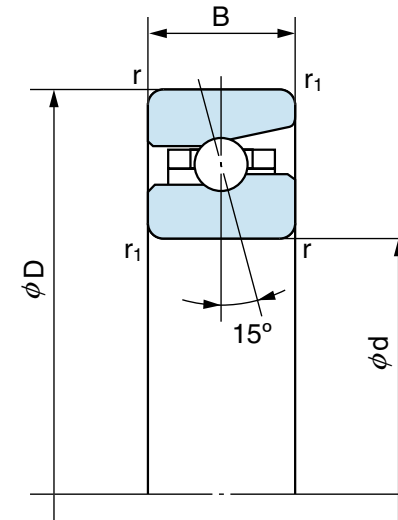


# High-speed Angular Contact Ball Bearings

Series BNH000



1N=0.102kgf

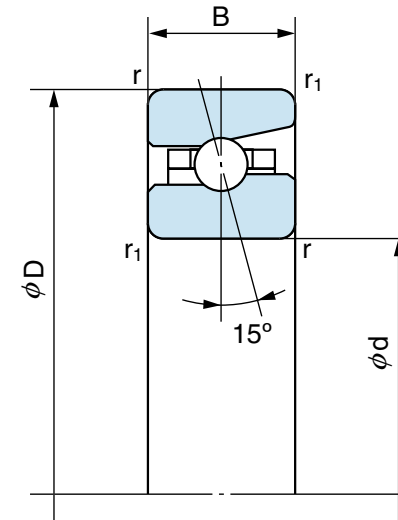
Bearing No.	Boundary dimensions (mm)					Basic dynamic load rating Cr (N)	Basic static load rating Cor (N)	Limiting speed (rpm)	
	d	D	B	r (min)	r <sub>1</sub> (min)			Grease lubrication	Oil lubrication
BNH 007	35	62	14	1	0.6	11600	9950	25000	35000
BNH 008	40	68	15	1	0.6	14800	12900	22000	32000
BNH 009	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





# High-speed Angular Contact Ball Bearings

Series BNH000

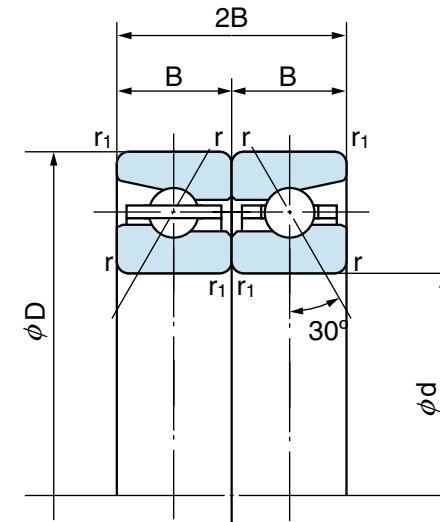


1N=0.102kgf

Bearing No.	Boundary dimensions (mm)					Basic dynamic load rating Cr (N)	Basic static load rating Cor (N)	Limiting speed (rpm)	
	d	D	B	r (min)	r <sub>1</sub> (min)			Grease lubrication	Oil lubrication
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

# Combination Angular Contact Ball Bearings

Series TAH10 Contact angle : 30°



Type TAH

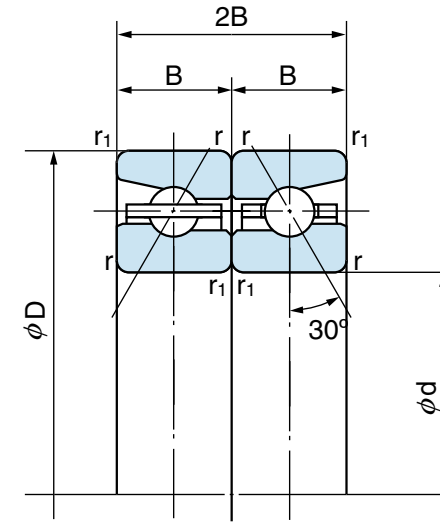
1N=0.102kgf

Bearing No.	Boundary dimensions (mm)					Basic dynamic load rating Ca (N)	Basic static load rating Coa (N)	Limiting speed (rpm)	
	d	D	2B	r (min)	r <sub>1</sub> (min)			Grease lubrication	Oil lubrication
50TAH10DB	50	80	28.5	1	0.6	19200	40500	9200	11000
55TAH10DB	55	90	33	1.1	0.6	23800	51000	8300	9700
60TAH10DB	60	95	33	1.1	0.6	24700	56000	7700	9000
65TAH10DB	65	100	33	1.1	0.6	25600	61000	7300	8500
70TAH10DB	70	110	36	1.1	0.6	35000	80000	6700	7800
75TAH10DB	75	115	36	1.1	0.6	35500	83500	6300	7400
80TAH10DB	80	125	40.5	1.1	0.6	41500	99500	5900	6800
85TAH10DB	85	130	40.5	1.1	0.6	42000	104000	5600	6500
90TAH10DB	90	140	45	1.5	1	55500	135000	5200	6100



# Combination Angular Contact Ball Bearings

Series TAH10 Contact angle : 30°



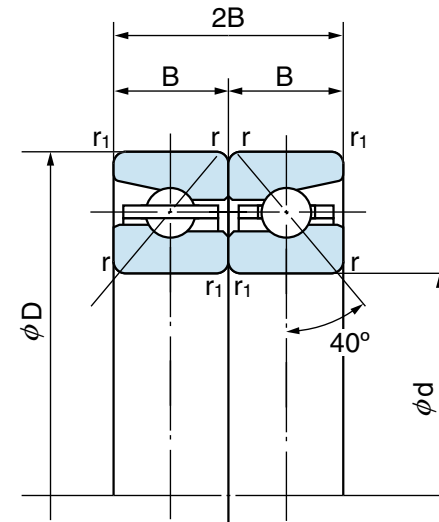
Type TAH

1N=0.102kgf

Bearing No.	Boundary dimensions (mm)					Basic dynamic load rating Ca (N)	Basic static load rating Coa (N)	Limiting speed (rpm)	
	d	D	2B	r (min)	r <sub>1</sub> (min)			Grease lubrication	Oil lubrication
95TAH10DB	95	145	45	1.5	1	56000	141000	5000	5800
100TAH10DB	100	150	45	1.5	1	57000	147000	4800	5600
105TAH10DB	105	160	49.5	2	1	64500	168000	4500	5300
110TAH10DB	110	170	54	2	1	73000	191000	4300	5000
120TAH10DB	120	180	54	2	1	75000	207000	4000	4700
130TAH10DB	130	200	63	2	1	99500	269000	3600	4200
140TAH10DB	140	210	63	2	1	103000	291000	3400	4000
150TAH10DB	150	225	67.5	2.1	1.1	121000	340000	3200	3700
160TAH10DB	160	240	72	2.1	1.1	131000	375000	3000	3500
170TAH10DB	170	260	61	2.1	1.1	154000	445000	2800	3300

# Combination Angular Contact Ball Bearings

Series TBH10 Contact angle : 40°



Type TBH

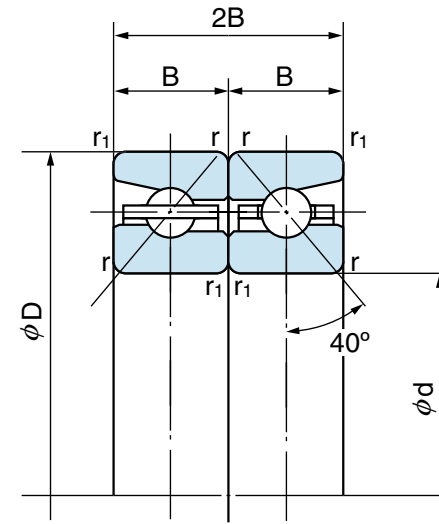
1N=0.102kgf

Bearing No.	Boundary dimensions (mm)					Basic dynamic load rating Ca (N)	Basic static load rating Coa (N)	Limiting speed (rpm)	
	d	D	2B	r (min)	r <sub>1</sub> (min)			Grease lubrication	Oil lubrication
50TBH10DB	50	80	28.5	1	0.6	22800	53000	7700	9200
55TBH10DB	55	90	33	1.1	0.6	28200	67000	6900	8300
60TBH10DB	60	95	33	1.1	0.6	29300	73000	6500	7700
65TBH10DB	65	100	33	1.1	0.6	30000	79500	6100	7300
70TBH10DB	70	110	36	1.1	0.6	41500	104000	5600	6700
75TBH10DB	75	115	36	1.1	0.6	42000	109000	5300	6300
80TBH10DB	80	125	40.5	1.1	0.6	49000	130000	4900	5900
85TBH10DB	85	130	40.5	1.1	0.6	50000	136000	4700	5600
90TBH10DB	90	140	45	1.5	1	65500	176000	4300	5200



# Combination Angular Contact Ball Bearings

Series TBH10 Contact angle : 40°



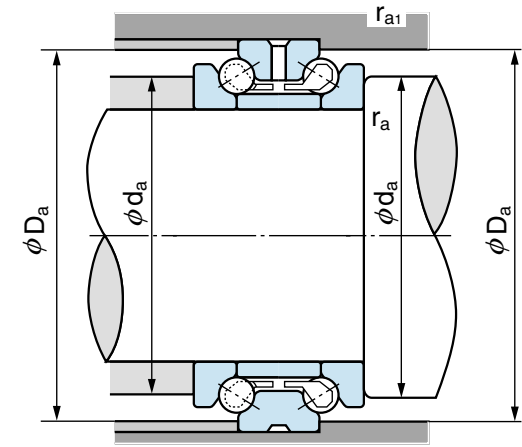
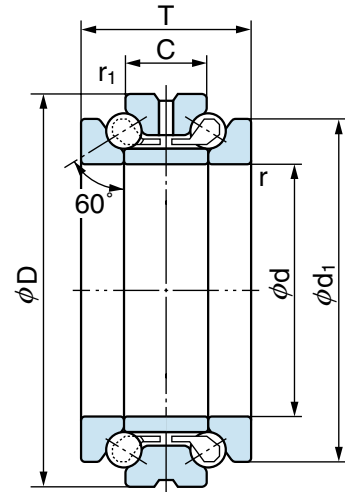
Type TBH

1N=0.102kgf

Bearing No.	Boundary dimensions (mm)					Basic dynamic load rating Ca (N)	Basic static load rating Coa (N)	Limiting speed (rpm)	
	d	D	2B	r (min)	r <sub>1</sub> (min)			Grease lubrication	Oil lubrication
95TBH10DB	95	145	45	1.5	1	66500	184000	4200	5000
100TBH10DB	100	150	45	1.5	1	67500	191000	4000	4800
105TBH10DB	105	160	49.5	2	1	76500	219000	3800	4500
110TBH10DB	110	170	54	2	1	86000	249000	3600	4300
120TBH10DB	120	180	54	2	1	88500	269000	3300	4000
130TBH10DB	130	200	63	2	1	118000	350000	3000	3600
140TBH10DB	140	210	63	2	1	121000	380000	2900	3400
150TBH10DB	150	225	67.5	2.1	1.1	143000	445000	2700	3200
160TBH10DB	160	240	72	2.1	1.1	155000	490000	2500	3000
170TBH10DB	170	260	61	2.1	1.1	182000	580000	2300	2800

