



● Design

Thrust Ball Bearings are made as single-direction and double-direction bearings. Single-direction Thrust Ball Bearings can sustain an axial load in only one direction, whereas Double-direction Thrust Ball Bearings can sustain bi-directional thrust load.

Both types of Thrust Ball Bearings cannot sustain a radial load.

Both Thrust Ball Bearings are available with aligning housing washers for mating with a housing having an aligning surface radius. Aligning seat washers with an aligning surface radius are also available for ease of design and mounting against a flat housing shoulder.

The Bearings with a polyamide cage are indicated suffix G at bearing number on package surface.

● Attention

- (1) Thrust Ball Bearings with flat housing washers do not permit any angular misalignment between shaft and housing, nor can they accommodate any error of angle between the support surfaces in the housing and on the shaft.
- (2) They are not suitable for high speed applications. Limiting speed are indicated in the dimension table.
- (3) The outside diameters of shaft washer and housing washer or center washer are the same, so clearance must be provided for the outside diameter of shaft washer or center washer by use of a step in the housing bore (See Fig.1). The outside diameter of the shaft washer or center washer of the bearings that are indicated in Table 2 are smaller than that of the housing washer, so no clearance step is required in the housing for the shaft (center) washer. See Fig.2.
- (4) Bearings with polyamide cage should be used less than 120°C.

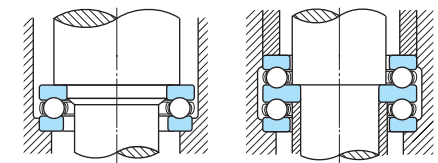
Table 1. Thrust Ball Bearings Series

Type	Flat back-face type	Spherical back-face type	With aligning seat
Single-direction	511	—	—
	512	532	532U
	513	533	533U
	514	534	534U
	29	—	—
	39	—	—
	O <sup>(1)</sup>	—	—
	TAM <sup>(2)</sup>	—	—
Double-direction	TG <sup>(2)</sup>	—	—
	522	542	542U
	523	543	543U
	524	544	544U

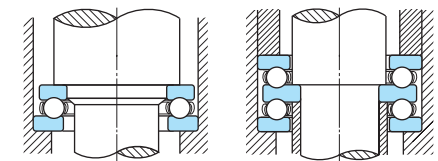
Notes: <sup>(1)</sup> Series O is inch-dimensioned.  
<sup>(2)</sup> Series TAM, TG is extra-small and miniature.

Table 2.

Bearing series	Bore diameter No.
511	28~
512, 522, 532, 542	26~
513, 523, 533, 543	22~
514, 524, 534, 544	17~



Single-direction Double-direction  
**Fig 1**



Single-direction Double-direction  
**Fig 2**

● Cage

Standard fitting cages are shown in Table 3. If other cages are necessary, please contact NACHI.

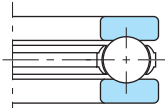


Fig 3. Polyamide

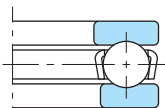


Fig 4. Pressed Steel

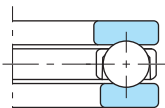


Fig 5. Machined

Table 3. Cage of Thrust Ball Bearings

Series	Diameter Number		
	Polyamide	Pressed Steel	Machined
511	00~07	08~52	56~72
512	01~07	00, 08~28	30~72
513	—	05~20	22~40
514	—	05~14	15~36
522	02~07	00, 08~28	30~44
523	—	05~20	22~40
524	—	05~14	15~36
532	01~07	00, 08~28	30~72
533	—	05~20	22~40
534	—	05~14	15~36
542	02~07	08~28	30~44
543	—	05~20	22~24
544	—	05~14	15~20
29	—	00~22	23~28
39	—	05~24	—
O	—	3~30	32~48
TAM	—	3~8(!)	—
TG	—	5~8(!)	—

Remark: Basic load rating of dimension table are indicated in using cage of table 3.  
Note: (!) Indicate bore diameter not bore number.

Table 4. Minimum axial factor K (×10<sup>-6</sup>)

