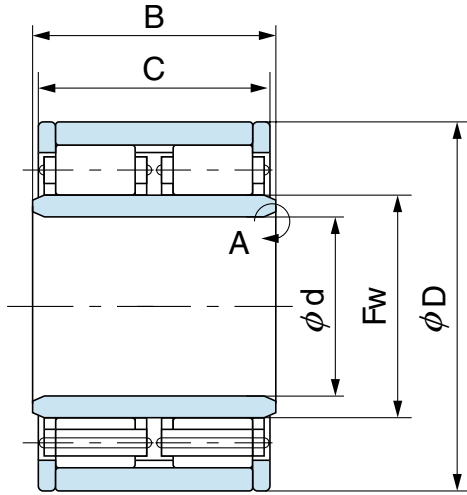
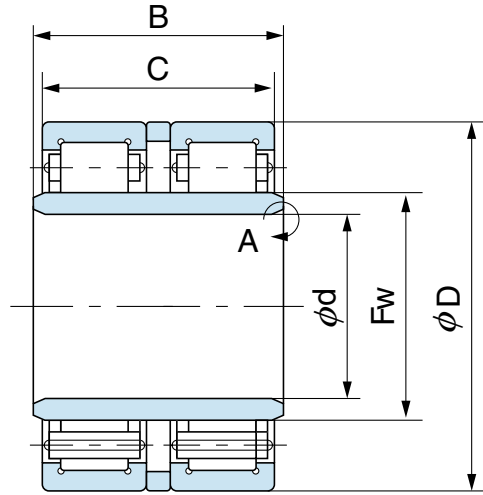


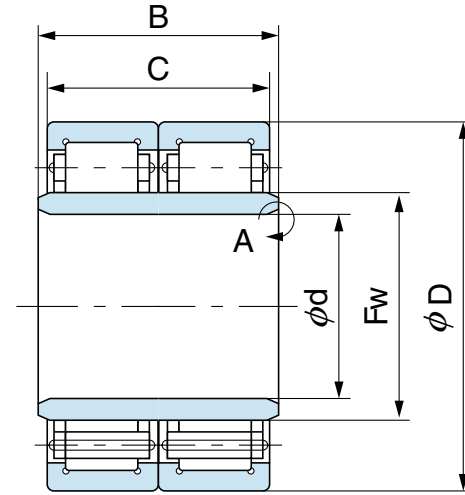
# Journal Bearings (Cylindrical roller, No rib on inner ring)



Design 1

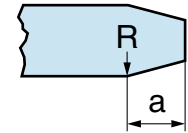


Design 2

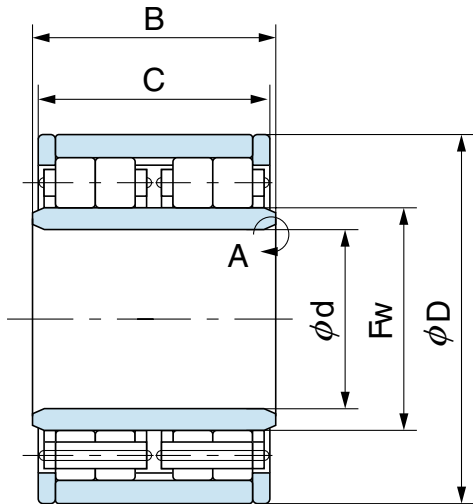


Design 3

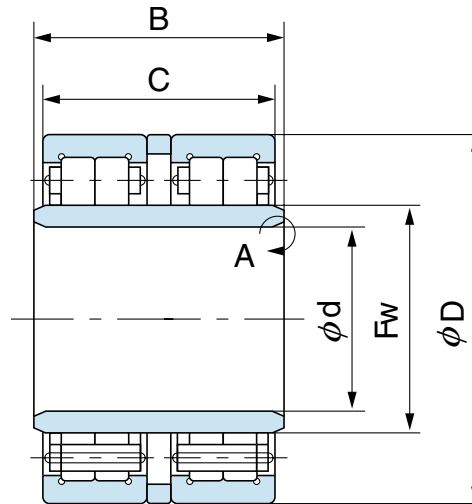
Detail of A



$a=4 \cdot 5 \cdot 7 \cdot 10 \cdot 12 \cdot 15$

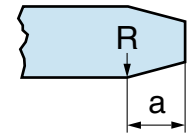


Design 4



Design 5

Detail of A



$a=1 \cdot 7 \cdot 12$

**Journal Bearings (Cylindrical roller, No rib on inner ring)**

1N=0.102 kgf

Bearing No.	Design No.	Boundary dimensions (mm)						Basic dynamic load rating Cr(N)	Basic static load rating Cor(N)	Mass (kg) Reference
		d	D	C	B	Fw	r			
FCD75	1	75	155	90	100	95	1	287000	410000	7
FCD85S1	3	85	150	96	106	101.5	4	335000	590000	6
FCF85S	5	85	150	120	120	101.5	3	320000	560000	7
FCD85S	2	85	150	120	130	101.5	3	335000	590000	7
FCD85S2	2	85	180	130	130	108	4	425000	765000	14
FCD95	1	95	170	105	120	113.5	1	380000	645000	11
FCF100	4	100	180	140	160	120	2	565000	1040000	14
JC3	4	110	200	160	180	134	2	575000	1190000	19
FCF110	4	110	210	160	180	136	2	720000	1280000	22
FCF110S1	1	110	220	160	180	138	2	795000	1370000	28
FCD110S5	2	110	220	160	180	138	2	795000	1370000	28
JC1	1	110	225	140	150	138	2	750000	1430000	28
JC2	1	110	235	160	180	141	2	835000	1550000	36



