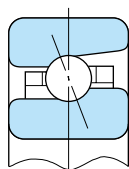


# High-speed Angular Contact Ball Bearings BNH000 Series

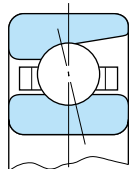
## (1) High-speed Angular Contact Ball Bearings - BNH000 Series

### ● Feature design

BNH000 Series bearings are designed with smaller balls than Angular Contact Ball Bearings Type C. They are suitable for high-speed applications and lower heat generation and are typically used in high speed machining center spindles. (Their tolerance class is JIS (ISO) class 4 normally.)



BNH000



7000C

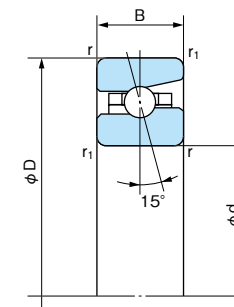
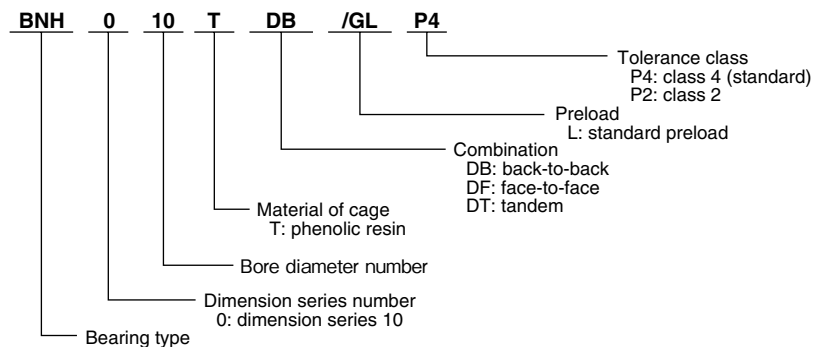
### ● Standard preload

Standard preload of BNH type is designed with light preload.

Unit: N

Bore Diameter Number	BNH000
07	78.5
08	
09	98.1
10	
11	
12	147
13	
14	245
15	
16	294
17	
18	
19	392
20	
21	490
22	
24	588
26	785
28	834
30	1080
32	1180
34	1370

### ● Bearing No.



1N=0.102kgf

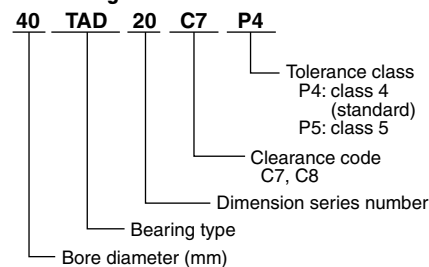
Bearing No.	Dimensions (mm)					Basic dynamic load rating Cr (N)	Basic static load rating Cor (N)	Limiting speed (min <sup>-1</sup> )	
	d	D	B	r (min)	r <sub>1</sub> (min)			Grease lubrication	Oil lubrication
BNH 007	35	62	14	1	0.6	11600	9950	25000	35000
BNH 008	40	68	15	1	0.6	14800	12900	22000	32000
BNH 009	45	75	16	1	0.6	15500	14500	20000	28000
BNH 010	50	80	16	1	0.6	16100	15900	19000	26000
BNH 011	55	90	18	1	0.6	20000	20100	17000	24000
BNH 012	60	95	18	1.1	0.6	20800	21900	16000	22000
BNH 013	65	100	18	1.1	0.6	21500	23400	15000	21000
BNH 014	70	110	20	1.1	0.6	29400	31500	13000	19000
BNH 015	75	115	20	1.1	0.6	29800	32500	13000	18000
BNH 016	80	125	22	1.1	0.6	35000	39000	12000	17000
BNH 017	85	130	22	1.1	0.6	35500	40000	11000	16000
BNH 018	90	140	24	1.5	1	46500	53000	10000	15000
BNH 019	95	145	24	1.5	1	47000	55000	10000	14000
BNH 020	100	150	24	1.5	1	48000	56500	9600	14000
BNH 021	105	160	26	2	1	54500	65000	9100	13000
BNH 022	110	170	28	2	1	61000	74000	8600	12000
BNH 024	120	180	28	2	1	63000	79000	8000	11000
BNH 026	130	200	33	2	1	83500	105000	7300	10000
BNH 028	140	210	33	2	1	86000	112000	6900	9700
BNH 030	150	225	35	2.1	1	102000	132000	6400	9100
BNH 032	160	240	38	2.1	1	110000	145000	6000	8500
BNH 034	170	260	42	2.1	1	129000	173000	5600	7900

## (2) Double-direction Thrust Angular Contact Ball Bearings - TAD20 Series

### ● Feature design

This is a double-row bearing with a one-piece outer ring. The ball assembly is arranged as a back-to-back, Angular Contact Ball Bearings with a high contact angle. This type is used as the Axial carrying Bearing in conjunction with a Double-row Cylindrical Roller Bearings.

