

FLT BEARINGS



TURNING IDEAS



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All F&T factories conform to quality control and quality assurance systems in accordance with ISO 9001 standards.

This catalog contains basic information on F&T bearings.

Our F&T specialists would help you regarding our product whenever the need would arise.

GENERAL INFORMATION

Materials: Bearing rings and rolling elements are produced of through hardened bearing high chrome carbon steel. Bearing cages are produced of pressed steel, brass or polyamid/nylon. However, in standard executions, pressed steel cage is used.

Dimensions: Boundary dimensions of standard bearings conform to ISO 15, ISO 355 and ISO 104 standards. Dimensions of special bearings are not standardized.

Tolerances: Dimensional and running accuracy conform to ISO 492, ISO 578, ISO 199 and ISO 582 standards. FLT bearings are produced mainly in tolerance class 0 (P0).

Internal clearance: Clearance of standard bearings conforms to ISO 5753 standard. Bearings of different clearances can be supplied upon request.

Basic load rating: C and Co ratings in the catalogue are calculated in accordance with ISO 281 and ISO 76 standards.

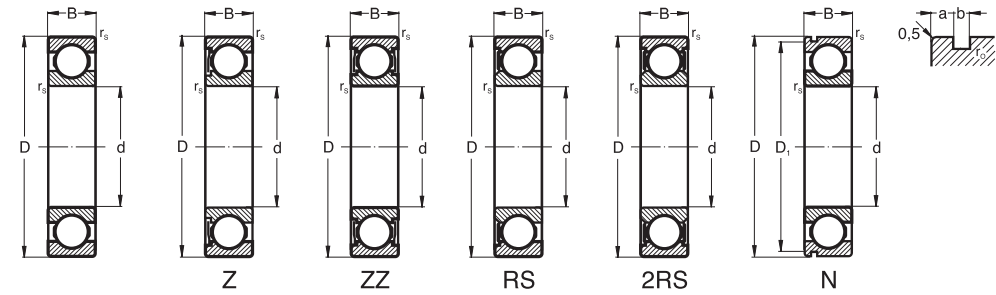
Basic rating life: can be calculated in accordance with ISO 281 and ISO 76 standards. This also applies to adjusted rating life with the use of factors a1, a2 and a3. Tests have confirmed that factors a2 and a3 can be used for calculating adjusted rating life.

DEEP GROOVE BALL BEARINGS



FLT Deep groove ball

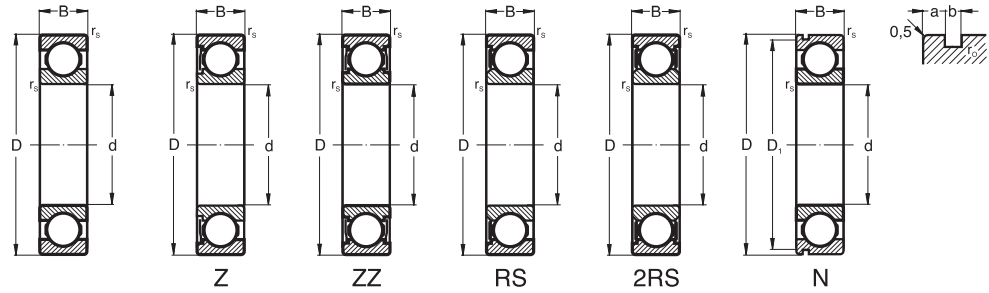
Single row



SUFFIX	Deep groove ball bearings (single row)
Z	metal shield at one side of the bearing
ZZ	metal shields at both sides of the bearing
RS	rubber seal at one side of the bearing
2RS	rubber seals at both sides of the bearing
N	snap ring groove in outer ring
ZN	shield at one side of the bearing and snap ring groove at the other side
M	machined brass cage
MA	machined brass cage centred on the outer ring
TN	polyamid cage
P6	accuracy to ISO tolerance class 6
P5	accuracy to ISO tolerance class 5
C0	standard clearance (not mentioned/mentioned on bearing)
C2	radial clearance less the normal
C3	radial clearance greater than normal
C4	radial clearance greater than C3
P63	accuracy to ISO class P6 and clearance C3

FLT Deep groove ball bearings

Single row

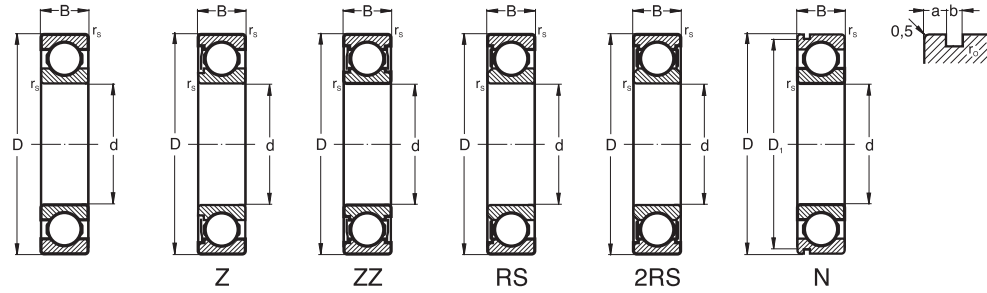


DIMENSIONS								BASIC LOAD RATING		LIMITING SPEEDS		MASS ~ kg	BASIC DESIGNATION	MODIFICATION					
d	D	B	r _s min	D ₁	a ~	b	r _o max	dynamic C	static C ₀	grease*	oil			Z	ZZ	RS	2RS	N	ZN
mm								kN		r/min									
3	10	4	0.15					0.64	0.22	40 000	48 000	0.001	623		•				
4	13	5	0.2					0.98	0.30	48 000	56 000	0.003	624	•	•	•	•		
	16	5	0.3					1.73	0.67	34 000	40 000	0.006	634		•	•			
5	13	4	0.2					1.08	0.42	38 000	45 000	0.003	695		•				
	16	5	0.3					1.10	0.38	43 000	50 000	0.005	625	•	•	•	•		
	19	6	0.3					2.60	1.10	32 000	38 000	0.009	635		•				
6	15	5	0.2					1.48	0.60	38 000	45 000	0.004	696		•				
	19	6	0.3					2.24	0.92	36 000	43 000	0.009	626	•	•	•	•		
	22	7	0.3					2.54	1.36	30 000	36 000	0.003	636		•				
7	19	6	0.3					2.88	1.08	28 000	36 000	0.008	607	•	•	•	•		
	22	7	0.3					3.28	1.35	32 000	38 000	0.010	627	•	•	•	•		
8	16	5	0.3					1.31	0.53	36 000	43 000	0.003	688		•				
	22	7	0.3					3.30	1.40	32 000	38 000	0.012	608	•	•	•	•		
	24	8	0.3					3.35	1.40	28 000	34 000	0.017	628	•	•	•	•		
	28	9	0.3					4.30	1.98	28 000	34 000	0.021	638		•				
9	17	5	0.3					1.37	0.71	34 000	40 000	0.004	689		•				
	24	7	0.3					3.35	1.45	30 000	36 000	0.014	609	•	•	•	•		
	26	8	0.6					4.58	2.02	26 000	32 000	0.020	629	•	•	•	•		
10	22	6	0.3					2.20	0.84	30 000	36 000	0.010	61900				•		
	26	8	0.3					4.58	2.02	28 000	34 000	0.019	6000	•	•	•	•		
	30	9	0.6	28.17	2.06	1.35	0.4	5.05	2.28	24 000	30 000	0.032	6200	•	•	•	•	•	
	35	11	0.6					7.65	3.49	20 000	26 000	0.058	6300	•	•	•	•		
12	21	5	0.3					1.52	0.67	30 000	36 000	0.006	61801				•		
	24	6	0.3					1.52	0.67	28 000	34 000	0.012	61901				•		
	28	8	0.3					5.10	2.40	26 000	32 000	0.022	6001	•	•	•	•		
	32	10	0.6	30.15	2.06	1.35	0.4	6.90	3.20	22 000	28 000	0.037	6201	•	•	•	•	•	
	32	14	0.6	34.77	2.06	1.35	0.4	6.90	3.20	19 000	24 000	0.052	62201				•	•	
	37	12	1.0					9.71	4.36	19 000	24 000	0.060	6301	•	•	•	•		
15	28	7	0.3					1.65	0.80	24 000	28 000	0.017	61902		•		•		
	32	8	0.3					5.60	2.85	22 000	28 000	0.027	16002		•		•		
	32	9	0.3	30.15	2.06	1.35	0.4	5.60	2.85	22 000	28 000	0.030	6002	•	•	•	•		
	35	11	0.6	33.17	2.06	1.35	0.4	7.74	3.83	19 000	24 000	0.045	6202	•	•	•	•	•	
	35	14	0.6					7.65	3.60	20 000	24 000	0.053	62202			•	•		
	42	13	1.0	39.75	2.06	1.35	0.4	11.37	5.50	17 000	20 000	0.082	6302	•	•	•	•		
17	30	7	3.0					4.36	2.32	22 000	28 000	0.018	61903						
	35	8	0.3					6.00	3.25	19 000	24 000	0.030	16003		•				
	35	10	0.3	33.17	2.06	1.35	0.4	6.00	3.25	19 000	24 000	0.039	6003	•	•	•	•		
	40	12	0.6	38.10	2.06	1.35	0.4	9.57	4.86	17 000	20 000	0.065	6203	•	•	•	•	•	
	47	14	1.0	44.60	2.46	1.35	0.4	12.80	6.68	16 000	19 000	0.115	6303	•	•	•	•	•	
	62	17	1.1	59.61	3.28	1.90	0.6	23.00	11.90	12 000	15 000	0.270	6403						
20	32	7	0.3					3.45	2.24	17 000	22 000	0.018	61804		•				
	37	9	0.3					6.37	3.65	17 000	22 000	0.038	61904	•			•		
	42	8	0.3					7.93	4.46	18 000	22 000	0.050	16004						
	42	12	0.6	39.75	2.06	1.35	0.4	9.40	5.05	17 000	20 000	0.069	6004	•	•	•	•		
	47	14	1.0	44.60	2.46	1.35	0.4	12.80	6.68	15 000	18 000	0.106	6204	•	•	•	•	•	
	47	18	1.0					12.70	6.55	10 000	13 000	0.131	62204			•	•		
	52	15	1.1	49.73	2.46	1.35	0.4	15.94	8.07	13 000	16 000	0.144	6304	•	•	•	•	•	
	72	19	1.1	68.81	3.28	1.90	0.6	30.05	15.00	10 000	13 000	0.400	6404						

*Limiting speeds for bearings in RS and 2RS amount to only two-thirds of the values given in the Table

FLT Deep groove ball bearings

Single row

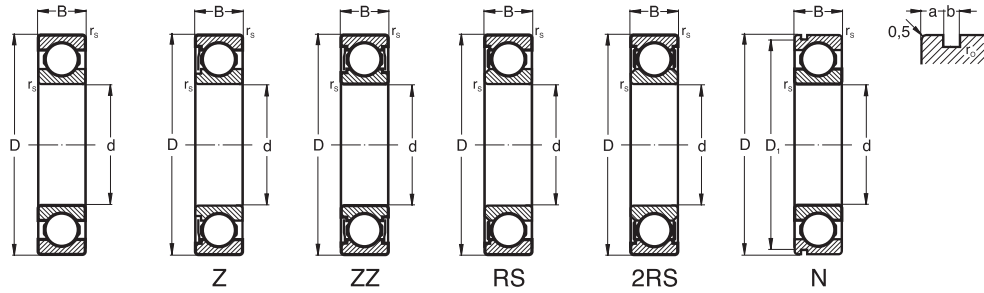


DIMENSIONS								BASIC LOAD RATING		LIMITING SPEEDS		MASS ~ kg	BASIC DESIGNATION	MODIFICATION								
d	D	B	r _s min	D ₁	a ~	b	r _o max	dynamic C	static C ₀	grease*	oil			Z	ZZ	RS	2RS	N	ZN			
mm								kN		r/min												
25	37	7	0.3					3.80	2.80	19 000	24 000	0.021	61805		•							
	42	9	0.3					7.02	4.30	17 000	22 000	0.045	61905				•					
	47	8	0.3					9.07	5.28	14 000	17 000	0.060	16005	•								
	47	12	0.6	44.60	2.06	1.35	0.4	11.25	6.49	15 000	18 000	0.080	6005	•	•	•	•	•				
	52	15	1.0	49.73	2.46	1.35	0.4	14.04	7.90	12 000	15 000	0.129	6205	•	•	•	•	•	•			
	52	18	1.0					14.04	7.90	12 000	15 000	0.153	62205				•					
	62	17	1.1	59.61	3.28	1.90	0.6	22.41	11.78	11 000	14 000	0.232	6305	•	•	•	•	•	•			
30	80	21	1.5	76.81	3.88	1.90	0.6	36.00	19.30	9 000	11 000	0.530	6405					•				
	42	7	0.3					4.15	3.35	16 000	19 000	0.025	61806		•		•					
	47	9	0.3					7.28	4.55	16 000	19 000	0.051	61906				•					
	55	9	0.3					11.20	7.35	12 000	15 000	0.085	16006									
	55	13	1.0	52.60	2.06	1.35	0.4	13.24	8.22	12 000	15 000	0.116	6006	•	•	•	•	•				
	62	16	1.0	59.61	3.28	1.90	0.6	19.49	11.35	10 000	13 000	0.200	6206	•	•	•	•	•				
	62	20	1.0					19.46	11.31	7 500	9 000	0.236	62206				•					
35	62	20	1.0	68.81	3.28	1.90	0.6	28.70	15.80	9 000	11 000	0.346	6306	•	•	•	•	•				
	90	23	1.5	86.79	3.88	2.70	0.6	43.30	24.00	8 500	10 000	0.375	6406						•			
	47	7	0.3					4.45	3.20	13 000	16 000	0.030	61807									
	55	10	0.6					9.50	6.80	10 000	13 000	0.076	61907				•					
	62	9	0.3					12.20	8.80	10 000	13 000	0.110	16007	•	•							
	62	14	1.0	59.61	2.06	1.35	0.6	15.90	10.30	10 000	13 000	0.155	6007	•	•	•	•	•	•			
	62	20	1.0					16.00	10.30	10 000	13 000	0.210	63007				•					
40	72	17	1.1	68.81	3.28	1.90	0.6	25.70	15.30	9 000	11 000	0.288	6207	•	•	•	•	•	•			
	80	21	1.5	76.81	3.28	1.90	0.6	33.60	21.00	8 500	10 000	0.457	6307	•	•	•	•	•	•			
	100	25	1.5	96.80	3.88	2.70	0.6	54.60	30.60	7 000	8 500	0.952	6407					•				
	62	12	0.6					13.70	10.00	10 500	12 500	0.110	61908									
	68	9	0.3					13.20	10.20	9 500	12 000	0.125	16008	•								
	68	15	1.0	64.82	2.49	1.90	0.6	16.80	11.50	9 500	12 000	0.192	6008	•	•	•	•	•	•			
	80	18	1.1	76.81	3.28	1.90	0.6	29.10	17.90	8 500	10 000	0.366	6208	•	•	•	•	•	•			
45	90	23	1.5	86.79	3.28	2.70	0.6	40.70	24.00	7 500	9 000	0.633	6308	•	•	•	•	•	•			
	110	27	2.0	106.81	3.88	2.70	0.6	64.10	34.60	6 700	8 000	1.230	6408									
	68	12	0.6					14.00	10.80	10 000	12 000	0.130	61909		•							
	75	10	0.6					15.60	12.20	9 000	11 000	0.170	16009									
	75	16	1.0	71.83	2.49	1.90	0.6	21.20	15.20	9 000	11 000	0.250	6009	•	•	•	•	•	•			
	85	19	1.1	81.81	3.28	1.90	0.6	32.70	20.50	7 500	9 000	0.407	6209	•	•	•	•	•	•			
	100	25	1.5	96.80	3.28	2.70	0.6	53.00	32.10	6 700	8 000	0.833	6309	•	•	•	•	•	•			
50	120	29	2.0	115.21	4.06	3.10	0.6	76.90	45.00	6 000	7 000	1.530	6409					•				
	72	12	0.6					14.60	11.80	9 500	12 000	0.140	61910	•								
	80	10	0.6					16.20	13.20	8 500	10 000	0.180	16010									
	80	16	1.0	76.81	2.49	1.90	0.6	21.80	16.60	8 500	10 000	0.261	6010	•	•	•	•	•	•			
	90	20	1.1	86.79	3.28	1.90	0.6	35.10	23.20	7 000	8 500	0.463	6210	•	•	•	•	•	•			
	110	27	2.0	106.81	3.28	2.70	0.6	61.80	37.90	6 300	7 500	1.070	6310	•	•	•	•	•	•			
	130	31	2.1	125.22	4.06	3.10	0.6	91.60	54.30	5 300	6 300	1.880	6410					•				
55	90	11	0.6					16.40	14.20	7 500	9 000	0.260	16011									
	90	18	1.1	86.79	2.87	2.70	0.6	28.30	21.30	7 500	9 000	0.385	6011	•	•	•	•	•	•			
	100	21	1.5	96.80	3.28	2.70	0.6	43.40	29.20	6 300	7 500	0.607	6211	•	•	•	•	•	•			
	120	29	2.0	115.21	4.06	3.10	0.6	71.50	44.60	5 600	6 700	1.370	6311	•	•	•	•	•	•			
	140	33	2.1	135.23	4.90	3.10	0.6	100.00	62.00	5 000	6 000	2.300	6411					•				

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F&T Deep groove ball bearings

Single row

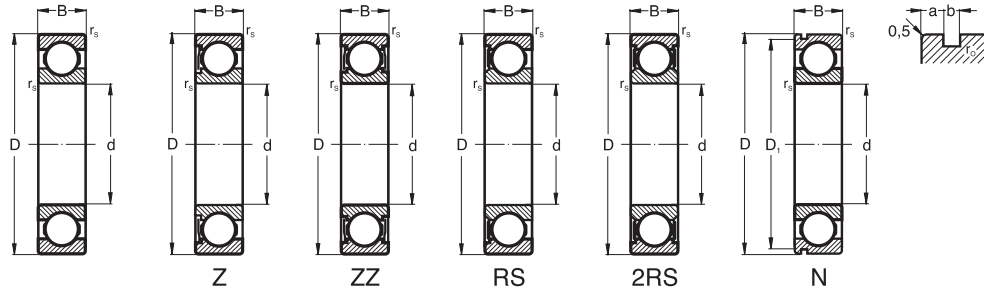


DIMENSIONS								BASIC LOAD RATING		LIMITING SPEEDS		MASS ~ kg	BASIC DESIGNATION	MODIFICATION					
d	D	B	rs min	D _i	a ~	b	r ₀ max	dynamic C	static C ₀	grease*	oil			Z	ZZ	RS	2RS	N	ZN
mm								kN		r/min									
60	85	13	1.0					16.30	14.30	7 500	9 000	0.210	61912				•		
	95	11	0.6					20.00	17.60	6 700	8 000	0.280	16012						
	95	18	1.1	91.82	2.87	2.70	0.6	29.40	23.20	6 700	8 000	0.415	6012	•	•	•	•	•	•
	110	22	1.5	106.81	3.28	2.70	0.6	46.10	33.10	6 000	7 000	0.783	6212	•	•	•	•	•	•
	130	31	2.1	125.22	4.06	3.10	0.6	81.80	51.80	5 000	6 000	1.790	6312	•	•			•	•
150	35	2.1	145.25	4.90	3.10	0.6	109.00	70.00	4 800	5 600	2.770	6412						•	
65	100	11	0.6					21.20	19.60	6 700	8 000	0.300	16013						
	100	18	1.1	96.80	2.87	2.70	0.6	30.50	25.20	6 300	7 500	0.435	6013	•	•	•	•	•	•
	120	23	1.5	115.21	4.06	2.70	0.6	57.20	40.00	5 300	6 300	0.990	6213	•	•	•	•	•	•
	140	33	2.1	135.23	4.90	3.10	0.6	93.00	56.00	4 800	5 600	2.080	6313	•	•	•	•	•	•
	160	37	2.1	155.22	4.90	3.10	0.6	118.00	78.60	4 500	5 300	3.300	6413						•
70	90	10	0.6					12.50	12.50	6 700	8 000	0.140	61814		•				
	110	20	1.1	106.81	2.87	3.10	0.6	38.00	30.90	6 000	7 000	0.600	6014	•	•	•	•	•	•
	125	24	1.5	120.22	4.06	3.10	0.6	62.20	44.00	5 000	6 000	1.070	6214	•	•	•	•	•	•
	150	35	2.1	145.24	4.90	3.10	0.6	104.00	63.00	4 500	5 300	2.520	6314	•	•	•	•	•	•
	180	42	3.0	173.66	5.69	3.50	0.6	143.00	104.00	3 800	4 500	4.830	6414						•
75	115	13	0.6					28.50	27.00	5 600	6 700	0.460	16015						
	115	20	1.1	111.81	2.87	3.10	0.6	39.50	33.60	5 600	6 700	0.630	6015	•	•		•	•	
	130	25	1.5	125.22	4.06	3.10	0.6	66.20	49.30	4 800	5 600	1.180	6215	•	•	•	•	•	•
	160	37	2.1	155.22	4.90	3.10	0.6	113.40	77.00	4 300	5 000	3.000	6315	•	•	•	•	•	•
	190	45	3.0	183.64	5.69	3.50	0.6	153.00	114.00	3 600	4 300	6.800	6415						•
80	125	14	0.6					32.00	31.00	5 300	6 300	0.609	16016						
	125	22	1.1	120.22	2.87	3.10	0.6	47.60	39.70	5 300	6 300	0.850	6016	•		•	•	•	
	140	26	2.0	135.23	4.90	3.10	0.6	72.70	53.00	4 500	5 300	1.400	6216	•	•	•	•	•	•
	170	39	2.1	163.65	5.69	3.50	0.6	124.00	80.00	3 800	4 500	3.600	6316		•	•	•	•	•
	200	48	3.0	193.65	5.69	3.50	0.6	163.00	125.00	2 500	3 200	8.000	6416						•
85	110	13	1.0					19.30	20.00	5 300	6 300	0.270	61817						
	120	18	1.1					32.00	29.00	5 300	6 300	0.550	61917						
	130	22	1.1	125.22	2.87	3.10	0.6	49.50	43.00	5 000	6 000	0.890	6017		•		•	•	
	150	28	2.0	145.24	4.90	3.10	0.6	77.00	59.00	4 300	5 000	1.790	6217			•	•	•	•
	180	41	3.0	173.66	5.69	3.50	0.6	133.00	90.00	3 600	4 300	4.230	6317		•		•	•	•
90	140	16	1.0					41.50	39.00	4 500	5 300	0.860	16018						
	140	24	1.5	135.23	3.71	3.10	0.6	58.20	46.60	4 800	5 600	1.160	6018	•	•			•	
	160	30	2.0	155.22	4.90	3.10	0.6	102.40	75.90	3 800	4 500	2.150	6218		•	•	•	•	•
	190	43	3.0	183.64	5.69	3.50	0.6	143.00	98.00	3 400	4 000	4.900	6318		•		•	•	•
	130	18	1.0					33.80	33.50	5 300	6 300	0.610	61919						
95	145	24	1.5	140.23	3.71	3.10	0.6	60.50	53.70	4 500	5 300	1.210	6019		•			•	
	170	32	2.1	163.65	5.69	3.50	0.6	108.70	81.70	3 600	4 300	2.620	6219	•		•	•	•	•
	200	45	3.0	193.65	5.69	3.50	0.6	153.00	110.00	3 200	3 800	5.620	6319				•	•	•
	150	24	1.5	145.24	3.71	3.10	0.6	60.10	54.20	4 300	5 000	1.250	6020	•			•	•	
	180	34	2.1	173.66	5.69	3.50	0.6	122.10	92.70	3 400	4 000	3.140	6220		•			•	•
215	47	3.0					175.00	131.00	3 000	3 600	7.000	6320		•		•		•	
105	130	13	1.1					16.30	19.00	5 300	6 300	0.320	61821						
	160	26	2.0	155.22	3.71	3.10	0.6	72.50	65.50	4 000	4 800	1.540	6021					•	
	190	36	2.1	183.64	5.69	3.50	0.6	133.00	104.50	3 200	3 800	3.700	6221				•	•	•
	225	49	3.0					173.00	146.00	2 800	3 400	8.050	6321					•	•