Bore No.	Series	Series		Series					
	511	512, 522	513, 523	514, 524	29	39	Bore No.	Series	0
00	1.03	1.55	—	—	—	—	00	3	1.34
01	1.26	1.92	—	—	—	—	01	4	3.62
02	1.56	3.36	—	—	—	—	02	5	4.65
03	1.84	4.09	—	—	—	—	03	6	6.40
04	3.42	7.33	—	—	—	—	04	7	7.76
05	7.19	13.1	20.4	43.8	—	—	04 1/2	8	9.24
06	9.36	17.2	33.1	81.4	—	—	05	9	11.6
07	11.2	32.8	58.3	128	—	—	06	10	16.5
08	20.4	49.7	97.2	221	—	—	07	11	19.0
09	24.6	57.9	138	316	—	—	08	12	23.0
10	29.3	66.8	211	440	—	—	09	13	21.0
11	44.6	133	326	656	—	—	10	14	31.3
12	64.7	160	375	956	—	—	11	15	42.1
13	72.0	179	428	1240	—	—	12	16	46.9
14	82.8	200	596	1580	—	—	13	17	75.0
15	94.3	222	808	1800	—	—	14	18	82.8
16	103	245	907	2230	—	—	15	19	110
17	116	359	1240	2740	—	—	16	20	121
18	187	528	1390	4320	—	—	17	21	132
20	363	850	1850	4790	—	—	18	22	176
22	423	1010	2740	8220	—	—	19	23	204
24	488	1130	4130	9980	—	—	20	24	223
26	648	1940	5140	16100	—	—	21	26	350
28	782	2150	6330	16900	—	—	22	28	395
30	886	2490	7140	25800	—	—	23	30	431
32	997	2880	9960	30000	—	—	24	32	580
34	1420	3940	11100	40100	—	—	25	36	1100
36	1540	4330	15800	46330	—	—	26	40	1730
38	2340	6290	23100	—	—	—	27	44	2840
40	2520	6880	29700	—	—	—	28	48	3690
44	3000	8130	—	—	—	—			
48	4900	15900	—	—	—	—			
52	5580	18400	—	—	—	—			
56	9800	20400	—	—	—	—			
60	14600	38000	—	—	—	—			
64	16400	41800	—	—	—	—			
68	18300	45700	—	—	—	—			
72	20300	75600	—	—	—	—			

● Minimum axial load

When Thrust Ball Bearings are run at high speeds, the contact angle between the ball and the raceway in the radial plane is affected by the centrifugal force of the balls and the sliding movement between the balls and raceways are occurred. The sliding movement may cause damage as smearing. To prevent this damage, Thrust Ball Bearings must be subjected to a given load more than a minimum load from function (1) or (2).

Single-direction Thrust Ball Bearings can sustain only one direction axial load, so if bi-direction axial loads are present, Double-direction Thrust Ball Bearings must be used and preloaded by

a load more than the minimum load.

In case of a vertical axis, shaft weight often exceeds the minimum load. In this case, the acting load may be decreased by the external axial load acting in the opposite direction.

$$F_{a \min} = K \cdot n^2 \dots\dots\dots (1)$$

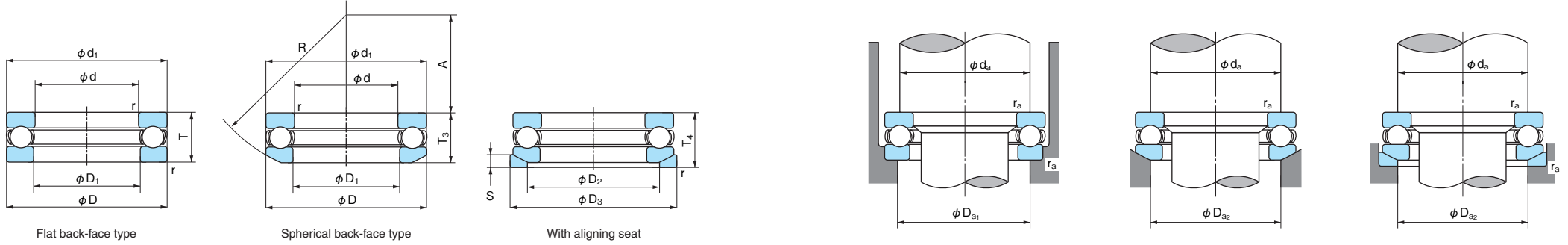
$$F_{a \min} = \frac{C_{0a}}{1000} \dots\dots\dots (2)$$

Use the larger result of (1) or (2)

- F<sub>a min</sub>: Minimum axial load (N)
- K: inimum axial factor see Table 4
- n: Rotating speed (min<sup>-1</sup>)
- C<sub>0a</sub>: Basic static load rating (N)

