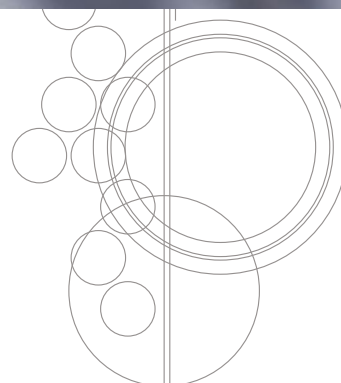


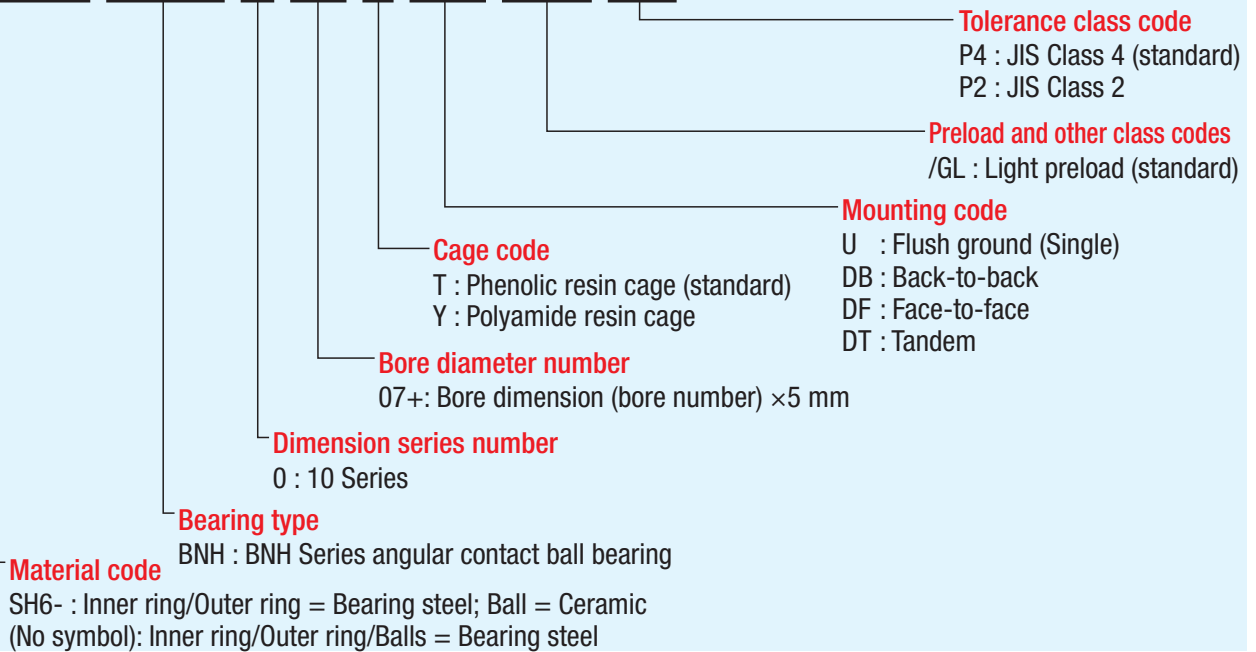
High-speed Angular Contact Ball Bearings

BNH Series



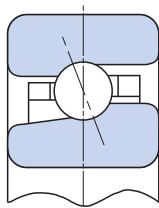
Nomenclature of Bearing Numbers

SH6- BNH 0 10 T DB /GL P4

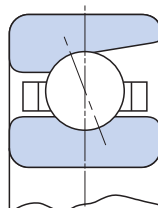


Features

- Smaller machine steel balls, higher speeds, and lower temperatures than previous angular contact ball bearings. Mainly used for the main spindle of high-speed machining centers.
- Ceramic ball type also available.



BNH000



7000C

Contact Angle

15° contact angle provided as standard.

Cage

Outer ring guided phenolic resin cage provided as standard. Ball guide polyamide resin cage also available.

Dimensional Accuracy, Rotational Accuracy

JIS Class 4 compliance as standard. See page 7 for details.

Preload

Light preload as standard. See page 19 for information about preloads.

Ceramic Ball Types

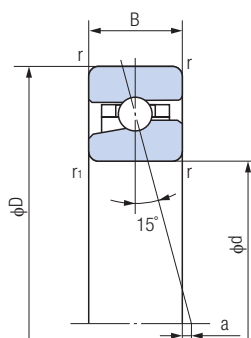
- Bearings with ceramic balls that are less dense than bearing steel balls also are available for lower centrifugal force when balls rotate at high speeds.
- The characteristics of ceramic and bearing steel are shown in the table below.
- The bearing numbers of bearings that use ceramic balls start with "SH6-".
- Preload and axial rigidity is approximately 1.2 times that of bearing steel type bearings.