*Limiting speeds for bearings in RS and 2RS amount to only two-thirds of the values given in the Table

F&T Deep groove ball bearings

Single row

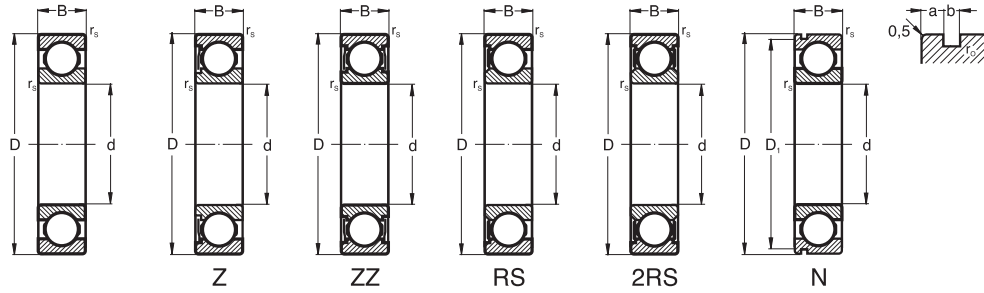


DIMENSIONS								BASIC LOAD RATING		LIMITING SPEEDS		MASS	BASIC DESIGNATION	MODIFICATION					
d	D	B	r _s min	D ₁	a ~	b	r _o max	dynamic C	static C ₀	grease*	oil	~		Z	ZZ	RS	2RS	N	ZN
mm								kN		r/min		kg							
110	140	16	1.0					28.10	26.00	4 800	5 600	0.500				•	•		
	170	19	1.0					57.00	57.00	3 800	4 500	1.520							
	170	28	2.0	163.65	3.71	3.50	0.6	82.00	72.80	3 800	4 500	1.960						•	
	200	38	2.1	193.65	5.69	3.50	0.6	144.10	117.00	3 000	3 600	4.360		•				•	
	240	50	3.0					207.00	167.00	2 600	3 200	9.540		•					
120	165	22	1.1					55.30	57.00	4 300	5 000	1.200							
	180	19	1.0					63.70	64.00	4 000	4 800	1.600							
	180	28	2.0	173.66	3.71	3.50	0.6	84.00	61.00	3 400	4 000	2.070		•				•	
	215	40	2.1					153.00	112.00	2 800	3 400	5.150							
	260	55	3.0					217.00	180.00	2 400	3 000	14.600		•					
130	165	18	1.1					39.00	46.50	3 350	4 000	0.860							
	200	22	1.1					78.00	81.50	3 200	3 800	2.420							
	200	33	2.0	193.65	5.69	3.50	0.6	106.00	78.00	3 200	3 800	3.700		•		•		•	
	230	40	3.0					168.00	125.00	2 600	3 200	5.820							
	280	58	4.0					230.00	193.00	2 200	2 800	18.200							
140	175	18	1.0					39.00	46.50	3 400	4 000	0.860							
	210	22	1.1					63.00	69.00	3 000	3 600	2.550							
	210	33	2.0					110.00	83.00	3 000	3 600	3.900							
	250	42	3.0					177.00	137.00	2 400	3 000	7.470							
	300	62	4.0					255.00	224.00	2 000	2 600	21.800							
150	190	20	1.1					48.00	61.00	3 200	3 800	1.140							
	225	35	2.1					124.00	98.00	2 600	3 200	4.800							
	270	45	3.0					190.00	149.00	2 000	2 600	10.100							
	320	65	4.0					291.00	255.00	1 900	2 400	26.200							
	200	20	1.1					52.00	62.00	3 000	3 600	1.190							
160	240	25	1.5					99.50	108.00	2 400	3 000	3.800							
	240	38	2.1					138.00	105.00	2 400	3 000	5.890							
	290	48	3.0					203.00	164.00	1 900	2 400	14.300							
	215	22	1.1					62.00	73.50	2 200	3 400	1.560							
	260	28	1.5					119.00	129.00	2 200	2 800	5.000							
170	260	42	2.1					168.00	133.00	1 900	2 800	7.920							
	310	52	4.0					228.00	196.00	1 800	2 400	17.500							
	225	22	1.1					62.40	81.50	2 400	3 000	2.000							
	280	31	2.0					138.00	146.00	2 000	2 600	6.500							
	280	46	2.1					189.00	156.00	2 000	2 600	10.300							
180	320	52	4.0					256.00	230.00	1 800	2 200	18.300							
	240	24	1.5					76.10	98.00	2 200	2 800	2.600							
	290	31	2.0					150.00	166.00	2 000	2 600	7.100							
	290	46	2.1					196.00	167.00	2 000	2 600	10.800							
	340	55	4.0					269.00	248.00	1 800	2 000	23.000							
190	250	24	1.5					68.00	85.00	2 400	3 000	2.800							
	310	34	2.0					168.00	190.00	1 900	2 400	8.850							
	310	51	2.1					219.00	190.00	1 900	2 400	13.900							
	360	58	4.0					280.00	267.00	1 700	2 000	28.200							
	270	24	1.5					73.50	96.50	2 200	2 800	2.880							
220	270	24	1.5					73.50	96.50	2 200	2 800	2.880							
	240	300	28	2.0				96.40	126.10	1 900	2 400	4.800							
240	360	37	2.1					178.00	220.00	1 700	2 000	12.700							
	260	320	28	2.0				111.00	163.00	1 700	2 000	4.800							

*Limiting speeds for bearings in RS and 2RS amount to only two-thirds of the values given in the Table

F&T Deep groove ball bearings

Single row



DIMENSIONS								BASIC LOAD RATING		LIMITING SPEEDS		MASS ~ kg	BASIC DESIGNATION	MODIFICATION					
d	D	B	r _s min	D ₁	a	b	r _o max	dynamic C	static C ₀	grease*	oil			Z	ZZ	RS	2RS	N	ZN
mm								kN		r/min									
280	350	33	2.0					142.70	182.90	1 600	1 900	7.630	61856						
300	380	38	2.1					150.00	196.00	1 500	1 800	10.700	61860						
320	400	38	2.1					153.00	212.00	1 400	1 700	11.300	61864						
340	420	38	2.1					156.00	220.00	1 300	1 600	11.900	61868						
360	440	38	2.1					156.00	233.00	1 300	1 600	12.600	61872						
380	480	46	2.0					237.50	351.50	1 200	1 500	20.700	61876						
460	580	56	3.0					290.00	480.00	950	1 200	35.800	61892						
480	600	56	3.0					300.00	500.00	900	1 100	38.000	61896						
560	680	56	3.0					310.00	570.00	800	950	43.500	618/560						
600	730	60	3.0					355.00	670.00	700	900	50.500	618/600						

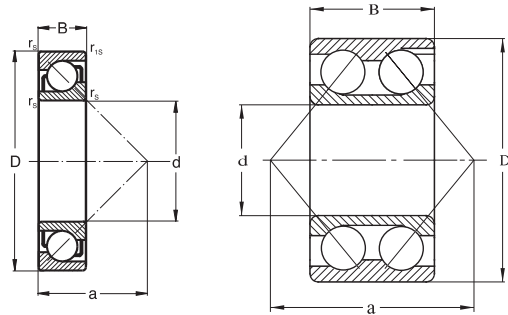
*Limiting speeds for bearings in RS and 2RS amount to only two-thirds of the values given in the Table

ANGULAR CONTACT BALL BEARINGS

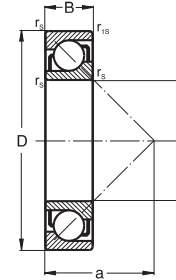


F&T Angular contact ball bearings

Single and double row



Single row



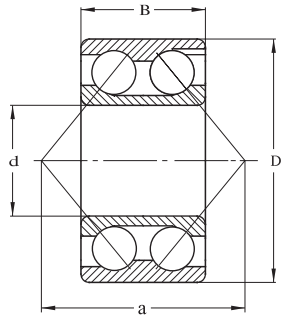
SUFFIX Angular contact ball bearings (single and double row)

SUFFIX	Description
A	modified internal design – contact angle 30°
B	modified internal design – contact angle 40°
2RS	rubber seals at both sides of the bearing
P6	accuracy to ISO tolerance class 6
P5	accuracy to ISO tolerance class 5
X1	dimensions non conformity with the international standard
MA	solid brass cage centred in the outer ring
FA	solid steel cage centred in the outer ring
V	bearing without cage with full quantity of rolling elements
N2M	bearing with two retaining slots and brass cage

DIMENSIONS						BASIC LOAD RATING		LIMITING SPEEDS		MASS	BASIC DESIGNATIONS
d	D	B	r _s min	r _{1s} min	a ~	dynamic C	static C ₀	grease	oil	~	
mm						kN		r/min		kg	
17	40	12	0.6	0.3	16.0	10.8	5.30	14 000	19 000	0.070	7203B
	47	14	1.0	0.6	20.5	14.8	7.15	12 000	17 000	0.120	7303B
20	47	14	1.0	0.6	21.0	13.3	6.55	11 000	16 000	0.112	7204B
	52	15	1.1	0.6	17.0	18.0	9.30	10 000	15 000	0.150	7304B
25	52	15	1.0	0.6	23.5	14.7	7.65	9 500	14 000	0.135	7205B
	62	17	1.1	0.6	26.5	24.6	12.80	8 500	12 000	0.234	7305B
30	62	17	1.0	0.6	27.0	20.4	13.50	8 500	12 000	0.208	7206X1B
	72	19	1.1	0.6	31.0	34.4	21.20	7 500	10 000	0.362	7306B
35	72	17	1.1	0.6	31.0	27.0	18.30	7 500	10 000	0.295	7207B
	80	21	1.5	1.0	34.5	36.3	24.10	7 000	9 500	0.475	7307B
40	80	18	1.1	0.6	34.0	35.7	25.70	6 700	9 000	0.382	7208B
	90	23	1.5	1.0	39.0	49.7	30.20	6 300	8 500	0.657	7308B
45	85	19	1.1	0.6	37.0	35.7	27.00	6 300	8 500	0.430	7209B
	100	25	1.5	1.0	43.0	58.0	40.10	5 600	7 500	0.875	7309B
50	90	20	1.1	0.6	39.0	37.0	24.80	5 600	7 500	0.485	7210B
	110	27	2.0	1.0	47.0	67.5	47.80	5 000	6 700	1.140	7310B
55	100	21	1.5	1.0	43.0	46.5	29.40	5 300	7 000	0.635	7211B
	120	29	2.0	1.0	52.0	79.0	47.50	4 500	6 000	1.450	7311B
60	110	22	1.5	1.0	47.0	56.0	35.80	4 800	6 300	0.820	7212B
	130	31	2.1	1.1	55.0	90.5	54.00	4 300	5 600	1.810	7312B
65	120	23	1.5	1.0	50.0	64.0	42.20	4 300	5 600	1.020	7213B
	140	33	2.1	1.1	60.0	106.0	75.40	4 000	5 300	2.220	7313B
70	125	24	1.5	1.0	53.0	69.0	46.60	4 300	5 600	1.120	7214B
	150	35	2.1	1.1	64.0	120.0	86.00	3 600	4 800	2.700	7314B
75	130	25	1.5	1.0	56.0	71.0	49.00	4 000	5 300	1.230	7215B
	160	37	2.1	1.1	68.0	125.0	80.00	3 400	4 500	3.150	7315B
80	140	26	2.0	1.0	59.0	80.0	56.00	3 600	4 800	1.500	7216B
	170	39	2.1	1.1	72.0	135.0	90.00	3 200	4 300	4.180	7316B
85	150	28	2.0	1.0	64.0	90.5	64.00	3 400	4 500	1.800	7217B
	180	41	3.0	1.1	76.0	145.0	100.00	3 000	4 000	4.900	7317B
90	160	30	2.0	1.0	67.0	106.0	75.00	3 200	4 300	2.300	7218B
	190	43	3.0	1.1	80.0	155.0	112.00	2 900	3 800	5.760	7318B
95	170	32	2.1	1.1	71.0	121.0	86.50	3 000	4 000	3.000	7219B
	200	45	3.0	1.1	84.0	171.0	129.00	2 500	3 400	6.680	7319B
100	180	34	2.1	1.1	76.0	130.0	91.00	2 800	3 800	3.320	7220B
	215	47	3.0	1.1	90.0	191.0	150.00	2 400	3 200	7.180	7320B

F&T Angular contact ball bearings

Double row with filling slots



Four-point contact ball bearings

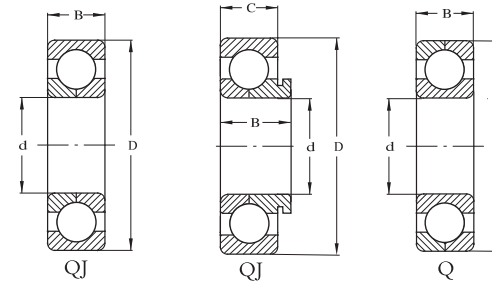


Fig. 1

Fig. 2

Fig. 3

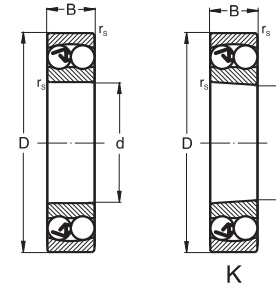
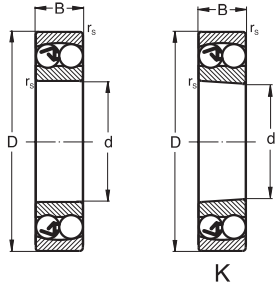
DIMENSIONS					BASIC LOAD RATING		LIMITING SPEEDS		MASS	BASIC DESIGNATIONS	MODIFICATION		DIMENSIONS			BASIC LOAD RATING		MODIFICATION			BASIC DESIGNATIONS	MASS	FIG No	
d	D	B	r _s min	a	dynamic C	static C ₀	grease*	oil	~		ZZ	2RS	d	D	B/C	dynamic C	static C ₀	V	MA	FA				~
mm					kN		r/min		kg			mm			kN					kg				
10	30	14	1.0	19	7.92	5.20	16 000	22 000	0.05	•	•	40	80	22/18	59.0	50.0				•	QJ 208 X	0.45	2	
12	32	15.9	1.0	22	9.68	6.40	15 000	20 000	0.06	•	•	45	85	19	61.5	55.0					•	QJ 209	0.52	1
15	35	15.9	1.0	23	9.13	6.20	13 000	18 000	0.07	•	•		100	25	93.5	77.0				•	QJ 309	1.04	1	
	42	19.0	1.0	27	15.10	10.60	10 000	15 000	0.13	•	•	55	120	29	139.0	119.0				•	QJ 311X	0.74	1	
17	40	17.5	1.0	27	12.50	9.00	10 000	15 000	0.10	•	•		120	29	139.0	119.0					•	QBJ 55	1.58	1
	47	22.2	1.0	31	20.90	15.00	9 500	14 000	0.19	•	•	65	100	18	55.0	61.5				•	QJ 1013X	0.51	1	
20	47	20.6	1.0	31	17.20	12.70	9 000	13 000	0.17	•	•	130	280	58	444.0	580.0				•	QJ 326	19.50	1	
	52	22.2	1.1	34	20.90	15.60	8 500	12 000	0.23	•	•	140	300	62	486.0	2.0				•	QJ 328	24.00	1	
25	52	20.6	1.0	35	22.0	13.4	8 000	11 000	0.19	•	•	170	260	42	315.0	453.0				•	QJ 1034	9.50	1	
	62	25.4	1.1	41	28.9	26.4	7 500	10 000	0.37	•	•	180	380	75	638.0	1030.0				•	QJ 336	47.50	1	
30	62	23.8	1.0	41	27.2	27.0	7 000	9 500	0.32	•	•	220	340	56	431.0	724.0				•	QJ 1044	22.80	1	
	72	30.2	1.1	47	44.5	27.0	6 300	8 500	0.59	•	•		460	88	845.0	1530.0				•	QJ 344	73.00	1	
35	72	27.0	1.1	47	34.5	35.3	6 000	8 000	0.48	•	•	260	480	90	493.0	762.0				•	QJ 1252M	28.50	1	
	80	34.9	1.5	54	57.0	35.5	5 600	7 500	0.82	•	•	320	580	92	984.0	2139.0					•	QJ 264 N2M	121.00	1
40	80	30.2	1.1	52	49.0	32.0	5 600	7 500	0.65	•	•	360	540	82	680.0	1490.0				•	QJ 1072	70.00	1	
	90	36.5	1.5	58	53.6	56.6	5 000	6 700	0.95	•	•	530	710	82	903.0	2390.0					•	QJ 19/530	105.48	1
45	85	30.2	1.1	56	52.5	36.5	5 000	6 700	0.71	•	•	630	850	100	1150.0	3400.0					•	QJ 19/630	162.00	1
	100	39.7	1.5	65	73.1	79.4	4 500	6 000	1.40	•	•	670	820	69	821.0	2460.0				•	Q 18/670	82.40	3	
50	90	30.2	1.1	59	60.0	42.5	4 800	6 300	0.76	•	•	900	1180	122	1610.0	5690.0					•	QJ 19/900	379.40	1
	110	44.4	2.0	73	104.0	72.0	4 000	5 300	1.95	•	•													
55	100	33.3	1.5	64	57.2	54.0	4 300	5 600	1.05	•	•													
60	110	36.5	1.5	71	72.1	68.0	3 800	5 000	1.40	•	•													
55	120	49.2	2.0	80	95.2	88.0	3 600	4 800	2.55	•	•													
60	130	54.0	2.5	85	112.0	106.0	3 400	4 500	3.25	•	•													
65	120	38.1	1.5	76	78.1	75.0	3 600	4 800	1.75	•	•													
70	125	39.7	2.1	81	78.1	76.5	3 200	4 300	1.90	•	•													
	150	63.5	2.1	109	143.0	166.0	3 000	4 000	4.87	•	•													
75	130	41.3	2.1	84	84.2	85.2	3 200	4 300	2.10	•	•													
80	140	44.4	2.1	91	101.0	104.0	2 800	3 800	2.65	•	•													
	170	68.3	2.1	113	176.0	212.0	3 600	4 000	6.95	•	•													

* Limiting speeds for bearing in 2RS amount to only two-thirds of the values given in the Table

SELF-ALIGNING BALL BEARINGS



FLT Self-aligning ball bearings

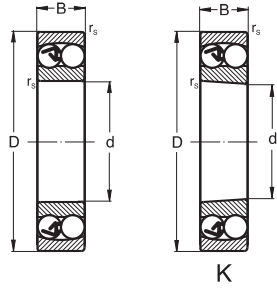


SUFFIX Self-aligning ball bearings

- K** tapered bored (1:12 on diameter)
- P6** accuracy to ISO tolerance class 6
- C3** radial clearance greater than normal
- C4** radial clearance greater than C3
- 2RS** rubber seals at both sides of the bearing