# Single-direction Thrust Ball Bearings

Bore Diameter: 10~50mm

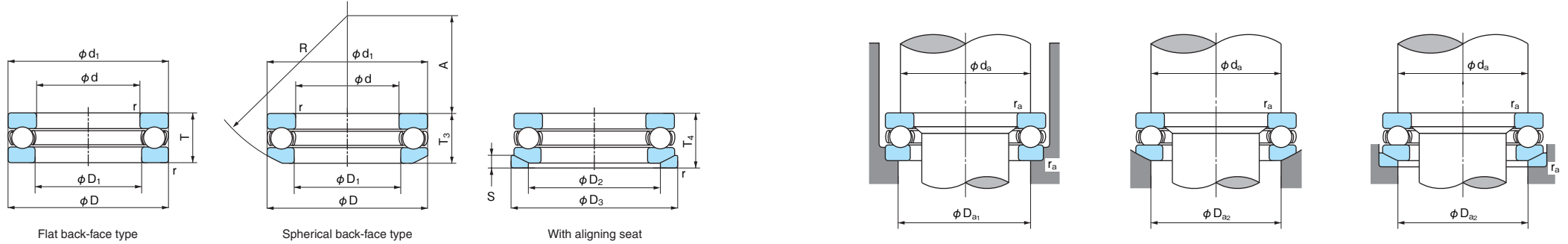


1N=0.102kgf

Boundary dimensions (mm)					Bearing No.			Basic dynamic load rating Ca (N)	Basic static load rating Coa (N)	Limiting speed (min <sup>-1</sup> )		Dimensions (mm)						Abutment and fillet dimensions (mm)				Mass (kg) Reference			Bearing No.		
d	D	T	T <sub>3</sub>	T <sub>4</sub>	r (min)	Flat back-face type	Spherical back-face type			With aligning seat	Grease lubrication	Oil lubrication	D <sub>1</sub> (min)	d <sub>1</sub> (max)	D <sub>2</sub>	D <sub>3</sub>	S	R	A	da (min)	Da <sub>1</sub> (max)	Da <sub>2</sub> (max)	ra (max)	Flat back-face type		Spherical back-face type	With aligning seat
10	24	9	—	—	0.3	51100	—	—	10000	14000	6800	10000	11	24	—	—	—	—	18	16	—	0.3	0.020	—	—	51100	
	26	11	11.6	13	0.6	51200	53200	53200U	12700	17100	5900	8800	12	26	18	28	3.5	22	8.5	20	16	18	0.6	0.030	0.029	0.036	51200
12	26	9	—	—	0.3	51101	—	—	10300	15400	6500	9800	13	26	—	—	—	—	20	18	—	0.3	0.022	—	—	51101	
	28	11	11.4	13	0.6	51201	53201	53201U	13200	19000	5600	8500	14	28	20	30	3.5	25	11.5	22	18	20	0.6	0.034	0.033	0.041	51201
15	28	9	—	—	0.3	51102	—	—	10500	16800	6200	9400	16	28	—	—	—	—	23	20	—	0.3	0.024	—	—	51102	
	32	12	13.3	15	0.6	51202	53202	53202U	16600	24800	5100	7600	17	32	24	35	4	28	12	25	22	24	0.6	0.046	0.048	0.061	51202
17	30	9	—	—	0.3	51103	—	—	10800	18200	6000	9100	18	30	—	—	—	—	25	22	—	0.3	0.028	—	—	51103	
	35	12	13.2	15	0.6	51203	53203	53203U	17100	27300	4800	7300	19	35	26	38	4	32	16	28	24	26	0.6	0.053	0.055	0.070	51203
20	35	10	—	—	0.3	51104	—	—	14300	24700	5300	8000	21	35	—	—	—	—	29	26	—	0.3	0.040	—	—	51104	
	40	14	14.7	17	0.6	51204	53204	53204U	22200	37500	4200	6300	22	40	30	42	5	36	18	32	28	30	0.6	0.082	0.080	0.100	51204
25	42	11	—	—	0.6	51105	—	—	19500	37000	4600	6900	26	42	—	—	—	—	35	32	—	0.6	0.059	—	—	51105	
	47	15	16.7	19	0.6	51205	53205	53205U	27800	50500	3700	5600	27	47	36	50	5.5	40	19	38	34	36	0.6	0.120	0.125	0.160	51205
	52	18	19.8	22	1	51305	53305	53305U	35500	61500	3200	4900	27	52	38	55	6	45	21	41	36	38	1	0.180	0.185	0.225	51305
30	60	24	26.4	29	1	51405	53405	53405U	55500	89500	2600	3900	27	60	42	62	8	50	19	46	39	42	1	0.340	0.350	0.420	51405
	47	11	—	—	0.6	51106	—	—	20400	42000	4300	6500	32	47	—	—	—	—	40	37	—	0.6	0.068	—	—	51106	
	52	16	17.8	20	0.6	51206	53206	53206U	29300	58000	3400	5200	32	52	42	55	5.5	45	22	43	39	42	0.6	0.150	0.160	0.195	51206
	60	21	22.6	25	1	51306	53306	53306U	42500	78500	2800	4200	32	60	45	62	7	50	22	48	42	45	1	0.270	0.270	0.325	51306
35	70	28	30.1	33	1	51406	53406	53406U	72500	126000	2200	3300	32	70	50	75	9	56	20	54	46	50	1	0.530	0.530	0.680	51406
	52	12	—	—	0.6	51107	—	—	20400	44500	4000	6000	37	52	—	—	—	—	45	42	—	0.6	0.085	—	—	51107	
	62	18	19.9	22	1	51207	53207	53207U	39000	78000	2900	4400	37	62	48	65	7	50	24	51	46	48	1	0.220	0.220	0.290	51207
	68	24	25.6	28	1	51307	53307	53307U	55500	105000	2400	3700	37	68	52	72	7.5	56	24	55	48	52	1	0.390	0.390	0.475	51307
40	80	32	34	37	1.1	51407	53407	53407U	87000	155000	1900	2900	37	80	58	85	10	64	23	62	53	58	1	0.790	0.790	0.950	51407
	60	13	—	—	0.6	51108	—	—	26900	63000	3500	5300	42	60	—	—	—	—	52	48	—	0.6	0.120	—	—	51108	
	68	19	20.3	23	1	51208	53208	53208U	47000	98500	2700	4100	42	68	55	72	7	56	28.5	57	51	55	1	0.270	0.270	0.340	51208
	78	26	28.5	31	1	51308	53308	53308U	69000	135000	2200	3300	42	78	60	82	8.5	64	28	63	55	60	1	0.550	0.570	0.690	51308
45	90	36	38.2	42	1.1	51408	53408	53408U	112000	205000	1700	2600	42	90	65	95	12	72	26	70	60	65	1	1.14	1.13	1.38	51408
	65	14	—	—	0.6	51109	—	—	27800	69000	3300	4900	47	65	—	—	—	—	57	53	—	0.6	0.150	—	—	51109	
	73	20	21.3	24	1	51209	53209	53209U	47500	105000	2600	3900	47	73	60	78	7.5	56	26	62	56	60	1	0.320	0.320	0.410	51209
	85	28	30.1	33	1	51309	53309	53309U	80000	163000	2000	3000	47	85	65	90	10	64	25	69	61	65	1	0.690	0.680	0.850	51309
50	100	39	42.4	46	1.1	51409	53409	53409U	129000	243000	1600	2400	47	100	72	105	12.5	80	29	78	67	72	1	1.47	1.50	1.80	51409
	70	14	—	—	0.6	51110	—	—	28800	75500	3100	4700	52	70	—	—	—	—	62	58	—	0.6	0.160	—	—	51110	
	78	22	23.5	26	1	51210	53210	53210U	48500	112000	2400	3600	52	78	62	82	7.5	64	32.5	67	61	62	1	0.390	0.380	0.480	51210
	95	31	34.3	37	1.1	51310	53310	53310U	96500	202000	1800	2700	52	95	72	100	11	72	28	77	68	72	1	1.00	1.00	1.25	51310
110	43	45.6	50	1.5	51410	53410	53410U	148000	283000	1400	2100	52	110	80	115	14	90	35	86	74	80	1.5	1.99	1.97	2.40	51410	