# Double-direction Thrust Angular Contact Ball Bearings

Series TAD20



1N=0.102kgf

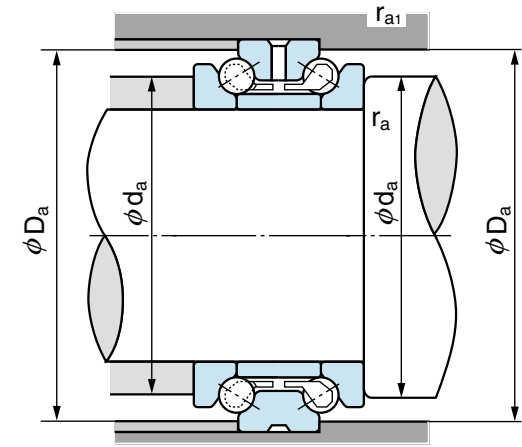
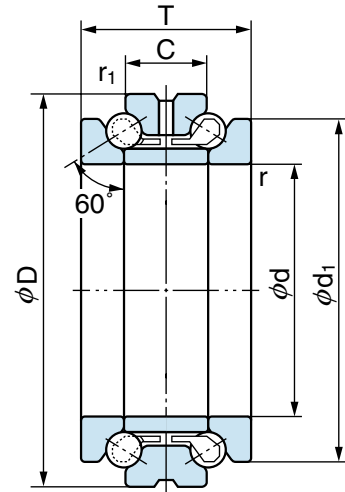
Bearing No.		Boundary dimensions (mm)								Basic dynamic load rating	Basic static load rating
Standard type	Large bore type <sup>(1)</sup>	Standard type	Large bore type <sup>(1)</sup>	D	d <sub>1</sub>	T	C	r (min)	r <sub>1</sub> (min)	Ca (N)	Coa (N)
25TAD20	27TAD20	25	27	47	40	28	14	0.6	0.3	10700	19900
30	32	30	32	55	47	32	16	1	0.6	14000	27100
35	37	35	37	62	53	34	17	1	0.6	16200	33000
40TAD20	42TAD20	40	42	68	58.5	36	18	1	0.6	18600	39500
45	47	45	47	75	65	38	19	1	0.6	21200	47000
50	52	50	52	80	70	38	19	1	0.6	22000	52000
55TAD20	57TAD20	55	57	90	78	44	22	1.1	0.6	29900	71500
60	62	60	62	95	83	44	22	1.1	0.6	30500	75000
65	67	65	67	100	88	44	22	1.1	0.6	31500	81500

Note: (1) Large bore type bearings are used at large bore side of cylindrical roller bearings with tapered bore NN3000K type.



# Double-direction Thrust Angular Contact Ball Bearings

Series TAD20



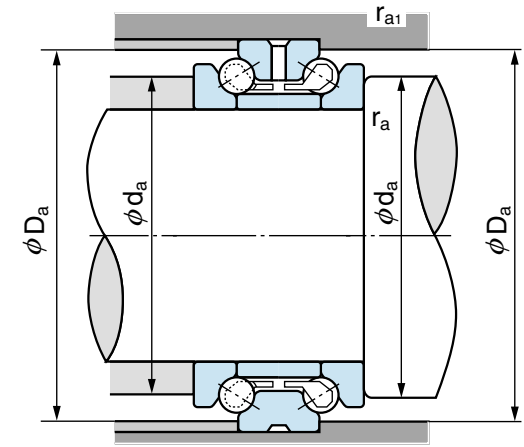
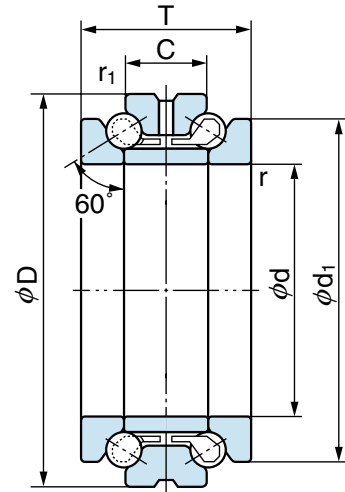
1N=0.102kgf

Bearing No.		Boundary dimensions (mm)								Basic dynamic load rating	Basic static load rating
Standard type	Large bore type <sup>(1)</sup>	Standard type	Large bore type <sup>(1)</sup>	D	d <sub>1</sub>	T	C	r (min)	r <sub>1</sub> (min)	Ca (N)	Coa (N)
70TAD20	73TAD20	70	73	110	97	48	24	1.1	0.6	37500	99000
75	78	75	78	115	102	48	24	1.1	0.6	38500	107000
80	83	80	83	125	110	54	27	1.1	0.6	51000	138000
85TAD20	88TAD20	85	88	130	115	54	27	1.1	0.6	51500	144000
90	93	90	93	140	123	60	30	1.5	1	59000	166000
95	98	95	98	145	128	60	30	1.5	1	59500	173000
100TAD20	103TAD20	100	103	150	133	60	30	1.5	1	60500	180000
105	109	105	109	160	142	66	33	2	1	67000	199000
110	114	110	114	170	150	72	36	2	1	81500	236000

Note: (1) Large bore type bearings are used at large bore side of cylindrical roller bearings with tapered bore NN3000K type.

# Double-direction Thrust Angular Contact Ball Bearings

Series TAD20



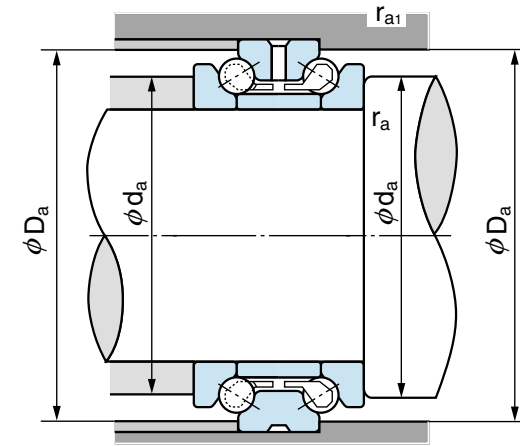
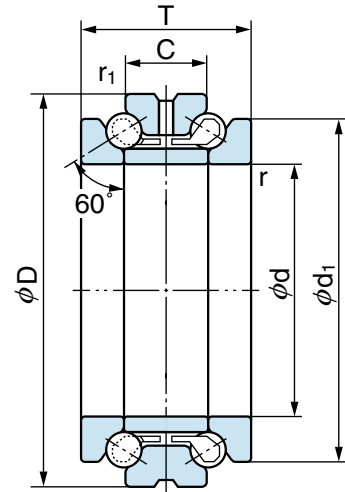
1N=0.102kgf

Bearing No.		Boundary dimensions (mm)								Basic dynamic load rating	Basic static load rating
Standard type	Large bore type <sup>(1)</sup>	Standard type	Large bore type <sup>(1)</sup>	D	d <sub>1</sub>	T	C	r (min)	r <sub>1</sub> (min)	Ca (N)	Coa (N)
120TAD20	125TAD20	120	124	180	160	72	36	2	1	84000	256000
130	135	130	135	200	177	84	42	2	1	109000	325000
140	145	140	145	210	187	84	42	2	1	113000	355000
150TAD20	155TAD20	150	155	225	200	90	45	2.1	1.1	123000	390000
160	165	160	165	240	212	96	48	2.1	1.1	138000	435000
170	176	170	176	260	230	108	54	2.1	1.1	175000	550000
180TAD20	187TAD20	180	187	280	248	120	60	2.1	1.1	200000	640000
190	197	190	197	290	258	120	60	2.1	1.1	203000	665000
200	207	200	207	310	274	132	66	2.1	1.1	257000	835000

Note: (1) Large bore type bearings are used at large bore side of cylindrical roller bearings with tapered bore NN3000K type.

# Double-direction Thrust Angular Contact Ball Bearings

Series TAD20

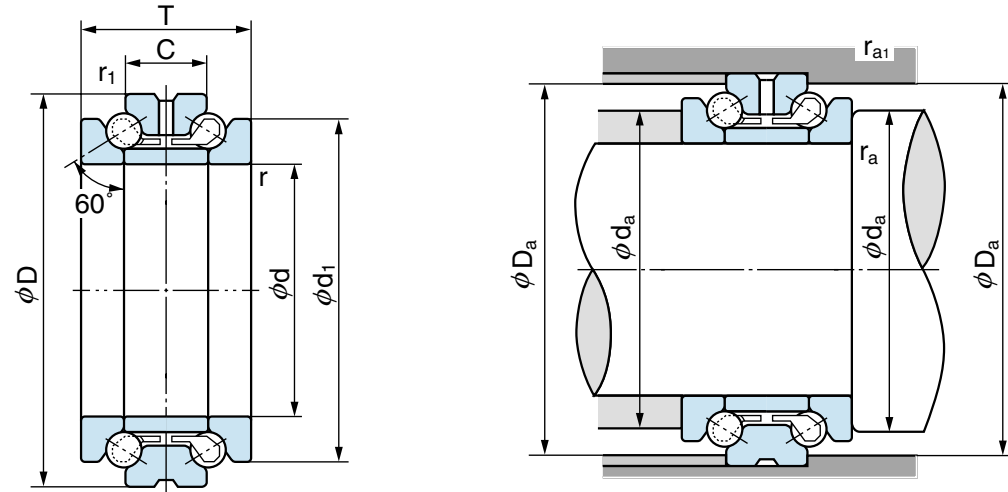


Bearing No.		Limiting speed (rpm)		Abutment and fillet dimensions (mm)				Mass (kg)
Standard type	Large bore type <sup>(1)</sup>	Grease lubrication	Oil lubrication	da (min)	Da (max)	ra (max)	ra1 (max)	
25TAD20	27TAD20	8000	10000	33	43.5	0.6	0.3	0.197
30	32	7000	9000	39	51	1	0.6	0.301
35	37	6200	8200	45	58	1	0.6	0.394
40TAD20	42TAD20	5800	7800	50	64	1	0.6	0.482
45	47	5500	7300	56	71	1	0.6	0.605
50	52	5000	6700	61	76	1	0.6	0.656
55TAD20	57TAD20	4500	6200	68	85	1	0.6	0.988
60	62	4300	6000	73	90	1	0.6	1.06
65	67	4100	5500	78	95	1	0.6	1.12

Note: (1) Large bore type bearings are used at large bore side of cylindrical roller bearings with tapered bore NN3000K type.