### ● Bearing No.



### ● Tolerance

The outer ring is made with a negative tolerance for a clearance fit in the housing. This enables the associated radial bearing to carry a radial load.

### Inner Ring and Height Tolerances

Unit:  $\mu\text{m}$

Nominal bearing bore diameter d (mm)	Single plane mean bore diameter deviation $\Delta d_{mb}$						Variation of assembled height T		Width variation of inner ring $V_{Bs}$ (Max)		Side face runout with reference to bore $S_d$ (Max)		Side face runout with reference to raceway of assembled bearing inner ring and of assembled bearing outer ring $S_{ia}, S_{oe}$ (Max)	
	Class 5				Class 4									
	Over	Incl.	High	Low	High	Low								
18	30	0	-6	0	-5	0	-300	5	2.5	8	4	5	3	
30	50	0	-8	0	-6	0	-400	5	3	8	4	5	3	
50	80	0	-9	0	-7	0	-500	6	4	8	5	6	5	
80	120	0	-10	0	-8	0	-600	7	4	9	5	6	5	
120	180	0	-13	0	-10	0	-700	8	5	10	6	8	6	
180	250	0	-15	0	-12	0	-800	10	6	11	7	8	6	

### Variation and deviation of outer ring

Unit:  $\mu\text{m}$

Nominal bearing bore diameter D (mm)	Single plane mean outside diameter deviation $\Delta D_{mb}$		Width variation of inner ring $V_{cs}$ (Max)		Outside inclination of outer ring $S_d$ (Max)		
	Class 5-Class 4		Class 5	Class 4	Class 5	Class 4	
	Over	Incl.	High	Low	Class 5	Class 4	
18	30	-20	-27	5	2.5	8	4
30	50	-24	-33	6	3	8	4
50	80	-28	-38	8	4	9	5
80	120	-33	-44	8	5	10	5
120	180	-33	-46	8	5	10	5
180	250	-37	-52	10	7	11	7
250	315	-41	-59	11	7	13	8

### ● Standard preload

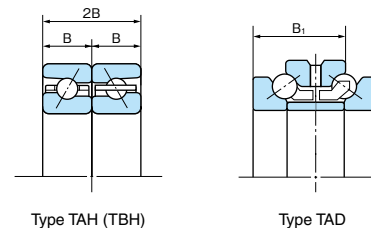
Bore Diameter Number	Standard preload (N)	
	C7	C8
20TAD20	215	590
30TAD20	245	685
35TAD20		
40TAD20	295	785
45TAD20		
50TAD20		
55TAD20	390	980
60TAD20		
65TAD20	590	1250
70TAD20		
75TAD20		
80TAD20	685	1750
85TAD20		
90TAD20	1050	2850
95TAD20		
100TAD20	1150	2950
105TAD20		
110TAD20	1450	4400
120TAD20		
130TAD20	1650	4700
140TAD20		
150TAD20	1750	6350
160TAD20		
170TAD20	2750	6850
180TAD20		
190TAD20	2950	8800
200TAD20		
200TAD20	3900	11800
200TAD20	4100	

## (3) Combination Angular Contact Ball Bearings Type TAH10, TBH10

### ● Feature design

The ball diameter and quantity are the same as Double-direction Thrust Angular Contact Ball Bearings type TAD20. The contact angle is  $30^\circ$  for TAH10 type and  $40^\circ$  for TBH10 type. They are suitable for high-speed.

Their Duplex Combination width 2B of type DB or DF is the same as width B1 of TAD20 type. TAD20 type are interchangeable to TAH10 type or TBH10 type by changing the method of setting to shaft.



### ● Standard preload

Unit: N

Bore Diameter Number	Bearing	
	TAH	TBH
50	294	539
55	392	686
60		
65	588	1080
70		
75		
80	686	1270
85		
90	1080	1860
95		
100	1180	2060
105		
110	1370	2450
120	1470	2550
130	1860	3330
140	1960	3530
150	2450	4310
160	2650	4510
170	3040	5300

### ● Tolerance of outside diameter

The outside diameter of the outer ring is made with a special tolerance for a clearance fit in the housing.

This enables the associated radial bearing to carry a radial load, like as TAD20 type.

### Tolerance of outside diameter

Unit:  $\mu\text{m}$

Nominal bearing outside diameter D (mm)	Outside diameter deviation $\Delta D_s$			
	Over	Incl.	High	Low
30	50	-20	-41	
50	80	-30	-49	
80	120	-36	-58	
120	180	-43	-68	
180	250	-50	-79	
250	315	-56	-88	

JIS (ISO) class 4 for other tolerances

### ● Bearing No.

