.6	3 900	5 100	7934C	40.8	180	220	2	3.21
	230	28	2	1	51.4	54.8	—	—	8.8	5 000	7 700	HAR934C	40.8	180	220	2	2.97
	260	42	2.1	1.1	91.8	86.4	—	—	8.5	4 600	7 100	HAR034C	49.8	182	248	2	7.32

[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.

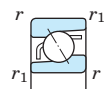
2) B, C or no indication after the bearing number indicates nominal contact angle of 40°, 15° and 30° respectively.
[Remark] Standard cage types used for the above bearings are described earlier in this section.

Single-row angular contact ball bearings

d (170) ~ 190 mm



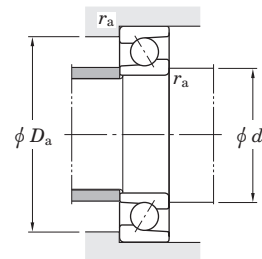
With machined cage



With pressed cage



HAR



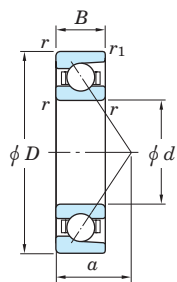
Boundary dimensions (mm)					Basic load ratings (kN)				Factor	Limiting speeds ¹⁾ (min ⁻¹)		Bearing No. ²⁾	Load center (mm) α	Mounting dimensions (mm)			(Refer.) Mass (kg)
d	D	B	$r_{min.}$	$r_{1min.}$	With machined cage		With pressed cage			Grease lub.	Oil lub.			d_a min.	D_a max.	r_a max.	
170	260	42	2.1	1.1	186	214	—	—	—	2 600	3 200	7034	83.1	182	248	2	7.58
	260	42	2.1	1.1	166	193	—	—	—	1 900	2 600	7034B	111.2	182	248	2	7.77
	260	42	2.1	1.1	204	234	—	—	15.9	3 600	4 800	7034C	49.8	182	248	2	7.57
	310	52	4	1.5	272	331	—	—	—	2 300	2 800	7234	95.3	188	292	3	15.1
	310	52	4	1.5	245	300	—	—	—	1 700	2 300	7234B	126.7	188	292	3	15.1
	310	52	4	1.5	297	359	—	—	15.1	3 100	4 200	7234C	58.2	188	292	3	15.1
	360	72	4	1.5	389	485	—	—	—	2 000	2 500	7334	112.5	188	342	3	31.2
	360	72	4	1.5	355	444	—	—	—	1 500	2 000	7334B	147.2	188	342	3	31.2
	360	72	4	1.5	418	521	—	—	13.8	2 800	3 700	7334C	71.5	188	342	3	31.2
180	250	33	2	1	156	188	—	—	16.4	3 600	4 700	7936C	45.3	190	240	2	4.68
	280	46	2.1	1.1	212	253	—	—	—	2 400	3 000	7036	89.4	192	268	2	10.1
	280	46	2.1	1.1	190	228	—	—	—	1 800	2 400	7036B	119.5	192	268	2	10.2
	280	46	2.1	1.1	233	276	—	—	15.7	3 300	4 400	7036C	53.8	192	268	2	9.96
	320	52	4	1.5	293	362	—	—	—	2 200	2 700	7236	98.2	198	302	3	15.7
	320	52	4	1.5	265	329	—	—	—	1 600	2 200	7236B	130.9	198	302	3	15.7
	320	52	4	1.5	320	393	—	—	14.9	3 000	4 000	7236C	59.5	198	302	3	15.7
	380	75	4	1.5	409	534	—	—	—	1 900	2 400	7336	118.3	198	362	3	40.0
	380	75	4	1.5	373	488	—	—	—	1 400	1 900	7336B	155.0	198	362	3	40.0
190	260	33	2	1	158	197	—	—	16.5	3 300	4 500	7938C	46.6	200	250	2	4.83
	290	46	2.1	1.1	217	268	—	—	—	2 300	2 800	7038	92.3	202	278	2	10.8
	290	46	2.1	1.1	194	241	—	—	—	1 700	2 300	7038B	123.7	202	278	2	10.8
	290	46	2.1	1.1	239	293	—	—	15.9	3 100	4 200	7038C	55.2	202	278	2	10.8
	340	55	4	1.5	303	390	—	—	—	2 000	2 500	7238	104.0	208	322	3	18.8
	340	55	4	1.5	273	353	—	—	—	1 500	2 000	7238B	138.7	208	322	3	18.8
	340	55	4	1.5	331	424	—	—	15.1	2 800	3 700	7238C	63.0	208	322	3	18.8
	400	78	5	2	450	598	—	—	—	1 800	2 200	7338	124.2	212	378	4	45.5
	400	78	5	2	411	548	—	—	—	1 300	1 800	7338B	162.8	212	378	4	45.5

[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.

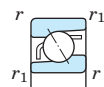
2) B, C or no indication after the bearing number indicates nominal contact angle of 40°, 15° and 30° respectively. [Remark] Standard cage types used for the above bearings are described earlier in this section.