# Double-direction Thrust Angular Contact Ball Bearings

Series TAD20



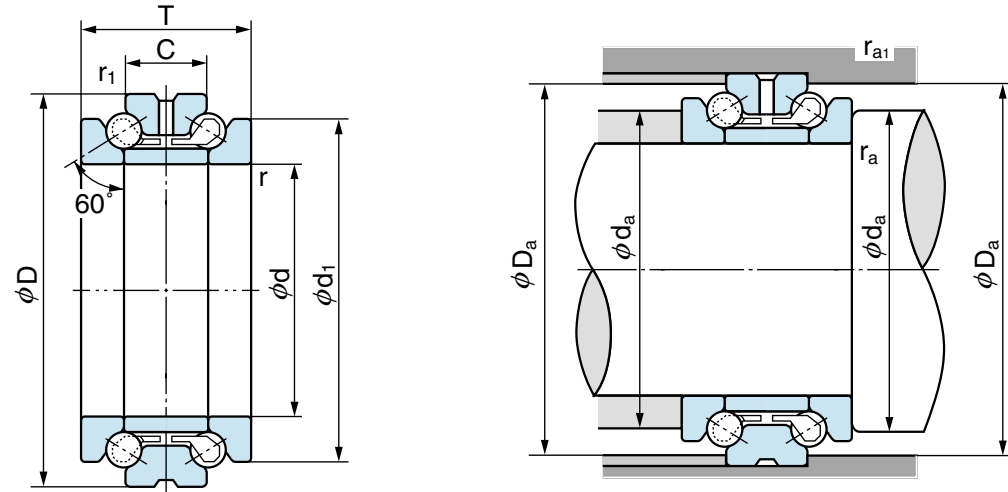
Bearing No.		Limiting speed (rpm)		Abutment and fillet dimensions (mm)				Mass (kg)
Standard type	Large bore type <sup>(1)</sup>	Grease lubrication	Oil lubrication	da (min)	Da (max)	ra (max)	ra1 (max)	
70TAD20	73TAD20	3800	5200	85	105.5	1	0.6	1.53
75	78	3600	4900	90	110	1	0.6	1.16
80	83	3400	4500	97	119	1	0.6	2.20
85TAD20	88TAD20	3200	4300	102	124	1	0.6	2.31
90	93	3000	4000	109	132	1.5	1	3.05
95	98	2900	3900	114	137	1.5	1	3.18
100TAD20	103TAD20	2800	3700	119	142	1.5	1	3.32
105	109	2600	3500	125	151	2	1	4.19
110	114	2500	3300	132	161	2	1	5.35

Note: (1) Large bore type bearings are used at large bore side of cylindrical roller bearings with tapered bore NN3000K type.



# Double-direction Thrust Angular Contact Ball Bearings

Series TAD20

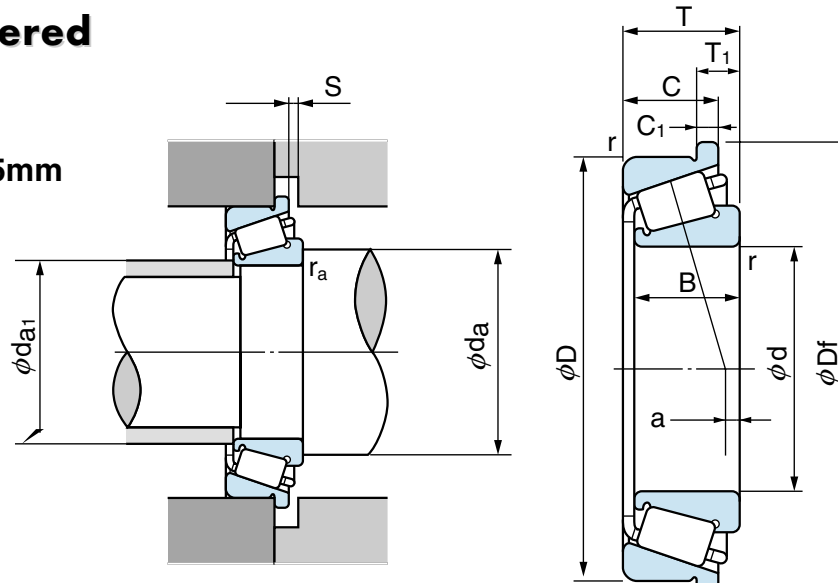


Bearing No.		Limiting speed (rpm)		Abutment and fillet dimensions (mm)				Mass (kg)
Standard type	Large bore type <sup>(1)</sup>	Grease lubrication	Oil lubrication	da (min)	Da (max)	ra (max)	ra1 (max)	
120TAD20	125TAD20	2300	3100	142	171.5	2	1	5.73
130	135	2100	2800	156	190	2	1	8.58
140	145	2000	2600	166	200	2	1	9.10
150TAD20	155TAD20	1850	2500	178	213	2	1	11.2
160	165	1750	2350	190	227	2	1	13.6
170	176	1600	2150	204	246	2	1	18.5
180TAD20	187TAD20	1500	2000	220	264	2	1	24.7
190	197	1450	1950	230	274	2	1	25.5
200	207	1350	1800	244	292	2	1	32.7

Note: (1) Large bore type bearings are used at large bore side of cylindrical roller bearings with tapered bore NN3000K type.

# Flanged-cup Tapered Roller Bearings

Bore Diameter : 20 ~ 75mm



- Dynamic equivalent radial load  
 $P_r = XFr + YFa$

$\frac{Fa}{Fr} \leq e$		$\frac{Fa}{Fr} > e$	
X	Y	X	Y
1	$Y_1$	0.4	$Y_1$

- Static equivalent radial load  
Larger value of following to be used:  
 $P_{or} = 0.5Fr + Y_0 Fa$   
 $P_{or} = Fr$
- Values  $e$ ,  $Y_1$ , and  $Y_0$  from table.

1N=0.102kgf

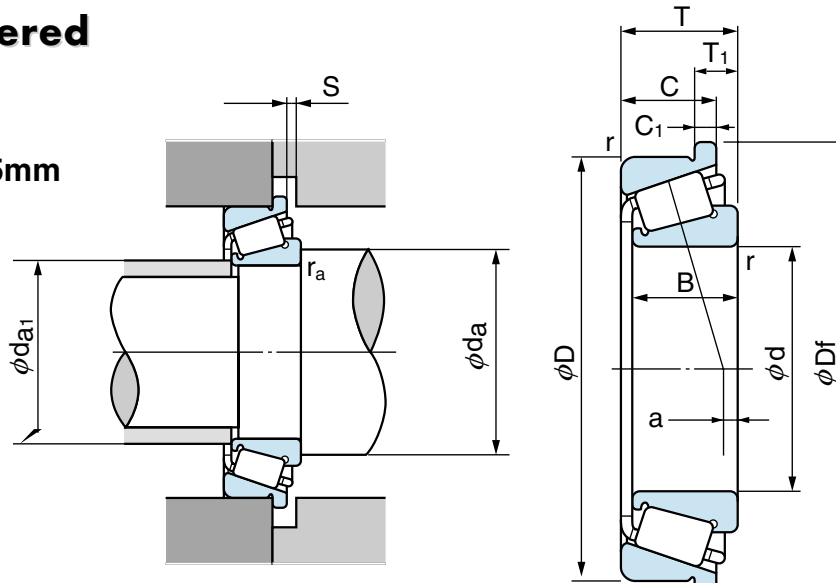
Bearing No.	Boundary dimensions (mm)									Basic dynamic load rating		Basic static load rating
	d	D	$T_1$	Df	$C_1$	T	B	C	r (min) Cone Cup		$C_r$ (N)	$C_{or}$ (N)
FE32004J FE30204J	20	42	6	46	3	15	15	12	0.6	0.6	25100	28200
		47	6.25	51	3	15.25	14	12	1	1	29500	30500
FE32005J FE30205J	25	47	6.5	51	3	15	15	11.5	0.6	0.6	28000	34000
		52	6.75	57	3.5	16.25	15	13	1	1	33000	36000
FE32006J FE30206J FE32206J	30	55	7	59	3	17	17	13	1	1	37500	46500
		62	6.75	67	3.5	17.25	16	14	1	1	43500	48000
		62	8.25	67	4	21.25	20	17	1	1	53000	61500
FE32007J FE30207J FE32207J	35	62	7	66	3	18	18	14	1	1	44500	57500
		72	7.25	77	4	18.25	17	15	1.5	1.5	54500	60500
		72	9.75	77	4.5	24.25	23	19	1.5	1.5	70000	83000

Note: (1) Minus value of load center indicates the center is outside cone back face.



# Flanged-cup Tapered Roller Bearings

Bore Diameter : 20 ~ 75mm



- Dynamic equivalent radial load  
 $P_r = XFr + YFa$

$\frac{Fa}{Fr} \leq e$		$\frac{Fa}{Fr} > e$	
X	Y	X	Y
1	$Y_1$	0.4	$Y_1$

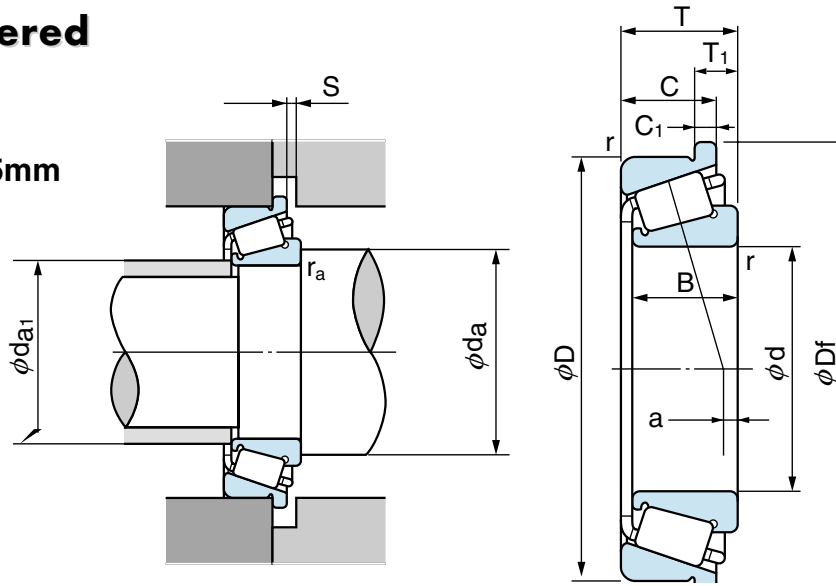
- Static equivalent radial load  
 Larger value of following to be used:  
 $P_{0r} = 0.5Fr + Y_0 Fa$   
 $P_{0r} = Fr$
- Values  $e$ ,  $Y_1$ , and  $Y_0$  from table.