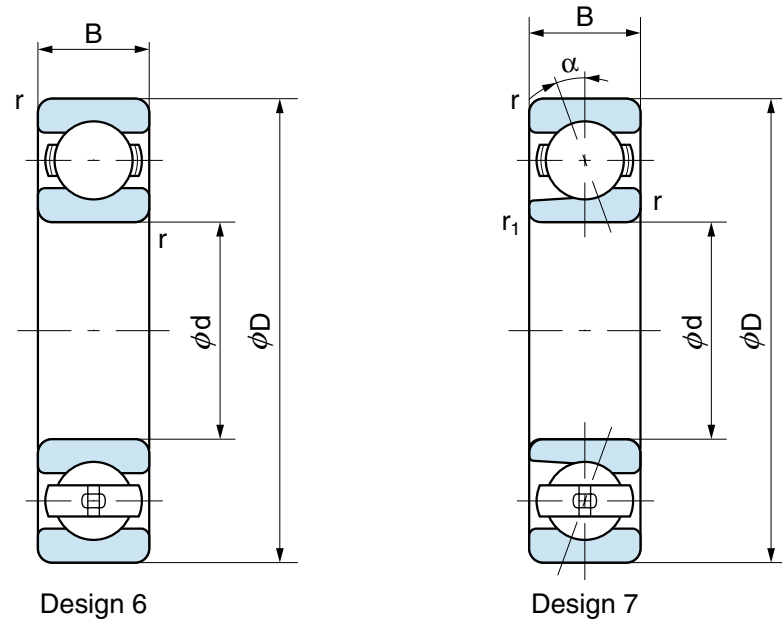


## Journal Bearings (Cylindrical roller, No rib on inner ring)

1N=0.102 kgf

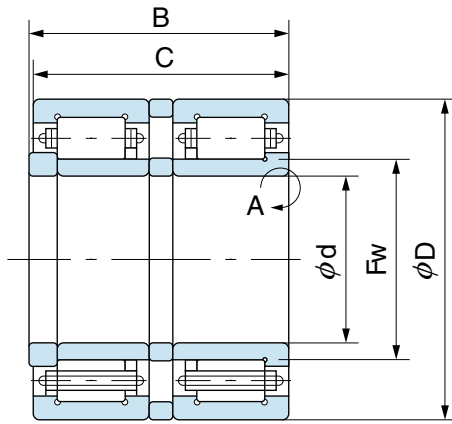
Bearing No.	Design No.	Boundary dimensions (mm)						Basic dynamic load rating Cr(N)	Basic static load rating Cor(N)	Mass (kg) Reference
		d	D	C	B	Fw	r			
FCF120S3	4	120	205	150	165	141	2	675000	1290000	18
FCF120S1	4	120	205	160	170	141	2	715000	1390000	19
FCF120S4	4	120	220	160	180	146	6	805000	1510000	23
FCD120S7	2	120	220	160	180	146	3	835000	1580000	23
JC11	1	120	240	160	180	150	2	810000	1580000	35
FCF120S2	4	120	240	160	180	150	2	960000	1700000	35
FCD120S1	2	120	260	190	195	154	4	1070000	1840000	50
FCF130S	4	130	220	160	180	152	2	785000	1550000	22
FCD130S	1	130	230	120	120	156	2	615000	1110000	19
FCF130S1	4	130	240	160	170	158	2	880000	1610000	35
JC5	1	130	260	160	180	163	2	875000	1710000	42
JC29	2	130	270	210	215	164	5	1170000	2000000	56
JC9	2	130	280	210	215	167	5	1070000	2090000	61
FCF130	5	130	280	210	215	167	5	1340000	2360000	61
FCD140B	2	140	300	225	230	180	5	1440000	2500000	76
FCD160S	1	160	270	130	140	187	2	850000	1600000	27
FCD160	1	160	280	150	180	190	2	970000	1820000	34

## Journal Bearings (Ball bearing for axial load)

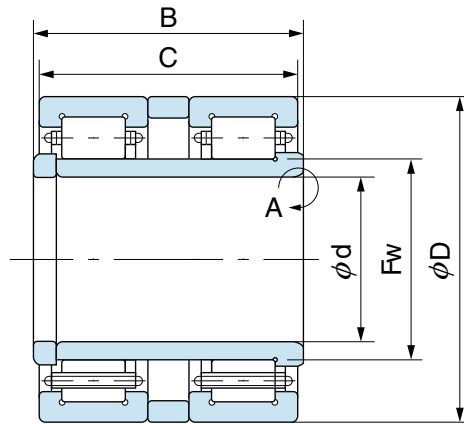


Bearing No.	Design No.	Boundary dimensions (mm)					Contact angle $\alpha^\circ$	Basic dynamic load rating $C_r(N)$	Basic static load rating $C_{or}(N)$	Mass (kg) Reference
		d	D	B	r	$r_1$				
JB8A	6	70	150	35	3.5	—	—	80000	153000	4
JB1D	7	85	180	41	4	2	20	98500	204000	5
JB1E	7	85	180	41	4	2	20	114000	255000	5
JB2	7	100	215	47	4	2	20	128000	292000	7
JB3	7	110	215	47	4	2	20	164000	355000	6
JB9	6	125	250	55	2	—	—	143000	350000	13
JB4	6	125	250	55	4	—	—	172000	395000	12