# Single-direction Thrust Ball Bearings

Bore Diameter: 55~100mm

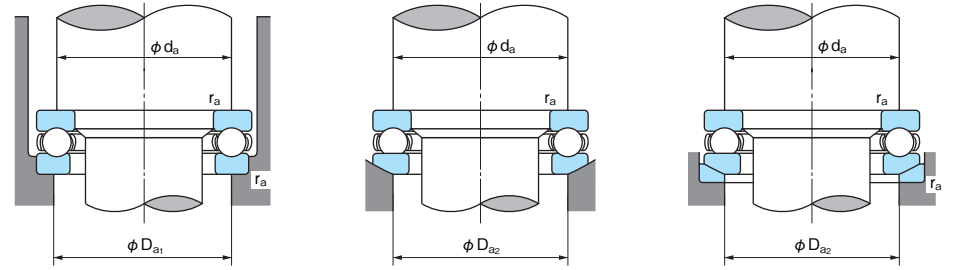
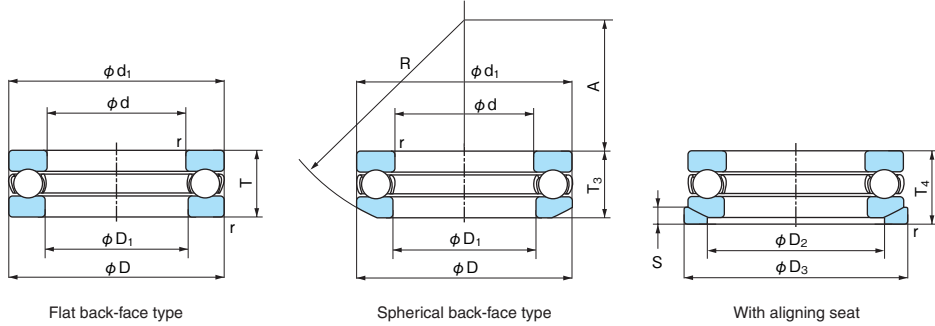