1N=0.102kgf

Bearing No.	Boundary dimensions (mm)								r (min)		Basic dynamic load rating Cr (N)	Basic static load rating Cor (N)
	d	D	T <sub>1</sub>	Df	C <sub>1</sub>	T	B	C	Cone	Cup		
FE32008J	40	68	8	72	3.5	19	19	14.5	1	1	52500	71500
FE30208J		80	7.75	85	4	19.75	18	16	1.5	1.5	63500	70500
FE32208J		80	10.25	85	4.5	24.75	23	19	1.5	1.5	78000	91500
FE32009J	45	75	8	79	3.5	20	20	15.5	1	1	59500	83000
FE30209J		85	8.75	90	4	20.75	19	16	1.5	1.5	69500	81500
FE32209J		85	10.25	90	4.5	24.75	23	19	1.5	1.5	83500	102000
FE32010J	50	80	8	84	3.5	20	20	15.5	1	1	62000	90500
FE30210J		90	8.75	95	4	21.75	20	17	1.5	1.5	79000	96000
FE32210J		90	10.25	95	4.5	24.75	23	19	1.5	1.5	88500	111000
FE32011J	55	90	9.5	94	4	23	23	17.5	1.5	1.5	82500	122000
FE30211J		100	9.25	106	4.5	22.75	21	18	2	1.5	94500	113000
FE32211J		100	10.75	106	5	26.75	25	21	2	1.5	110000	137000

# Flanged-cup Tapered Roller Bearings

Bore Diameter : 20 ~ 75mm



- Dynamic equivalent radial load  
 $P_r = X F_r + Y F_a$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	$Y_1$	0.4	$Y_1$

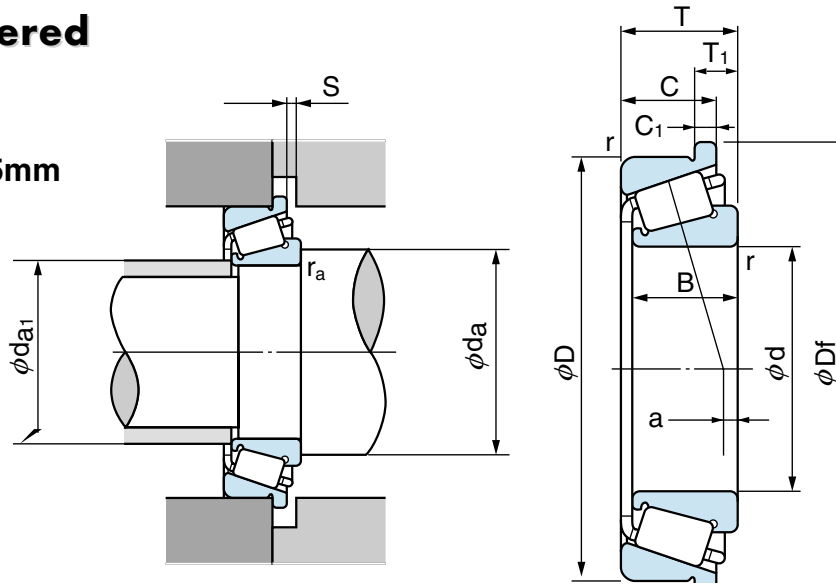
- Static equivalent radial load  
 Larger value of following to be used:  
 $P_{or} = 0.5 F_r + Y_0 F_a$   
 $P_{or} = F_r$
- Values  $e$ ,  $Y_1$ , and  $Y_0$  from table.

1N=0.102kgf

Bearing No.	Boundary dimensions (mm)								r (min)		Basic dynamic load rating Cr (N)	Basic static load rating Cor (N)
	d	D	T <sub>1</sub>	Df	C <sub>1</sub>	T	B	C	Cone	Cup		
FE32012J	60	95	9.5	99	4	23	23	17.5	1.5	1.5	85000	129000
FE30212J		110	9.25	116	4.5	23.75	22	19	2	1.5	104000	123000
FE32212J		110	10.75	116	5	29.75	28	24	2	1.5	131000	167000
FE32013J	65	100	9.5	104	4	23	23	17.5	1.5	1.5	87500	137000
FE30213J		120	9.25	127	4.5	24.75	23	20	2	1.5	123000	148000
FE32213J		120	11.75	127	6	32.75	31	27	2	1.5	156000	200000
FE32014J	70	110	10.5	116	4.5	25	25	19	1.5	1.5	103000	157000
FE30214J		125	10.25	132	5	26.25	24	21	2	1.5	133000	166000
FE32214J		125	12.25	132	6	33.25	31	27	2	1.5	157000	205000
FE32015J	75	115	10.5	121	4.5	25	25	29	1.5	1.5	104000	163000
FE30215J		130	10.25	137	5	27.25	25	22	2	1.5	143000	183000
FE32215J		130	12.25	137	6	33.25	31	27	2	1.5	165000	221000

# Flanged-cup Tapered Roller Bearings

Bore Diameter : 20 ~ 75mm



- Dynamic equivalent radial load  
 $P_r = XFr + YFa$

$\frac{Fa}{Fr} \leq e$		$\frac{Fa}{Fr} > e$	
X	Y	X	Y
1	$Y_1$	0.4	$Y_1$

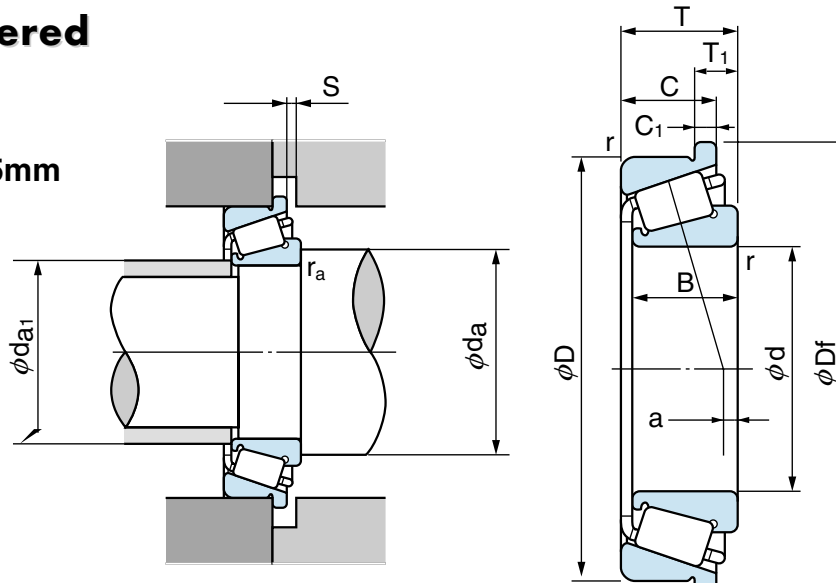
- Static equivalent radial load  
 Larger value of following to be used:  
 $P_{or} = 0.5Fr + Y_0 Fa$   
 $P_{or} = Fr$
- Values  $e$ ,  $Y_1$ , and  $Y_0$  from table.

Bearing No.	Limiting speed (rpm)		Abutment and fillet dimensions (mm)				Load center (mm) $a^{(1)}$	Constant $e$	Axial load factor		Mass (kg)
	Grease lubrication	Oil lubrication	$d_a$ (min)	$d_{a1}$ (max)	S (min)	$r_a$ (max)			$Y_1$	$Y_0$	
FE32004J	9200	12000	25	24	3.5	0.6	4.6	0.37	1.60	0.88	0.103
FE30204J	8500	11500	26	26	3.5	1	3.9	0.35	1.74	0.96	0.127
FE32005J	8000	10700	30	28.5	3.5	0.6	3.3	0.43	1.39	0.77	0.117
FE30205J	7500	10000	31	30	3.5	1	3.3	0.38	1.60	0.88	0.161
FE32006J	6700	9100	36	34	4	1	3.5	0.43	1.39	0.77	0.178
FE30206J	6200	8400	36	36.5	3.5	1	3.2	0.38	1.60	0.88	0.233
FE32206J	6200	8400	36	35.6	5	1	5.5	0.38	1.60	0.88	0.295
FE32007J	6000	8000	41	39	4	1	2.8	0.45	1.32	0.73	0.230
FE30207J	5400	7200	42	42.5	3.5	1.5	2.8	0.38	1.60	0.88	0.338
FE32207J	5400	7200	42	41.5	5.5	1.5	6.4	0.38	1.60	0.88	0.450

Note: (1) Minus value of load center indicates the center is outside cone back face.

## Flanged-cup Tapered Roller Bearings

Bore Diameter : 20 ~ 75mm



- Dynamic equivalent radial load  
 $P_r = XFr + YFa$

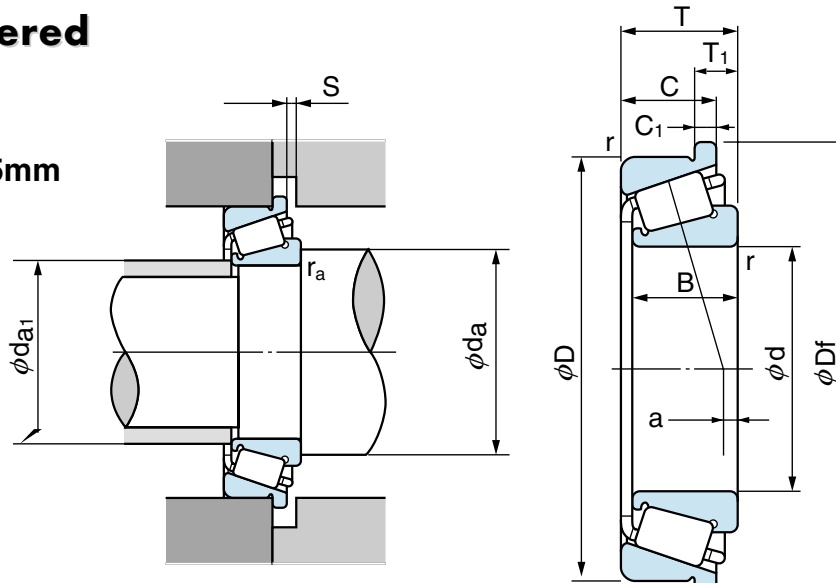
$\frac{Fa}{Fr} \leq e$		$\frac{Fa}{Fr} > e$	
X	Y	X	Y
1	$Y_1$	0.4	$Y_1$

- Static equivalent radial load  
 Larger value of following to be used:  
 $P_{0r} = 0.5Fr + Y_0 Fa$   
 $P_{0r} = Fr$
- Values  $e$ ,  $Y_1$ , and  $Y_0$  from table.