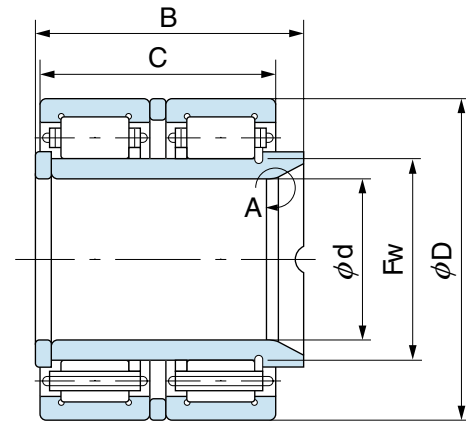
# Journal Bearings (Cylindrical roller, Rib on inner ring)



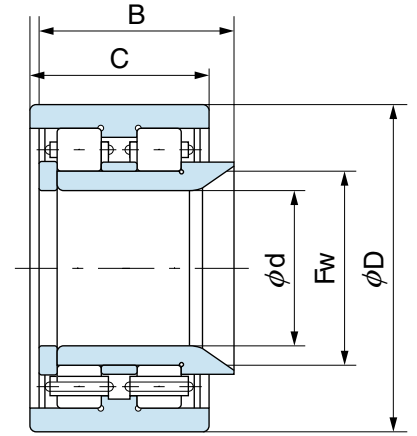
Design 1



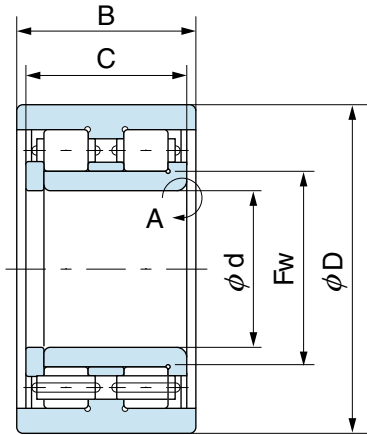
Design 2



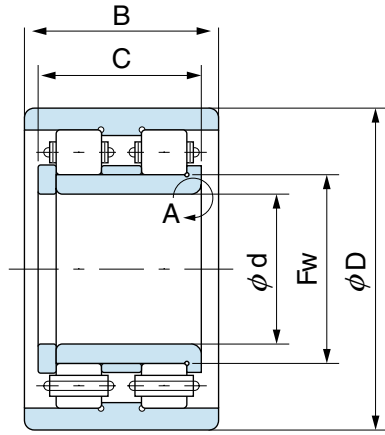
Design 3



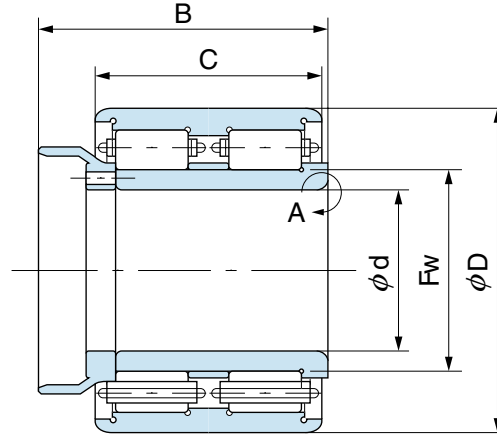
Design 4



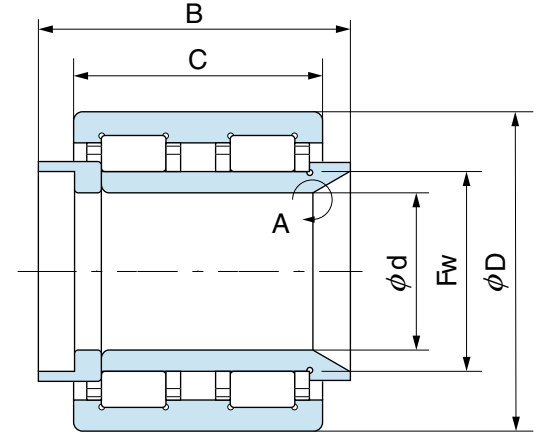
Design 5



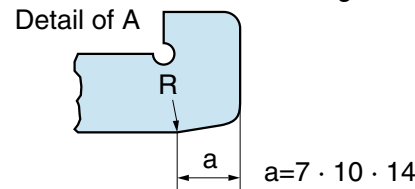
Design 6



Design 7



Design 8



## Journal Bearings (Cylindrical roller, Rib on inner ring)

1N=0.102 kgf

Bearing No.	Design No.	Boundary dimensions (mm)						Basic dynamic load rating Cr(N)	Basic static load rating Cor(N)	Mass (kg) Reference
		d	D	C	B	Fw	r			
FCD100S	1	100	200	170	170	125	4	650000	1100000	25
FCD110S3	1	110	220	160	180	138	3.5	795000	1370000	28
FCD110S7	2	110	220	175	180	138	3.5	715000	1190000	29
JC6	2	110	220	180	180	138	3.5	625000	1190000	30
FCD110S9	1	110	220	180	183	138	3.5	795000	1370000	30
FCD110S11	2	110	220	180	185	138	3.5	795000	1370000	31
JC36	7	120	220	145	171	146	1	700000	1120000	22
FCD120S20	7	120	220	160	229.5	146	1	755000	1230000	24
FCD120S21	5	120	220	160	185.5	146	1	815000	1320000	24
FCD120S22	8	120	220	160	242	144	1			
FCD120S9	1	120	220	180	183	142	3.5	835000	1580000	26
JC30 • 32	7	120	230	150	171	147	1	755000	1300000	30
JC34	2	120	230	165	170	150	3	935000	1440000	31
JC26	7	120	240	160	193	150	1	850000	1420000	35
JC12	2	120	240	176	180	150	4	805000	1580000	38
JC17	7	120	240	170	218	150	1	815000	1580000	40
FCD120S4	1	120	240	180	183	150	4	855000	1470000	35
FCD120S5	2	120	240	180	185	150	4	855000	1470000	35