1N=0.102kgf

d	Boundary dimensions (mm)					Bearing No.			Basic dynamic load rating Ca (N)	Basic static load rating Coa (N)	Limiting speed (min <sup>-1</sup> )		Dimensions (mm)					Abutment and fillet dimensions (mm)				Mass (kg) Reference			Bearing No.		
	D	T	T <sub>3</sub>	T <sub>4</sub>	r (min)	Flat back-face type	Spherical back-face type	With aligning seat			Grease lubrication	Oil lubrication	D <sub>1</sub> (min)	d <sub>1</sub> (max)	D <sub>2</sub>	D <sub>3</sub>	S	R	A	d <sub>a</sub> (min)	D <sub>a1</sub> (max)	D <sub>a2</sub> (max)	r <sub>a</sub> (max)	Flat back-face type		Spherical back-face type	With aligning seat
55	78	16	—	—	0.6	51111	—	—	35000	93000	2800	4200	57	78	—	—	—	69	64	—	0.6	0.240	—	—	51111		
	90	25	27.3	30	1	51211	53211	53211U	69500	159000	2100	3100	57	90	72	95	9	72	35	76	69	72	1	0.610	0.620	0.800	51211
	105	35	39.3	42	1.1	51311	53311	53311U	120000	246000	1600	2400	57	105	80	110	11.5	80	30	85	75	80	1	1.34	1.40	1.70	51311
	120	48	50.5	55	1.5	51411	53411	53411U	178000	360000	1300	1900	57	120	88	125	15.5	90	28	94	81	88	1.5	2.64	2.55	3.70	51411
60	85	17	—	—	1	51112	—	—	41500	113000	2600	3900	62	85	—	—	—	75	70	—	1	0.290	—	—	51112		
	95	26	28	31	1	51212	53212	53212U	73500	179000	2000	3000	62	95	78	100	9	72	32.5	81	74	78	1	0.690	0.690	0.850	51212
	110	35	38.3	42	1.1	51312	53312	53312U	123000	267000	1600	2400	62	110	85	115	11.5	90	41	90	80	85	1	1.43	1.45	1.75	51312
	130	51	54	58	1.5	51412	53412	53412U	213000	435000	1200	1800	62	130	95	135	16	100	34	102	88	95	1.5	3.30	3.25	3.85	51412
65	90	18	—	—	1	51113	—	—	41500	117000	2400	3700	67	90	—	—	—	80	75	—	1	0.340	—	—	51113		
	100	27	28.7	32	1	51213	53213	53213U	75000	189000	1900	2800	67	100	82	105	9	80	40	86	79	82	1	0.770	0.770	0.940	51213
	115	36	39.4	43	1.1	51313	53313	53313U	127000	287000	1500	2300	67	115	90	120	12.5	90	38.5	95	85	90	1	1.57	1.60	1.95	51313
	140	56	60.2	65	2	51413	53413	53413U	231000	495000	1100	1600	68	140	100	145	17.5	112	40	110	95	100	2	4.18	4.17	4.95	51413
70	95	18	—	—	1	51114	—	—	43000	127000	2400	3600	72	95	—	—	—	85	80	—	1	0.360	—	—	51114		
	105	27	28.8	32	1	51214	53214	53214U	76000	199000	1800	2800	72	105	88	110	9	80	38	91	84	88	1	0.810	0.800	0.980	51214
	125	40	44.2	48	1.1	51314	53314	53314U	148000	340000	1400	2100	72	125	98	130	13	100	43	103	92	98	1	2.06	2.15	2.55	51314
	150	60	63.6	69	2	51414	53414	53414U	250000	555000	1000	1500	73	150	110	155	19.5	112	34	118	102	110	2	5.11	4.94	5.93	51414
75	100	19	—	—	1	51115	—	—	44500	136000	2200	3400	77	100	—	—	—	90	85	—	1	0.420	—	—	51115		
	110	27	28.3	32	1	51215	53215	53215U	77500	209000	1800	2700	77	110	92	115	9.5	90	49	96	89	92	1	0.860	0.840	1.05	51215
	135	44	48.1	52	1.5	51315	53315	53315U	170000	395000	1200	1900	77	135	105	140	15	100	37	111	99	105	1.5	2.68	2.70	3.25	51315
	160	65	69	75	2	51415	53415	53415U	252000	560000	950	1400	78	160	115	165	21	125	42	126	109	115	2	6.35	6.25	7.60	51415
80	105	19	—	—	1	51116	—	—	44500	141000	2200	3300	82	105	—	—	—	95	90	—	1	0.430	—	—	51116		
	115	28	29.5	33	1	51216	53216	53216U	78500	219000	1700	2600	82	115	98	120	10	90	46	101	94	98	1	0.950	0.930	1.16	51216
	140	44	47.6	52	1.5	51316	53316	53316U	176000	425000	1200	1800	82	140	110	145	15	112	50	116	104	110	1.5	2.82	2.85	3.45	51316
	170	68	72.2	78	2.1	51416	53416	53416U	270000	620000	900	1300	83	170	125	175	22	125	36	134	116	125	2	7.97	7.83	9.14	51416
85	110	19	—	—	1	51117	—	—	46000	150000	2100	3200	87	110	—	—	—	100	95	—	1	0.460	—	—	51117		
	125	31	33.1	37	1	51217	53217	53217U	95500	264000	1600	2400	88	125	105	130	11	100	52	109	101	105	1	1.29	1.29	1.60	51217
	150	49	53.1	58	1.5	51317	53317	53317U	206000	490000	1100	1700	88	150	115	155	17.5	112	43	124	111	115	1.5	3.66	3.65	4.45	51317
	180	72	77	83	2.1	51417	53417	53417U	288000	685000	850	1200	88	177	130	185	23	140	47	142	123	130	2	9.30	9.20	10.9	51417
90	120	22	—	—	1	51118	—	—	59500	190000	1900	2900	92	120	—	—	—	108	102	—	1	0.680	—	—	51118		
	135	35	38.5	42	1.1	51218	53218	53218U	116000	325000	1400	2100	93	135	110	140	13.5	100	45	117	108	110	1	1.77	1.78	2.22	51218
	155	50	54.6	59	1.5	51318	53318	53318U	213000	525000	1100	1600	93	155	120	160	18	112	40	129	116	120	1.5	3.88	3.84	4.70	51318
	190	77	81.2	88	2.1	51418	53418	53418U	305000	750000	790	1100	93	187	140	195	25.5	140	40	150	130	140	2	11.0	10.7	12.6	51418
100	135	25	—	—	1	51120	—	—	85000	268000	1700	2500	102	135	—	—	—	121	114	—	1	0.990	—	—	51120		
	150	38	40.9	45	1.1	51220	53220	53220U	146000	410000	1300	1900	103	150	125	155	14	112	52	130	120	125	1	2.36	2.36	2.87	51220
	170	55	59.2	64	1.5	51320	53320	53320U	236000	595000	1000	1500	103	170	135	175	18	125	46	142	128	135	1.5	5.11	5.12	6.10	51320
	210	85	90	98	3	51420	53420	53420U	345000	895000	710	1000	103	205	155	220	27	160	50	166	144	155	2.5	14.7	14.5	17.2	51420