Bearing No.	Limiting speed (rpm)		Abutment and fillet dimensions (mm)				Load center (mm) $a^{(1)}$	Constant $e$	Axial load factor		Mass (kg)
	Grease lubrication	Oil lubrication	$d_a$ (min)	$d_{a1}$ (max)	S (min)	$r_a$ (max)			$Y_1$	$Y_0$	
FE32008J	5300	7200	46	45	4.5	1	4.1	0.38	1.58	0.87	0.282
FE30208J	4800	6500	47	47.5	3.5	1.5	2.6	0.38	1.60	0.88	0.440
FE32208J	4800	6500	47	47	5.5	1.5	5.6	0.38	1.60	0.88	0.570
FE32009J	4800	6500	51	50.5	4.5	1	3.6	0.39	1.53	0.84	0.353
FE30209J	4400	6000	52	52.5	4.5	1.5	2.3	0.41	1.48	0.82	0.491
FE32209J	4400	6000	52	52	5.5	1.5	4.4	0.41	1.48	0.82	0.600
FE32010J	4400	6000	56	55	4.5	1	1.9	0.42	1.42	0.78	0.384
FE30210J	4100	5500	57	56.5	4.5	1.5	1.9	0.42	1.43	0.79	0.553
FE32210J	4100	5500	57	56	6	1.5	3.2	0.42	1.43	0.79	0.637
FE32011J	4000	5400	62	61.5	5.5	1.5	3.2	0.41	1.48	0.81	0.568
FE30211J	3700	4000	64	62.5	4.5	2	1.6	0.41	1.48	0.82	0.724
FE32211J	3700	4000	64	62	6	2	3.7	0.41	1.48	0.82	0.870

# Flanged-cup Tapered Roller Bearings

Bore Diameter : 20 ~ 75mm



- Dynamic equivalent radial load  
 $P_r = X F_r + Y F_a$

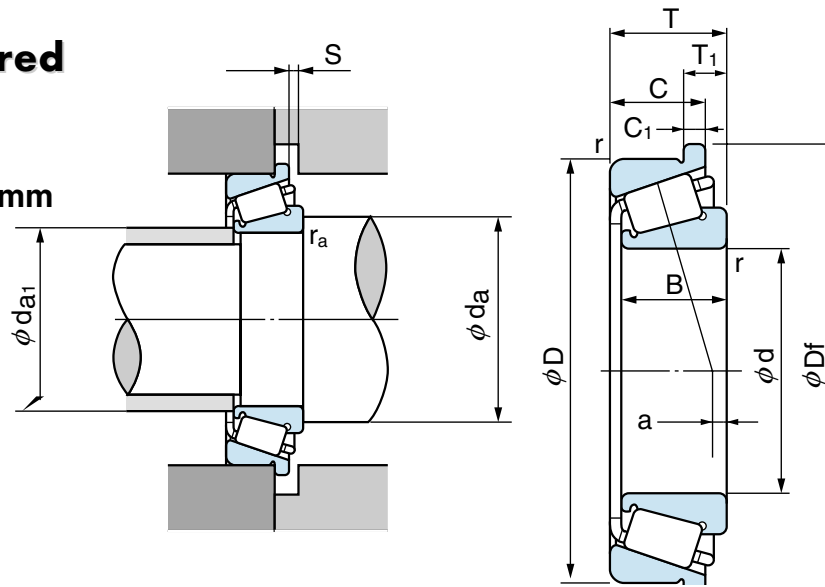
$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	$Y_1$	0.4	$Y_1$

- Static equivalent radial load  
 Larger value of following to be used:  
 $P_{0r} = 0.5 F_r + Y_0 F_a$   
 $P_{0r} = F_r$
- Values  $e$ ,  $Y_1$ , and  $Y_0$  from table.

Bearing No.	Limiting speed (rpm)		Abutment and fillet dimensions (mm)				Load center (mm) $a^{(1)}$	Constant $e$	Axial load factor		Mass (kg)
	Grease lubrication	Oil lubrication	$d_a$ (min)	$d_{a1}$ (max)	S (min)	$r_a$ (max)			$Y_1$	$Y_0$	
FE32012J	3700	5000	67	65.5	5.5	1.5	2.1	0.43	1.39	0.77	0.609
FE30212J	3400	4600	69	68.5	4.5	2	1.2	0.41	1.48	0.82	0.897
FE32212J	3400	4600	69	67	6	2	4.7	0.41	1.48	0.82	1.18
FE32013J	3500	4700	72	70.5	5.5	1.5	0.6	0.46	1.31	0.72	0.725
FE30213J	3100	4200	74	75	4.5	2	0.7	0.41	1.48	0.82	1.15
FE32213J	3100	4200	74	74	6	2	5.1	0.41	1.48	0.82	1.56
FE32014J	3200	4300	77	76.5	6	1.5	1.1	0.44	1.38	0.77	0.877
FE30214J	3000	4000	79	79.5	5	2	0.2	0.42	1.43	0.79	1.27
FE32214J	3000	4000	79	78	6	2	4.5	0.42	1.43	0.79	1.67
FE32015J	3000	4100	82	81	6	1.5	- 0.4	0.46	1.31	0.72	0.939
FE30215J	2800	3800	84	84	5	2	- 0.4	0.44	1.38	0.76	1.38
FE32215J	2800	3800	84	83	6	2	3.4	0.44	1.38	0.76	1.77

# Flanged-cup Tapered Roller Bearings

Bore Diameter : 80 ~ 150mm



- Dynamic equivalent radial load  
 $P_r = X F_r + Y F_a$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	$Y_1$	0.4	$Y_1$

- Static equivalent radial load  
Larger value of following to be used:  
 $P_{0r} = 0.5 F_r + Y_0 F_a$   
 $P_{0r} = F_r$
- Values  $e$ ,  $Y_1$ , and  $Y_0$  from table.

1N=0.102kgf

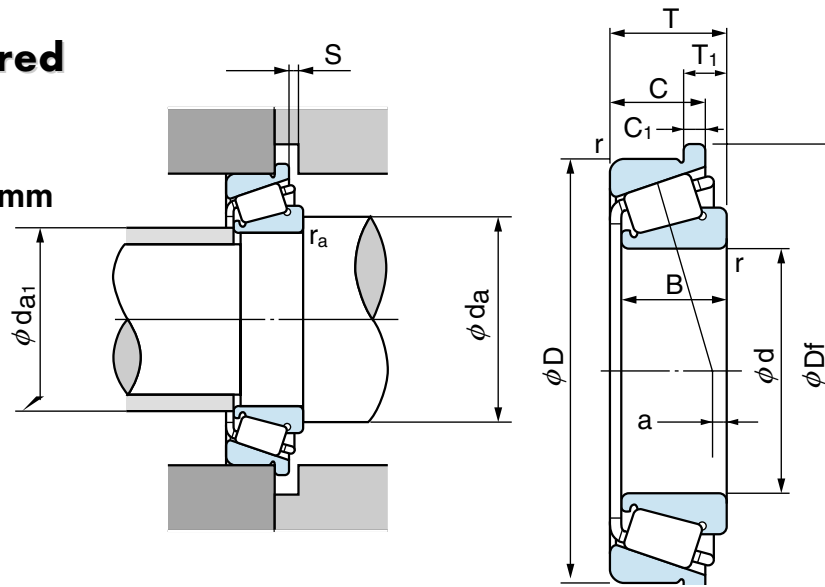
Bearing No.	Boundary dimensions (mm)									Basic dynamic load rating $C_r$ (N)	Basic static load rating $C_{0r}$ (N)	
	d	D	$T_1$	Df	$C_1$	T	B	C	$r$ (min)			
									Cone			Cup
FE32016J	80	125	12	131	5	29	29	22	1.5	1.5	140000	217000
FE30216J		140	11.25	147	5	28.25	26	22	2.5	2	157000	196000
FE32216J		140	13.25	147	6	35.25	33	28	2.5	2	192000	254000
FE32017J	85	130	12	136	5	29	29	22	1.5	1.5	143000	227000
FE30217J		150	11.5	158	5	30.5	28	24	2.5	2	183000	233000
FE32217J		150	15.5	158	7	38.5	36	30	2.5	2	212000	280000
FE32018J	90	140	13.5	146	5.5	32	32	24	2	1.5	169000	266000
FE30218J		160	12.5	168	6	32.5	30	26	2.5	2	201000	256000
FE32218J		160	16.5	168	8	42.5	40	34	2.5	2	255000	345000
FE32019J	95	145	13.5	151	5.5	32	32	24	2	1.5	172000	277000
FE30219J		170	14	179	6.5	34.5	32	27	3	2.5	223000	286000
FE32219J		170	16.5	179	8	45.5	43	37	3	2.5	285000	390000

Note: (1) Minus value of load center indicates the center is outside cone back face.



# Flanged-cup Tapered Roller Bearings

Bore Diameter : 80 ~ 150mm



- Dynamic equivalent radial load  
 $P_r = XFr + YFa$

$\frac{Fa}{Fr} \leq e$		$\frac{Fa}{Fr} > e$	
X	Y	X	Y
1	$Y_1$	0.4	$Y_1$

- Static equivalent radial load  
 Larger value of following to be used:  
 $P_{0r} = 0.5Fr + Y_0 Fa$   
 $P_{0r} = Fr$
- Values  $e$ ,  $Y_1$ , and  $Y_0$  from table.

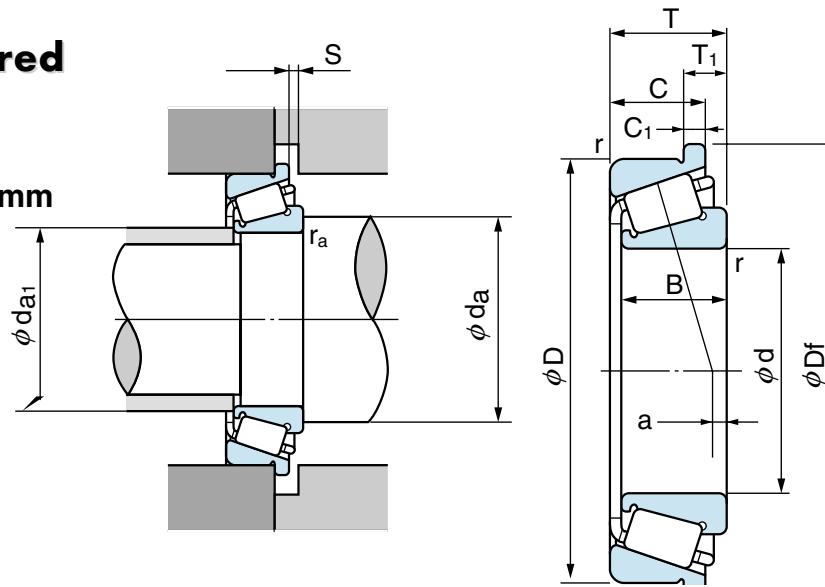
1N=0.102kgf

Bearing No.	Boundary dimensions (mm)										Basic dynamic load rating $C_r$ (N)	Basic static load rating $C_{0r}$ (N)
	d	D	$T_1$	Df	$C_1$	T	B	C	r (min)			
									Cone	Cup		
FE32020J	100	150	13.5	156	5.5	32	32	24	2	1.5	175000	287000
FE30220J		180	15	190	7	37	34	29	3	2.5	255000	330000
FE32220J		180	18	190	8	49	46	39	3	2.5	315000	465000
FE32021J	105	160	15.5	168	6.5	35	35	26	2.5	2	204000	330000
F30221		190	16	200	7	39	36	30	3	2.5	247000	310000
FE32221J		190	19	200	9	53	50	43	3	2.5	360000	510000
FE32022J	110	170	15.5	178	6.5	38	38	29	2.5	2	235000	360000
F30222		200	16	210	7	41	38	32	3	2.5	264000	330000
FE32222J		200	20	210	10	56	53	46	3	2.5	395000	470000
FE32024J	120	180	15.5	188	6.5	38	38	29	2.5	2	241000	400000
F30224		215	17.5	225	8	43.5	40	34	3	2.5	300000	390000
F32224		215	22.5	225	11	61.5	58	50	3	2.5	420000	600000

Note: (1) Minus value of load center indicates the center is outside cone back face.