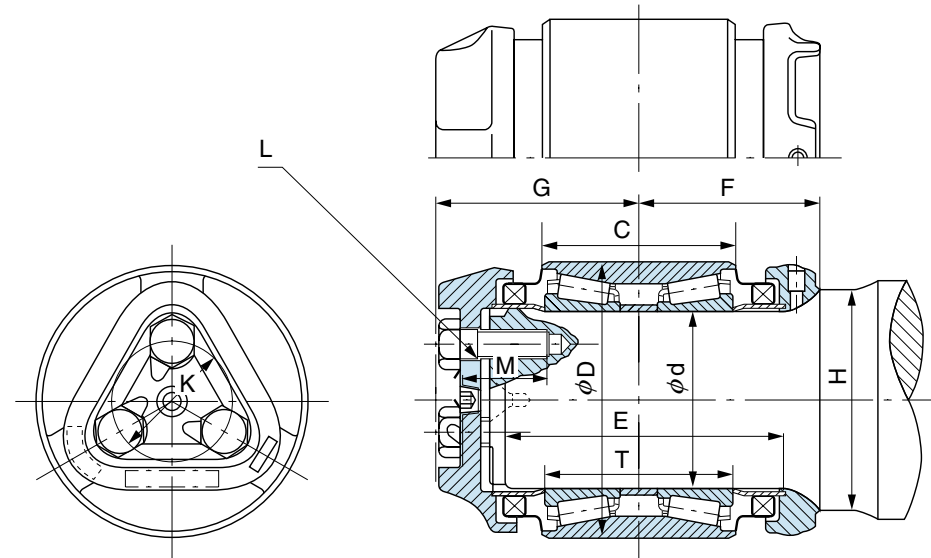


## Journal Bearings (Cylindrical roller, Rib on inner ring)

1N=0.102 kgf

Bearing No.	Design No.	Boundary dimensions (mm)						Basic dynamic load rating Cr(N)	Basic static load rating Cor(N)	Mass (kg) Reference
		d	D	C	B	Fw	r			
FCD120S6	<b>6</b>	120	260	158	135	154	0.5	740000	1100000	36
FCD120S3	<b>2</b>	120	260	190	195	154	4	1100000	1840000	50
JC38	<b>2</b>	125	235	165	170	150	3	940000	1460000	32
FCD130S8	<b>7</b>	130	240	160	229.5	158	1	855000	1350000	34
JC21	<b>3</b>	130	260	180	205.5	163	4	825000	1610000	46
FCD130S6	<b>2</b>	130	260	180	185	163	4	1030000	1610000	45
JC37	<b>2</b>	130	265	166	166	161.5	3	1140000	1710000	43
FCD130S3	<b>4</b>	130	270	153	165	160.5	3	715000	1110000	37
JC16	<b>2</b>	130	280	210	210	167	5	1070000	2090000	61

# Journal Bearings (Tapered roller)

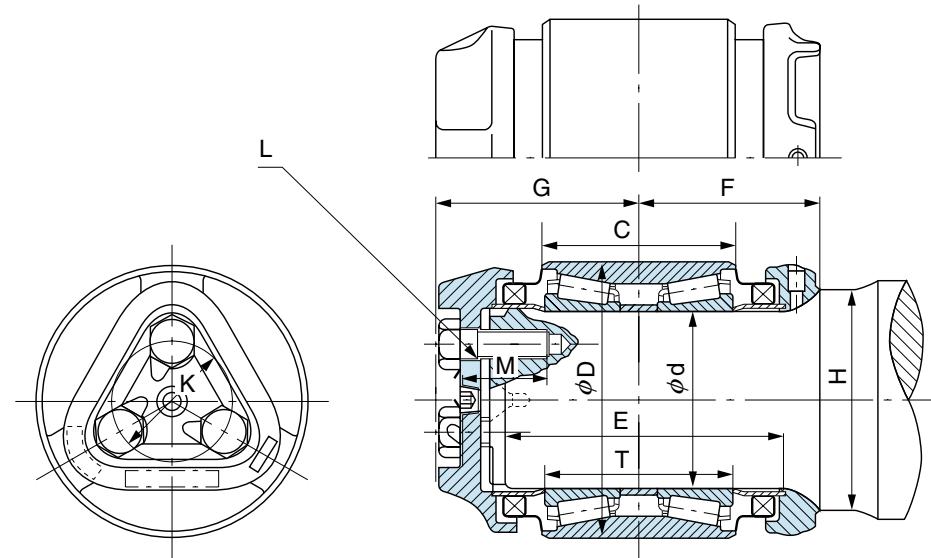


1N=0.102 kgf

Bearing No.	Axle class	Size of journal	Bearing No.	Boundary dimensions mm (inch)					
				d	D	C	T	E	F
JT 9	–	110	JT 9	110	175	130	125	206	130
JT14	–	110	JT14	110	190	150	145	–	150
JT10	–	120	JT10	120	195	142	136	217	142
JT12	–	120	JT12	120	220	155	155	–	155
JT11	–	130	JT11	130	208	152	146	227	152