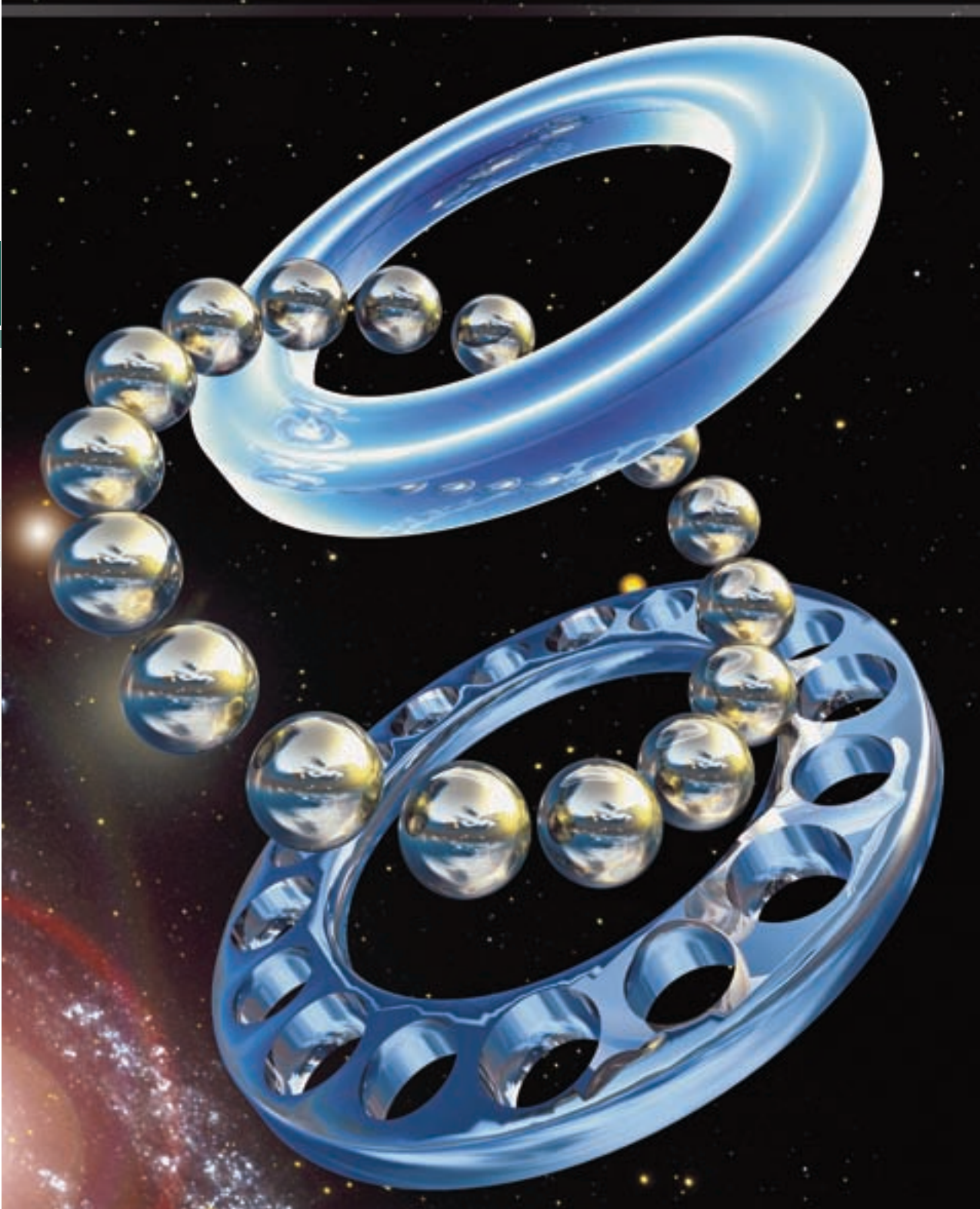
DIMENSIONS				BASIC LOAD RATING		LIMITING SPEEDS		MASS	BASIC DESIGNATIONS	MODIFICATION	
d	D	B	r _s	dynamic C	static C ₀	grease	oil	~		K	2RS
mm				kN		r/min		kg			
10	30	9	1.0	4.25	1.40	24 000	30 000	0.03	1200		
12	32	10	1.0	4.80	1.53	22 000	28 000	0.04	1201		
15	35	11	1.0	5.85	2.08	19 000	24 000	0.05	1202		
17	40	12	1.0	6.10	2.45	18 000	22 000	0.07	1203		
20	47	18	1.0	9.80	3.90	10 000	-	0.14	2204		•
25	52	15	1.0	12.00	3.30	13 000	16 000	0.14	1205	•	
	52	18	1.0	12.50	3.45	13 000	16 000	0.18	2205	•	•
	62	17	1.0	17.80	5.05	9 500	12 000	0.26	1305	•	
30	62	16	1.0	15.67	4.70	10 000	13 000	0.22	1206	•	
	62	20	1.0	15.30	4.55	9 500	12 000	0.26	2206	•	•
	72	19	1.1	21.35	6.34	9 000	11 000	0.39	1306	•	
35	72	27	1.1	31.40	8.67	8 500	10 000	0.50	2306	•	
	72	17	1.1	15.80	5.15	9 000	11 000	0.32	1207	•	
	72	23	1.1	21.65	6.68	8 500	10 000	0.40	2207	•	•
	80	21	1.5	25.10	7.94	7 500	9 000	0.51	1307	•	
	80	31	1.5	39.40	11.10	7 000	8 500	0.68	2307	•	
40	80	18	1.1	19.22	6.50	8 500	10 000	0.42	1208	•	
	80	23	1.1	22.26	7.37	7 500	9 000	0.51	2208	•	•
	90	23	1.5	29.51	9.76	6 700	8 000	0.72	1308	•	
45	90	33	1.5	44.85	13.38	6 300	7 500	0.93	2308	•	
	85	19	1.1	21.82	7.37	7 500	9 000	0.47	1209	•	
	85	23	1.1	23.29	8.15	7 000	8 500	0.55	2209	•	
	100	25	1.5	38.10	12.90	6 300	7 500	0.96	1309	•	
50	100	36	1.5	54.11	16.47	5 600	6 700	1.25	2309	•	
	90	20	1.1	22.72	8.09	7 000	8 500	0.53	1210	•	
	90	23	1.1	23.26	8.47	6 300	7 500	0.59	2210	•	
55	110	27	2.0	43.34	14.16	5 600	6 700	1.20	1310	•	
	110	40	2.0	64.38	20.00	5 300	6 300	1.65	2310	•	
	100	21	1.5	26.75	10.03	6 300	7 500	0.71	1211	•	
60	100	25	1.5	26.35	9.93	6 000	7 000	0.81	2211	•	
	120	29	2.0	51.32	18.05	5 000	6 000	1.60	1311	•	
	120	43	2.0	75.27	23.78	4 800	5 600	2.10	2311	•	
	110	22	1.5	30.16	11.56	5 600	6 700	0.90	1212	•	
65	110	28	1.5	33.94	12.55	5 300	6 300	1.10	2212	•	
	130	31	2.1	57.12	20.74	4 500	5 300	1.95	1312	•	
	130	46	2.1	86.80	27.84	4 500	5 300	2.60	2312	•	
65	120	23	1.5	31.00	12.37	5 300	6 300	1.15	1213	•	
	130	31	1.5	43.53	16.35	5 000	6 000	1.45	2213	•	
	140	33	2.1	61.97	22.86	4 300	5 000	2.45	1313	•	
	140	48	2.1	96.23	32.38	4 000	4 900	3.25	2313	•	

FtT Self-aligning ball bearings



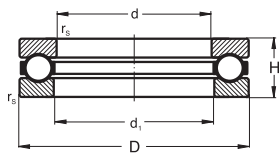
THRUST BALL BEARINGS

DIMENSIONS				BASIC LOAD RATING		LIMITING SPEEDS		MASS ~ kg	BASIC DESIGNATIONS	MODIFICATION	
d	D	B	r _s	dynamic C	static C ₀	grease	oil			K	2RS
mm				kN		r/min					
70	125	24	1.5	34.64	13.68	5 000	6 000	1.25	1214	●	
	125	31	1.5	40.00	17.00	4 800	5 600	1.50	2214	●	
	150	35	2.1	74.29	27.68	4 000	4 800	3.00	1314	●	
	150	51	2.1	110.00	37.50	3 800	4 500	3.90	2314	●	
75	130	25	1.5	38.85	15.55	4 800	5 600	1.35	1215	●	
	130	31	1.5	44.00	18.00	4 500	5 300	1.60	2215	●	
	160	37	2.1	79.16	29.87	3 900	4 500	3.55	1315	●	
	160	55	2.1	122.00	42.50	3 400	4 000	4.70	2315	●	
80	140	26	2.0	39.82	16.94	4 500	5 300	1.65	1216	●	
	140	33	2.0	71.00	28.50	4 000	4 800	2.00	2216	●	
	170	39	2.1	88.35	33.01	3 600	4 300	4.20	1316	●	
	170	58	2.1	145.00	51.67	3 200	3 800	6.10	2316	●	
85	150	28	2.0	49.22	20.48	4 200	4 800	2.10	1217	●	
	150	36	2.0	57.94	23.61	3 800	4 500	2.50	2217	●	
	180	41	3.0	97.59	37.82	3 400	4 000	5.00	1317	●	
	180	60	3.0	140.00	51.00	3 000	3 600	7.10	2317	●	
90	160	30	2.0	54.94	22.22	3 800	4 500	2.50	1218	●	
	160	40	2.0	71.00	28.50	3 600	4 300	3.40	2218	●	
	190	43	3.0	116.27	44.80	2 800	3 400	8.45	1318	●	
95	170	32	2.1	64.00	27.00	3 600	4 300	3.10	1219	●	
	170	43	2.1	83.00	34.00	3 200	3 800	4.10	2219	●	
	200	67	3.0	163.00	64.00	2 600	3 200	8.80	2319	●	
100	180	34	2.1	69.12	29.48	3 400	4 000	3.70	1220	●	
	180	46	2.1	76.50	51.00	3 200	3 800	5.00	2220	●	

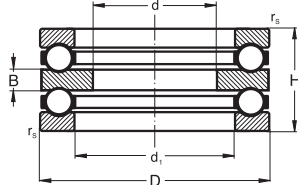


FLT Thrust ball bearings

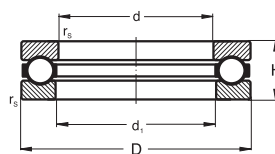
Single direction



double direction



Single direction



SUFFIX Thrust ball bearings

M machined brass cage

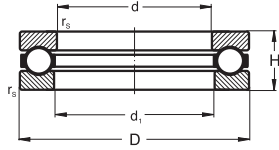
U bearing with sphered housing washer and aligning seating washer

DIMENSIONS					BASIC LOAD RATING		LIMITING SPEEDS		MASS	BASIC DESIGNATIONS
d	d ₁	D	H	r _{s min}	dynamic C	static C ₀	grease	oil	~	
mm					kN		r/min		kg	
10	11.00	24	9	0.3	10.00	14.0	7 000	9 500	0.020	51100
	11.00	26	11	1.0	10.00	14.0	6 000	8 000	0.030	51200
12	13.00	26	9	0.3	10.40	15.3	6 700	9 000	0.022	51101
15	16.00	28	9	0.3	9.36	14.0	6 300	8 500	0.230	51102
17	18.00	30	9	0.3	9.65	15.3	6 300	8 500	0.025	51103
	18.00	35	12	1.0	12.70	22.0	5 300	7 000	0.053	51203
20	21.00	35	10	0.3	12.70	20.8	5 600	7 500	0.038	51104
	22.00	40	14	0.6	22.40	37.5	4 500	6 000	0.083	51204
25	26.00	42	11	0.6	15.60	29.0	4 800	6 300	0.061	51105
	27.00	47	15	0.6	28.00	50.0	4 000	5 300	0.110	51205
	27.00	52	18	1.0	33.50	55.9	3 900	5 000	0.180	51305
30	32.00	47	11	0.6	14.93	30.4	4 500	6 000	0.068	51106
	32.00	52	16	0.6	25.50	46.6	4 500	6 000	0.144	51206
	32.00	60	21	1.0	37.80	67.8	3 000	4 000	0.270	51306
35	37.00	52	12	0.6	17.40	37.5	4 300	5 600	0.085	51107
	37.00	62	18	1.0	35.30	67.1	3 800	5 000	0.220	51207
	37.00	68	24	1.0	56.00	85.0	3 000	4 000	0.390	51307
	38.35	66	16		33.30	77.5	3 500		0.216	CBK-287A
40	42.00	60	13	0.6	25.10	56.5	3 800	5 000	0.120	51108
	42.00	68	19	1.0	40.00	80.1	3 800	5 000	0.270	51208
	42.00	78	26	1.0	57.50	109.3	2 000	3 000	0.550	51308
45	47.00	65	14	0.6	25.30	59.5	3 800	5 000	0.150	51109
	47.00	73	26	1.0	28.90	80.1	3 000	4 000	0.320	51209
	47.00	85	28	1.0	71.50	138.3	1 800	2 600	0.690	51309
50	52.00	70	14	0.6	27.10	69.0	3 400	4 500	0.160	51110
	52.00	78	22	1.0	41.80	92.4	3 000	4 000	0.390	51210
	52.00	95	31	1.1	86.40	170.8	1 800	2 600	1.000	51310
55	57.00	78	16	0.6	32.80	85.8	3 000	4 000	0.240	51111
	57.00	90	25	1.0	63.50	139.1	2 000	3 000	0.610	51211
	57.00	105	35	1.1	113.00	225.8	1 600	2 200	1.340	51311
60	62.00	85	17	1.0	39.10	103.0	2 600	3 600	0.290	51112
	62.00	95	26	1.0	62.20	139.1	2 000	3 000	0.690	51212
	62.00	110	35	1.1	117.00	246.4	1 600	2 200	1.430	51312
65	67.00	90	18	1.0	40.60	113.0	2 400	3 200	0.340	51113
	67.00	100	27	1.0	63.90	149.0	1 800	2 600	0.770	51213
	67.00	115	36	1.1	127.00	231.0	1 200	1 700	1.570	51313

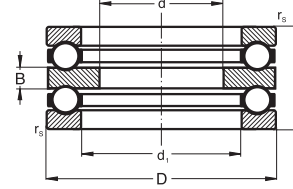
DIMENSIONS					BASIC LOAD RATING		LIMITING SPEEDS		MASS	BASIC DESIGNATIONS
d	d ₁	D	H	r _{s min}	dynamic C	static C ₀	grease	oil	~	
mm					kN		r/min		kg	
70	72.00	95	18	1.0	40.20	117.0	2 400	3 200	0.360	51114
	72.00	105	27	1.0	65.60	159.0	1 800	2 620	0.810	51214
	72.00	125	40	1.1	153.00	275.0	1 200	1 700	2.060	51314
75	77.00	100	19	1.0	44.30	122.9	2 200	3 200	0.420	51115
	77.00	110	27	1.0	67.20	169.0	1 800	2 600	0.860	51215
	77.00	135	44	1.5	171.00	319.0	1 100	1 600	2.680	51315
80	82.00	105	19	1.0	44.90	128.5	2 000	3 000	0.430	51116
	82.00	115	28	1.0	68.70	179.0	1 700	2 400	0.950	51216
	82.00	140	44	1.5	178.00	348.0	1 000	1 500	2.820	51316
85	87.00	110	19	1.0	45.50	134.1	2 000	3 000	0.460	51117
	87.00	125	31	1.0	97.50	250.0	1 600	2 200	1.200	51217
	88.00	150	49	1.5	190.00	397.0	950	1 400	3.060	51317
90	92.00	120	22	1.0	58.00	167.3	1 800	2 600	0.680	51118
	93.00	135	35	1.1	119.00	300.0	1 500	2 000	1.700	51218
	93.00	155	50	1.5	190.00	400.0	850	1 200	3.980	51318
100	102.00	135	25	1.0	74.30	218.6	1 700	2 400	0.990	51120M
	103.00	150	38	1.1	138.00	358.0	1 300	1 800	2.360	51220M
	103.00	170	55	1.5	215.00	517.0	850	1 200	5.110	51320M
110	112.00	145	25	1.0	76.80	238.4	1 600	2 200	1.080	51122
	113.00	160	38	1.1	141.00	380.0	1 200	1 700	2.570	51222M
	113.00	190	63	1.5	267.00	704.0	800	1 100	7.870	51322M
120	122.00	155	25	1.0	79.20	258.3	1 600	2 200	1.160	51124
	123.00	170	39	1.1	153.00	383.0	1 200	1 700	2.860	51224M
	123.00	210	70	2.0	311.00	869.0	750	1 000	10.900	51324M
130	132.00	170	30	1.0	105.00	336.2	1 400	1 900	1.870	51126M
	133.00	190	45	1.5	192.00	548.0	950	1 400	4.190	51226M
	134.00	225	75	2.1	332.00	705.0	700	950	13.300	51326M
140	142.00	180	31	1.0	105.70	350.2	1 300	1 800	2.070	51128M
	143.00	200	46	1.5	195.00	578.0	950	1 400	4.880	51228M
	144.00	240	80	2.1	370.00	912.0	630	900	15.900	51328M
150	152.00	190	31	1.0	108.00	328.0	1 200	1 700	2.180	51130
	153.00	215	50	1.5	224.00	589.0	900	1 300	6.190	51230
	154.00	250	80	2.1	382.00	981.0	500	800	16.700	51330
160	162.00	200	31	1.0	120.30	448.3	1 200	1 700	2.330	51132M
	163.00	225	51	1.5	230.00	608.0	850	1 200	6.670	51232M
	164.00	270	87	3.0	470.00	1 570.0	630	850	18.600	51332M
170	172.00	215	34	1.1	135.00	417.0	1 100	1 600	3.310	51134
	173.00	240	55	1.5	270.00	721.0	800	1 100	8.290	51234
180	183.00	225	34	1.1	135.00	431.0	1 000	1 500	3.480	51136
	183.00	250	56	1.5	275.00	750.0	800	1 100	8.850	51236
190	193.00	240	37	1.1	171.00	529.0	950	1 400	4.060	51138
	194.00	270	62	2.0	319.00	898.0	750	1 000	11.900	51238

F_LT Thrust ball bearings

Single direction



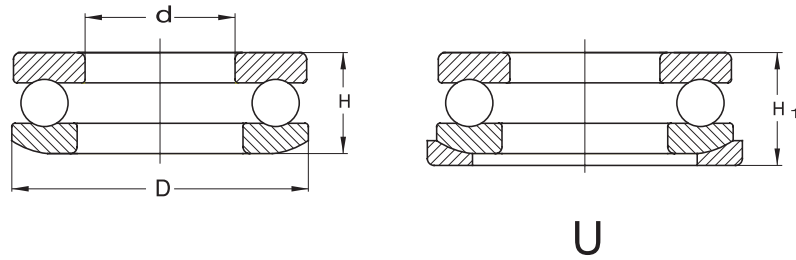
Double direction



DIMENSIONS					BASIC LOAD RATING		LIMITING SPEEDS		MASS	BASIC DESIGNATIONS	DIMENSIONS					BASIC LOAD RATING		LIMITING SPEEDS		MASS	BASIC DESIGNATIONS		
d	d ₁	D	H	r _s min	dynamic C	static C ₀	grease	oil	~		d	d ₁	D	H	r _s min	dynamic C	static C ₀	grease	oil	~			
mm					kN		r/min		kg	mm					kN		r/min		kg				
200	203.00	250	37	1.1	183.70	715.0	950	1 400	4.240	51140M	40	52	78	39	9	1.0	0.6	41.8	92.4	3 000	4 000	0.71	52210
	204.00	280	62	2.0	334.00	1 175.0	750	1 000	12.400		51240M	52	95	58	14	1.1	0.6	86.4	170.8	1 800	2 600	1.86	52310
	205.00	340	110	4.0	679.00	2 610.0	480	630	43.000		51340	45	57	90	45	10	1.0	0.6	63.5	139.1	3 000	4 000	1.12
220	223.00	270	37	1.1	175.00	598.0	900	1 300	4.620	51144	57	105	64	15	1.1	0.6	112.5	225.8	1 600	2 200	2.51	52311	
	224.00	300	63	2.0	336.00	1 233.0	700	950	13.700	51244M	50	62	95	46	10	1.0	0.6	62.2	139.1	2 000	3 000	1.25	52212
240	243.00	300	45	1.5	240.00	973.7	800	1 100	7.550	51148M	62	110	64	15	1.1	0.6	117.0	246.4	1 600	2 200	2.86	52312	
	244.00	340	78	2.1	436.00	1 724.0	600	800	23.600	51248M	55	67	100	47	10	1.0	0.6	63.9	149.0	1 800	2 600	1.36	52213
260	263.00	320	45	1.5	245.00	1 034.0	800	1 100	8.110	51152M	67	115	65	15	1.1	0.6	127.0	231.0	1 200	1 700	2.90	52313	
	264.00	360	79	2.1	460.00	1 878.0	450	630	25.600	51252M	72	105	47	10	1.0	0.6	65.6	159.0	1 800	2 600	1.48	52214	
280	283.00	350	53	1.5	329.90	1 391.0	700	950	12.200	51156M	72	125	72	16	1.1	1.0	153.0	275.0	1 200	1 700	3.90	52314	
	284.00	380	80	2.1	465.00	1 967.0	400	560	27.600	51256M	60	77	110	47	10	1.0	1.0	67.2	169.0	1 800	2 600	1.57	52215
300	304.00	380	62	2.0	406.70	1 801.0	630	850	17.500	51160M	77	135	79	18	1.5	1.0	171.0	319.0	1 100	1 600	4.83	52315	
	304.00	420	95	2.1	580.00	2 320.0	360	500	43.100	51260M	65	82	115	48	10	1.0	1.0	68.7	179.0	1 700	2 400	1.69	52216
	304.00	420	95	3.0	580.00	2 680.0	480	630	42.100	51260	82	140	79	18	1.5	1.0	178.0	348.0	1 000	1 500	5.06	52316	
320	324.00	400	63	2.0	408.80	1 863.0	600	800	18.900	51164M	70	88	124	55	12	1.0	1.0	92.8	238.0	1 600	2 200	2.34	52217
	325.00	440	95	3.0	632.00	2 460.0	450	600	44.500	51264M	88	160	87	19	1.5	1.0	190.0	397.0	950	1 400	6.43	52317	
340	344.00	420	64	2.0	622.00	2 934.0	600	800	20.300	51168M	75	93	135	62	14	1.1	1.0	101.3	263.9	1 500	2 000	3.22	52218
360	364.00	440	65	2.0	430.40	2 111.0	560	750	21.800	51172M	93	155	88	19	1.5	1.0	190.0	400.0	850	1 200	6.60	52318	
	500	505.00	600	80	2.1	550.00	3 350.0	430	560	47.000	511/500	85	103	150	67	15	1.1	1.0	138.0	358.0	1 300	1 800	4.29
505.00		670	135	1.2	1010.00	6 800.0	250	350	135.00	512/500	103	170	97	21	1.5	1.0	215.0	517.0	850	1 200	8.90	52320	