# Flanged-cup Tapered Roller Bearings

Bore Diameter : 80 ~ 150mm



- Dynamic equivalent radial load  
 $P_r = XFr + YFa$

$\frac{Fa}{Fr} \leq e$		$\frac{Fa}{Fr} > e$	
X	Y	X	Y
1	$Y_1$	0.4	$Y_1$

- Static equivalent radial load  
Larger value of following to be used:  
 $P_{0r} = 0.5Fr + Y_0 Fa$   
 $P_{0r} = Fr$
- Values  $e$ ,  $Y_1$ , and  $Y_0$  from table.

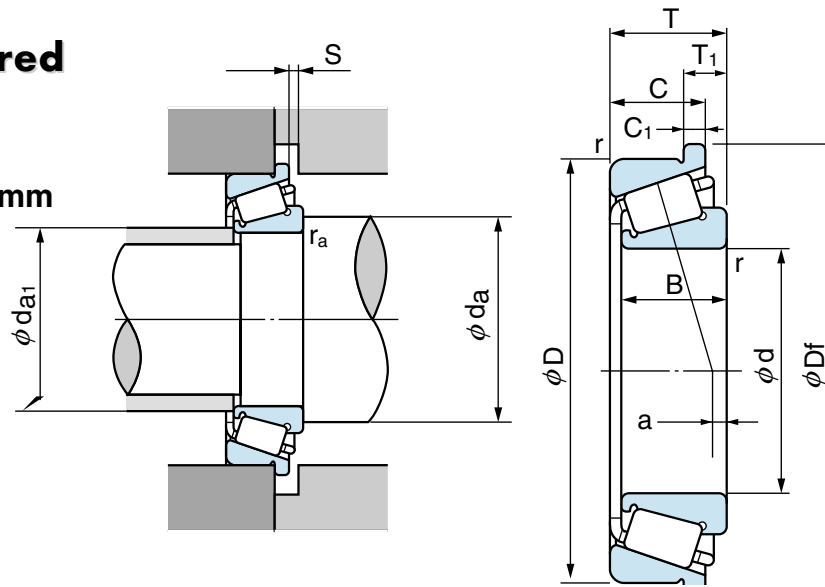
$$1N = 0.102 \text{kgf}$$

Bearing No.	Boundary dimensions (mm)										Basic dynamic load rating $C_r$ (N)	Basic static load rating $C_{0r}$ (N)
	d	D	$T_1$	Df	$C_1$	T	B	C	r (min)			
									Cone	Cup		
FE32026J	130	200	19	208	8	45	45	34	2.5	2	315000	530000
F30226		230	17.75	241	8	43.75	40	34	4	3	325000	425000
F32226		230	24.75	241	11	67.75	64	54	4	3	480000	690000
FE32028J	140	210	19	218	8	45	45	34	2.5	2	320000	540000
F30228		250	18.75	261	9	45.75	42	36	4	3	370000	490000
F32228		250	25.75	261	12	71.75	68	58	4	3	560000	815000
FE32030J	150	225	20.5	233	8.5	48	48	36	3	2.5	370000	645000
F30230		270	20	282	9	49	45	38	4	3	430000	565000
F32230		270	29	282	12	77	73	60	4	3	610000	900000

Note: (1) Minus value of load center indicates the center is outside cone back face.

# Flanged-cup Tapered Roller Bearings

Bore Diameter : 80 ~ 150mm



- Dynamic equivalent radial load  
 $P_r = XFr + YFa$

$\frac{Fa}{Fr} \leq e$		$\frac{Fa}{Fr} > e$	
X	Y	X	Y
1	$Y_1$	0.4	$Y_1$

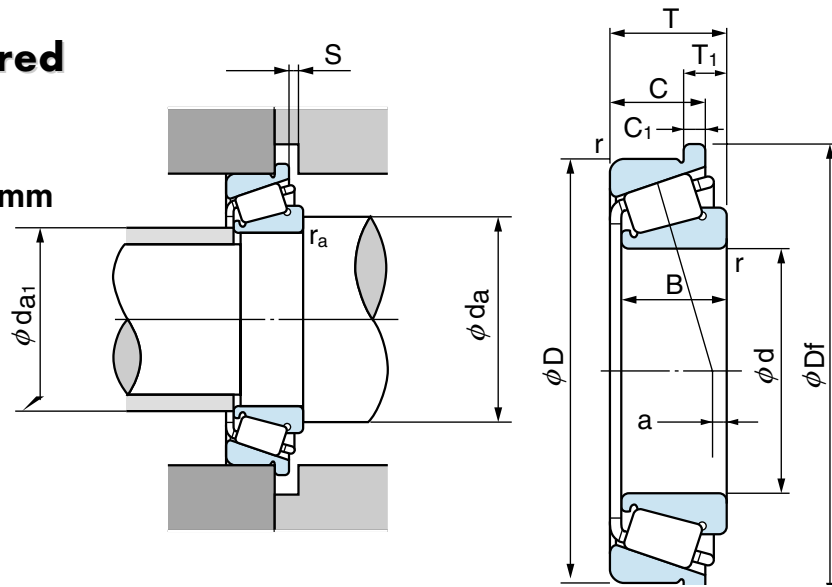
- Static equivalent radial load  
 Larger value of following to be used:  
 $P_{0r} = 0.5Fr + Y_0 Fa$   
 $P_{0r} = Fr$
- Values  $e$ ,  $Y_1$ , and  $Y_0$  from table.

Bearing No.	Limiting speed (rpm)		Abutment and fillet dimensions (mm)				Load center (mm) $a^{(1)}$	Constant $e$	Axial load factor		Mass (kg)
	Grease lubrication	Oil lubrication	$d_a$ (min)	$d_{a1}$ (max)	S (min)	$r_a$ (max)			$Y_1$	$Y_0$	
FE32016J	2800	3800	87	87	7	1.5	2	0.42	1.42	0.77	1.32
FE30216J	2600	3500	90	90	6	2	-0.3	0.42	1.43	0.79	1.65
FE32216J	2600	3500	90	88.5	8	2	3.8	0.42	1.43	0.79	2.11
FE32017J	2700	3600	92	91.5	7	1.5	0.7	0.44	1.36	0.76	1.40
FE30217J	2500	3300	95	95.5	6	2	-0.1	0.42	1.43	0.79	2.07
FE32217J	2500	3300	95	94	8	2	4.6	0.42	1.43	0.79	2.71
FE32018J	2500	3300	99	97	8	2	2.1	0.42	1.42	0.77	1.80
FE30218J	2300	3100	100	101	6	2	0.1	0.42	1.43	0.79	2.58
FE32218J	2300	3100	100	100	8	2	6	0.42	1.43	0.79	3.48
FE32019J	2300	3200	104	102	8	2	0.7	0.44	1.36	0.76	1.88
FE30219J	2100	2900	107	107	7	2.5	0.7	0.42	1.43	0.79	3.08
FE32219J	2100	2900	107	106	10	2.5	6.6	0.42	1.43	0.79	4.21

Note: (1) Minus value of load center indicates the center is outside cone back face.

# Flanged-cup Tapered Roller Bearings

Bore Diameter : 80 ~ 150mm



- Dynamic equivalent radial load  
 $P_r = XFr + YFa$

$\frac{Fa}{Fr} \leq e$		$\frac{Fa}{Fr} > e$	
X	Y	X	Y
1	$Y_1$	0.4	$Y_1$

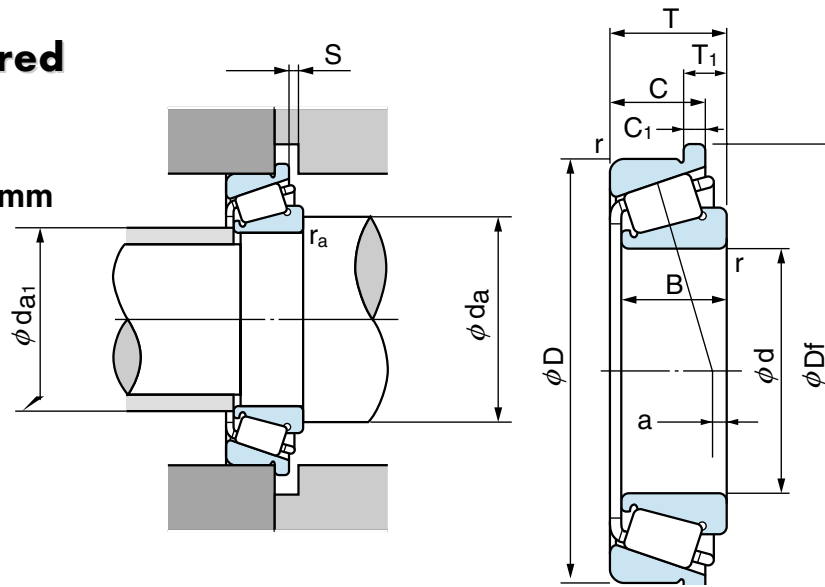
- Static equivalent radial load  
Larger value of following to be used:  
 $P_{or} = 0.5Fr + Y_0 Fa$   
 $P_{or} = Fr$
- Values  $e$ ,  $Y_1$ , and  $Y_0$  from table.

Bearing No.	Limiting speed (rpm)		Abutment and fillet dimensions (mm)				Load center (mm) $a^{(1)}$	Constant $e$	Axial load factor		Mass (kg)
	Grease lubrication	Oil lubrication	$d_a$ (min)	$d_{a1}$ (max)	S (min)	$r_a$ (max)			$Y_1$	$Y_0$	
FE32020J	2200	3000	109	107	8	2	-0.7	0.46	1.31	0.72	1.95
FE30220J	2000	2700	112	114	8	2.5	0.7	0.42	1.43	0.79	3.70
FE32220J	2000	2700	112	112	10	2.5	7.2	0.42	1.43	0.79	5.17
FE32021J	2100	2900	115	113	9	2	0.8	0.44	1.35	0.76	2.52
F30221	1900	2600	117	120	9	2.5	0.8	0.42	1.44	0.79	4.42
FE32221J	1900	2600	117	118	10	2.5	7.7	0.42	1.43	0.79	6.11
FE32022J	2000	2700	120	119	9	2	1.5	0.43	1.39	0.77	3.17
F30222	1800	2400	122	125	10	2.5	0.6	0.42	1.44	0.79	5.17
FE32222J	1800	2400	122	124	10	2.5	8.5	0.42	1.43	0.79	7.15
FE32024J	1800	2500	130	128	9	2	-1.2	0.46	1.31	0.72	3.35
F30224	1600	2200	132	135	10	2.5	0.5	0.44	1.38	0.76	6.92
F32224	1600	2200	132	134	11	2.5	9.5	0.44	1.38	0.76	8.86

Note: (1) Minus value of load center indicates the center is outside cone back face.