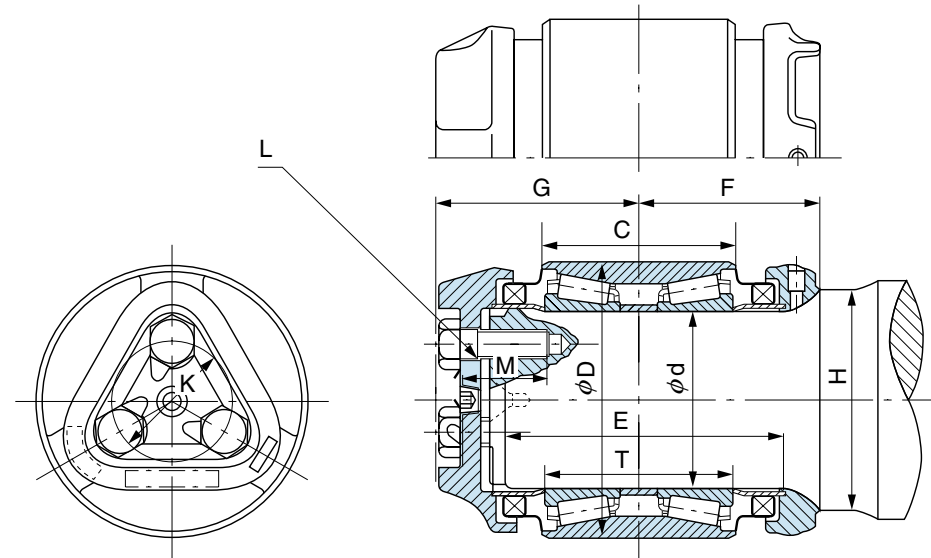
# Journal Bearings (Tapered roller)



1N=0.102 kgf

Bearing No.	Axle class	Size of journal	Bearing No.	Boundary dimensions mm (inch)					
				d	D	C	T	E	F
AP50B	B	4-1/4 × 8	HM120848N/ HM120817XDN	101.600 (4)	165.100 (6-1/2)	144.300 (4-1/12)	107.950 (4-1/4)	200.025 (7-5/8)	117.5 (4-5/8)
AP50C	C	5 × 9	HM124646N/ HM124618XDN	119.062 (4-11/160)	195.262 (7-11/16)	142.875 (5-5/8)	136.525 (5-3/8)	217.488 (8-9/16)	134.9 (5-5/16)
AP50D	D	5-1/2 × 10	HM127446N/ HM127415XDN	131.762 (5-3/16)	207.962 (8-3/16)	152.400 (6)	146.050 (5-3/4)	227.013 (8-15/16)	139.7 (5-1/2)

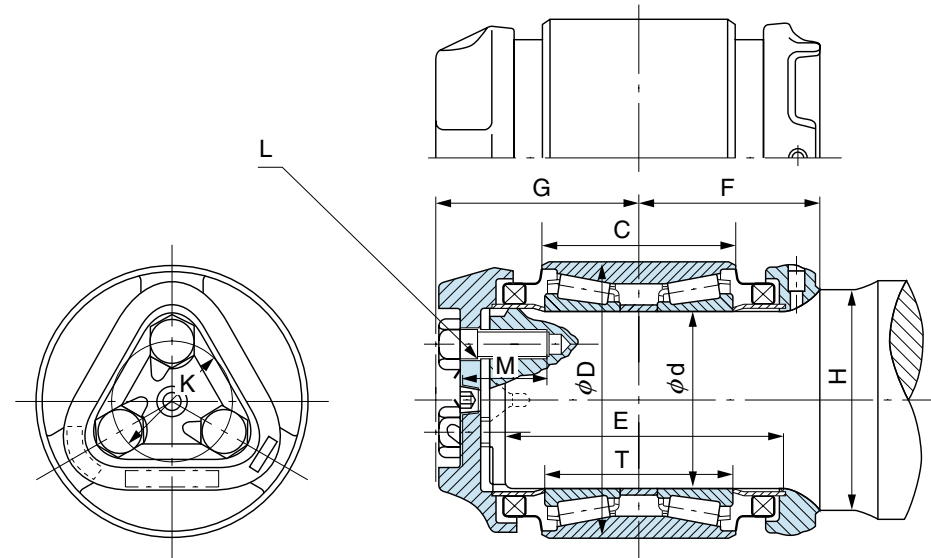
# Journal Bearings (Tapered roller)



1N=0.102 kgf

Bearing No.	Axle class	Size of journal	Bearing No.	Boundary dimensions mm (inch)					
				d	D	C	T	E	F
AP50E	E	6 ×11	HM129848N/ HM129814XDN	144.462 (5-11/16)	220.662 (8-11/16)	163.512 (6-7/16)	155.575 (6-1/8)	241.300 (9-1/2)	150.8 (5-15/16)
AP50F	F	6-1/2 ×12	HM133444N/ HM133416XDN	157.162 (6-3/16)	252.412 (9-15/16)	184.150 (7-1/4)	177.800 (7)	266.700 (10-1/2)	163.5 (6-7/16)
AP50G	G	7 ×12	HM136948N/ HM136916XDN	177.800 (7)	276.225 (10-7/8)	185.739 (7-5/16)	180.975 (7-1/8)	254.000 (10)	150.8 (5-15/16)

