

Designation system

Examples: Single bearing – 71922 CDGBTNHA/PA9AL
Matched bearing set – S7010 ACD/HCP4AQBCC

	719	22	CD	GB	TNHA	/
S	70	10	ACD			/

Prefix

- Open bearing (no designation prefix)
- S Sealed bearing
- V Bearing with NitroMax steel rings and bearing grade silicon nitride Si₃N₄ balls (hybrid bearing)

Bearing series

- 718 Angular contact ball bearing in accordance with ISO dimension series 18
- 719 Angular contact ball bearing in accordance with ISO dimension series 19
- 70 Angular contact ball bearing in accordance with ISO dimension series 10
- 72 Angular contact ball bearing in accordance with ISO dimension series 02

Bearing size

- 6 6 mm bore diameter
- 7 7 mm bore diameter
- 8 8 mm bore diameter
- 9 9 mm bore diameter
- 00 10 mm bore diameter
- 01 12 mm bore diameter
- 02 15 mm bore diameter
- 03 17 mm bore diameter
- 04 (x5) 20 mm bore diameter
- to
- 72 (x5) 360 mm bore diameter

Internal design

- CD 15° contact angle, high-capacity design
- ACD 25° contact angle, high-capacity design
- CE 15° contact angle, high-speed E design
- FE 18° contact angle, high-speed E design
- ACE 25° contact angle, high-speed E design
- CB 15° contact angle, high-speed B design
- FB 18° contact angle, high-speed B design
- ACB 25° contact angle, high-speed B design

Single bearing – execution and preload

- Single standalone bearing (no designation suffix) (718 .. D, 719 .. D, 70 .. D, 72 .. D, 719 .. E, 70 .. E, 719 .. B and 70 .. B series)
- GA Single, universally matchable, extra light preload (719 .. D, 70 .. D and 72 .. D series)
- GA Single, universally matchable, light preload (718 .. D, 719 .. E, 70 .. E, 719 .. B and 70 .. B series)
- GB Single, universally matchable, light preload (719 .. D, 70 .. D and 72 .. D series)
- GB Single, universally matchable, moderate preload (718 .. D, 719 .. E, 70 .. E, 719 .. B and 70 .. B series)
- GC Single, universally matchable, moderate preload (719 .. D, 70 .. D and 72 .. D series)
- GC Single, universally matchable, heavy preload (718 .. D, 719 .. E, 70 .. E, 719 .. B and 70 .. B series)
- GD Single, universally matchable, heavy preload (719 .. D, 70 .. D and 72 .. D series)

Cage

- Cotton fabric reinforced phenolic resin or carbon fibre reinforced PEEK, outer ring centred (no designation suffix)
- MA Machined brass, outer ring centred
- TNHA Glass fibre reinforced PEEK, outer ring centred

	PA9A	L		
HC	P4A		QBC	C

Bearing set – preload

A	Extra light preload (719 .. D, 70 .. D and 72 .. D series)
A	Light preload (718 .. D, 719 .. E, 70 .. E, 719 .. B and 70 .. B series)
L	Light preload – only for matched bearings sets in TBT, TFT, QBT and QFT arrangements (718 .. D, 719 .. E and 70 .. E series)
B	Light preload (719 .. D, 70 .. D and 72 .. D series)
B	Moderate preload (718 .. D, 719 .. E, 70 .. E, 719 .. B and 70 .. B series)
M	Moderate preload – only for matched bearings sets in TBT, TFT, QBT and QFT arrangements (718 .. D, 719 .. E and 70 .. E series)
C	Moderate preload (719 .. D, 70 .. D and 72 .. D series)
C	Heavy preload (718 .. D, 719 .. E, 70 .. E, 719 .. B and 70 .. B series)
F	Heavy preload – only for matched bearings sets in TBT, TFT, QBT and QFT arrangements (718 .. D, 719 .. E and 70 .. E series)
D	Heavy preload (719 .. D, 70 .. D and 72 .. D series)
G...	Special preload, expressed in daN e.g. G240 (718 .. D, 719 .. D, 70 .. D, 72 .. D, 719 .. E, 70 .. E, 719 .. B and 70 .. B series)