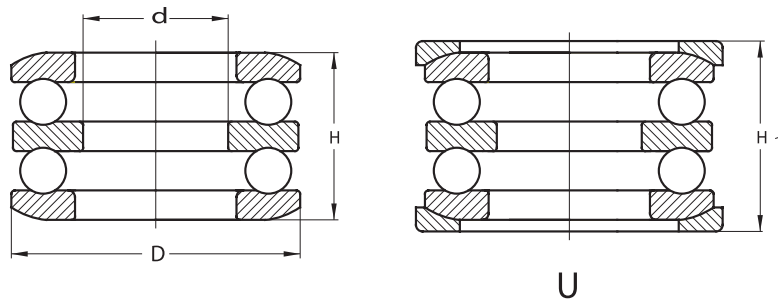
FlT Thrust ball bearings

Single-direction with sphered housing washer and aligning seating



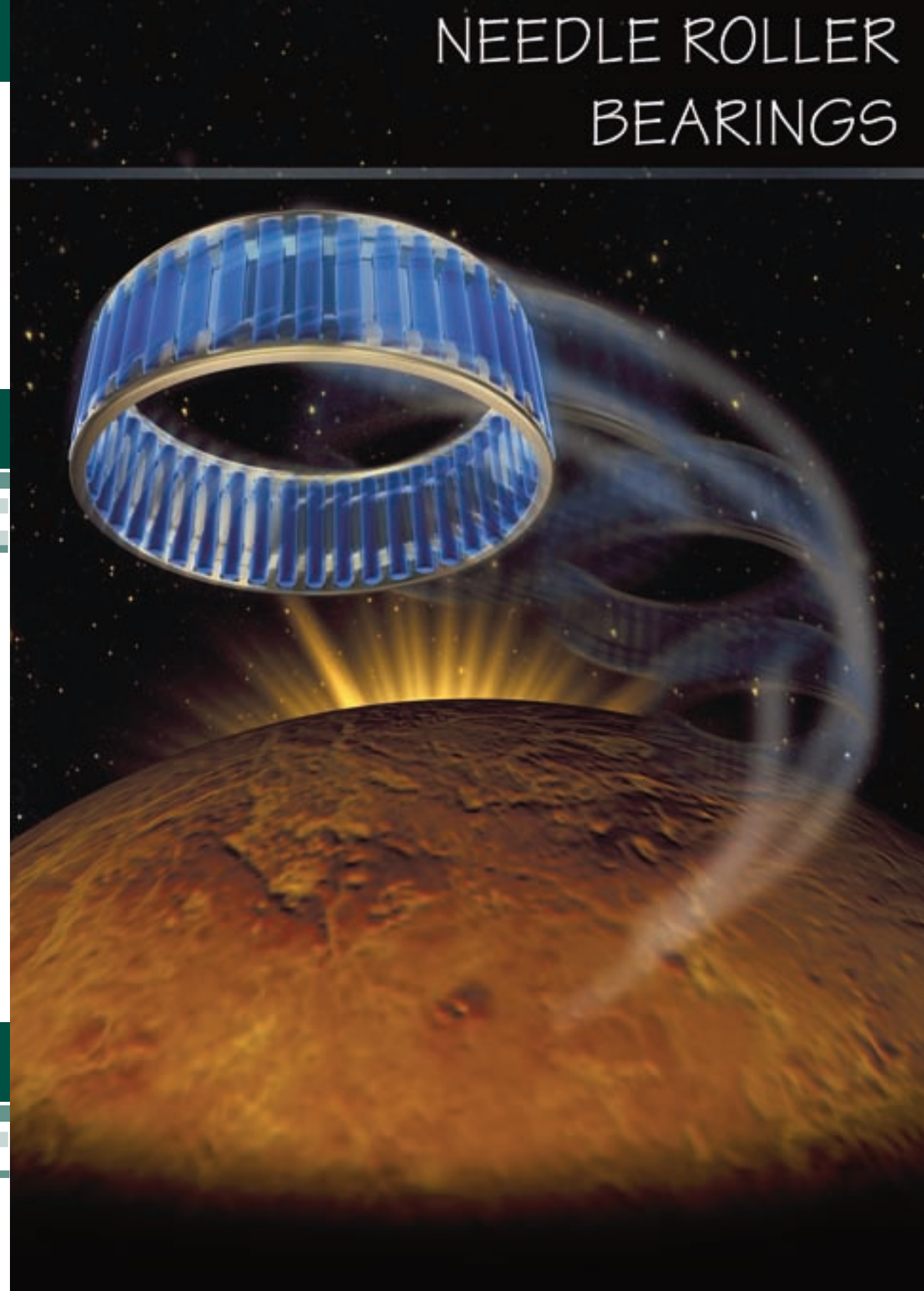
DIMENSIONS			BASIC LOAD RATING		MODIFICATION			BASIC DESIGNATIONS	MASS
d	D	H/H1	dynamic C	static C ₀	M	U	MU	~	
mm			kN					kg	
110	190	/67.2	265.00	560.0	•	•		53322	2.050
200	280	65.3	334.0	1180.0	•			53240	11.40
220	300	65.6/75	336.0	1230.0	•	•		53244	16.80

Double-direction with aligning seat washers



DIMENSIONS			BASIC LOAD RATING		MODIFICATION			BASIC DESIGNATIONS	MASS
d	D	H/H1	dynamic C	static C ₀	M	U	MU	~	
mm			kN					kg	
45	95	49.6 / 55	63.5	139.0	•	•		54211	1.40
100	220	131.2 / 143	311.0	869.0	•	•	•	T-54324	23.30

NEEDLE ROLLER BEARINGS



FLT Needle roller and cage assemblies

Drawn cup needle roller bearings. Needle roller bearings

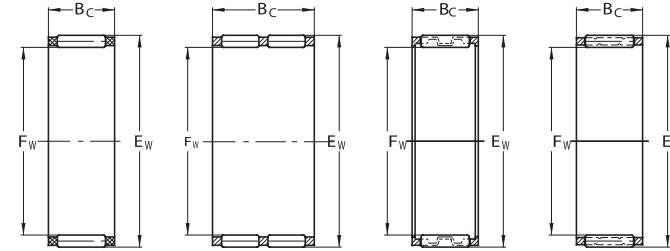
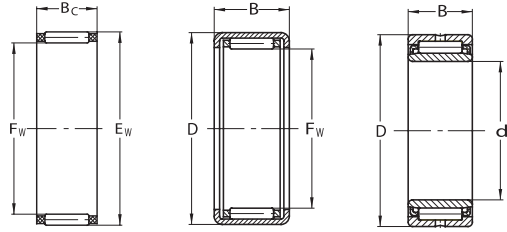


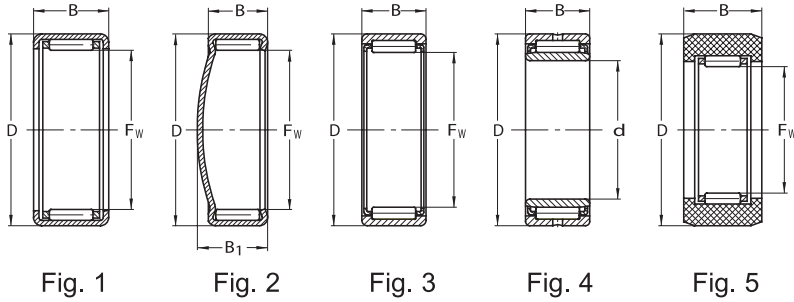
Fig. 1 Fig. 2 Fig. 3 Fig. 4

PREFIX	SUFFIX	Needle roller bearings
KBK		special cage for gudgeon pin bearing
KZK		special cage for crank pin bearing
	TNG	polyamid cage
	V	bearing without cage with full quantity of rolling elements

DIMENSIONS			BASIC LOAD RATING		BEARING DESIGNATIONS	MASS ~ kg	FIG No
Fw	Ew	Bc	dynamic C	static C ₀			
mm			kN				
12.00	18.000	12.0	9.25	8.75	K 12x18x12 TNG	0.0060	1
14.00	18.000	10.0	6.80	8.30	K14x18x10	0.0048	1
15.00	25.000	37.0	34.60	37.50	612-735 TN	0.0420	1
16.00	20.000	10.0	7.60	9.70	K16x20x10	0.0057	1
	20.000	23.0	13.40	19.50	KK 16x20x23 TNG	0.0080	2
18.00	22.000	12.0	10.60	11.10	KZK 16x22x12	0.0095	3
	22.000	17.0	9.60	13.10	KBK 18x22x17	0.0108	4
19.05	28.575	36.5	40.40	48.80	612-695 TNG	0.0460	1
	28.575	43.0	46.00	57.50	612-696 TNG	0.0560	1
19.30	25.300	19.8	18.40	23.70	F-52590	0.0172	1
20.00	26.000	17.0	19.90	24.80	K 20x26x17	0.0182	1
22.00	29.000	16.0	17.80	21.20	KZK 22x29x16	0.0156	3
25.40	33.336	25.4	36.20	51.00	C 162116	0.0726	1
28.00	33.000	13.0	14.90	22.80	K 28x33x13	0.0152	1
30.00	34.000	32.5	24.20	51.00	KK 30x34x32.5 TNG	0.0194	2
35.00	40.000	30.0	24.70	47.00	KK 35x40x30	0.0430	2
40.00	45.000	17.0	23.50	46.00	K 40x45x17	0.0254	1
45.00	53.000	21.0	38.90	66.00	K 45x53x21	0.0580	1

FLT Drawn cup needle roller bearings (with open and closed ends)

CYLINDRICAL ROLLER BEARINGS

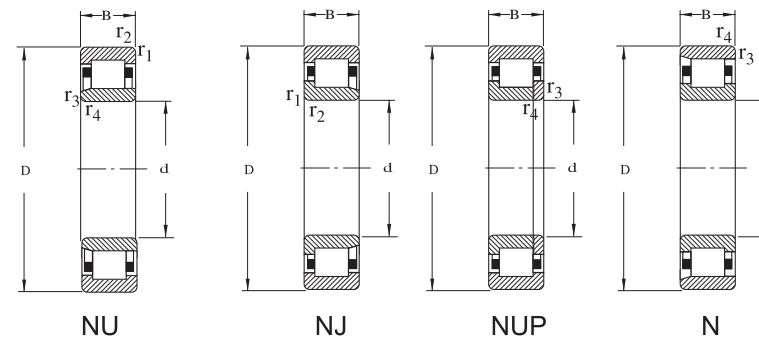
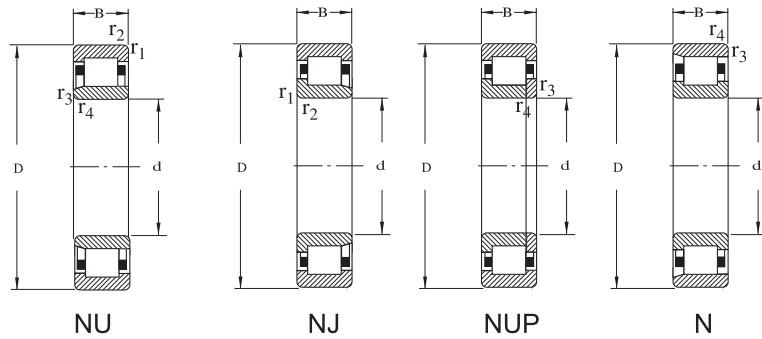


DIMENSIONS				BASIC LOAD RATING		BEARING DESIGNATIONS	MASS ~ kg	FIG No
Fw	D	B	B ₁	dynamic C	static C ₀			
mm				kN				
5.000	9.000	9.00		2.01	1.75	HK 0509	0.0020	1
6.000	10.000	9.00		2.22	2.04	RHNA 061009	0.0026	1
10.000	15.000	9.60		5.90	8.30	311-687V	0.0066	2
	16.000	8.95	10.15	6.50	7.30	F-43088	0.0070	2
	16.000	12.00		5.30	5.55	RHNA 101612	0.0080	1
12.000	14.000	10.00		4.55	5.70	HK1010	0.0040	1
	16.000	10.00		4.15	5.80	HK1210	0.0052	1
	18.000	9.95	10.70	8.25	10.40	F-82868	0.0090	2
	18.000	9.95		8.25	10.40	311-748 V	0.0090	2
14.000	20.000	12.00		6.10	7.75	HK 1412	0.0105	1
15.000	21.000	12.00		7.00	8.40	HK1512	0.0111	1
15.875	20.638	12.70		7.00	10.90	SCE 108	0.0109	1
17.000	23.000	22.00		12.50	20.60	RHNA 172322 A	0.0217	1
18.000	24.000	12.00		7.10	9.90	HK1812	0.0131	1
	24.000	16.00		10.30	16.30	HK 1816	0.0175	1
	36.100	19.00		10.60	13.20	373-692 X1	0.0280	5*
19.000	37.700	19.00		10.60	13.20	373-692	0.0280	5*
	38.000	19.00		10.60	13.20	373-692 X2	0.0280	5*
	25.400	19.05		13.70	21.20	SCE 1212	0.0226	1
22.248	34.925	25.40		29.40	37.40	313-641	0.0870	3
25.000	32.000	20.00		17.80	31.50	HK 2520	0.0341	1
	42.000	17.00		23.50	30.50	NA 4905	0.0913	4
25.400	38.100	25.40		31.90	43.10	F-92090	0.0900	3
30.000	42.000	17.00		23.50	30.50	RNA 4905	0.0610	3
	37.000	26.00		25.80	53.50	HK 3026	0.0594	1
	38.000	20.00		21.50	37.30	RHNA 303820 X1	0.0460	1
	47.000	17.00		25.50	39.00	NA4906	0.0810	4
31.750	44.450	25.40		35.80	53.00	F-92091	0.1088	3
	47.625	31.75		56.00	77.00	313-644	0.1850	3
34.925	14.275	12.70		11.80	21.90	SCE 228	0.0280	1
35.000	41.000	12.00		11.30	19.40	HK 3512	0.0277	1
41.161	49.327	16.10		21.10	39.00	F-47905	0.0516	1
50.800	60.325	25.40		37.70	78.00	SCE 3216	0.1080	1
60.000	68.000	20.000		30.50	72.00	HK6020	0.0860	1



*Fig. no. 5 – Needle roller bearing with rubber sleeve.

F&T Cylindrical roller bearings

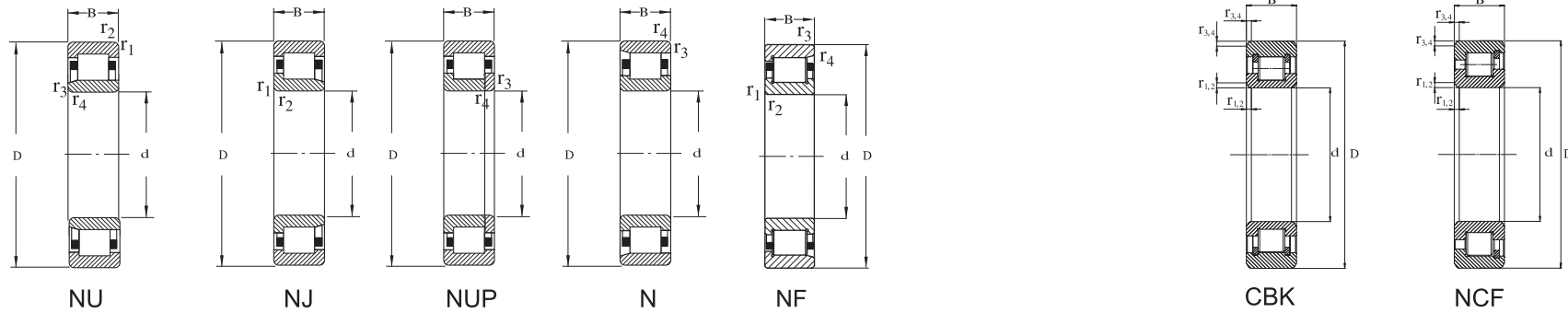


PREFIX	SUFFIX	Cylindrical roller bearings
R		separable bearing without removable inner (RNU) or outer ring (RN)
	E	modified internal design - increased capacity
	M	machined brass cage
	MA	machined brass cage centred on the outer ring
	MB	machined brass cage centred on the inner ring
	TN	polyamid cage
	P6	accuracy to ISO tolerance class 6
	C2	radial clearance less than normal
	C3	radial clearance greater than normal
	C4	radial clearance greater than C3
	P63	accuracy to ISO class 6 and clearance greater than normal
	P64	accuracy to ISO class 6 and clearance greater than C3
	V	bearing without cage with full quantity of rolling elements

DIMENSIONS					BASIC LOAD RATING		LIMITING SPEEDS		BASIC DESIGNATIONS	MASS	SKETCH	
d	D	B	r _{1,2} min	r _{3,4} min	dynamic C	static C ₀	grease	oil		~		
mm					kN		r/min			kg		
25	52	15	1.0	0.6	28.60	27.0	11 000	14 000	N205E	0.130	N	
	52	15	1.0	0.6	28.60	27.0	11 000	14 000	NJ205E	0.130	NU	
	52	15	1.0	0.6	28.60	27.0	11 000	14 000	NUP205E	0.130	NJ	
	52	15	1.0	0.6	28.60	27.0	11 000	14 000	NJ2205M	0.160	NUP	
	52	18	1.0	0.6	27.50	26.8	11 000	14 000	N2205	0.160	N	
	52	18	1.0	0.6	27.50	26.8	11 000	14 000	N305E	0.240	NU	
	62	17	1.1	1.1	40.20	36.5	9 500	12 000	NU305E	0.240	NJ	
	62	17	1.1	1.1	40.20	36.5	9 500	12 000	NJ305E	0.240	NU	
	62	17	1.1	1.1	40.20	36.5	9 500	12 000	NUP305E	0.240	NJ	
	62	24	1.1	1.1	42.70	40.9	9 500	12 000	NU2305EM	0.400	NUP	
	62	24	1.1	1.1	42.70	40.9	9 500	12 000	NJ2305EM	0.400	NU	
	62	24	1.1	1.1	42.70	40.9	9 500	12 000	NJ2305EM	0.400	NJ	
30	62	16	1.0	0.6	36.00	35.5	8 500	11 000	N206E	0.220	N	
	62	16	1.0	0.6	36.00	35.5	8 500	11 000	NU206E	0.220	NU	
	62	16	1.0	0.6	36.00	35.5	8 500	11 000	NJ206E	0.220	NJ	
	62	16	1.0	0.6	36.00	35.5	8 500	11 000	NUP206E	0.220	NUP	
	62	20	1.0	0.6	48.90	49.8	8 500	11 000	NUP2206EM	0.260	NUP	
	62	20	1.0	0.6	44.00	48.1	8 500	11 000	NJ2206E	0.310	NJ	
	72	19	1.1	1.1	49.20	48.2	8 000	10 000	N306E	0.380	N	
	72	19	1.1	1.1	49.20	48.2	8 000	10 000	NU306E	0.380	NU	
	72	19	1.1	1.1	49.20	48.2	8 000	10 000	NJ306E	0.380	NJ	
	72	19	1.1	1.1	49.20	48.2	8 000	10 000	NUP306E	0.380	NUP	
	90	23	1.5	1.5	57.20	53.0	7 000	9 000	NJ406	0.730	NJ	
	35	72	17	1.1	0.6	46.50	48.0	7 500	9 500	N207E	0.340	N
72		17	1.1	0.6	46.50	48.0	7 500	9 500	NU207E	0.340	NU	
72		17	1.1	0.6	46.50	48.0	7 500	9 500	NJ207E	0.340	NJ	
72		17	1.1	0.6	46.50	48.0	7 500	9 500	NUP207E	0.340	NUP	
72		23	1.1	1.1	49.00	51.2	7 500	9 500	NJ2207E	0.450	NJ	
80		21	1.5	1.1	62.00	63.2	7 000	9 000	N307E	0.500	N	
80		21	1.5	1.1	62.00	63.2	7 000	9 000	NU307E	0.500	NU	
80		21	1.5	1.1	62.00	63.2	7 000	9 000	NJ307E	0.500	NJ	
80		21	1.5	1.1	62.00	63.2	7 000	9 000	NUP307E	0.500	NUP	
40		80	18	1.5	1.1	51.50	53.0	7 000	9 000	N208E	0.390	N
		80	18	1.5	1.1	51.50	53.0	7 000	8 000	NJ208E	0.390	NJ
		80	18	1.5	1.1	51.50	53.0	7 000	8 000	NUP208E	0.390	NUP
	80	23	1.1	1.1	64.30	67.6	7 000	8 000	NJ2208E	0.490	NJ	
	90	33	1.5	1.5	113.20	121.1	6 300	7 500	NJ2308E	0.950	NJ	
	90	23	1.5	1.5	76.80	77.8	6 300	8 000	N308E	0.670	N	
	90	23	1.5	1.5	76.80	77.8	6 300	8 000	NU308E	0.670	NU	
	90	23	1.5	1.5	76.80	77.8	6 300	8 000	NJ308E	0.670	NJ	
	90	23	1.5	1.5	76.80	77.8	6 300	8 000	NUP308E	0.670	NUP	
	110	27	2.0	2.0	90.50	89.8	5 600	6 700	NUP408E	1.150	NUP	
	110	27	2.0	2.0	90.50	89.8	5 600	6 700	NJ408	1.150	NJ	

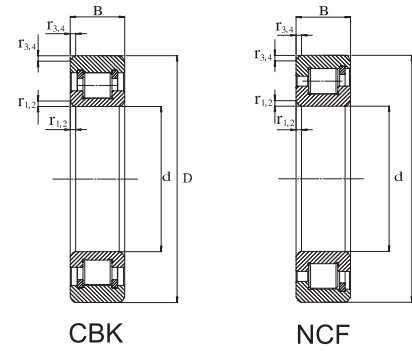
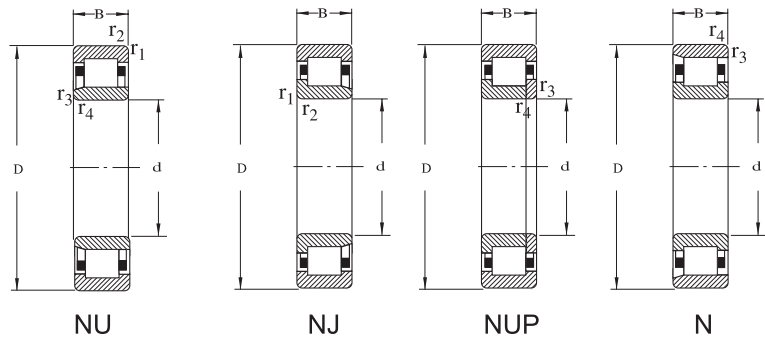
DIMENSIONS					BASIC LOAD RATING		LIMITING SPEEDS		BASIC DESIGNATIONS	MASS	SKETCH
d	D	B	r _{1,2} min	r _{3,4} min	dynamic C	static C ₀	grease	oil		~	
mm					kN		r/min			kg	
15	35	11	0.6	0.3	12.50	10.2	18 000	22 000	N202E	0.048	N
	35	11	0.6	0.3	12.50	10.2	18 000	22 000	NU202E	0.048	NU
	35	11	0.6	0.3	12.50	10.2	18 000	22 000	NJ202E	0.048	NJ
	35	11	0.6	0.3	12.50	10.2	18 000	22 000	NUP202E	0.048	NUP
	35	11	0.6	0.3	12.50	10.2	18 000	22 000	NJ202ETNT	0.047	NJ
17	40	12	0.6	0.3	19.70	17.0	15 000	18 000	NJ203E	0.090	NJ
	40	12	0.6	0.3	19.80	17.1	15 000	18 000	NJ203E TNT	0.070	NJ
20	47	14	1.0	0.6	25.10	22.0	13 000	16 000	N204E	0.110	N
	47	14	1.0	0.6	25.10	22.0	13 000	16 000	NU204E	0.110	NU
	47	14	1.0	0.6	25.10	22.0	13 000	16 000	NJ204E	0.110	NJ
	47	14	1.0	0.6	25.10	22.0	13 000	16 000	NUP204E	0.110	NUP
	47	18	1.0	0.6	29.70	27.5	13 000	16 000	NJ2204	0.140	NJ