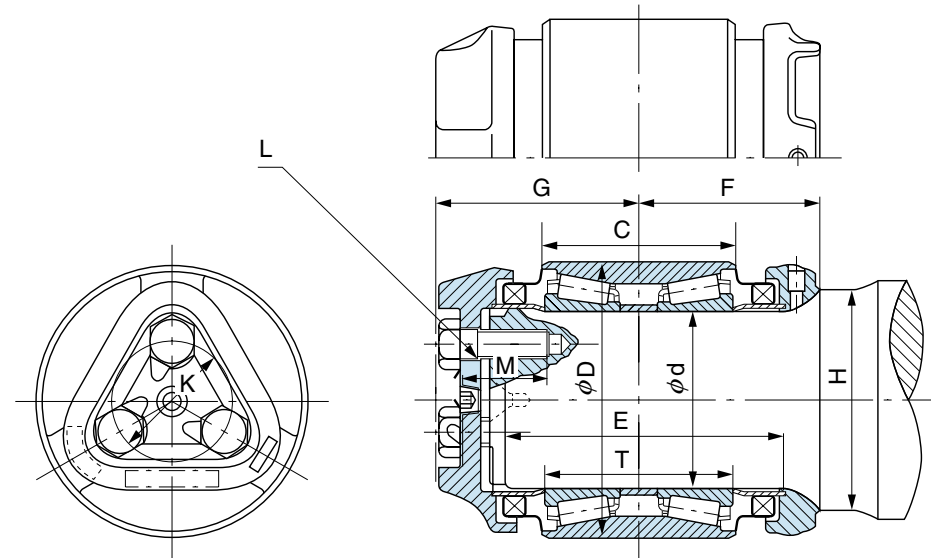
# Journal Bearings (Tapered roller)



1N=0.102 kgf

Bearing No.	Boundary dimensions mm (inch)					Basic dynamic load rating Cr(N)	Basic static load rating Cor(N)	Mass (kg) Reference
	G	H	K	L	M			
JT 9	140.5	155	75	M22	50	375000	935000	22
JT14	134.4	150	75	M22	60	600000	1110000	25
JT10	149	155	75	M22	50	495000	1250000	27
JT12	159.4	150	75	M22	60	840000	1540000	39
JT11	150.7	165	89	M22	50	510000	1250000	30

# Journal Bearings (Tapered roller)

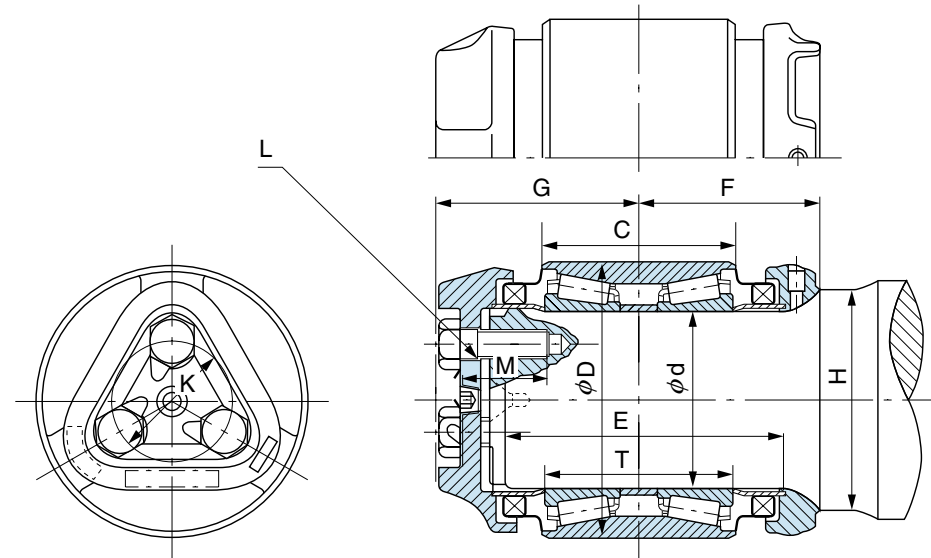


1N=0.102 kgf

Bearing No.	Boundary dimensions mm (inch)					Basic dynamic load rating Cr(N)	Basic static load rating Cor(N)	Mass (kg) Reference
	G	H	K	L	M			
AP50B	130.2 (5-1/8)	127 (5)	61.9 (2-7/16)	3/4-10UNC-2A	44.45 (1-3/4)	390000	800000	20
AP50C	147.6 (5-13/16)	149.2 (5-7/8)	76.2 (3)	7/8-9UNC-2A	50.80 (2)	590000	1250000	33
AP50D	149.2 (5-7/8)	161.9 (6-3/8)	88.9 (3-1/2)	7/8-9UNC-2A	50.80 (2)	590000	1250000	37