Bearing set arrangement

DB	Set of two bearings arranged back-to-back <>
DF	Set of two bearings arranged face-to-face ><
DT	Set of two bearings arranged in tandem <<
DG	Set of two bearings for universal matching
TBT	Set of three bearings arranged back-to-back and tandem <>>
TFT	Set of three bearings arranged face-to-face and tandem ><<
TT	Set of three bearings arranged in tandem <<<
TG	Set of three bearings for universal matching
QBC	Set of four bearings arranged tandem back-to-back <>>>
QFC	Set of four bearings arranged tandem face-to-face ><<<
QBT	Set of four bearings arranged back-to-back and tandem <>>>
QFT	Set of four bearings arranged face-to-face and tandem ><<<
QT	Set of four bearings arranged in tandem <<<<
QG	Set of four bearings for universal matching
PBC	Set of five bearings arranged tandem back-to-back <>>>>
PFC	Set of five bearings arranged tandem face-to-face ><<<<
PBT	Set of five bearings arranged back-to-back and tandem <>>>>
PFT	Set of five bearings arranged face-to-face and tandem ><<<<
PT	Set of five bearings arranged in tandem <<<<<
PG	Set of five bearings for universal matching

Lubrication features

H	Two lubrication holes on the non-thrust side of the outer ring
H1	Two lubrication holes on the thrust side of the outer ring
L	Annular groove with two lubrication holes on the non-thrust side of the outer ring and two annular grooves fitted with O-rings in the outer ring
L1	Annular groove with two lubrication holes on the thrust side of the outer ring and two annular grooves fitted with O-rings in the outer ring

Accuracy

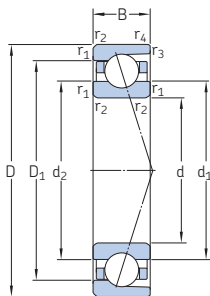
P4	Dimensional and running accuracy in accordance with ISO tolerance class 4
P4A	Dimensional accuracy in accordance with ISO tolerance class 4, running accuracy better than ISO tolerance class 4
P2	Dimensional and running accuracy in accordance with ISO tolerance class 2
PA9A	Dimensional and running accuracy in accordance with ISO tolerance class 2

Ball material

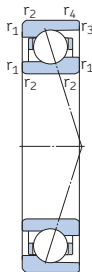
–	Carbon chromium steel (no designation suffix)
HC	Balls made of bearing grade silicon nitride Si ₃ N ₄ (hybrid bearing)

2.1 Angular contact ball bearings

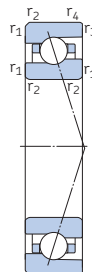
d 6 – 8 mm



ACD, CD



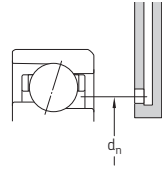
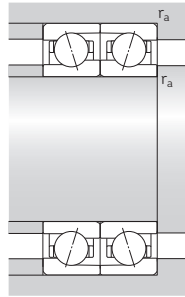
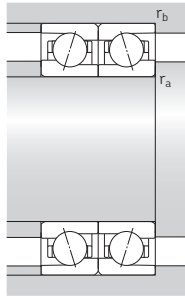
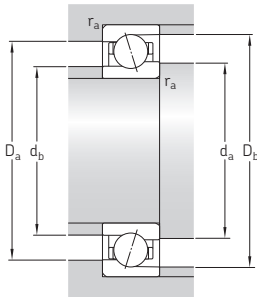
719 .. ACE,
719 .. CE