FLT Cylindrical roller bearings



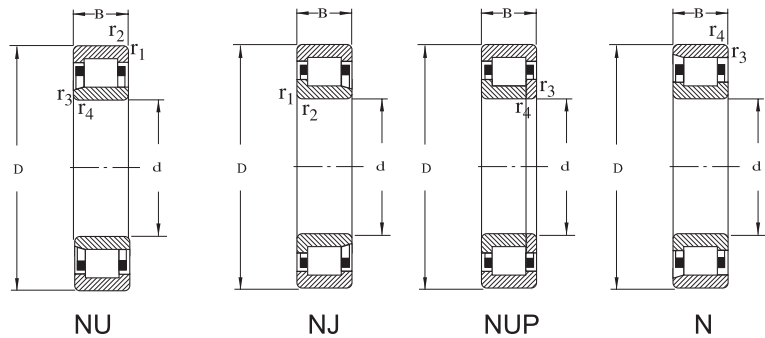
DIMENSIONS					BASIC LOAD RATING		LIMITING SPEEDS		BASIC DESIGNATIONS	MASS ~	SKETCH	DIMENSIONS					BASIC LOAD RATING		LIMITING SPEEDS		BASIC DESIGNATIONS	MASS ~	SKETCH		
d	D	B	r _{1,2} min	r _{3,4} min	dynamic C	static C ₀	grease	oil				d	D	B	r _{1,2} min	r _{3,4} min	dynamic C	static C ₀	grease	oil				kg	
mm					kN		r/min		mm					kN		r/min		kg							
45	85	19	1.1	1.1	58.50	63.8	6 300	8 000	N209E	0.450	N	65	120	23	1.5	1.5	102.00	118.0	4 500	5 600	N213E	1.050	N		
	85	19	1.1	1.1	58.50	63.8	6 300	8 000	NU209E	0.450	NU		120	23	1.5	1.5	102.00	118.0	4 500	5 600	NU213E	1.050	NU		
	85	19	1.1	1.1	58.50	63.8	6 300	8 000	NJ209E	0.450	NJ		120	23	1.5	1.5	102.00	118.0	4 500	5 600	NJ213E	1.050	NJ		
	85	19	1.1	1.1	58.50	63.8	6 300	8 000	NUP209E	0.450	NUP		120	23	1.5	1.5	102.00	118.0	4 500	5 600	NUP213E	1.050	NUP		
	100	36	1.5	1.5	138.80	155.7	5 600	6 700	NJ2309E	0.540	NJ		140	33	2.1	2.1	170.00	188.0	4 000	5 000	N313E	2.420	N		
	100	25	1.5	1.5	93.00	98.0	5 600	7 000	N309E	0.950	N		140	33	2.1	2.1	170.00	188.0	4 000	5 000	NJ313E	2.420	NJ		
	100	25	1.5	1.5	93.00	98.0	5 600	7 000	NU309E	0.950	NU		140	33	2.1	2.1	170.00	188.0	4 000	5 000	NUP313E	2.420	NUP		
	100	25	1.5	1.5	93.00	98.0	5 600	7 000	NJ309E	0.950	NJ		70	125	24	1.5	1.5	112.00	135.0	4 300	5 300	N214E	1.290	N	
	100	25	1.5	1.5	93.00	98.0	5 600	7 000	NUP309E	0.950	NUP			125	24	1.5	1.5	112.00	135.0	4 300	5 300	NU214E	1.290	NU	
	100	25	1.5	1.5	93.00	98.0	5 600	7 000	NF309E	0.950	NF			125	24	1.5	1.5	112.00	135.0	4 300	5 300	NJ214E	1.290	NJ	
	50	80	16	1.0	0.6	31.00	34.0	8 000	9 500	NU1010M	0.320			NU	125	24	1.5	1.5	112.00	135.0	4 300	5 300	NUP214E	1.290	NUP
		90	20	1.1	1.1	61.20	69.2	6 000	7 500	N210E	0.510			N	125	24	1.5	1.5	112.00	135.0	4 300	5 300	NJ2214E	1.700	NJ
90		20	1.1	1.1	61.20	69.2	6 000	7 500	NU210E	0.510	NU	150		35	2.1	2.1	195.00	220.0	3 800	4 800	N314E	2.900	N		
90		20	1.1	1.1	61.20	69.2	6 000	7 500	NJ210E	0.510	NJ	150	35	2.1	2.1	195.00	220.0	3 800	4 800	NU314E	2.900	NU			
90		20	1.1	1.1	61.20	69.2	6 000	7 500	NUP210E	0.510	NUP	150	35	2.1	2.1	195.00	220.0	3 800	4 800	NJ314E	2.900	NJ			
90		23	1.1	1.1	64.20	73.6	6 000	7 500	NJ2210EM	0.650	NJ	150	35	2.1	2.1	195.00	220.0	3 800	4 800	NUP314E	2.900	NUP			
90		23	1.1	1.1	64.20	73.6	6 000	7 500	NU2210E	0.650	NU	75	115	20	1.1	1.1	58.30	39.0	5 600	6 700	NU1015	0.740	NU		
110		27	2.0	2.0	105.00	112.0	5 300	6 700	N310E	1.200	N		130	25	1.5	1.5	125.00	155.0	4 000	5 000	N215E	1.450	N		
110		27	2.0	2.0	105.00	112.0	5 300	6 700	NU310E	1.200	NU		130	25	1.5	1.5	125.00	155.0	4 000	5 000	NU215E	1.450	NU		
110		27	2.0	2.0	105.00	112.0	5 300	6 700	NJ310E	1.200	NJ		130	25	1.5	1.5	125.00	155.0	4 000	5 000	NJ215E	1.450	NJ		
110		27	2.0	2.0	105.00	112.0	5 300	6 700	NUP310E	1.200	NUP		130	25	1.5	1.5	125.00	155.0	4 000	5 000	NUP215E	1.450	NUP		
55		100	21	1.5	1.1	80.20	95.5	5 300	6 700	N211E	0.680		N	160	37	2.1	2.1	228.00	260.0	3 600	4 500	N315E	3.590	N	
	100	21	1.5	1.1	80.20	95.5	5 300	6 700	NU211E	0.680	NU	160	37	2.1	2.1	228.00	260.0	3 600	4 500	NU315E	3.590	NU			
	100	21	1.5	1.1	80.20	95.5	5 300	6 700	NJ211E	0.680	NJ	160	37	2.1	2.1	228.00	260.0	3 600	4 500	NJ315E	3.590	NJ			
	100	21	1.5	1.1	80.20	95.5	5 300	6 700	NUP211E	0.680	NUP	160	37	2.1	2.1	228.00	260.0	3 600	4 500	NUP315E	3.590	NUP			
	100	25	1.5	1.1	75.30	87.2	5 300	6 700	NJ2211EM	0.770	NJ	80	125	22	1.1	1.1	59.20	77.8	4 300	5 300	NU1016E	1.000	NU		
	120	29	2.0	2.0	128.00	138.0	4 800	6 000	N311E	1.530	N		140	26	2.0	2.0	132.00	165.0	3 800	4 800	N216E	1.740	N		
	120	29	2.0	2.0	128.00	138.0	4 800	6 000	NU311E	1.530	NU		140	26	2.0	2.0	132.00	165.0	3 800	4 800	NU216E	1.740	NU		
	120	29	2.0	2.0	128.00	138.0	4 800	6 000	NJ311E	1.530	NJ		140	26	2.0	2.0	132.00	165.0	3 800	4 800	NJ216E	1.740	NJ		
	120	29	2.0	2.0	128.00	138.0	4 800	6 000	NUP311E	1.530	NUP		140	26	2.0	2.0	132.00	165.0	3 800	4 800	NUP216E	1.740	NUP		
	140	33	2.1	2.1	145.00	141.0	4 200	5 700	NU411	2.920	NU		170	39	2.1	2.1	245.00	282.0	3 400	4 300	N316E	4.050	N		
	60	110	22	1.5	1.5	89.80	102.0	5 000	6 300	N212E	0.840	N	170	39	2.1	2.1	245.00	282.0	3 400	4 300	NU316E	4.050	NU		
		110	22	1.5	1.5	89.80	102.0	5 000	6 300	NU212E	0.840	NU	170	39	2.1	2.1	245.00	282.0	3 400	4 300	NJ316E	4.050	NJ		
110		22	1.5	1.5	89.80	102.0	5 000	6 300	NJ212E	0.840	NJ	170	39	2.1	2.1	245.00	282.0	3 400	4 300	NUP316E	4.050	NUP			
110		22	1.5	1.5	89.80	102.0	5 000	6 300	NUP212E	0.840	NUP	85	180	41	3.0	3.0	280.00	332.0	3 200	4 000	NU317	4.800	NU		
110		28	1.5	1.5	101.00	123.0	5 000	6 300	NJ2212E	1.090	NJ		160	30	2.0	2.0	172.00	215.0	3 400	4 300	N218E	2.440	N		
130		31	2.1	2.1	142.00	155.0	4 500	5 600	N312E	1.940	N		160	30	2.0	2.0	172.00	215.0	3 400	4 300	NU218E	2.440	NU		
130		31	2.1	2.1	142.00	155.0	4 500	5 600	NU312E	1.940	NU		160	30	2.0	2.0	172.00	215.0	3 400	4 300	NJ218E	2.440	NJ		
130		31	2.1	2.1	142.00	155.0	4 500	5 600	NJ312E	1.940	NJ		160	30	2.0	2.0	172.00	215.0	3 400	4 300	NUP218E	2.440	NUP		
130		31	2.1	2.1	142.00	155.0	4 500	5 600	NUP312E	1.940	NUP		190	43	3.0	3.0	298.00	348.0	3 000	3 800	N318E	6.070	N		
													190	43	3.0	3.0	298.00	348.0	3 000	3 800	NU318E	6.070	NU		
													190	43	3.0	3.0	298.00	348.0	3 000	3 800	NJ318E	6.070	NJ		
													190	43	3.0	3.0	298.00	348.0	3 000	3 800	NUP318E	6.070	NUP		

F&T Cylindrical roller bearings

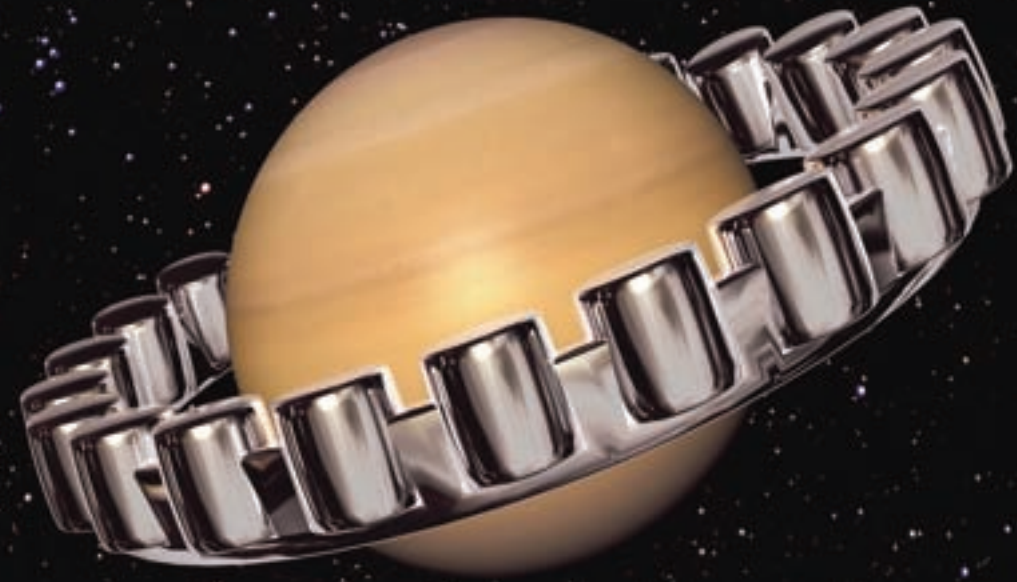


DIMENSIONS					BASIC LOAD RATING		LIMITING SPEEDS		BASIC DESIGNATIONS	MASS ~ kg	SKETCH	DIMENSIONS					BASIC LOAD RATING		LIMITING SPEEDS		BASIC DESIGNATIONS	MASS ~ kg	SKETCH
d	D	B	r _{1,2} min	r _{3,4} min	dynamic C	static C ₀	grease	oil				d	D	B	r _{1,2} min	r _{3,4} min	dynamic C	static C ₀	grease	oil			
mm					kN		r/min		mm					kN		r/min							
95	170	32	2.1	2.1	208.00	262.0	3 200	4 000	N219E	2.900	N	120	180	28	2.1	2.0	163.00	234.0	3 000	3 800	NU1024	2.550	NU
	170	32	2.1	2.1	208.00	262.0	3 200	4 000	NU219E	2.900	NU		215	40	2.1	2.1	322.00	422.0	2 200	3 000	N224	6.220	N
	170	32	2.1	2.1	208.00	262.0	3 200	4 000	NJ219E	2.900	NJ		215	40	2.1	2.1	322.00	422.0	2 200	3 000	NU224	6.220	NU
	170	32	2.1	2.1	208.00	262.0	3 200	4 000	NUP219E	2.900	NUP		215	40	2.1	2.1	322.00	422.0	2 200	3 000	NJ224	6.220	NJ
	200	45	3.0	3.0	315.00	380.0	2 800	3 600	N319E	6.620	N		215	40	2.1	2.1	322.00	422.0	2 200	3 000	NUP224	6.220	NUP
	200	45	3.0	3.0	315.00	380.0	2 800	3 600	NU319E	6.620	NU		215	40	2.1	2.1	247.00	249.0	2 200	3 000	NJ224E	6.320	NJ
	200	45	3.0	3.0	315.00	380.0	2 800	3 600	NJ319E	6.620	NJ		260	86	3.0	3.0	735.00	1 050.0	2 000	2 600	NJ2324EM	23.600	NJ
	200	45	3.0	3.0	315.00	380.0	2 800	3 600	NUP319E	6.620	NUP		260	55	3.0	3.0	440.00	522.0	1 900	2 600	N324	14.000	N
100	140	24	1.1	1.1	132.00	199.0	1 000	2 200	NCF2920V	1.140	NCF	260	55	3.0	3.0	440.00	522.0	1 900	2 600	NU324	14.000	NU	
	180	34	2.1	2.1	235.00	302.0	3 000	3 800	N220E	3.340	N	260	55	3.0	3.0	440.00	522.0	1 900	2 600	NU220E	14.000	NU	
	180	34	2.1	2.1	235.00	302.0	3 000	3 800	NJ220E	3.340	NJ	260	55	3.0	3.0	440.00	522.0	1 900	2 600	NJ220E	14.000	NJ	
	180	34	2.1	2.1	235.00	302.0	3 000	3 800	NU220E	3.340	NU	310	72	5.0	5.0	748.00	883.0	1 900	2 400	NUP324	14.000	NUP	
	180	34	2.1	2.1	235.00	302.0	3 000	3 800	NUP220E	3.340	NUP	130	180	30	1.5	1.5	210.00	350.0	750	1 600	NCF2926V	2.300	NCF
	180	46	2.1	2.1	318.00	440.0	3 000	3 800	NU2220E	4.860	NU		230	40	3.0	3.0	258.00	352.0	2 000	2 800	N226	7.150	N
	215	47	3.0	3.0	365.00	425.0	2 600	3 200	N320E	8.040	N		230	40	3.0	3.0	258.00	352.0	2 000	2 800	NU226	7.150	NU
	215	47	3.0	3.0	365.00	425.0	2 600	3 200	NU320E	8.040	NU		230	40	3.0	3.0	258.00	352.0	2 000	2 800	NJ226	7.150	NJ
215	47	3.0	3.0	365.00	425.0	2 600	3 200	NJ320E	8.040	NJ	230		40	3.0	3.0	258.00	352.0	2 000	2 800	NUP226	7.150	NUP	
215	47	3.0	3.0	365.00	425.0	2 600	3 200	NUP320E	8.040	NUP	280		58	4.0	4.0	492.00	620.0	1 700	2 200	N326	18.500	N	
105	190	36	2.1	2.1	185.00	235.0	2 800	3 600	N221	4.000	N		280	58	4.0	4.0	492.00	620.0	1 700	2 200	NU326	18.500	NU
	190	36	2.1	2.1	185.00	235.0	2 800	3 600	NJ221	4.000	NJ		280	58	4.0	4.0	492.00	620.0	1 700	2 200	NJ326	18.500	NJ
	190	36	2.1	2.1	185.00	235.0	2 800	3 600	NUP221	4.000	NUP	280	58	4.0	4.0	492.00	620.0	1 700	2 200	NUP326	18.500	NUP	
	190	36	2.1	2.1	185.00	235.0	2 800	3 600	NJ221E	4.000	NJ	140	250	42	3.0	3.0	302.00	415.0	1 800	2 400	N228	9.000	N
	190	36	2.1	2.1	185.00	235.0	2 800	3 600	N321	9.900	N		250	42	3.0	3.0	302.00	415.0	1 800	2 400	NU228	9.000	NU
	190	36	2.1	2.1	185.00	235.0	2 800	3 600	NU321	9.900	NU		250	42	3.0	3.0	302.00	415.0	1 800	2 400	NJ228	9.000	NJ
	225	49	3.0	3.0	322.00	392.0	2 200	3 000	NJ321	9.900	NJ		250	42	3.0	3.0	302.00	415.0	1 800	2 400	NUP228	9.000	NUP
	225	49	3.0	3.0	322.00	392.0	2 200	3 000	NU321	9.900	NU		250	68	3.0	3.0	553.00	799.0	1 800	2 400	NJ2228EM	15.900	NJ
225	49	3.0	3.0	322.00	392.0	2 200	3 000	NUP321	9.900	NUP	300		62	4.0	4.0	545.00	690.0	1 600	2 000	N328	22.800	N	
110	150	24	1.1	1.0	137.00	213.0	900	1 900	NCF2922V	1.230	NCF		300	62	4.0	4.0	545.00	690.0	1 600	2 000	NU328	22.800	NU
	170	28	2.0	1.1	115.00	155.0	3 000	3 800	NJ1022	2.300	NJ		300	62	4.0	4.0	545.00	690.0	1 600	2 000	NJ328	22.800	NJ
	200	38	2.1	2.1	278.00	360.0	2 600	3 400	N222	5.080	N	190	30	1.5	1.1	220.00	390.0	750	1 500	NCF2928V	2.450	NCF	
	200	38	2.1	2.1	278.00	360.0	2 600	3 400	NU222	5.080	NU	150	225	35	2.1	1.5	208.00	310.0	2 600	3 200	NU1030EM	4.990	NU
	200	38	2.1	2.1	278.00	360.0	2 600	3 400	NJ222	5.080	NJ		270	45	3.0	3.0	360.00	490.0	1 700	2 200	N230	11.600	N
	200	38	2.1	2.1	278.00	360.0	2 600	3 400	NUP222	5.080	NUP		270	45	3.0	3.0	360.00	490.0	1 700	2 200	NU230E	11.600	NU
	240	50	3.0	3.0	352.00	428.0	2 000	2 800	N322	11.100	N		320	65	4.0	4.0	595.00	765.0	1 500	1 900	N330	26.400	N
	240	50	3.0	3.0	352.00	428.0	2 000	2 800	NU322	11.100	NU		320	65	4.0	4.0	595.00	765.0	1 500	1 900	NU330	26.400	NU
240	50	3.0	3.0	352.00	428.0	2 000	2 800	NJ322	11.100	NJ	270		73	3.0	3.0	735.00	930.0	2 000	2 600	NU2230M	19.200	NU	
240	50	3.0	3.0	352.00	428.0	2 000	2 800	NUP322	11.100	NUP	160		240	38	2.1	1.5	245.00	255.0	2 400	3 000	NU1032M	6.200	NU
280	65	4.0	4.0	515.00	600.0	1 800	2 400	NU422	22.000	NU			290	80	3.0	3.0	787.00	1 146.0	1 900	2 400	NU2232E	24.300	NU
												290	48	3.0	3.0	405.00	552.0	1 600	2 000	N232	14.700	N	
												290	48	3.0	3.0	405.00	552.0	1 600	2 000	NJ232E	14.700	NJ	
												340	68	4.0	4.0	628.00	825.0	1 400	1 800	N332	32.200	N	
												340	68	4.0	4.0	628.00	825.0	1 400	1 800	NU332E	32.200	NU	
												220	36	2.0	1.1	297.00	540.0	630	1 200	NCF2932V	4.100	NCF	

F&T Cylindrical roller bearings



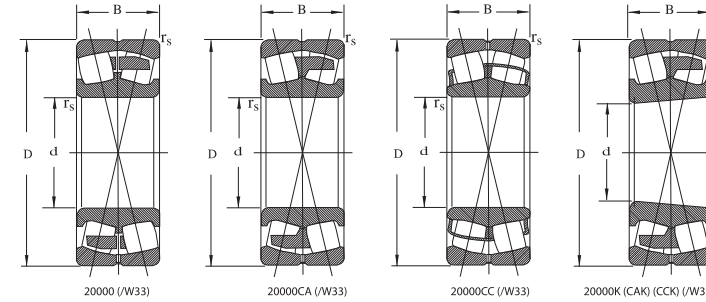
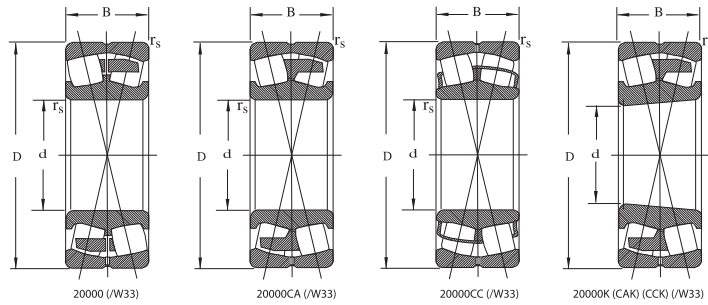
SPHERICAL ROLLER BEARINGS