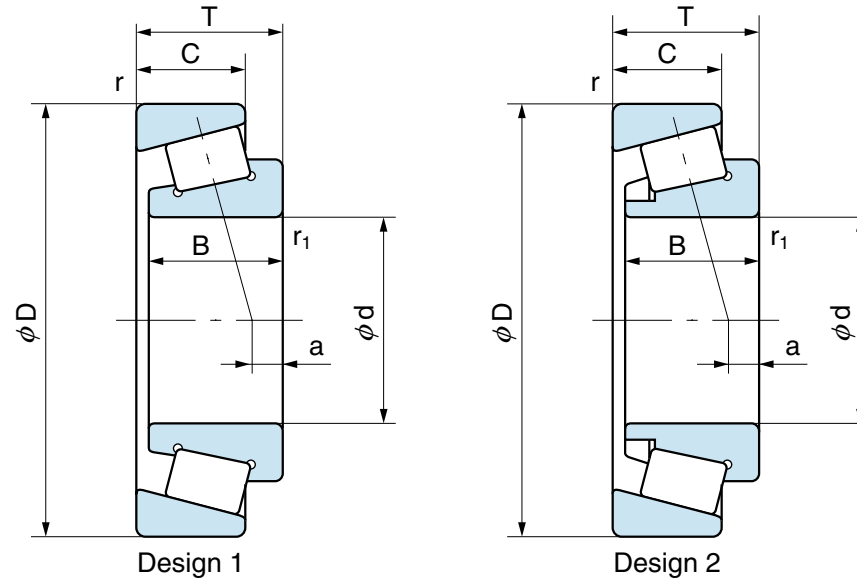
## Journal Bearings (Tapered roller)



1N=0.102 kgf

Bearing No.	Boundary dimensions mm (inch)					Basic dynamic load rating Cr(N)	Basic static load rating Cor(N)	Mass (kg) Reference
	G	H	K	L	M			
AP50E	165.1 (6-1/2)	177.8 (7)	98.4 (3-7/8)	1-8UNC-2A	57.15 (2-1/4)	650000	1480000	47
AP50F	176.2 (6-15/16)	190.5 (7-1/2)	108.0 (4-1/4)	1-1/8-7UNC-2A	63.50 (2-1/2)	900000	1930000	66
AP50G	177.8 (7)	203.2 (8)	117.5 (4-5/8)	1-1/4-7UNC-2A	69.85 (2-3/4)	975000	2170000	86

# Bearings for Pinion

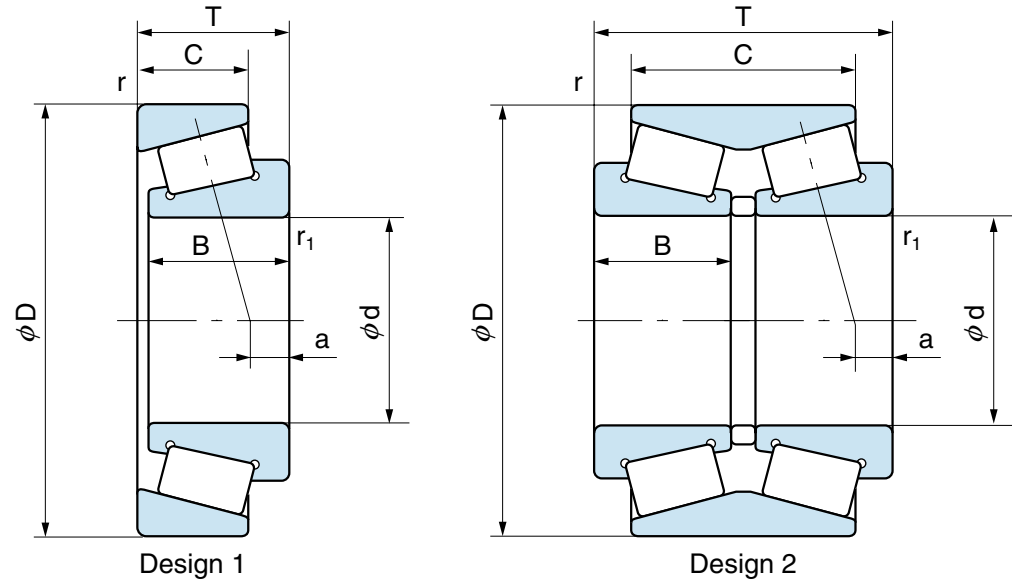


1N=0.102 kgf

Bearing No.	Design No.	Boundary dimensions (mm)							Load center (mm)		Basic dynamic load rating Cr(N)	Basic static load rating Cor(N)	Mass (kg) Reference
		d	D	T	C	B	r	r <sub>1</sub>	a <sup>(1)</sup>	e			
QT9	1	70	150	38	25	35	2.5	3	-8.2	0.81	165000	200000	3
QT9B-2	2	70	150	38	25	35	2.5	3	-8.2	0.81	165000	200000	3
QT31	2	70	150	40	27	37	2.5	3	-6.5	0.81	175000	205000	3
30315ED	1	75	160	40	27	37	2.5	3	7.6	0.35	212000	238000	3
QT7	1	75	160	40	27	37	2.5	3	-10.2	0.81	192000	218000	3
TSM15ED	2	75	175	52	40	50	3	3.5	8.1	0.46	282000	320000	6
QT4	1	80	170	42.5	28	39	3	3.5	-10.0	0.81	221000	256000	4
QT18	1	85	180	45.5	29	42	3	4	-9.5	0.81	244000	284000	5

Note: (1) Minus value of load center indicates center is outside cone backface.