70 .. ACE,
70 .. CE

Principal dimensions			Basic load ratings		Fatigue load limit	Attainable speeds		Mass	Designation	Available variants	
d	D	B	dynamic C	static C ₀	P _u	Grease lubrication	Oil-air lubrication			Sealing	Direct oil-air solution lubrication ¹⁾
mm			kN		kN	r/min		kg	–	–	
6	17	6	1,51	0,49	0,02	127 000	195 000	0,006	706 ACE/P4A	–	H
	17	6	1,51	0,49	0,02	150 000	230 000	0,005	706 ACE/HCP4A	–	H
	17	6	1,56	0,5	0,022	140 000	220 000	0,006	706 CE/P4A	–	H
	17	6	1,56	0,5	0,022	170 000	260 000	0,005	706 CE/HCP4A	–	H
	17	6	1,95	0,75	0,032	110 000	160 000	0,006	706 ACD/P4A	–	H
	17	6	1,95	0,75	0,032	130 000	190 000	0,005	706 ACD/HCP4A	–	H
	17	6	2,03	0,765	0,032	120 000	180 000	0,006	706 CD/P4A	–	H
	17	6	2,03	0,765	0,032	140 000	220 000	0,005	706 CD/HCP4A	–	H
	19	6	1,86	0,62	0,026	112 000	175 000	0,007	707 ACE/P4A	–	H
	19	6	1,86	0,62	0,026	133 000	205 000	0,006	707 ACE/HCP4A	–	H
	19	6	1,95	0,64	0,027	127 000	190 000	0,007	707 CE/P4A	–	H
	19	6	1,95	0,64	0,027	150 000	230 000	0,006	707 CE/HCP4A	–	H
7	19	6	2,42	0,95	0,04	95 000	140 000	0,008	707 ACD/P4A	–	H
	19	6	2,42	0,95	0,04	110 000	170 000	0,007	707 ACD/HCP4A	–	H
	19	6	2,51	0,98	0,04	100 000	160 000	0,008	707 CD/P4A	–	H
	19	6	2,51	0,98	0,04	120 000	190 000	0,007	707 CD/HCP4A	–	H
	22	7	2,91	1,12	0,048	70 000	110 000	0,013	727 ACD/P4A	–	–
	22	7	2,91	1,12	0,048	85 000	130 000	0,012	727 ACD/HCP4A	–	–
	22	7	2,96	1,16	0,049	80 000	120 000	0,013	727 CD/P4A	–	–
	22	7	2,96	1,16	0,049	95 000	150 000	0,012	727 CD/HCP4A	–	–
	19	6	1,68	0,6	0,026	109 000	165 000	0,007	719/8 ACE/P4A	–	H
	19	6	1,68	0,6	0,026	130 000	200 000	0,006	719/8 ACE/HCP4A	–	H
	19	6	1,74	0,63	0,027	120 000	185 000	0,007	719/8 CE/P4A	–	H
	19	6	1,74	0,63	0,027	145 000	220 000	0,006	719/8 CE/HCP4A	–	H
	22	7	2,29	0,765	0,032	98 000	150 000	0,012	708 ACE/P4A	–	H
	22	7	2,29	0,765	0,032	115 000	180 000	0,011	708 ACE/HCP4A	–	H
	22	7	2,34	0,8	0,034	109 000	165 000	0,012	708 CE/P4A	–	H
	22	7	2,34	0,8	0,034	130 000	200 000	0,011	708 CE/HCP4A	–	H
	22	7	3,19	1,34	0,056	80 000	120 000	0,012	708 ACD/P4A	–	H
	22	7	3,19	1,34	0,056	95 000	150 000	0,011	708 ACD/HCP4A	–	H
	22	7	3,25	1,37	0,057	90 000	130 000	0,012	708 CD/P4A	–	H
	22	7	3,25	1,37	0,057	110 000	160 000	0,011	708 CD/HCP4A	–	H

¹⁾ Designation suffix H, H1, L or L1. For details, refer to *Direct oil-air lubrication* (→ page 198).