# Flanged-cup Tapered Roller Bearings

Bore Diameter : 80 ~ 150mm



- Dynamic equivalent radial load  
 $P_r = X F_r + Y F_a$

$\frac{F_a}{F_r} \leq e$		$\frac{F_a}{F_r} > e$	
X	Y	X	Y
1	$Y_1$	0.4	$Y_1$

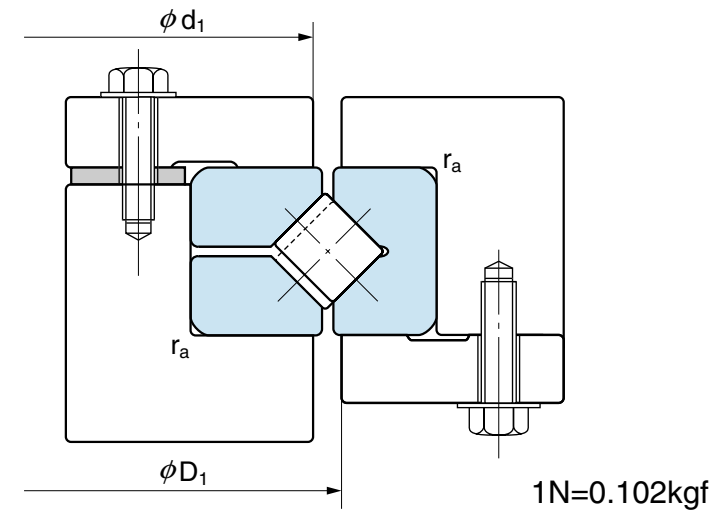
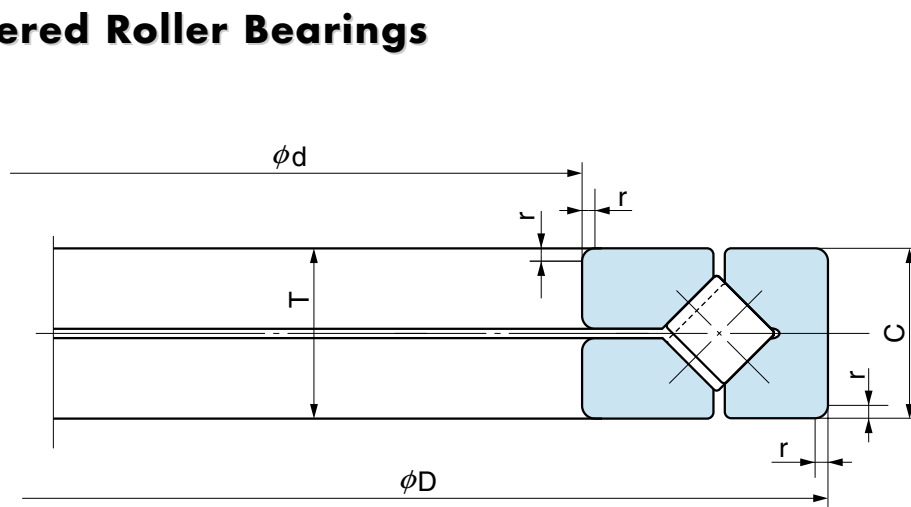
- Static equivalent radial load  
 Larger value of following to be used:  
 $P_{0r} = 0.5 F_r + Y_0 F_a$   
 $P_{0r} = F_r$
- Values  $e$ ,  $Y_1$ , and  $Y_0$  from table.

Bearing No.	Limiting speed (rpm)		Abutment and fillet dimensions (mm)				Load center (mm) $a^{(1)}$	Constant $e$	Axial load factor		Mass (kg)
	Grease lubrication	Oil lubrication	$d_a$ (min)	$d_{a1}$ (max)	S (min)	$r_a$ (max)			$Y_1$	$Y_0$	
FE32026J	1700	2300	140	140	11	2	1.8	0.44	1.38	0.77	3.54
F30226	1500	2100	144	144	10	3	-1.25	0.43	1.39	0.76	7.34
F32226	1500	2100	144	144	11	3	10.7	0.44	1.38	0.76	11.0
FE32028J	1600	2100	150	149	11	2	-0.8	0.46	1.31	0.72	5.39
F30228	1400	1900	154	157	12	3	-1.25	0.44	1.36	0.75	8.80
F32228	1400	1900	154	156	11	3	11.1	0.43	1.39	0.76	13.9
FE32030J	1500	2000	162	160	12	2.5	-0.4	0.46	1.31	0.72	6.54
F30230	1300	1800	164	168	11	3	2	0.43	1.39	0.76	11.0
F32230	1300	1800	164	168	14	3	13	0.43	1.38	0.76	17.5

Note: (1) Minus value of load center indicates the center is outside cone back face.

# Cross Tapered Roller Bearings

## Series XRN



Bearing No. (1)	Boundary dimensions (mm)				Basic dynamic load rating $C_a$ (N)	Basic static load rating $C_{0a}$ (N)
	d	D	T(C)	r		
*200XRN28	200	280	30	1.5	144000	520000
*250XRN35	250	350	40	3	170000	680000
*300XRN40	300	400	38	3	268000	985000
*350XRN47	350	470	50	3	284000	1230000
*400XRN55	400	550	60	3.5	365000	1900000
0457XRN060	457.2	609.6	63.5	3.3	370000	1670000
580XRN76	580	760	80	6.4	830000	3800000
600XRN83	600	830	80	3.3	1030000	4600000
0685XRN091	685.8	914.4	79.375	3.3	1090000	5000000
0901XRN112	901.7	1117.6	82.55	3.3	1090000	5650000
1028XRN132	1028.7	1327.15	114.3	3.3	1830000	9300000

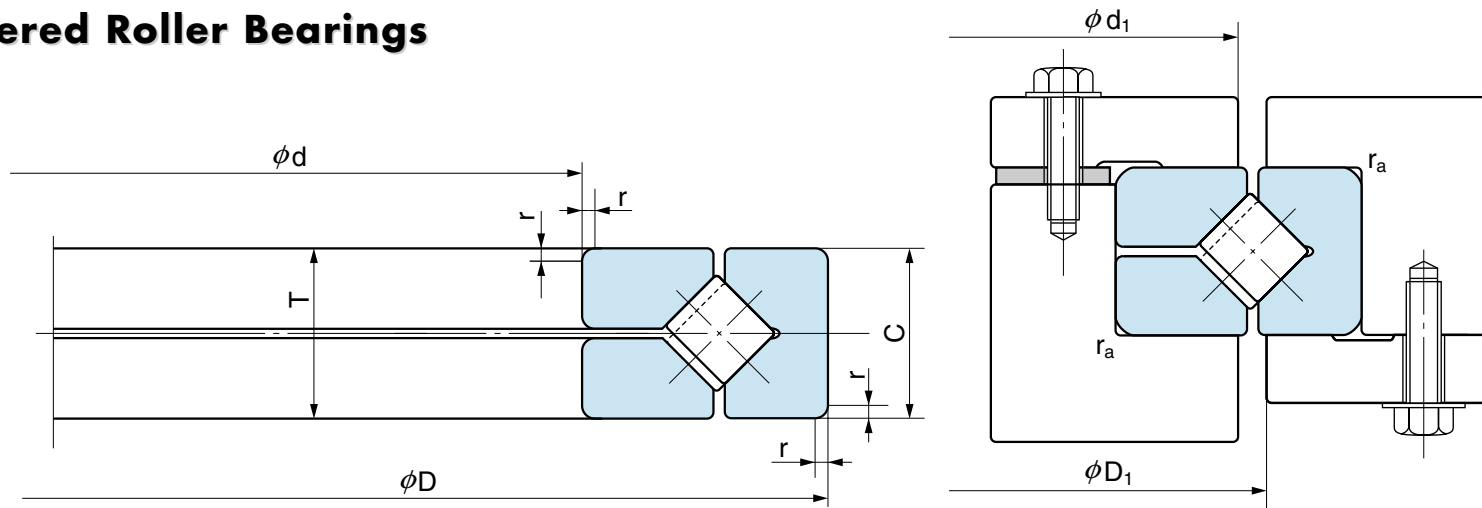
Note: (1) Bearings marked with \* have special tolerance for bore and OD, dimensions (smaller than JIS (ISO) standard).





# Cross Tapered Roller Bearings

## Series XRN



Bearing No. (1)	Limiting speed (rpm)		Abutment and fillet dimensions (mm)		
	Grease lubrication	Oil lubrication	d <sub>1</sub> (min)	D <sub>1</sub> (max)	r <sub>a</sub> (max)
*200XRN28	480	950	235	249	1
*250XRN35	400	800	302	312	1.5
*300XRN40	330	650	345	369	2.5
*350XRN47	280	560	410	424	1.5
*400XRN55	250	500	475	492	1.5
0457XRN060	220	440	535	554	2
580XRN76	170	340	667	691	4
600XRN83	160	320	708	738	2
0685XRN091	140	280	807	834	2
0901XRN112	110	220	1013	1037	2
1028XRN132	90	180	1184	1221	2

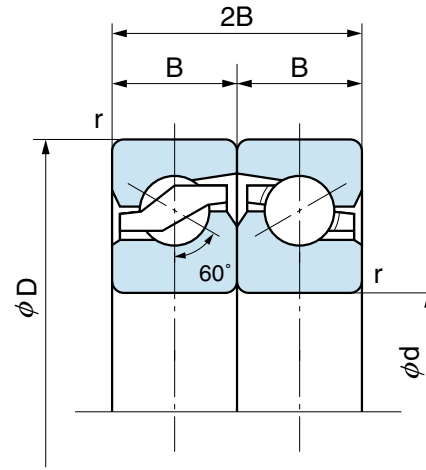
Note: (1) Bearings marked with \* have special tolerance for bore and OD, dimensions (smaller than JIS (ISO) standard).