# Single-direction Thrust Ball Bearings

Bore Diameter: 110~190mm

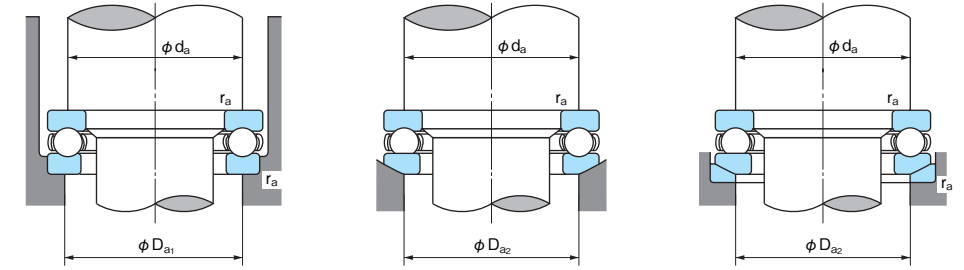
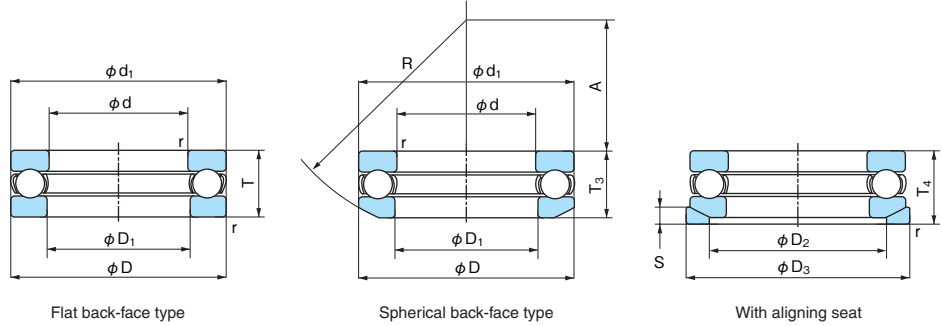