Single-row angular contact ball bearings

d 200 ~ (340) mm



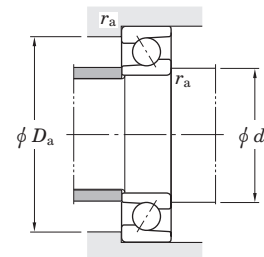
With machined cage



With pressed cage



HAR



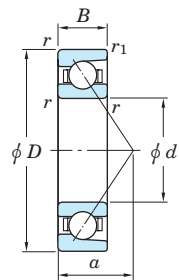
Boundary dimensions (mm)					Basic load ratings (kN)				Factor	Limiting speeds ¹⁾ (min ⁻¹)		Bearing No. ²⁾	Load center (mm) α	Mounting dimensions (mm)			(Refer.) Mass (kg)
d	D	B	r _{min.}	r _{1 min.}	With machined cage		With pressed cage			Grease lub.	Oil lub.			d _{a min.}	D _{a max.}	r _{a max.}	
200	280	38	2.1	1.1	204	255	—	—	16.3	3 100	4 100	7940C	51.2	212	268	2	6.85
	310	51	2.1	1.1	244	309	—	—	—	2 100	2 600	7040	99.1	212	298	2	12.7
	310	51	2.1	1.1	218	279	—	—	—	1 600	2 100	7040B	132.5	212	298	2	12.7
	310	51	2.1	1.1	268	338	—	—	15.7	2 900	3 900	7040C	59.7	212	298	2	12.7
	360	58	4	1.5	324	423	—	—	—	1 900	2 400	7240	109.8	218	342	3	22.4
	360	58	4	1.5	292	384	—	—	—	1 400	1 900	7240B	146.5	218	342	3	22.4
	360	58	4	1.5	354	460	—	—	15.1	2 600	3 500	7240C	66.5	218	342	3	22.4
	420	80	5	2	474	658	—	—	—	1 700	2 100	7340	129.5	222	398	4	52.0
	420	80	5	2	432	602	—	—	—	1 200	1 700	7340B	170.1	222	398	4	52.0
220	340	56	3	1.1	267	353	—	—	—	1 900	2 400	7044	108.9	234	326	2.5	18.5
	340	56	3	1.1	239	318	—	—	—	1 400	1 900	7044B	145.5	234	326	2.5	18.9
240	360	56	3	1.1	273	375	—	—	—	1 700	2 200	7048	114.6	254	346	2.5	19.7
	360	56	3	1.1	244	338	—	—	—	1 300	1 700	7048B	153.9	254	346	2.5	20.1
	440	72	4	1.5	403	595	—	—	—	1 500	1 800	7248	134.2	258	422	3	51.8
	440	72	4	1.5	363	539	—	—	—	1 100	1 500	7248B	178.6	258	422	3	52.8
260	400	65	4	1.5	325	478	—	—	—	1 500	1 900	7052	128.4	278	382	3	28.7
	400	65	4	1.5	291	431	—	—	—	1 100	1 500	7052B	171.0	278	382	3	29.3
280	420	65	4	1.5	332	507	—	—	—	1 400	1 800	7056	133.5	298	402	3	30.4
	420	65	4	1.5	297	453	—	—	—	1 100	1 400	7056B	179.3	298	402	3	31.0
300	460	74	4	1.5	426	680	—	—	—	1 300	1 600	7060	146.7	318	442	3	43.7
	460	74	4	1.5	382	613	—	—	—	960	1 300	7060B	196.4	318	442	3	44.9
320	480	74	4	1.5	437	722	—	—	—	1 200	1 500	7064	152.5	338	462	3	46.0
	480	74	4	1.5	391	651	—	—	—	890	1 200	7064B	204.8	338	462	3	47.2
340	520	82	5	2	502	861	—	—	—	1 100	1 300	7068	165.1	362	498	4	61.8

[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.

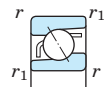
2) B, C or no indication after the bearing number indicates nominal contact angle of 40°, 15° and 30° respectively. [Remark] Standard cage types used for the above bearings are described earlier in this section.

Single-row angular contact ball bearings

d (340) ~ 380 mm



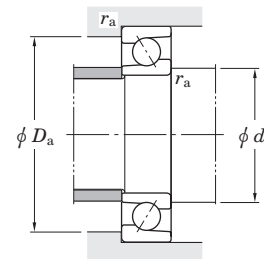
With machined cage



With pressed cage



HAR



Boundary dimensions (mm)					Basic load ratings (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.	
340	520	82	5	2	450	777	—	—	—	800	1 100	7068B	221.4	362	498	4	63.3
	540	82	5	2	515	913	—	—	—	1 000	1 300	7072	170.9	382	518	4	64.6
360	540	82	5	2	461	824	—	—	—	750	1 000	7072B	229.8	382	518	4	66.2
	560	82	5	2	528	966	—	—	—	940	1 200	7076	176.7	402	538	4	67.2
380	560	82	5	2	472	870	—	—	—	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.