# Ball Screw Support Bearings Series TAB

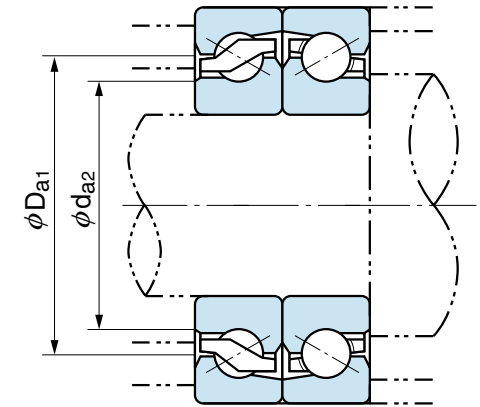
## Dynamic equivalent axial load

$$\bullet Pa = XFr + YFa$$

No. of Bearing in set		2		3			4			
Brgs loaded axial load		1	2	1	2	3	1	2	3	4
Fa/Fr ≤ 2.17	X	1.9	–	1.43	2.33	–	1.17	2.33	2.53	–
	Y	0.54	–	0.77	0.35	–	0.89	0.35	0.26	–
Fa/Fr > 2.17	X	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
	Y	1	1	1	1	1	1	1	1	1



DF



1N=0.102kgf

Bearing No.	Boundary dimensions (mm)						Basic <sup>(2)</sup>	Basic <sup>(3)</sup>
	d	D	B	2B	r	r <sub>1</sub>	dynamic	static
					(min)	(min)	load rating	load rating
15TAB04DF(DB)	15	47	15	30	1 <sup>(1)</sup>	0.6	Ca (N)	Coa (N)
17TAB04DF(DB)	17	47	15	30	1	0.6	25900	30500
20TAB04DF(DB)	20	47	15	30	1	0.6	25900	30500
25TAB06DF(DB)	25	62	15	30	1	0.6	29900	43000
30TAB06DF(DB)	30	62	15	30	1	0.6	29900	43000
35TAB07DF(DB)	35	72	15	30	1	0.6	32500	52000
40TAB07DF(DB)	40	72	15	30	1	0.6	32500	52000
40TAB09DF(DB)	40	90	20	40	1	0.6	65000	96500
45TAB07DF(DB)	45	75	15	30	1	0.6	33500	56500

Note: (1) r (min) = 0.6 for inner ring

(2) When bearing sets carry axial load with two or three rows, the numbers should be multiplied by 1.64 or 2.16.

(3) When bearing sets carry axial load with two or three rows, the numbers should be multiplied by 2 or 3.

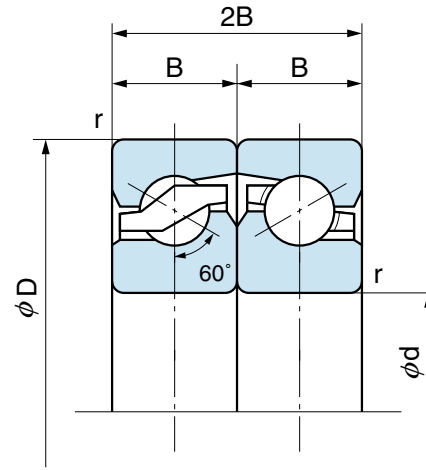


# Ball Screw Support Bearings Series TAB

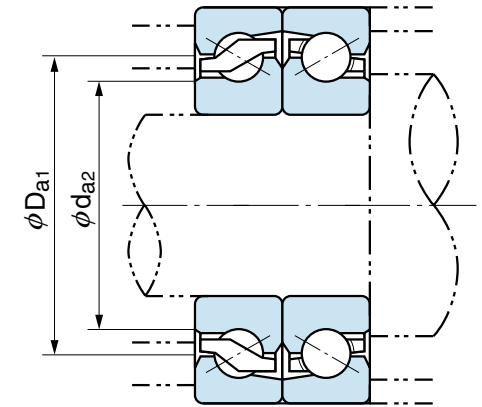
## Dynamic equivalent axial load

$$\bullet Pa = XFr + YFa$$

No. of Bearing in set	2		3			4				
Brgs loaded axial load	1	2	1	2	3	1	2	3	4	
$Fa/Fr \leq 2.17$	X	1.9	–	1.43	2.33	–	1.17	2.33	2.53	–
	Y	0.54	–	0.77	0.35	–	0.89	0.35	0.26	–
$Fa/Fr > 2.17$	X	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
	Y	1	1	1	1	1	1	1	1	1



DF



1N=0.102kgf

Bearing No.	Boundary dimensions (mm)						Basic <sup>(2)</sup> dynamic load rating	Basic <sup>(3)</sup> static load rating
	d	D	B	2B	r (min)	r <sub>1</sub> (min)	Ca (N)	Coa (N)
45TAB10DF(DB)	45	100	20	40	1	0.6	68000	108000
50TAB10DF(DB)	50	100	20	40	1	0.6	69500	114000
55TAB10DF(DB)	55	100	20	40	1	0.6	69500	114000
55TAB12DF(DB)	55	120	20	40	1	0.6	73000	131000
60TAB12DF(DB)	60	120	20	40	1	0.6	73000	131000

Note: (1)  $r$  (min) = 0.6 for inner ring

(2) When bearing sets carry axial load with two or three rows, the numbers should be multiplied by 1.64 or 2.16.

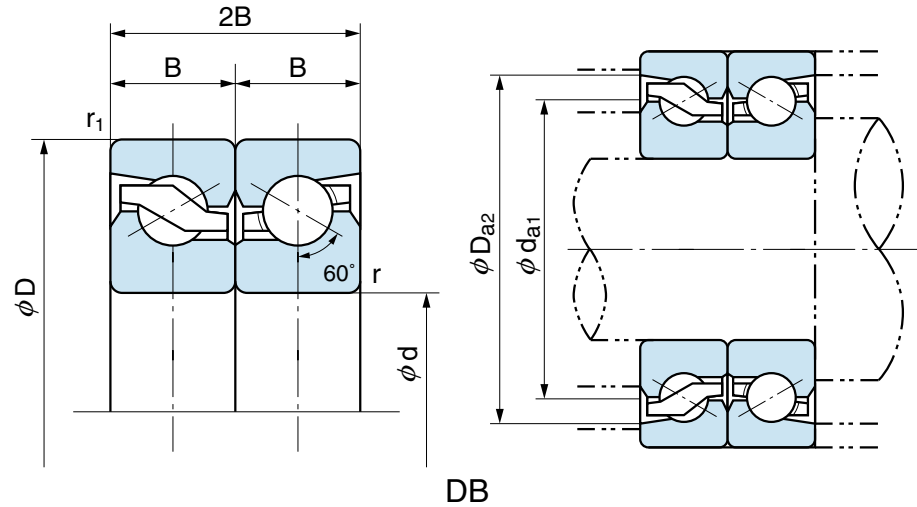
(3) When bearing sets carry axial load with two or three rows, the numbers should be multiplied by 2 or 3.

# Ball Screw Support Bearings Series TAB

## Dynamic equivalent axial load

$$\bullet Pa = XFr + YFa$$

No. of Bearing in set		2		3			4			
Brgs loaded axial load		1	2	1	2	3	1	2	3	4
Fa/Fr ≤ 2.17	X	1.9	–	1.43	2.33	–	1.17	2.33	2.53	–
	Y	0.54	–	0.77	0.35	–	0.89	0.35	0.26	–
Fa/Fr > 2.17	X	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
	Y	1	1	1	1	1	1	1	1	1



Bearing No.	Limiting speed (rpm)	Starting torque (N · cm)	Abutment and fillet dimensions (mm)				Mass (kg) (1pc.) (Ref.)		
			Grease lubrication	Grease lubrication	$d_{a1}$	$d_{a2}$		$D_{a1}$	$D_{a2}$
15TAB04DF(DB)	6300	15			33.7	26.8	33.5	41	0.14
17TAB04DF(DB)	6300	15			33.7	26.8	33.5	41	0.13
20TAB04DF(DB)	6300	15			33.7	26.8	33.5	41	0.12
25TAB06DF(DB)	4650	20			46.2	39.7	46	53.4	0.24
30TAB06DF(DB)	4650	20			46.2	39.7	46	53.4	0.21
35TAB07DF(DB)	3750	25			56.2	49.7	56	63.4	0.29
40TAB07DF(DB)	3750	25			56.2	49.7	56	63.4	0.26
40TAB09DF(DB)	3150	30			67.2	57.2	67	78.4	0.62
45TAB07DF(DB)	3400	50			61.7	55.2	61.5	68.9	0.25

Note: (1)  $r$  (min) = 0.6 for inner ring

(2) When bearing sets carry axial load with two or three rows, the numbers should be multiplied by 1.64 or 2.16.

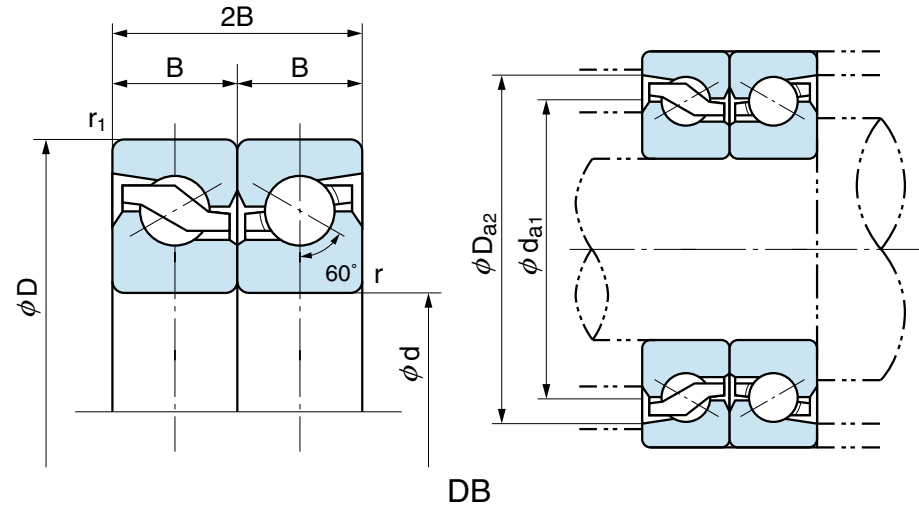
(3) When bearing sets carry axial load with two or three rows, the numbers should be multiplied by 2 or 3.

# Ball Screw Support Bearings Series TAB

## Dynamic equivalent axial load

$$\bullet Pa = XFr + YFa$$

No. of Bearing in set	2		3			4				
Brgs loaded axial load	1	2	1	2	3	1	2	3	4	
Fa/Fr ≤ 2.17	X	1.9	–	1.43	2.33	–	1.17	2.33	2.53	–
	Y	0.54	–	0.77	0.35	–	0.89	0.35	0.26	–
Fa/Fr > 2.17	X	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
	Y	1	1	1	1	1	1	1	1	1



Bearing No.	Limiting speed	Starting torque	Abutment and fillet dimensions (mm)				Mass (kg) (1pc.) (Ref.)
	(rpm)	(N · cm)	da <sub>1</sub>	da <sub>2</sub>	Da <sub>1</sub>	Da <sub>2</sub>	
45TAB10DF(DB)	2850	60	74.2	64.2	74	85.4	0.79
50TAB10DF(DB)	2700	65	78.2	68.2	78	89.4	0.72
55TAB10DF(DB)	2700	65	78.2	68.2	78	89.4	0.65
55TAB12DF(DB)	2300	70	92.2	82.2	92	103.4	1.15
60TAB12DF(DB)	2300	70	92.2	82.2	92	103.4	1.08

Note: (1) r (min) = 0.6 for inner ring

(2) When bearing sets carry axial load with two or three rows, the numbers should be multiplied by 1.64 or 2.16.

(3) When bearing sets carry axial load with two or three rows, the numbers should be multiplied by 2 or 3.