Comparison of Ceramic and Bearing Steel Characteristics

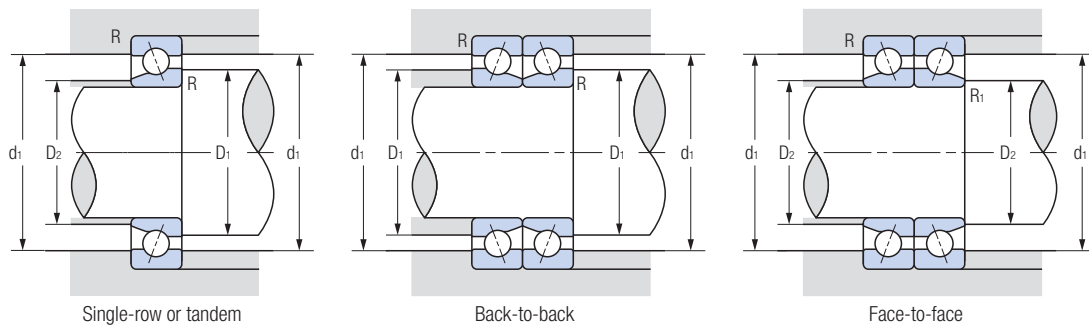
Features	Unit	Ceramic (Si ₃ N ₄)	Bearing steels (SUJ2)
Heat resistance	°C	800	180
Density	g/cc	3.2	7.8
Linear expansion coefficient	1/°C	3.2×10 ⁻⁶	12.5×10 ⁻⁶
Hardness	Hv	1400~1700	700~800
Longitudinal elastic coefficient	GPa	314	206
Poisson's ratio	—	0.26	0.30
Corrosion resistance	—	Good	No good
Magnetism	—	Non-magnetic substance	Strongly magnetic substance
Conductivity	—	Insulator	Conductor
Crystal chemical bonding	—	Covalent	Metallic

High-speed Angular Contact Ball Bearings BNH Series

Contact angle 15°



Bearing no.	Boundary dimensions (mm)					Load center a (mm)	Basic dynamic load rating Cr (kN)	Basic static load rating Cor (kN)
	d	D	B	r (Min)	r1 (Min)			
BNH007	35	62	14	1	0.6	-0.5	11.6	9.95
BNH008	40	68	15	1	0.6	-0.3	14.8	12.9
BNH009	45	75	16	1	0.6	0	15.5	14.5
BNH010	50	80	16	1	0.6	0.7	16.1	15.9
BNH011	55	90	18	1.1	0.6	0.7	20.0	20.1
BNH012	60	95	18	1.1	0.6	1.4	20.8	21.9
BNH013	65	100	18	1.1	0.6	2.1	21.5	23.4
BNH014	70	110	20	1.1	0.6	2.1	29.4	31.5
BNH015	75	115	20	1.1	0.6	2.7	29.8	32.5
BNH016	80	125	22	1.1	0.6	2.7	35.0	39.0
BNH017	85	130	22	1.1	0.6	3.4	35.5	40.0
BNH018	90	140	24	1.5	1	3.4	46.5	53.0
BNH019	95	145	24	1.5	1	4.1	47.0	55.0
BNH020	100	150	24	1.5	1	4.7	48.0	56.5
BNH021	105	160	26	2	1	4.8	54.5	65.0
BNH022	110	170	28	2	1	4.8	61.0	74.0
BNH024	120	180	28	2	1	6.1	63.0	79.0
BNH026	130	200	33	2	1	5.6	83.5	105
BNH028	140	210	33	2	1	6.9	86.0	112
BNH030	150	225	35	2.1	1.1	7.6	102	132
BNH032	160	240	38	2.1	1.1	7.8	110	145
BNH034	170	260	42	2.1	1.1	7.8	129	173



Single-row or tandem

Back-to-back

Face-to-face

Rotation speed limit (rpm)		Corner radius (mm)					Mass (kg) (Reference)	Bearing no.
Grease lubrication	Oil lubrication	D ₁ (Min)	D ₂ (Min)	d ₁ (Max)	R (Max)	R ₁ (Max)		
28900	39000	40	39	57	1	0.6	0.167	BNH007
26000	35000	45	44	63	1	0.6	0.200	BNH008
23400	31500	50	49.5	70	1	0.6	0.260	BNH009
21600	29200	55	54.5	75	1	0.6	0.280	BNH010
19400	26200	61	59.5	84	1	0.6	0.400	BNH011
18100	24500	66	64.5	89	1	0.6	0.433	BNH012
17000	23000	71	69.5	94	1	0.6	0.460	BNH013
15600	21100	76	74.5	104	1	0.6	0.650	BNH014
14800	20000	81	79.5	109	1	0.6	0.690	BNH015
13700	18500	86	84.5	119	1	0.6	0.930	BNH016
13100	17700	91	89.5	124	1	0.6	0.973	BNH017
12200	16500	97	95.5	133	1.5	1	1.27	BNH018
11700	15800	102	100.5	138	1.5	1	1.33	BNH019
11200	15200	107	105.5	143	1.5	1	1.39	BNH020
10600	14300	115	110.5	150	2	1	1.77	BNH021
10000	13600	120	115.5	160	2	1	2.18	BNH022
9400	12700	130	125.5	170	2	1	2.32	BNH024
8500	11500	140	135.5	190	2	1	3.46	BNH026
8000	10900	150	145.5	200	2	1	3.68	BNH028
7500	10100	161	156	213	2	1	4.55	BNH030
7000	9500	172	166	228	2	1	5.57	BNH032
6500	8800	182	176	248	2	1	7.50	BNH034

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