Dimensions					Abutment and fillet dimensions										Reference grease quantity ¹⁾ G_{ref}	Calculation factor f_0
d	d ₁	d ₂	D ₁	D ₂	r _{1,2} min.	r _{3,4} min.	d _a min.	d _b min.	D _a max.	D _b max.	r _a max.	r _b max.	d _n		cm ³	–
mm																
6	9,2	8,7	13,9	–	0,3	0,15	8	8	15	15,6	0,3	0,15	10,1	0,09	–	–
	9,2	8,7	13,9	–	0,3	0,15	8	8	15	15,6	0,3	0,15	10,1	0,09	–	–
	9,2	8,7	13,9	–	0,3	0,15	8	8	15	15,6	0,3	0,15	10,1	0,09	6,4	6,4
	9,2	8,7	13,9	–	0,3	0,15	8	8	15	15,6	0,3	0,15	10,1	0,09	6,4	6,4
	9,5	9,5	13,5	–	0,3	0,15	8	8	15	16,2	0,3	0,15	10,3	0,09	–	–
	9,5	9,5	13,5	–	0,3	0,15	8	8	15	16,2	0,3	0,15	10,3	0,09	–	–
	9,5	9,5	13,5	–	0,3	0,15	8	8	15	16,2	0,3	0,15	10,3	0,09	8,3	8,3
	9,5	9,5	13,5	–	0,3	0,15	8	8	15	16,2	0,3	0,15	10,3	0,09	8,3	8,3
	10,4	9,9	15,7	–	0,3	0,15	9	9	17	17,6	0,3	0,15	11,4	0,11	–	–
	10,4	9,9	15,7	–	0,3	0,15	9	9	17	17,6	0,3	0,15	11,4	0,11	–	–
	10,4	9,9	15,7	–	0,3	0,15	9	9	17	17,6	0,3	0,15	11,4	0,11	6,5	6,5
	10,4	9,9	15,7	–	0,3	0,15	9	9	17	17,6	0,3	0,15	11,4	0,11	6,5	6,5
7	10,8	10,8	15,2	–	0,3	0,15	9	9	17	18,2	0,3	0,15	11,7	0,12	–	–
	10,8	10,8	15,2	–	0,3	0,15	9	9	17	18,2	0,3	0,15	11,7	0,12	–	–
	10,8	10,8	15,2	–	0,3	0,15	9	9	17	18,2	0,3	0,15	11,7	0,12	8,1	8,1
	10,8	10,8	15,2	–	0,3	0,15	9	9	17	18,2	0,3	0,15	11,7	0,12	8,1	8,1
	12,6	12,6	17,4	–	0,3	0,2	9,4	9,4	19,6	20,2	0,3	0,2	13,6	0,16	–	–
	12,6	12,6	17,4	–	0,3	0,2	9,4	9,4	19,6	20,2	0,3	0,2	13,6	0,16	–	–
	12,6	12,6	17,4	–	0,3	0,2	9,4	9,4	19,6	20,2	0,3	0,2	13,6	0,16	8,4	8,4
	12,6	12,6	17,4	–	0,3	0,2	9,4	9,4	19,6	20,2	0,3	0,2	13,6	0,16	8,4	8,4
	11,3	10,8	15,7	–	0,3	0,15	10	10	17	18,2	0,3	0,15	12,2	0,09	–	–
	11,3	10,8	15,7	–	0,3	0,15	10	10	17	18,2	0,3	0,15	12,2	0,09	–	–
	11,3	10,8	15,7	–	0,3	0,15	10	10	17	18,2	0,3	0,15	12,2	0,09	7,2	7,2
	11,3	10,8	15,7	–	0,3	0,15	10	10	17	18,2	0,3	0,15	12,2	0,09	7,2	7,2
8	12,1	11,5	17,9	–	0,3	0,15	10	10	20	20,6	0,3	0,15	13,3	0,17	–	–
	12,1	11,5	17,9	–	0,3	0,15	10	10	20	20,6	0,3	0,15	13,3	0,17	–	–
	12,1	11,5	17,9	–	0,3	0,15	10	10	20	20,6	0,3	0,15	13,3	0,17	6,6	6,6
	12,1	11,5	17,9	–	0,3	0,15	10	10	20	20,6	0,3	0,15	13,3	0,17	6,6	6,6
	12,6	12,6	17,4	–	0,3	0,2	10	10	20	20,6	0,3	0,2	13,6	0,15	–	–
	12,6	12,6	17,4	–	0,3	0,2	10	10	20	20,6	0,3	0,2	13,6	0,15	–	–
	12,6	12,6	17,4	–	0,3	0,2	10	10	20	20,6	0,3	0,2	13,6	0,15	8,4	8,4
	12,6	12,6	17,4	–	0,3	0,2	10	10	20	20,6	0,3	0,2	13,6	0,15	8,4	8,4
	12,6	12,6	17,4	–	0,3	0,2	10	10	20	20,6	0,3	0,2	13,6	0,15	–	–
	12,6	12,6	17,4	–	0,3	0,2	10	10	20	20,6	0,3	0,2	13,6	0,15	–	–
	12,6	12,6	17,4	–	0,3	0,2	10	10	20	20,6	0,3	0,2	13,6	0,15	8,4	8,4
	12,6	12,6	17,4	–	0,3	0,2	10	10	20	20,6	0,3	0,2	13,6	0,15	8,4	8,4
	12,6	12,6	17,4	–	0,3	0,2	10	10	20	20,6	0,3	0,2	13,6	0,15	8,4	8,4

¹⁾ For calculating the initial grease fill → page 199