1N=0.102kgf

Boundary dimensions (mm)					Bearing No.			Basic dynamic load rating Ca (N)	Basic static load rating Coa (N)	Limiting speed (min <sup>-1</sup> )		Dimensions (mm)						Abutment and fillet dimensions (mm)				Mass (kg) Reference			Bearing No.		
d	D	T	T <sub>3</sub>	T <sub>4</sub>	r (min)	Flat back-face type	Spherical back-face type			With aligning seat	Grease lubrication	Oil lubrication	D <sub>1</sub> (min)	d <sub>1</sub> (max)	D <sub>2</sub>	D <sub>3</sub>	S	R	A	d <sub>a</sub> (min)	D <sub>a1</sub> (max)	D <sub>a2</sub> (max)	r <sub>a</sub> (max)	Flat back-face type		Spherical back-face type	With aligning seat
110	145	25	—	—	1	51122	—	—	87000	288000	1600	2400	112	145	—	—	—	—	131	124	—	1	1.08	—	—	51122	
	160	38	40.2	45	1.1	51222	53222	53222U	152000	450000	1200	1900	113	160	135	165	14	125	65	140	130	135	1	2.57	2.53	3.00	51222
	190	63	67.2	72	2	51322	53322	53322U	267000	705000	880	1300	113	187	150	195	20.5	140	51	158	142	150	2	7.73	7.66	8.96	51322
	230	95	99.7	109	3	51422	53422	53422U	435000	1240000	640	960	113	225	170	240	29	180	59	182	158	170	2.5	19.8	19.4	22.9	51422
120	155	25	—	—	1	51124	—	—	89000	305000	1600	2400	122	155	—	—	—	—	141	134	—	1	1.16	—	—	51124	
	170	39	40.8	46	1.1	51224	53224	53224U	154000	470000	1200	1800	123	170	145	175	15	125	61	150	140	145	1	2.86	2.76	3.40	51224
	210	70	74.1	80	2.1	51324	53324	53324U	310000	870000	790	1100	123	205	165	220	22	160	63	174	156	165	2	10.6	10.4	12.4	51324
	250	102	107.3	118	4	51424	53424	53424U	455000	1340000	580	880	123	245	185	260	32	200	70	198	172	185	3	25.0	24.6	29.2	51424
130	170	30	—	—	1	51126	—	—	104000	350000	1300	2000	132	170	—	—	—	—	154	145	—	1	1.87	—	—	51126	
	190	45	47.9	53	1.5	51226	53226	53226U	203000	620000	1000	1500	133	187	160	195	17	140	67	166	154	160	1.5	4.10	4.03	4.91	51226
	225	75	80.3	86	2.1	51326	53326	53326U	330000	960000	730	1100	134	220	177	235	26	160	53	187	168	177	2	12.7	12.6	15.2	51326
	270	110	115.2	128	4	51426	53426	53426U	555000	1750000	540	810	134	265	200	280	38	200	58	214	186	200	3	31.4	30.4	36.7	51426
140	180	31	—	—	1	51128	—	—	107000	375000	1300	1900	142	178	—	—	—	—	164	156	—	1	2.03	—	—	51128	
	200	46	48.6	55	1.5	51228	53228	53228U	205000	650000	1000	1500	143	197	170	210	17	160	87	176	164	170	1.5	4.47	4.40	5.61	51228
	240	80	84.9	92	2.1	51328	53328	53328U	350000	1050000	680	1000	144	235	190	250	26	180	68	200	180	190	2	15.5	15.3	18.2	51328
	280	112	117	131	4	51428	53428	53428U	545000	1750000	520	780	144	275	206	290	38	225	83	224	196	206	3	33.9	32.9	39.9	51428
150	190	31	—	—	1	51130	—	—	109000	400000	1200	1900	152	188	—	—	—	—	174	166	—	1	2.16	—	—	51130	
	215	50	53.3	60	1.5	51230	53230	53230U	213000	650000	940	1400	153	212	180	225	20.5	160	79	189	176	180	1.5	5.74	5.60	7.28	51230
	250	80	83.7	92	2.1	51330	53330	53330U	360000	1130000	670	1000	154	245	200	260	26	200	89.5	210	190	200	2	16.3	16.0	19.1	51330
	300	120	125.9	140	4	51430	53430	53430U	615000	2010000	480	720	154	295	225	310	41	225	69	240	210	225	3	41.6	40.5	48.5	51430
160	200	31	—	—	1	51132	—	—	112000	425000	1200	1800	162	198	—	—	—	—	184	176	—	1	2.27	—	—	51132	
	225	51	54.7	61	1.5	51232	53232	53232U	223000	720000	900	1300	163	222	190	235	21	160	74	223	202	190	1.5	6.64	6.50	8.29	51232
	270	87	91.7	100	3	51332	53332	53332U	410000	1340000	610	920	164	265	215	280	29	200	77	226	204	215	2.5	21.0	20.5	24.5	51332
	320	130	135.3	150	5	51432	53432	53432U	680000	2410000	440	670	164	315	240	330	41.5	250	84	256	224	240	4	51.2	49.7	58.9	51432
170	215	34	—	—	1.1	51134	—	—	134000	510000	1100	1700	172	213	—	—	—	—	197	188	—	1	3.27	—	—	51134	
	240	55	58.7	65	1.5	51234	53234	53234U	261000	835000	840	1200	173	237	200	250	21.5	180	91	212	198	200	1.5	8.13	7.89	9.95	51234
	280	87	91.3	100	3	51334	53334	53334U	420000	1430000	600	900	174	275	220	290	29	225	105	230	210	220	2.5	22.0	21.3	25.7	51334
	340	135	141	156	5	51434	53434	53434U	755000	2730000	420	630	174	335	255	350	46	250	74	272	238	255	4	60.1	58.1	69.1	51434
180	225	34	—	—	1.1	51136	—	—	135000	525000	1100	1600	183	222	—	—	—	—	207	198	—	1	3.37	—	—	51136	
	250	56	58.2	66	1.5	51236	53236	53236U	266000	875000	810	1200	183	247	210	260	21.5	200	112	222	208	210	1.5	8.69	8.26	10.5	51236
	300	95	99.3	109	3	51336	53336	53336U	485000	1700000	550	820	184	295	240	310	32	225	91	252	228	240	2.5	28.2	27.0	32.0	51336
	360	140	148.3	164	5	51436	53436	53436U	785000	2980000	400	600	184	355	270	370	46.5	280	97	288	252	270	4	69.5	68.8	81.5	51436
190	240	37	—	—	1.1	51138	—	—	170000	655000	1000	1500	193	237	—	—	—	—	220	210	—	1	3.95	—	—	51138	
	270	62	65.7	73	2	51238	53238	53238U	310000	1060000	740	1100	194	267	230	280	23	200	98	238	222	230	2	11.7	11.5	14.0	51238
	320	105	111	121	4	51338	53338	53338U	570000	2100000	500	750	195	315	255	330	33	250	104	268	242	255	3	36.1	35.8	41.9	51338