DIMENSIONS					BASIC LOAD RATING		LIMITING SPEEDS		BASIC DESIGNATIONS	MASS ~ kg	SKETCH
d	D	B	r _{1,2} min	r _{3,4} min	dynamic C	static C ₀	grease	oil			
mm					kN		r/min				
170	230	36	2.0	2.0	330.00	560.0	600	1 200	NCF2934V	4.250	NCF
	310	52	4.0	4.0	425.00	650.0	1 500	1 900	N234	18.700	N
	360	72	4.0	4.0	715.00	952.0	1 300	1 700	N334	37.200	N
180	320	52	4.0	4.0	425.00	650.0	1 400	1 800	N236	20.000	N
	380	75	4.0	4.0	835.00	1 100.0	1 200	1 600	N336	42.500	N
	380	75	4.0	4.0	905.00	1 150.0	1 500	1 800	NJ336E	42.500	NJ
	250	42	2.0	2.0	39.30	70.1	560	1 000	NCF2936V	6.200	NCF
190	340	92	4.0	4.0	917.00	1 313.0	1 600	1 900	NU2238E	37.800	NU
200	280	48	2.1	2.1	550.00	940.0	530	1 000	NCF2940V	9.150	NCF
220	270	24	1.5	1.5	181.00	385.0	900	1 100	NCF1844V	2.800	NCF
	400	65	4.0	4.0	1 060.00	1 290.0	1 500	1 800	NU244	38.100	NU
	400	65	4.0	4.0	1 060.00	1 290.0	1 500	1 800	NUP244	38.100	NUP
240	300	28	2.0	2.0	240.00	490.0	900	1 000	NCF1848V	4.400	NCF
270	360	60	2.1	1.5	790.00	1 460.0	750	950	NCF2952V	18.500	NCF
280	380	60	2.1	2.1	853.00	1 670.0	700	900	NCF2956V	19.700	NCF
340	460	72	3.0	3.0	1 100.00	2 360.0	560	700	NCF2968V	34.800	NCF
380	480	46	2.1	1.5	627.00	1 290.0	530	600	NCF1876V	19.200	NCF
400	540	82	4.0	4.0	1 532.00	3 336.0	480	600	NCF2980V	54.300	NCF
420	560	82	4.0	4.0	1 120.00	2 640.0	850	1 000	NJ2984	56.900	NJ
560	750	112	5.0	5.0	2 000.00	4 725.0	600	750	NJ29/560	140.000	NJ
22	47	18	2.0	1.0	35.00	26.0	-	-	CBK-497 *	0.140	CBK
30	61.935	19.05	2.7	1.0	37.00	44.0	-	-	CBK-239 *	0.270	CBK
49.930	80	15	0.3	0.3	28.00	33.0	-	-	CBK-238 *	0.270	CBK

* - bearings without cage with full quantity of rollers

FLT Spherical roller bearings

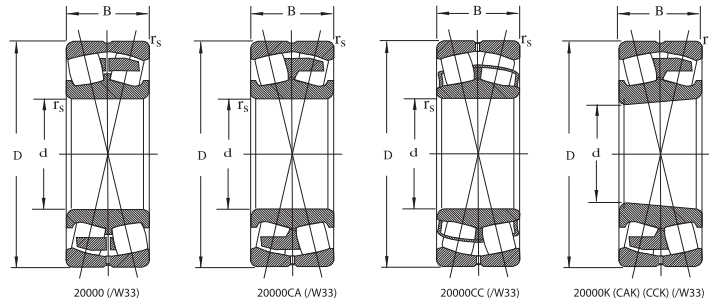


SUFFIX Spherical roller bearings

CA	no middle flange on inner ring. machined brass cage
CC	flangeless inner ring. pressed steel cage
MB	flanges on inner ring. machined brass cage
K	tapered bore (1:12 on diameter)
K30	tapered bore (1:30 on diameter)
W33	lubrication groove and three holes in outer ring
C3	radial clearance greater than normal
C4	radial clearance greater than C3

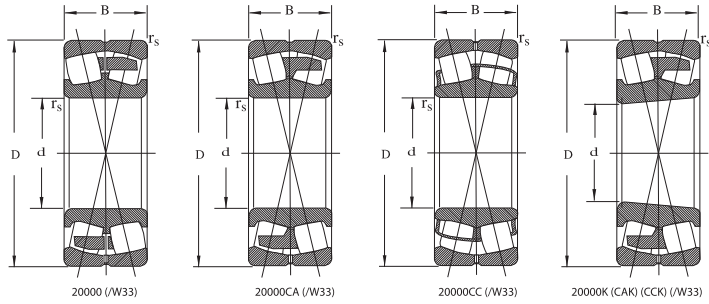
DIMENSIONS				BASIC LOAD RATING		LIMITING SPEEDS		BASIC DESIGNATIONS		MASS
d	D	B	r _{1.2} min	dynamic C	static C ₀	grease	oil	cylindrical bore	tapered bore	~ kg
mm				kN		r/min				kg
20	52	15.0	1.1	30.80	31.20	6 000	7 500	21304CA		0.170
	25	52	18.0	1.0	43.0	46.00	8 000	10 000	22205CC	22205CCK
30		52	18.0	1.0	43.0	46.00	8 000	10 000	22205CA	22205CAK
	52	18.0	1.0	41.0	43.70	8 000	10 000	22205CTNI		0.180
	62	17.0	1.0	41.5	44.20	5 300	6 700	21305CA		0.280
	62	20.0	1.0	34.50	39.30	5 300	6 700	22206MB	22206MBK	0.290
35	62	20.0	1.0	57.00	60.00	6 300	8 000	22206CC	22206CCK	0.300
	62	20.0	1.0	57.00	60.00	6 700	8 500	22206CA	22206CAK	0.330
	72	19.0	1.1	55.80	62.00	4 500	6 000	21306CA	21306CAK	0.410
	72	23.0	1.1	46.6	61.30	4 800	6 000	22207MB	22207MBK	0.430
	72	23.0	1.1	78.0	86.00	5 300	6 700	22207CC	22207CCK	0.470
	72	23.0	1.1	78.0	86.00	5 600	7 000	22207CA	22207CAK	0.440
40	80	21.0	1.5	63.5	73.20	5 600	7 000	21307CA	21307CAK	0.540
	80	23.0	1.1	51.30	70.60	4 500	5 600	22208MB	22208MBK	0.560
	80	23.0	1.1	88.00	94.00	5 000	6 000	22208CC	22208CCK	0.530
	80	23.0	1.1	88.00	94.00	5 000	6 300	22208CA	22208CAK	0.520
	90	23.0	1.5	86.20	90.40	3 600	4 500	21308CA	21308CAK	0.740
	90	33.0	1.5	75.70	93.20	4 000	5 000	22308MB	22308MBK	1.040
45	90	33.0	1.5	125.00	140.00	4 300	5 300	22308CC	22308CCK	1.040
	90	33.0	1.5	125.00	140.00	4 500	6 000	22308CA	22308CAK	1.040
	85	23.0	1.1	54.0	75.00	4 000	5 000	22209MB	22209MBK	0.590
	85	23.0	1.1	90.0	105.00	4 500	5 600	22209CC	22209CCK	0.590
	85	23.0	1.1	90.0	105.00	4 500	6 000	22209CA	22209CAK	0.580
	100	25.0	1.1	102.6	110.40	3 200	4 000	21309CA	21309CAK	1.020
	100	36.0	1.5	111.0	144.00	3 600	4 500	22309MB	22309MBK	1.390
	100	36.0	1.5	150.0	175.00	3 800	4 800	22309CC	22309CCK	1.380
	100	36.0	1.1	150.0	175.00	4 000	5 300	22309CA	22309CAK	1.380
	50	90	23.0	1.1	54.00	75.00	3 800	4 800	22210MB	22210MBK
90		23.0	1.1	93.00	110.00	4 000	5 000	22210CC	22210CCK	0.630
90		23.0	1.1	93.00	110.00	4 300	5 300	22210CA	22210CAK	0.630
110		27.0	2.0	120.00	140.00	2 800	3 800	21310CA	21310CAK	1.300
110		40.0	2.0	132.00	175.00	3 400	4 300	22310MB	22310MBK	1.830
110		40.0	2.0	185.00	216.00	3 400	4 300	22310CC	22310CCK	1.850
110		40.0	2.0	185.00	216.00	3 800	4 800	22310CA	22310CAK	1.790
55		100	25.0	1.5	62.0	90.00	3 400	4 300	22211MB	22211MBK
	100	25.0	1.5	115.0	140.00	3 600	4 500	22211CC	22211CCK	0.860
	100	25.0	1.5	115.0	140.00	3 800	5 000	22211CA	22211CAK	0.850
	120	29.0	2.0	150.0	175.00	2 600	3 400	21311CA	21311CAK	1.650
	120	43.0	2.0	160.0	204.00	3 000	3 800	22311MB	22311MBK	2.300
	120	43.0	2.0	220.0	258.00	3 000	3 800	22311CC	22311CCK	2.350
	120	43.0	2.0	220.0	258.00	3 400	4 300	22311CA	22311CAK	2.310

FLT Spherical roller bearings



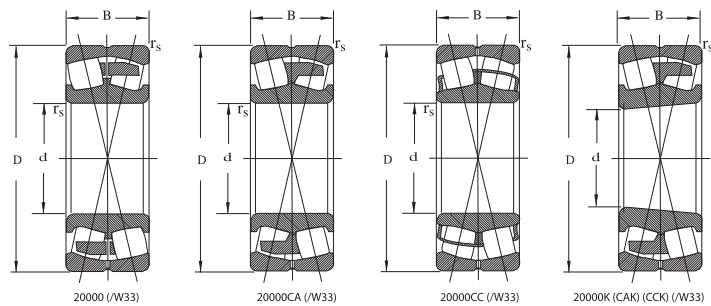
DIMENSIONS				BASIC LOAD RATING		LIMITING SPEEDS		BASIC DESIGNATIONS		MASS	DIMENSIONS				BASIC LOAD RATING		LIMITING SPEEDS		BASIC DESIGNATIONS		MASS
d	D	B	r _{1.2} min	dynamic C	static C ₀	grease	oil	cylindrical bore	tapered bore		~	d	D	B	r _{1.2} min	dynamic C	static C ₀	grease	oil	cylindrical bore	
mm				kN		r/min				kg	mm				kN		r/min				kg
60	110	28.0	1.5	84.00	126.00	3 200	4 000	22212MB	22212MBK	1.200	90	160	40.0	2.0	173.00	280.00	1 900	2 600	22218MB	22218MBK	4.000
	110	28.0	1.5	135.00	163.00	3 200	4 000	22212CC	22212CCK	1.120		160	40.0	2.0	280.00	355.00	1 900	2 600	22218CC	22218CCK	3.280
	110	28.0	1.5	135.00	163.00	3 600	4 500	22212CA	22212CAK	1.200		160	40.0	2.0	280.00	355.00	2 400	3 000	22218CA	22218CAK	3.670
	130	31.0	2.1	162.00	195.00	2 400	3 200	21312CA	21312CAK	2.080		160	52.4	2.0	370.00	500.00	1 900	2 600	23218CA	23218CAK	4.550
	130	46.0	2.1	173.00	232.00	2 800	3 600	22312MB	22312MBK	2.880		190	43.0	3.0	320.00	420.00	1 600	2 200	21318CA	21318CAK	6.170
	130	46.0	2.1	250.00	298.00	2 800	3 600	22312CC	22312CCK	2.950		190	64.0	3.0	376.00	558.00	1 700	2 200	22318MB	22318MBK	8.880
65	120	31.0	1.5	91.0	132.00	2 800	3 600	22213MB	22213MBK	1.550	95	170	43.0	2.1	218.0	332.00	1 800	2 400	22219MB	22219MBK	4.550
	120	31.0	1.5	165.0	203.00	2 800	3 600	22213CC	22213CCK	1.520		170	43.0	2.1	305.0	393.00	2 200	2 800	22219CC	22219CCK	4.570
	120	31.0	1.5	165.0	203.00	3 200	4 000	22213CA	22213CAK	1.510		200	45.0	3.0	355.0	485.00	1 700	2 200	21319CA	21319CAK	7.150
	140	33.0	2.1	201.0	237.00	2 200	3 000	21313CA	21313CAK	2.570		200	67.0	3.0	397.0	587.00	1 600	2 000	22319MB	22319MBK	10.380
	140	48.0	2.1	194.0	260.00	2 400	3 200	22313MB	22313MBK	3.490		200	67.0	3.0	556.0	709.00	2 000	2 600	22319CA	22319CAK	9.970
	140	48.0	2.1	280.0	350.00	2 400	3 200	22313CC	22313CCK	3.550		100	165	52.0	2.1	350.00	550.00	1 700	2 200	23120CA	23120CAK
140	48.0	2.1	280.0	350.00	3 000	3 800	22313CA	22313CAK	3.510	180	46.0		2.1	229.00	369.00	1 700	2 200	22220MB	22220MBK	5.120	
70	125	31.0	1.5	98.00	146.00	2 600	3 400	22214MB	22214MBK	1.660	180		46.0	2.1	350.00	456.00	2 200	2 600	22220CA	22220CAK	5.010
	125	31.0	1.5	175.00	221.00	3 000	3 800	22214CC	22214CCK	1.600	180		60.3	2.1	450.00	650.00	1 600	2 200	23220CA	23220CAK	6.520
	125	31.0	1.5	175.00	221.00	3 000	3 800	22214CA	22214CAK	1.630	215		47.0	3.0	385.00	530.00	1 600	2 000	21320CA	21320CAK	8.810
	150	35.0	2.1	212.00	268.00	2 000	2 800	21314CA	21314CAK	3.110	215		73.0	3.0	464.00	688.00	1 400	1 800	22320MB	22320MBK	13.000
	150	51.0	2.1	237.00	325.00	2 200	3 000	22314MB	22314MBK	4.210	215	73.0	3.0	640.00	840.00	1 900	2 400	22320CA	22320CAK	12.800	
	150	51.0	2.1	315.00	375.00	2 200	3 000	22314CC	22314CCK	4.350	110	170	45.0	2.1	288.0	456.00	2 200	3 000	23022MB	23022MBK	3.950
150	51.0	2.1	315.00	375.00	2 800	3 400	22314CA	22314CAK	4.320	170		45.0	2.0	310.0	500.00	2 200	3 000	23022CA	23022CAK	3.800	
75	130	31.0	1.5	98.0	146.00	2 400	4 200	22215MB	22215MBK	1.730		180	56.0	2.0	420.0	650.00	1 600	2 000	23122CA	23122CAK	5.580
	130	31.0	1.5	180.0	232.00	2 400	3 200	22215CC	22215CCK	1.820		180	69.0	2.0	500.0	840.00	1 600	2 000	24122CA	24122CAK	6.630
	130	31.0	1.5	180.0	232.00	3 000	3 800	22215CA	22215CAK	1.690		200	53.0	2.1	297.0	479.00	1 500	1 900	22222MB	22222MBK	7.000
	160	37.0	2.1	238.0	302.00	1 900	2 600	21315CA	21315CAK	3.760		200	53.0	2.1	445.0	585.00	1 900	2 400	22222CA	22222CAK	7.320
	160	55.0	2.1	270.0	400.00	2 000	2 800	22315MB	22315MBK	5.230	200	69.8	2.1	580.0	830.00	1 500	1 900	23222CA	23222CAK	9.460	
	160	55.0	2.1	365.0	451.00	2 000	2 800	22315CC	22315CCK	5.280	240	50.0	3.0	460.0	635.00	1 400	1 800	21322CA	21322CAK	11.800	
80	160	55.0	2.1	365.0	451.00	2 600	3 200	22315CA	22315CAK	5.890	240	80.0	3.0	561.0	857.00	1 200	1 600	22322MB	22322MBK	17.850	
	140	33.0	2.0	119.00	185.00	2 200	3 000	22216MB	22216MBK	2.280	240	80.0	3.0	780.0	1 000.00	1 700	2 200	22322CA	22322CAK	17.500	
	140	33.0	2.0	200.00	265.00	2 200	3 000	22216CC	22216CCK	2.130	120	180	46.0	2.0	304.00	501.00	2 000	2 800	23024MB	23024MBK	4.300
	140	33.0	2.0	200.00	265.00	2 800	3 400	22216CA	22216CAK	2.260		180	46.0	2.0	330.00	550.00	2 000	2 800	23024CA	23024CAK	4.170
	170	39.0	2.1	260.00	332.00	1 800	2 400	21316CA	21316CAK	4.470		180	60.0	2.0	430.00	750.00	1 500	2 000	24024CA	24024CAK	5.050
	170	58.0	2.1	297.00	417.00	1 900	2 600	22316MB	22316MBK	6.300		200	62.0	2.0	500.00	755.00	1 400	1 800	23124CA	23124CAK	7.850
170	58.0	2.1	413.00	513.00	2 400	3 000	22316CA	22316CAK	6.320	200		80.0	2.0	650.00	1 100.00	1 400	1 800	24124CA	24124CAK	9.650	
85	150	36.0	2.0	149.0	235.00	2 000	2 800	22217MB	22217MBK	2.830		215	58.0	2.1	352.00	582.00	1 300	1 700	22224MB	22224MBK	9.070
	150	36.0	2.0	250.0	315.00	2 000	2 800	22217CC	22217CCK	2.670	215	58.0	2.1	535.00	700.00	1 700	2 200	22224CA	22224CAK	9.140	
	150	36.0	2.0	250.0	315.00	2 600	3 200	22217CA	22217CAK	2.870	215	76.0	2.1	610.00	955.00	1 300	1 700	23224CA	23224CAK	11.700	
	180	41.0	3.0	298.0	385.00	1 700	2 200	21317CA	21317CAK	5.230	260	86.0	3.0	664.00	1 022.00	1 100	1 500	22324MB	22324MBK	22.380	
	180	60.0	3.0	317.0	453.00	1 800	2 400	22317MB	22317MBK	7.360	260	86.0	3.0	890.00	1 154.00	1 500	1 900	22324CA	22324CAK	22.200	
	180	60.0	3.0	447.0	556.00	2 200	2 800	22317CA	22317CAK	7.270											

FLT Spherical roller bearings



DIMENSIONS				BASIC LOAD RATING		LIMITING SPEEDS		BASIC DESIGNATIONS		MASS	DIMENSIONS				BASIC LOAD RATING		LIMITING SPEEDS		BASIC DESIGNATIONS		MASS
d	D	B	r _{1.2} min	dynamic C	static C ₀	grease	oil	cylindrical bore	tapered bore		~	d	D	B	r _{1.2} min	dynamic C	static C ₀	grease	oil	cylindrical bore	
mm				kN		r/min				kg	mm				kN		r/min				kg
130	200	52.0	2.0	386.0	630.00	1 900	2 600	23026MB	23026MBK	6.120	170	260	67.0	2.1	458.0	1 040.00	800	1 000	23034MB	23034MBK	13.000
	200	52.0	2.0	420.0	710.00	1 900	2 600	23026CA	23026CAK	5.990		260	67.0	2.1	715.0	1 100.00	1 600	2 000	23034CA	23034CAK	12.900
	200	69.0	2.0	472.0	852.00	1 400	1 800	24026CA	24026CAK	7.550		260	90.0	2.1	820.0	1 520.00	1 000	1 300	24034CA	24034CAK	16.700
	210	64.0	2.0	560.0	840.00	1 300	1 700	23126CA	23126CAK	8.490		280	88.0	2.1	900.0	1 550.00	1 000	1 300	23134CA	23134CAK	21.100
	210	80.0	2.0	585.0	1 030.00	1 300	1 700	24126CA	24126CAK	10.300		280	109.0	2.1	1 070.0	1 930.00	1 000	1 300	24134CA	24134CAK	25.500
	230	64.0	3.0	420.0	729.00	1 200	1 600	22226MB	22226MBK	11.380		310	86.0	4.0	740.0	1 330.00	850	1 100	22234MB	22234MBK	29.000
	230	64.0	3.0	600.0	860.00	1 600	2 000	22226CA	22226CAK	11.200		310	86.0	4.0	1 100.0	1 520.00	1 100	1 400	22234CA	22234CAK	28.100
	230	80.0	3.0	678.0	1 080.00	1 200	1 600	23226CA	23226CAK	13.800		310	110.0	4.0	1 350.0	2 100.00	900	1 200	23234CA	23234CAK	35.700
	280	93.0	4.0	744.0	1 170.00	950	1 300	22326MB	22326MBK	28.170		360	120.0	4.0	1 180.0	2 120.00	750	950	22334MB	22334MBK	60.000
	280	93.0	4.0	1 020.0	1 340.00	1 400	1 800	22326CA	22326CAK	27.500		360	120.0	4.0	1 550.0	2 140.00	950	1 300	22334CA	22334CAK	59.300
140	210	53.0	2.0	294.00	654.00	950	1 300	23028MB	23028MBK	6.300	180	280	74.0	2.1	556.00	1 260.00	750	950	23036MB	23036MBK	17.600
	210	53.0	2.0	460.00	765.00	1 800	2 400	23028CA	23028CAK	6.400		280	74.0	2.1	850.00	1 410.00	1 400	1 800	23036CA	23036CAK	17.000
	210	53.0	2.0	460.00	765.00	1 800	2 400	23028CC	23028CCK	6.400		280	100.0	2.1	980.00	1 800.00	950	1 200	24036CA	24036CAK	22.100
	210	69.0	2.0	488.00	895.00	1 300	1 700	24028CA	24028CAK	8.010		300	96.0	3.0	1 100.00	1 900.00	900	1 200	23136CA	23136CAK	26.900
	225	68.0	2.1	610.00	970.00	1 200	1 600	23128CA	23128CAK	10.200		300	118.0	3.0	1 250.00	2 210.00	900	1 200	24136CA	24136CAK	32.000
	225	85.0	2.1	750.00	1 320.00	1 200	1 600	24128CA	24128CAK	12.500		320	86.0	4.0	757.00	1 410.00	800	1 000	22236MB	22236MBK	30.000
	250	68.0	3.0	492.00	829.00	1 000	1 400	22228MB	22228MBK	14.200		320	86.0	4.0	1 140.00	1 600.00	1 100	1 300	22236CA	22236CAK	29.400
	250	68.0	3.0	710.00	1 000.00	1 400	1 700	22228CA	22228CAK	14.480		320	112.0	4.0	1 280.00	2 170.00	850	1 100	23236CA	23236CAK	37.900
	250	88.0	3.0	900.00	1 360.00	1 100	1 500	23228CA	23228CAK	18.100		380	126.0	4.0	1 290.00	2 330.00	700	900	22336MB	22336MBK	70.000
	300	102.0	4.0	925.00	1 340.00	900	1 200	22328MB	22328MBK	34.840		380	126.0	4.0	1 730.00	2 460.00	900	1 200	22336CA	22336CAK	70.400
300	102.0	4.0	1 200.00	1 620.00	1 300	1 700	22328CA	22328CAK	34.600	190	290	75.0	2.1	570.00	1 260.00	700	900	23038MB	23038MBK	20.000	
150	225	56.0	2.1	338.00	790.00	900	1 200	23030MB	23030MBK		8.190	290	75.0	2.1	905.00	1 515.00	1 300	1 700	23038CA	23038CAK	18.000
	225	56.0	2.1	510.00	855.00	1 700	2 200	23030CA	23030CAK		8.120	290	100.0	2.1	975.00	1 910.00	900	1 200	24038MB	24038MBK	23.000
	225	75.0	2.1	650.00	1 200.00	1 200	1 500	24030CA	24030CAK		10.100	290	100.0	2.1	1 000.00	1 900.00	900	1 200	24038CA	24038CAK	23.000
	250	80.0	2.1	830.00	1 300.00	1 100	1 400	23130CA	23130CAK		15.700	320	104.0	3.0	1 200.00	2 120.00	850	1 100	23138CA	23138CAK	33.600
	250	100.0	2.1	890.00	1 600.00	1 100	1 400	24130CA	24130CAK		19.000	320	128.0	3.0	1 410.00	2 590.00	850	1 100	24138CA	24138CAK	40.200
	270	73.0	3.0	523.00	900.00	950	1 300	22230MB	22230MBK		18.420	340	92.0	4.0	842.00	1 555.00	750	950	22238MB	22238MBK	37.400
	270	73.0	3.0	820.00	1 200.00	1 300	1 600	22230CA	22230CAK		18.000	340	92.0	4.0	1 200.00	1 800.00	800	1 100	22238CA	22238CAK	36.200
	270	96.0	3.0	948.00	1 540.00	1 100	1 400	23230CA	23230CAK		23.200	340	120.0	4.0	1 550.00	2 500.00	800	1 100	23238CA	23238CAK	46.100
	320	108.0	4.0	1 050.00	1 790.00	850	1 100	22330MB	22330MBK		42.340	400	132.0	5.0	1 430.00	2 600.00	670	850	22338MB	22338MBK	81.000
	320	108.0	4.0	1 370.00	1 850.00	1 200	1 500	22330CA	22330CAK	42.000	340	92.0	4.0	1 860.00	2 650.00	850	1 100	22338CA	22338CAK	78.800	
160	240	60.0	2.1	379.00	850.00	850	1 100	23032MB	23032MBK	9.600	200	310	82.0	2.1	597.00	1 340.00	670	850	23040MB	23040MBK	24.000
	240	60.0	2.1	590.00	980.00	1 700	2 200	23032CA	23032CAK	9.480		310	82.0	2.1	1 050.00	1 720.00	670	850	23040CA	23040CAK	23.000
	240	80.0	2.1	780.00	1 420.00	1 100	1 400	24032CA	24032CAK	12.200		310	109.0	2.1	1 290.00	2 120.00	850	1 100	24040MB	24040MBK	31.600
	270	86.0	2.1	950.00	1 510.00	1 000	1 300	23132CA	23132CAK	19.800		310	109.0	2.1	1 180.00	2 260.00	850	1 100	24040CA	24040CAK	29.300
	270	109.0	2.1	1 040.00	1 880.00	1 000	1 300	24132CA	24132CAK	24.400		340	112.0	3.0	1 280.00	2 100.00	800	1 000	23140CA	23140CAK	41.600
	290	80.0	3.0	660.00	1 170.00	900	1 200	22232MB	22232MBK	22.200		340	140.0	3.0	1 680.00	3 000.00	800	1 000	24140CA	24140CAK	49.900
	290	80.0	3.0	950.00	1 330.00	1 200	1 500	22232CA	22232CAK	22.950		360	98.0	4.0	947.00	1 790.00	700	900	22240MB	22240MBK	47.700
	290	104.0	3.0	1 200.00	1 880.00	1 100	1 400	23232CA	23232CAK	29.400		360	98.0	4.0	1 310.00	2 010.00	750	1 000	22240CA	22240CAK	43.900
	340	114.0	4.0	1 070.00	1 820.00	800	1 000	22332MB	22332MBK	51.000		360	128.0	4.0	1 650.00	2 700.00	750	1 000	23240CA	23240CAK	55.400
	340	114.0	4.0	1 420.00	1 930.00	950	1 300	22332CA	22332CAK	51.900		420	138.0	5.0	1 530.00	2 880.00	630	800	22340MB	22340MBK	94.000
											420	138.0	5.0	2 050.00	3 000.00	850	110	22340CA	22340CAK	94.000	
											280	60.0	5.0	550.00	1 100.00	1 000	1 400	23940CA	23940CAK	11.900	