# Bearings for Gearwheel



1N=0.102 kgf

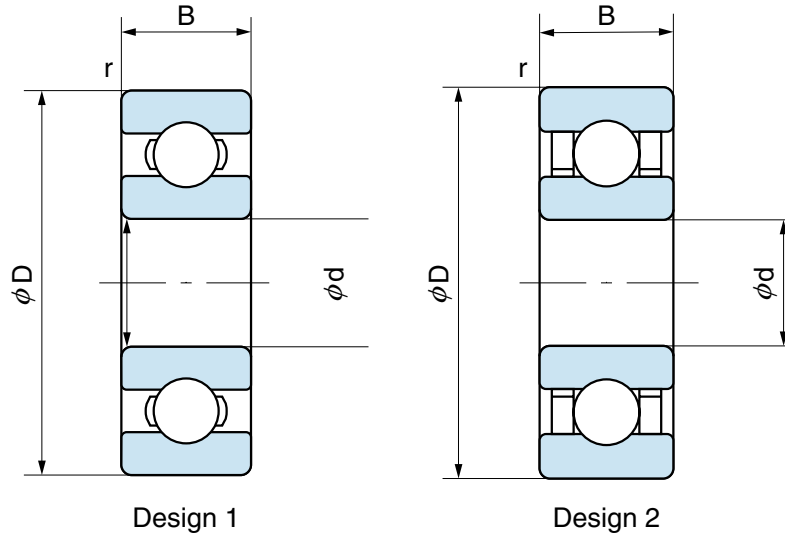
Bearing No.	Design No.	Boundary dimensions (mm)							Load center (mm)		Basic dynamic load rating Cr(N)	Basic static load rating Cor(N)	Mass (kg) Reference
		d	D	T	C	B	r	r <sub>1</sub>	a <sup>(1)</sup>	e			
32936ED	1	180	250	45	34	45	2	2.5	-3.7	0.39	325000	620000	
QT1	2	190	280	110	85	46	1	4	-23.0	0.67	575000	1170000	23
32038ED	1	190	290	64	48	64	2.5	3	2.4	0.37	550000	955000	14
QT6	2	190	300	110	85	46	1	4	-26.5	0.67	670000	1260000	27
QT29	1	193.675	282.575	50.8	36.513	47.625	2.5	3	-4.3	0.42	345000	605000	11
QT26	1	195	280	58	41	60	3.5	3.5	4.4	0.37	410000	745000	11
QT25	1	200	280	51	41	48	2.5	3	-3.6	0.37	345000	680000	10
32940ED	1	200	280	51	41	48	2.5	3	-3.6	0.37	345000	680000	10
QT13	2	200	290	110	85	46	1	4	-26.5	0.67	605000	1280000	21

Note: (1) Minus value of load center indicates center is outside cone backface.





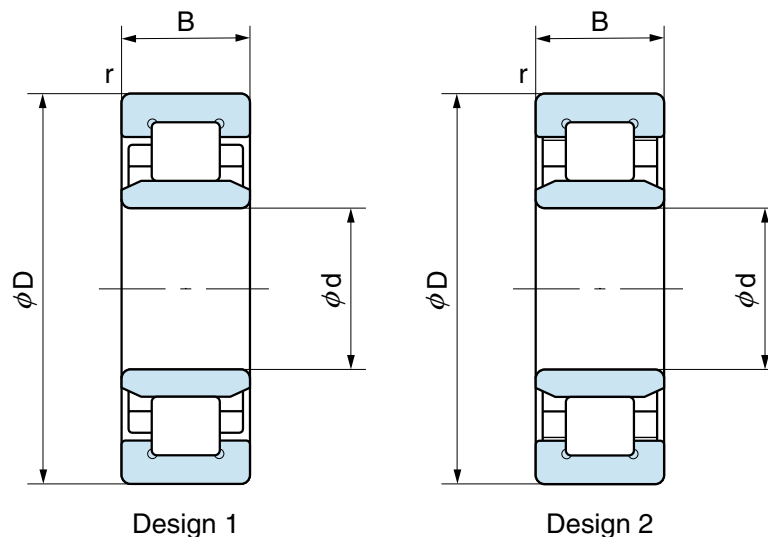
# Ball Bearings for Traction Motor



1N=0.102 kgf

Bearing No.	Design No.	Boundary dimensions (mm)					Basic dynamic load rating Cr(N)	Basic static load rating Cor(N)	Mass (kg) Reference
		d	D	C	B	r			
6311JT	1	55	120	29	29	2	71500	44500	1.4
6312JT	1	60	130	31	31	2.1	81500	52000	1.7
6314JT	1	70	150	35	35	2.1	104000	68000	2.5
6219JT	1	95	170	32	32	2.1	109000	815000	2.6
6219T	2	95	170	32	32	2.1	109000	815000	3.0

# Cylindrical Roller Bearings for Traction Motor



1N=0.102 kgf

Bearing No.	Design No.	Boundary dimensions (mm)				Basic dynamic load rating Cr(N)	Basic static load rating Cor(N)	Mass (kg) Reference
		d	D	B	r			
NU214T	1	70	125	24	1.5	83000	95000	1.5
NU314T	1	70	150	35	2.1	158000	220000	3.1
NU315T	1	75	160	37	2.1	190000	205000	4.0
NU316T	1	80	170	39	2.1	190000	207000	4.6
NU316TSL	2	80	170	39	2.1			
NU219T	1	95	170	32	2.1	165000	195000	3.5
NU219TS	2	95	170	32	2.1			
NU220T	1	100	180	34	2.1	183000	217000	4.3