# Single-direction Thrust Ball Bearings

Bore Diameter: 200~360mm



1N=0.102kgf

Boundary dimensions (mm)					Bearing No.			Basic dynamic load rating Ca (N)	Basic static load rating Coa (N)	Limiting speed (min <sup>-1</sup> )		Dimensions (mm)						Abutment and fillet dimensions (mm)				Mass (kg) Reference			Bearing No.		
d	D	T	T <sub>3</sub>	T <sub>4</sub>	r (min)	Flat back-face type	Spherical back-face type			With aligning seat	Grease lubrication	Oil lubrication	D <sub>1</sub> (min)	d <sub>1</sub> (max)	D <sub>2</sub>	D <sub>3</sub>	S	R	A	d <sub>a</sub> (min)	D <sub>a1</sub> (max)	D <sub>a2</sub> (max)	r <sub>a</sub> (max)	Flat back-face type		Spherical back-face type	With aligning seat
200	250	37	—	—	1.1	51140	—	—	172000	675000	1000	1500	203	247	—	—	—	—	230	220	—	1	4.14	—	—	51140	
	280	62	65.3	74	2	51240	53240	53240U	315000	1110000	720	1000	204	277	240	290	23	225	125	248	232	240	2	12.2	12.0	14.8	51240
	340	110	118.4	130	4	51340	53340	53340U	625000	2380000	470	710	205	335	270	350	38	250	92	284	256	270	3	43.0	43.1	51.0	51340
220	270	37	—	—	1.1	51144	—	—	177000	740000	970	1400	223	267	—	—	—	—	250	240	—	1	4.51	—	—	51144	
	300	63	65.6	75	2	51244	53244	53244U	325000	1210000	690	1000	224	297	260	310	25	225	118	268	252	260	2	13.5	13.0	16.2	51244
240	300	45	—	—	1.5	51148	—	—	228000	935000	830	1200	243	297	—	—	—	—	276	264	—	1.5	7.35	—	—	51148	
	340	78	81.6	92	2.1	51248	53248	53248U	430000	1730000	570	860	244	335	290	350	30	250	122	300	280	290	2	23.1	22.3	27.4	51248
260	320	45	—	—	1.5	51152	—	—	232000	990000	800	1200	263	317	—	—	—	—	296	284	—	1.5	7.94	—	—	51152	
	360	79	82.8	93	2.1	51252	53252	53252U	445000	1880000	550	830	264	355	305	370	30	280	152	320	300	305	2	25.0	24.0	29.7	51252
280	350	53	—	—	1.5	51156	—	—	315000	1350000	700	1000	283	347	—	—	—	—	322	308	—	1.5	12.0	—	—	51156	
	380	80	85	94	2.1	51256	53256	53256U	450000	1950000	530	800	284	375	325	390	31	280	143	340	320	325	2	27.0	26.2	32.3	51256
300	380	62	—	—	2	51160	—	—	370000	1660000	610	920	304	376	—	—	—	—	348	332	—	2	17.1	—	—	51160	
	420	95	100.5	112	3	51260	53260	53260U	585000	2720000	450	680	304	415	360	430	34	320	164	372	348	360	2.5	42.3	41.7	49.9	51260
320	400	63	—	—	2	51164	—	—	380000	1760000	590	880	324	396	—	—	—	—	368	352	—	2	18.5	—	—	51164	
	440	95	100.5	112	3	51264	53264	53264U	595000	2830000	440	660	325	435	380	450	36	320	157	392	368	380	2.5	44.7	43.8	52.7	51264
340	420	64	—	—	2	51168	—	—	385000	1860000	570	850	344	416	—	—	—	—	388	372	—	2	19.9	—	—	51168	
	460	96	100.3	113	3	51268	53268	53268U	600000	2940000	430	640	345	455	400	470	36	360	199	412	388	400	2.5	47.6	46.4	56.2	51268
360	440	65	—	—	2	51172	—	—	395000	1960000	550	820	364	436	—	—	—	—	408	392	—	2	20.4	—	—	51172	
	500	110	116.7	130	4	51272	53272	53272U	745000	3800000	380	570	365	495	430	510	43	360	172	444	416	430	3	69.0	67.7	81.5	51272