FLT Spherical roller bearings

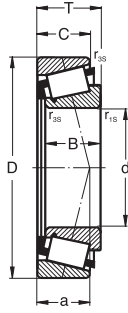


DIMENSIONS				BASIC LOAD RATING		LIMITING SPEEDS		BASIC DESIGNATIONS		MASS ~ kg	DIMENSIONS				BASIC LOAD RATING		LIMITING SPEEDS		BASIC DESIGNATIONS		MASS ~ kg	
d	D	B	r _{1.2} min	dynamic C	static C ₀	grease	oil	cylindrical bore	tapered bore		d	D	B	r _{1.2} min	dynamic C	static C ₀	grease	oil	cylindrical bore	tapered bore		
mm				kN		r/min				mm				kN		r/min						
220	340	90.0	3.0	783.0	1 860.00	600	750	23044MB	23044MBK	28.800	360	540	180.0	5.0	3 250.0	6 800.00	450	560		24072CAK30	145.000	
	340	90.0	3.0	1 100.0	1 900.00	600	750	23044CA	23044CAK	29.200		600	192.0	5.0	3 800.00	7 350.00	560	850	23172CA	23172CAK	230.000	
	340	118.0	3.0	1 350.0	2 580.00	750	1 000	24044CA	24044CAK	38.100		650	232.0	6.0	4 900.00	9 200.00	450	560	23272MB	23272MBK	349.000	
	370	120.0	4.0	1 570.0	2 820.00	700	950	23144CA	23144CAK	51.500		380	560	180.0	5.0	3 150.00	6 800.00	480	600		24076MBK30	153.000
	370	150.0	4.0	1 500.0	2 400.00	730	1 300	24144MB		68.000			620	194.0	5.0	3 400.00	7 350.00	400	500		23176CAK	244.000
	370	150.0	4.0	1 880.0	3 400.00	730	1 300	24144CA	24144CAK	65.600		400	540	106.0	4.0	1 830.0	4 150.00	710	900	23980CA	23980CAK	72.900
	400	108.0	4.0	1 200.0	2 280.00	630	800	22244MB	22244MBK	61.500			720	256.0	6.0	5 700.0	10 800.00	375	700	23280CA	23280CAK	469.000
	400	108.0	4.0	1 600.0	2 410.00	630	800	22244CA	22244CAK	58.400		440	600	118.0	5.0	2 450.0	4 900.00	670	850	23988CA		99.500
	400	144.0	4.0	2 070.0	3 620.00	670	900	23244CA	23244CAK	78.500			650	157.0	6.0	3 400.00	7 100.00	610	750	23088CA	23088CAK	190.000
	460	145.0	5.0	1 740.0	3 290.00	560	700	22344MB	22344MBK	120.000		480	720	226.0	6.0	5 150.00	10 300.00	400	500	23188CA	23188CAK	370.000
460	145.0	5.0	3 230.0	3 400.00	750	950	22344CA	22344CAK	119.000	720	280.0		6.0	6 400.00	13 200.00	255	600	24188ECA	24188ECAK	453.000		
240	360	92.0	3.0	820.00	2 120.00	530	670	23048MB	23048MBK	35.500	500	700	165.0	6.0	3 630.00	7 270.00	380	480	23096MB		216.000	
	360	118.0	3.0	1 400.00	2 850.00	700	950	24048CA	24048CAK	40.800		870	310.0	7.5	6 750.0	15 200.00	340	430	23296CA	23296CAK	835.000	
	400	128.0	4.0	1 790.00	3 220.00	670	850	23148CA	23148CAK	63.700		560	720	167.0	6.0	3 900.00	8 500.00	520	670	230500CA	230500CAK	233.000
	440	120.0	4.0	1 950.00	3 000.00	700	900	22248CA	22248CAK	82.400			750	140.0	5.0	3 050.0	7 350.00	340	430	239560CA	239560CAK	183.000
	500	155.0	5.0	2 680.00	4 010.00	670	850	22348CA	22348CAK	150.000		800	150.0	5.0	3 900.0	8 300.00	320	400	239600CA		220.000	
260	400	104.0	4.0	1 450.0	2 700.00	500	630	23052MB	23052MBK	51.500	630	920	212.0	7.0	6 700.0	12 500.00	260	340	230630CA		485.000	
	400	140.0	4.0	1 790.0	3 740.00	630	850	24052CA	24052CAK	62.400		710	920	212.0	7.5	6 300.00	13 700.00	385	500	230630MB	230630MBK	496.000
	440	144.0	4.0	2 550.0	3 900.00	600	800	23152MB	23152MBK	90.200			850	1 030	315.0	10.0	9 370.00	22 800.00	190	260	240710CA	
	440	144.0	4.0	2 550.0	3 900.00	600	800	23152CA	23152CAK	88.200		850		1 030	136.0	5.0	3 340.0	10 000.00	260	530	238850CA	238850CAK
	480	130.0	5.0	2 240.0	3 450.00	1 080	1 100	22252MB	22252MBK	110.000												
	480	174.0	5.0	2 900.0	4 800.00	630	800	23252CA	23252CAK	142.000												
280	380	75.0	2.1	897.0	980.00	1 000	1 400		23956CAK	26.000												
	420	106.0	4.0	1 110.00	2 760.00	450	560	23056MB	23056MBK	62.000												
	420	106.0	4.0	1 550.00	2 950.00	560	750	23056CA	23056CAK	57.000												
	560	146.0	5.0	2 350.00	4 400.00	560	750	23156CA	23156CAK	95.100												
	500	176.0	5.0	2 980.00	5 200.00	600	750	23256CA	23256CAK	148.000												
	420	140.0	4.0	1 980.00	3 980.00	600	750	24056CA	24056CAK	68.000												
	460	180.0	5.0	2 680.00	5 150.00	560	700	24156CA	24156CAK	113.000												
	500	130.0	5.0	2 320.00	3 700.00	1 010	1 100	22256CA	22256CAK	110.000												
	300	460	118.0	4.0	1 920.0	3 600.00	800	1 000	23060CA	23060CAK	71.500											
		500	160.0	5.0	2 600.0	4 900.00	600	750	23160CA	23160CAK	130.000											
460		160.0	4.0	2 480.0	5 150.00	560	700	24060CA	24060CAK	97.600												
540		192.0	5.0	3 450.0	6 200.00	560	1 000	23260CA	23260CAK	195.000												
320	440	90.0	3.0	1 310.00	2 750.00	940	1 100	23964CA	23964CAK	41.000												
	480	121.0	4.0	2 040.00	4 000.00	910	1 100	23064CA	23064CAK	79.900												
	540	176.0	5.0	3 200.00	5 800.00	650	950	23164CA	23164CAK	170.000												
340	520	133.0	5.0	2 360.0	4 550.00	850	1 000	23068CA	23068CAK	105.000												
	580	190.0	5.0	4 050.0	6 700.00	500	630	23168MB	23168MBK	216.000												
	620	224.0	6.0	4 900.0	7 600.00	500	630	23268MB	23268MBK	305.000												
	620	224.0	6.0	4 900.0	7 600.00	500	630	23268CA	23268CAK	290.000												
	520	180.0	5.0	3 050.0	6 500.00	500	630	24068CA	24068CAK	143.000												

TAPERED ROLLER BEARINGS



FtT Tapered roller bearings



SUFFIX Single row Tapered roller bearings

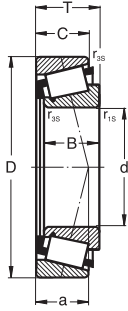
- A** modified internal design-increased capacity
- P6** accuracy to ISO tolerance class 6
- X** boundary dimensions altered to conform to ISO standards
- FD** solid collapsible steel cage
- B** Increased contact angle

DIMENSIONS										BASIC LOAD RATING		LIMITING SPEEDS		MASS	BASIC DESIGNATIONS
d	D	B	C	T	r _{1s} min	r _{2s} min	r _{3s} min	a ~	dynamic C	static C ₀	grease	oil	~		
mm										kN		r/min		kg	
15	35	11.0	10.0	11.75	0.60	0.6	0.3	10	15.0	14.3	12 000	16 000	0.057	30202A	
	42	13.0	11.0	14.25	1.00	1.0	0.3	10	22.9	21.6	10 000	15 000	0.094	30302A	
17	40	12.0	11.0	13.25	1.00	1.0	0.3	10	19.3	18.8	9 000	13 000	0.070	30203A	
	47	14.0	12.0	15.25	1.00	1.0	0.3	10	26.0	25.7	8 500	12 000	0.130	30303A	
20	47	19.0	16.0	20.25	1.00	1.0	0.3	12	35.3	36.3	8 000	11 000	0.170	32303A	
	42	15.0	12.0	15.00	0.60	0.6	0.3	10	25.1	28.2	9 000	13 000	0.100	32004X	
25	47	14.0	12.0	15.25	1.00	1.0	0.3	11	27.5	28.0	8 000	11 000	0.120	30204A	
	52	15.0	13.0	16.25	1.50	1.5	0.6	11	31.6	32.0	8 000	11 000	0.170	30304A	
25	52	21.0	18.0	22.25	1.50	1.5	0.6	11	44.0	45.5	7 500	11 000	0.230	32304A	
	47	15.0	11.5	15.00	0.60	0.6	0.3	12	28.0	34.1	8 000	11 000	0.120	32005X	
25	52	15.0	13.0	16.25	1.00	1.0	0.3	12	32.6	35.5	7 500	10 000	0.160	30205A	
	62	17.0	15.0	18.25	1.50	1.5	0.6	13	44.6	43.0	6 700	9 000	0.260	30305A	
25	62	17.0	13.0	18.25	1.50	1.5	0.6	20	38.0	40.0	5 600	7 500	0.220	31305A	
	52	18.0	15.0	19.25	1.00	1.0	0.3	18	41.3	49.2	7 000	9 500	0.190	32205A	
30	52	22.0	18.0	22.00	1.00	1.0	0.3	14	47.1	55.8	6 700	9 000	0.230	33205A	
	62	24.0	20.0	25.25	1.50	1.5	0.6	15	65.0	69.3	6 000	8 000	0.360	32305A	
30	55	17.0	13.0	17.00	1.00	1.0	0.3	14	35.7	46.8	6 700	9 000	0.170	32006XA	
	62	16.0	14.0	17.25	1.00	1.0	0.3	14	40.2	44.0	6 300	8 500	0.230	30206A	
30	62	16.0	14.0	17.25	1.00	1.0	0.3	14	45.5	50.5	6 300	8 500	0.230	30206XA	
	62	20.0	17.0	21.25	1.00	1.0	0.3	15	50.1	57.0	6 300	8 500	0.290	32206A	
30	62	25.0	19.5	25.00	1.00	1.0	0.3	16	63.8	75.4	5 600	7 500	0.370	3206A	
	72	19.0	16.0	20.75	1.50	1.5	0.6	15	56.1	56.0	5 600	7 500	0.390	30306A	
30	72	27.0	23.0	28.75	1.50	1.5	0.6	18	76.5	85.0	5 300	7 000	0.540	32306A	
	72	19.0	14.0	20.75	1.50	1.5	0.6	22	47.3	50.0	5 000	6 700	0.370	31306A	
35	62	18.0	14.0	18.00	1.00	1.0	0.3	15	36.4	47.1	6 000	8 000	0.220	32007XA	
	72	17.0	15.0	18.25	1.50	1.5	0.6	15	51.2	56.0	5 300	7 000	0.330	30207A	
35	72	23.0	19.0	24.25	1.50	1.5	0.6	17	66.0	78.0	5 300	7 000	0.490	32207A	
	72	28.0	22.0	28.00	1.55	1.5	0.6	18	82.6	101.7	5 500	7 400	0.520	33207A	
35	80	21.0	18.0	22.75	2.00	1.5	0.6	16	72.1	73.5	5 000	6 700	0.520	30307A	
	80	31.0	25.0	32.75	2.00	1.5	0.6	20	95.2	106.0	4 800	6 300	0.720	32307A	
35	80	21.0	15.0	22.75	2.00	1.5	0.6	25	59.7	63.9	4 500	6 000	0.500	31307A	

DIMENSIONS										BASIC LOAD RATING		LIMITING SPEEDS		MASS	BASIC DESIGNATIONS
d	D	B	C	T	r _{1s} min	r _{2s} min	r _{3s} min	a ~	dynamic C	static C ₀	grease	oil	~		
mm										kN		r/min		kg	
40	68	19.0	14.5	19.00	1.00	1.0	0.3	15	54.0	71.0	5 300	7 000	0.270	32008X	
	68	19.0	14.5	19.00	1.00	1.0	0.3	15	54.0	71.0	5 300	7 000	0.270	32008XA	
40	80	18.0	16.0	19.75	1.50	1.5	0.6	16	63.4	70.2	4 800	6 300	0.420	30208A	
	80	23.0	19.0	24.75	1.50	1.5	0.6	19	74.8	86.5	4 800	6 300	0.530	32208A	
40	80	32.0	25.0	32.00	1.50	1.5	0.6	21	105.8	135.5	4 500	6 000	0.720	33208A	
	90	23.0	20.0	25.25	2.00	1.5	0.6	19	85.8	95.0	4 500	6 000	0.740	30308A	
40	90	33.0	27.0	35.25	2.00	1.5	0.6	23	117.9	142.7	4 000	5 300	0.990	32308A	
	90	33.0	27.0	35.25	2.00	1.5	0.6	23	115.7	147.8	4 300	5 600	1.040	32308B	
40	90	23.0	17.0	25.25	2.00	1.5	0.6	28	73.7	81.5	4 000	5 300	0.680	31308A	
	45	75	20.0	15.5	20.00	1.00	1.0	0.3	52	61.0	86.5	4 800	6 300	0.340	32009A
75		20.0	15.5	20.00	1.00	1.0	0.3	17	58.4	81.4	4 800	6 300	0.340	32009XA	
45	85	19.0	16.0	20.75	1.50	1.5	0.6	18	66.0	76.5	4 500	6 000	0.470	30209A	
	85	19.0	16.0	20.75	1.50	1.5	0.6	18	67.9	83.6	4 300	6 000	0.470	30209XA	
45	85	23.0	19.0	24.75	1.50	1.5	0.6	20	80.9	98.0	4 500	6 000	0.590	32209A	
	85	32.0	25.0	32.00	1.50	2.0	0.5	22	99.5	124.0	4 000	5 300	0.820	33209X	
45	85	32.0	25.0	32.00	1.50	1.5	0.6	22	109.5	145.1	4 300	5 600	0.770	33209A	
	100	25.0	22.0	27.25	2.00	1.5	0.6	21	108.0	120.0	4 000	5 300	0.990	30309A	
45	100	36.0	30.0	38.25	2.00	1.5	0.6	25	140.0	170.0	3 600	4 800	1.330	32309A	
	100	25.0	18.0	27.25	2.00	1.5	0.6	31	87.6	101.1	3 400	4 500	0.910	31309A	
45	100	36.0	30.0	38.25	2.00	1.5	0.6	30	145.3	189.4	3 600	4 800	1.400	32309B	
	50	80	20.0	15.5	20.00	1.00	1.0	0.3	18	61.1	89.0	4 500	6 000	0.370	32010X
80		24.0	19.0	24.00	1.00	1.0	0.3	17	76.8	110.9	4 300	5 600	0.430	33010A	
50	85	26.0	20.0	26.00	1.50	1.5	0.6	20	89.3	124.1	4 300	5 600	0.590	33110A	
	90	20.0	17.0	21.75	1.50	1.5	0.6	19	76.5	91.5	4 300	5 600	0.540	30210A	
50	90	23.0	19.0	24.75	1.50	1.5	0.6	21	82.5	100.0	4 300	5 600	0.630	32210A	
	90	32.0	24.5	32.00	1.50	1.5	0.6	23	112.9	154.6	4 000	5 300	0.830	33210A	
50	110	27.0	23.0	29.25	2.50	2.0	0.6	23	131.4	150.0	3 600	4 800	1.200	30310A	
	110	40.0	33.0	42.25	2.50	2.0	0.6	27	174.0	244.0	3 200	4 300	1.740	32310AX1	
50	110	40.0	33.0	42.25	2.50	2.0	0.6	33	177.5	236.1	3 400	4 500	1.890	32310B	
	110	27.0	19.0	29.25	2.50	2.0	0.6	34	105.0	138.0	3 200	4 300	1.160	31310A	
55	90	23.0	17.5	23.00	1.50	1.5	0.6	20	80.2	117.2	4 000	5 300	0.560	32011A	
	90	23.0	17.5	23.00	1.50	1.5	0.6	20	80.2	117.2	3 800	5 000	0.550	32011X	
55	95	30.0	23.0	30.00	1.50	1.5	0.6	22	114.0	163.0	3 800	5 000	0.894	33111A	
	100	21.0	18.0	22.75	2.00	1.5	0.6	20	90.3	106.3	3 800	5 000	0.720	30211A	
55	100	25.0	21.0	26.75	2.00	1.5	0.6	22	106.0	129.0	3 800	5 000	0.840	32211A	
	100	35.0	27.0	35.00	2.00	1.5	0.6	25	138.0	190.0	3 400	4 500	1.200	33211A	
55	120	29.0	25.0	31.50	2.50	2.0	0.6	24	135.0	179.0	3 200	4 300	1.530	30311A	
	120	43.0	35.0	45.50	2.50	2.0	0.6	29	200.0	275.0	3 000	4 000	2.200	32311A	
55	120	43.0	35.0	45.50	2.50	2.0	0.6	36	203.0	271.4	3 000	4 000	2.370	32311B	
	120	29.0	21.0	31.50	2.50	2.0	0.6	37	118.3	131.8	2 800	3 800	1.500	31311A	

FtT Tapered roller bearings

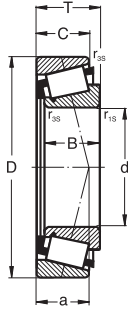
Single row



DIMENSIONS									BASIC LOAD RATING		LIMITING SPEEDS		MASS	BASIC DESIGNATIONS	DIMENSIONS									BASIC LOAD RATING		LIMITING SPEEDS		MASS	BASIC DESIGNATIONS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
d	D	B	C	T	r _{1s}	r _{2s}	r _{3s}	a	dynamic	static	grease	oil	~		d	D	B	C	T	r _{1s}	r _{2s}	r _{3s}	a	dynamic	static	grease	oil	~		d	D	B	C	T	r _{1s}	r _{2s}	r _{3s}	a	dynamic	static	grease	oil	~																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
mm									kN		r/min		kg		mm									kN		r/min		kg																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
60	85	17.0	14.0	17.00	1.00	1.0	0.3	16	46.0	78.0	4 000	5 300	0.290	32912X	85	130	29.0	22.0	29.00	1.50	1.5	0.6	28	139.8	220.3	2 600	3 600	1.320	32017X	95	23.0	17.5	23.00	1.50	1.5	0.6	21	81.7	122.2	3 800	5 000	0.590	32012X	140	41.0	32.0	41.00	2.50	2.0	0.6	32	215.7	354.2	2 400	3 400	2.450	33117A	95	27.0	21.0	27.00	1.50	1.5	0.6	20	96.5	150.0	3 800	5 000	0.730	33012A	150	49.0	37.0	49.00	2.50	2.0	0.6	42	296.0	444.0	2 200	3 200	3.670	33217A	100	30.0	23.0	30.00	1.50	1.5	0.6	23	117.1	173.2	3 400	4 500	0.890	33112A	150	28.0	24.0	30.50	2.50	2.0	0.6	30	171.0	239.0	2 200	3 200	2.000	30217A	110	22.0	19.0	23.75	2.00	1.5	0.6	22	98.0	125.0	3 400	4 500	0.860	30212A	150	36.0	30.0	38.50	2.50	2.0	0.6	33	212.0	309.0	2 200	3 200	2.500	32217A	110	28.0	24.0	29.75	2.00	1.5	0.6	24	126.0	174.0	3 400	4 500	1.100	32212A	180	41.0	34.0	44.50	4.00	3.0	1.0	35	305.0	399.0	1 900	2 800	4.700	30317A	110	38.0	29.0	38.00	2.00	1.5	0.5	28	165.8	231.4	3 200	4 300	1.510	33212A	180	60.0	49.0	63.50	4.00	3.0	1.0	42	406.0	597.0	1 800	2 600	6.950	32317A	130	31.0	26.0	33.50	3.00	2.5	1.0	26	167.0	210.0	3 000	4 000	1.900	30312A	90	140	32.0	24.0	32.00	2.00	1.5	0.6	30	168.0	270.0	2 200	3 600	1.750	32018X	130	46.0	37.0	48.50	3.00	2.5	1.0	31	229.0	323.0	2 600	3 600	2.800	32312A	150	45.0	35.0	45.00	2.50	2.0	0.6	35	262.0	419.0	2 000	3 200	3.180	33118A	130	31.0	22.0	33.50	3.00	2.5	1.0	39	134.0	172.0	2 600	3 600	1.830	31312A	160	30.0	26.0	32.50	2.50	2.0	0.6	31	194.0	273.0	2 000	3 000	2.490	30218A	65	100	23.0	17.5	23.00	1.50	1.5	0.6	22	84.2	127.0	3 400	4 500	0.630	32013X	160	40.0	34.0	42.50	2.50	2.0	0.6	36	248.0	377.0	2 000	3 000	3.300	32218A	110	34.0	26.5	34.00	1.50	1.5	0.5	26	142.8	220.4	3 200	4 300	1.300	33113A	190	43.0	36.0	46.50	4.00	3.0	1.0	36	327.0	439.0	1 800	2 600	5.500	30318A	120	23.0	20.0	24.75	2.00	1.5	0.6	23	115.0	150.0	3 000	4 000	1.100	30213A	190	64.0	53.0	67.50	4.00	3.0	1.0	44	429.0	639.0	1 800	2 400	8.230	32318A	120	31.0	27.0	32.75	2.00	1.5	0.6	27	160.9	221.7	3 000	4 000	1.500	32213A	95	145	32.0	24.0	32.00	2.00	1.5	0.5	32	174.0	281.0	2 200	3 200	1.790	32019X	120	41.0	32.0	41.00	2.00	1.5	0.6	29	202.2	281.6	2 800	3 800	2.050	33213A	145	39.0	32.5	39.00	2.00	1.5	0.5	29	231.0	390.0	2 200	3 200	2.260	33019A	140	33.0	28.0	36.00	3.00	2.5	1.0	28	194.0	249.0	2 600	3 600	2.300	30313A	170	32.0	27.0	34.50	3.00	2.5	1.0	33	217.0	305.0	1 900	2 800	2.960	30219A	140	48.0	39.0	51.00	3.00	2.5	1.0	33	260.0	360.0	2 400	3 400	3.400	32313A	170	43.0	37.0	45.50	3.00	2.5	1.0	39	282.0	431.0	1 900	2 800	4.000	32219A	140	33.0	23.0	36.00	3.00	2.5	1.0	42	156.0	197.0	2 200	3 200	2.250	31313A	170	58.0	44.0	58.00	3.00	2.5	1.0	42	377.0	568.0	1 900	2 800	5.500	33219A	70	100	20.0	16.0	20.00	1.00	1.0	0.3	18	68.5	110.0	3 400	4 600	0.480	32914X	200	45.0	38.0	49.50	4.00	3.0	1.0	39	372.0	472.0	1 800	2 600	6.500	30319A	110	25.0	19.0	25.00	1.50	1.5	0.6	23	101.0	153.0	3 200	4 300	0.840	32014X	200	67.0	55.0	71.50	4.00	3.0	1.0	47	485.0	721.0	1 700	2 400	9.550	32319A	110	31.0	25.5	31.00	1.50	1.5	0.5	22	134.4	220.4	3 000	4 000	1.070	33014A	100	150	32.0	24.0	32.00	2.00	1.5	0.5	33	173.1	291.7	2 200	3 000	1.850	32020X	125	24.0	21.0	26.25	2.00	1.5	0.6	25	125.0	166.0	3 000	4 000	1.220	30214A	150	39.0	32.5	39.00	2.00	1.5	0.5	29	229.5	391.5	2 200	3 200	2.330	33020A	125	31.0	27.0	33.25	2.00	1.5	0.6	28	155.0	228.0	2 800	3 800	1.560	32214A	145	22.5	17.5	24.00	3.00	3.0	0.6	30	125.0	190.0	2 200	3 200	1.150	T4CB100	150	35.0	30.0	38.00	3.00	2.5	1.0	29	220.0	282.0	2 400	3 400	2.900	30314A	180	34.0	29.0	37.00	3.00	2.5	1.0	35	245.0	346.0	1 900	2 800	3.540	30220A	150	51.0	42.0	54.00	3.00	2.5	1.0	36	296.0	429.0	2 200	3 400	4.100	32314A	180	46.0	39.0	49.00	3.00	2.5	1.0	41	337.0	476.0	1 800	2 600	4.760	32220A	150	35.0	25.0	38.00	3.00	2.5	0.8	47	187.0	231.0	2 000	3 000	2.850	31314A	180	63.0	48.0	63.00	3.00	2.5	1.0	45	430.0	655.0	1 700	2 400	6.710	33220A	75	115	25.0	19.0	25.00	1.50	1.5	0.6	25	103.1	160.2	3 000	4 000	0.900	32015X	215	47.0	39.0	51.50	4.00	3.0	1.0	40	412.0	527.0	1 700	2 400	4.900	30320A	115	31.0	25.5	31.00	1.50	1.5	0.6	23	133.1	221.2	3 000	4 000	1.120	33015A	215	73.0	60.0	77.50	4.00	3.0	1.0	51	553.0	847.0	1 600	2 200	12.100	32320A	130	25.0	22.0	27.25	2.00	1.5	0.6	27	135.0	182.0	2 800	3 800	1.330	30215A	105	160	35.0	26.0	35.00	2.50	2.0	0.6	34	196.0	316.0	1 900	2 800	2.400	32021X	130	31.0	27.0	33.25	2.00	1.5	0.6	29	160.0	234.0	2 600	3 600	1.620	32215A	160	43.0	34.0	43.00	2.50	2.5	0.6	35	264.7	453.5	2 000	3 000	3.000	33021X	160	37.0	31.0	40.00	3.00	2.5	1.0	31	242.0	318.0	2 200	3 200	3.400	30315A	190	36.0	30.0	39.00	3.00	2.5	1.0	37	268.0	383.0	1 800	2 600	4.250	30221A	160	55.0	45.0	58.00	3.00	2.5	1.0	38	344.0	494.0	2 000	3 000	5.000	32315A	190	50.0	43.0	53.00	3.00	2.5	1.0	44	367.0	575.0	1 800	2 600	5.900	32221A	160	37.0	26.0	40.00	3.00	2.5	1.0	50	194.0	250.0	1 800	2 600	3.500	31315A	225	49.0	41.0	53.50	4.00	3.0	1.0	41	440.0	535.0	1 600	2 200	9.150	30321A	130	41.0	31.0	41.00	2.00	1.5	0.6	32	192.0	302.0	2 400	3 400	2.250	33215A	225	77.0	63.0	81.50	4.00	3.0	1.0	54	598.0	934.0	1 400	1 900	16.000	32321A	80	125	29.0	22.0	29.00	1.50	1.5	0.6	27	138.0	216.0	2 600	3 600	1.300	32016X	110	170	38.0	29.0	38.00	2.50	2.0	0.6	37	245.7	403.4	1 900	2 800	3.020	32022X	130	37.0	29.0	37.00	2.00	2.0	0.6	30	181.0	317.0	2 600	3 600	1.600	33116A	170	47.0	37.0	47.00	2.50	2.0	0.6	34	303.0	536.0	1 800	2 600	3.850	33022A	140	26.0	22.0	28.25	2.50	2.0	0.6	28	147.0	203.0	2 400	3 400	1.590	30216A	180	56.0	43.0	56.00	2.50	2.0	0.6	44	373.0	639.0	1 800	2 600	5.550	33122A	140	33.0	29.0	35.25	2.50	2.0	0.6	30	184.0	263.0	2 400	3 400	2.000	32216A	200	38.0	32.0	41.00	3.00	2.5	1.0	39	301.0	434.0	1 700	2 400	5.000	30222A	140	46.0	35.0	46.00	2.50	2.0	0.6	35	245.7	361.8	2 400	3 400	2.830	33216A	200	53.0	46.0	56.00	3.00	2.5	1.0	46	390.0	631.0	1 700	2 400	6.900	32222A	170	39.0	33.0	42.50	3.00	2.5	1.0	33	271.0	377.0	2 000	3 000	4.000	30316A	240	50.0	42.0	54.50	4.00	3.0	1.0	43	480.0	635.0	1 600	2 200	10.700	30322A	170	58.0	48.0	61.50	3.00	2.5	1.0	41	378.0	545.0	1 900	2 800	5.900	32316A	240	80.0	65.0	84.50	4.00	3.0	1.0	56	674.0	1 030.0	1 400	1 900	19.300	32322A

FtT Tapered roller bearings

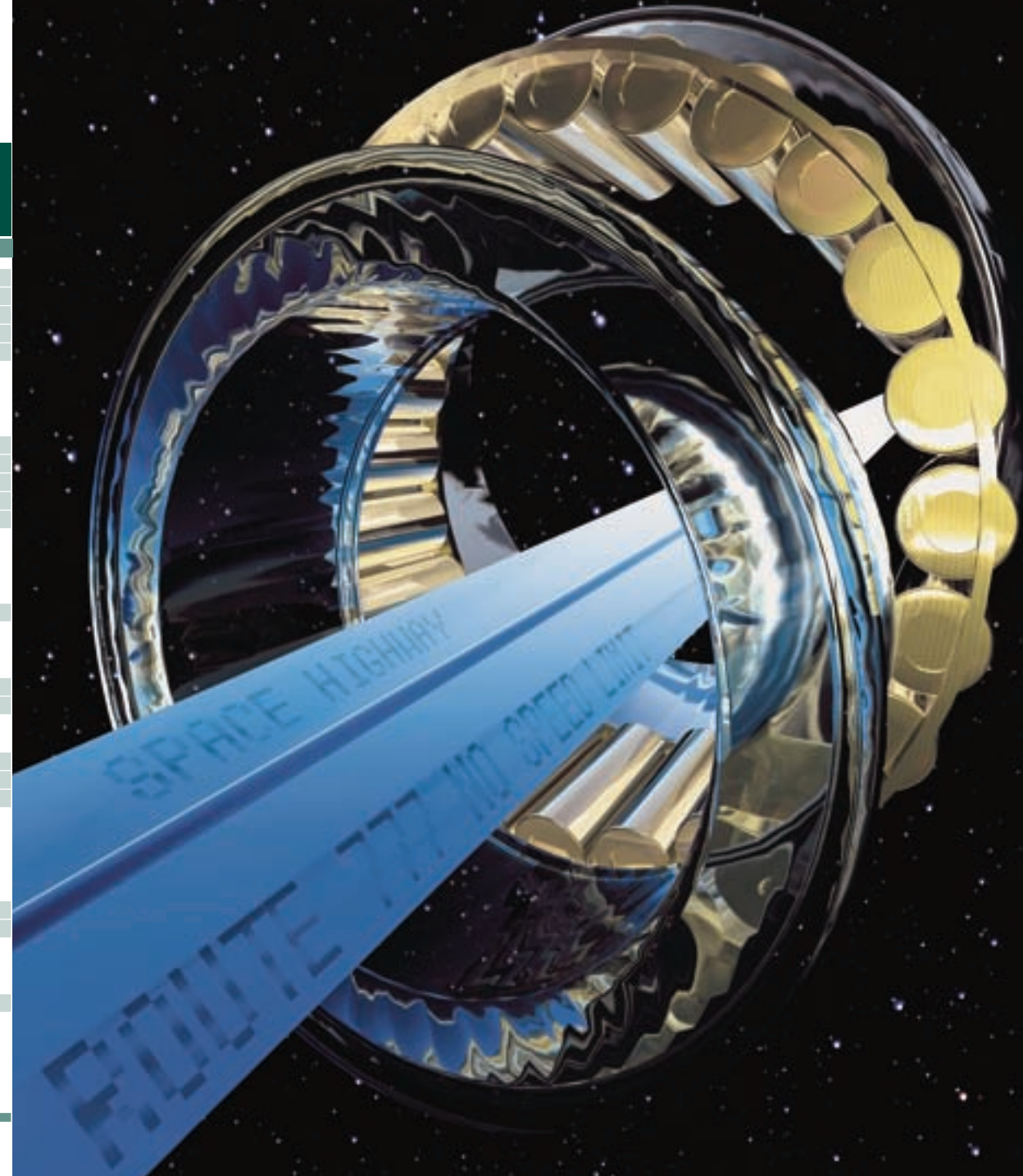
Single row



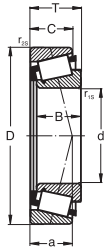
	DIMENSIONS								BASIC LOAD RATING		LIMITING SPEEDS		MASS ~ kg	BASIC DESIGNATIONS
	d	D	B	C	T	r _{1s} min	r _{2s} min	r _{3s} min	a ~	dynamic C	static C ₀	grease		
	mm								kN		r/min			
120	180	38.0	29.0	38.00	2.50	2.0	0.6	40	242.0	404.0	1 800	2 600	3.180	32024X
	215	40.0	34.0	43.50	3.00	2.5	1.0	43	334.0	491.0	1 600	2 200	6.010	30224A
	215	58.0	50.0	61.50	3.00	2.5	1.0	51	440.0	727.0	1 600	2 200	8.750	32224A
	260	55.0	46.0	59.50	4.00	3.0	1.0	47	537.0	705.0	1 500	2 000	13.800	30324A
	260	86.0	69.0	90.50	4.00	3.0	1.0	60	773.0	1 115.0	1 200	1 600	24.000	32324
130	185	27.0	21.0	29.00	3.00	3.0		35	152.0	235.0	1 600	2 200	1.970	T4CB130
	200	45.0	34.0	45.00	2.50	2.0	0.6	42	314.0	540.0	1 600	2 200	4.950	32026A
	230	40.0	34.0	43.75	4.00	3.0	1.0	45	369.0	490.0	1 500	2 000	7.600	30226A
	230	64.0	54.0	67.75	4.00	3.0	1.0	56	576.0	884.0	1 400	1 800	11.400	32226A
140	190	32.0	25.0	32.00	2.00	1.5	0.5	33	193.0	357.0	1 800	2 600	2.550	32928
	195	27.0	21.0	29.00	3.00	3.0		41	188.0	300.0	1 500	2 000	2.410	T4CB140
	250	42.0	36.0	45.75	4.00	3.0	1.0	47	418.0	570.0	1 400	1 900	8.650	30228A
	250	68.0	58.0	71.75	4.00	3.0	1.0	60	675.0	1 050.0	1 200	1 600	14.400	32228A
	300	102.0	85.0	107.75	5.00	4.0	1.0	71	1 220.0	1 650.0	1 300	1 700	34.700	32328FD
150	210	38.0	30.0	38.00	3.00	2.0	1.0	36	284.0	530.0	1 800	2 600	3.920	32930
	225	48.0	36.0	48.00	3.00	2.0	1.0	50	390.0	695.0	1 500	2 000	6.310	32030X
	270	45.0	38.0	49.00	4.00	3.0	1.0	50	429.0	560.0	1 300	1 800	11.000	30230A
	270	73.0	60.0	77.00	4.00	3.0	1.0	64	756.0	1 180.0	1 100	1 500	18.200	32230A
160	290	80.0	67.0	84.00	4.00	3.0	1.0	69	856.5	1 435.0	1 000	1 400	23.100	32232P6X
170	260	57.0	43.0	57.00	3.00	2.0	1.0	57	465.0	800.0	1 200	1 700	10.600	32034X
	310	86.0	71.0	91.00	5.00	4.0	1.0	74	1 020.0	1 640.0	1 000	1 300	28.500	32234A
	230	30.0	23.0	32.00	1.50	2.0	0.6	42	221.0	395.0	1 400	1 900	4.170	32934
180	320	86.0	70.0	91.00	5.00	4.0	1.0	78	803.0	1 200.0	950	1 400	26.660	32236
	240	30.0	23.0	32.00	3.50	3.6	0.8	48	244.0	434.0	1 400	1 700	3.600	T4DB180X1
190	290	64.0	48.0	64.00	3.00	2.5	0.8	63	653.0	1 180.0	1 100	1 600	14.800	32038XP6X
	340	92.0	75.0	97.00	5.00	4.0	1.0	83	1 120.0	1 780.0	900	1 300	35.400	32238A
200	270	34.0	27.0	37.00	3.00	3.0	0.8	54	315.0	570.0	1 200	1 700	5.200	T4DB200
	310	70.0	53.0	70.00	3.00	2.5	0.8	67	720.0	1 400.0	900	1 200	19.100	32040X
	280	51.0	39.0	51.00	2.50	2.5	0.8	53	473.0	950.0	1 300	1 800	9.500	32940A
220	300	51.0	39.0	51.00	3.00	2.5	1.3	59	448.0	911.0	1 000	1 500	10.100	32944
	340	76.0	57.0	76.00	4.00	3.0	1.0	73	850.0	1 660.0	950	1 400	24.700	32044X
	340	76.0	57.0	76.00	4.00	3.0	1.0	73	869.0	1 570.0	900	1 300	24.500	32044XP5
	400	65.0	54.0	72.00	4.00	4.0	1.0	68	951.0	1 330.0	850	1 200	34.500	30244
	400	108.0	90.0	114.00	4.00	4.0	1.0	98	1 510.0	2 470.0	800	1 100	59.000	32244
240	320	56.0	46.0	57.00	3.00	2.0		58	616.0	1 320.0	900	1 300	12.500	T2EE240
	360	76.0	57.0	76.00	4.00	3.0	1.0	79	671.0	1 610.0	850	1 200	26.200	32048X
260	400	87.0	65.0	87.00	5.00	4.0	1.3	86	1 120.0	2 070.0	800	1 100	38.700	32052X
	540	102.0	80.0	112.00	6.00	6.0	2.0	98	1 910.0	2 580.0	630	850	110.960	30352FD
	380	63.5	48.0	63.50	3.00	2.5	1.3		672.0	1 370.0	800	1 100	19.900	32956
320	480	100.0	74.0	100.00	5.00	4.0	1.0	104	1 500.0	3 150.0	630	850	61.900	32064X

TAPERED ROLLER BEARINGS

SPECIAL AND INCH SIZES TAPERED ROLLER BEARINGS

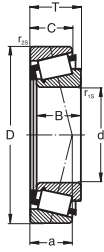


FLT Special and inch size tapered roller bearings



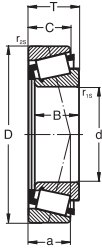
SHAFT mm	DIMENSIONS								BASIC LOAD RATING		LIMITING SPEEDS		MASS ~ kg	DESIGNATION		CALCULATION FACTORS			
	d	D	T	B	C	r _{s1} min	r _{s2} max	a ~	dynamic C	static C ₀	grease	oil		FLT	Equivalent	e	y ₁	y ₀	
	mm								kN		r/min								
15.000	15.0000	35.0000	11.0000	10.7500	8.5000	0.7000	1.2500	8.0	15.3	13.8	11 000	16 000	0.047	CBK 170B	639209 (SKF)	0.45	1.30	0.70	
	15.0000	42.0000	13.0000	13.5000	10.0000	1.0000	1.0000	9.0	21.4	22.0	11 000	16 000	0.054	CBK 257	336658 (SKF) 639213 (SKF)	0.40	1.50	0.83	
17.462	17.4620	39.8780	13.4830	14.6050	10.6680	1.3000	1.3000	9.0	20.7	20.2	9 000	13 000	0.081	LM 11749/LM11710	K-LM 11749/K-LM 11710	0.28	2.10	1.10	
	0.6875	1.5700	0.5450	0.5750	0.4200	0.0500	0.0500												
19.050	19.0500	45.2370	15.4940	16.6370	12.0650	1.3000	1.3000	10.0	27.5	27.5	8 500	12 000	0.120	CBK 087	K-LM 11949/K-LM 11910	0.30	2.00	1.10	
	0.7500	1.7810	0.6100	0.6550	0.4750	0.0500	0.0500												
20.000	20.0000	43.0000	13.2500	12.0000	11.0000	3.0000	1.5000	10.0	21.4	21.7	8 500	12 000	0.084	CBK 173B	639329 (SKF)	0.38	1.60	0.90	
21.430	21.4300	50.0050	17.5260	18.2880	13.9700	1.3000	1.3000	11.0	35.0	36.5	8 000	11 000	0.170	M 12649/M 12610	K-M 12649/K-M 12610	0.28	2.10	1.10	
	0.8437	1.9687	0.6900	0.7200	0.5500	0.0500	0.0500												
21.987	21.9870	45.2370	15.4940	16.6370	12.0650	1.3000	1.3000	10.0	27.0	30.0	8 000	11 000	0.120	LM 12749/LM 12710	K-LM 12749/KL-M 12710	0.31	1.90	1.10	
	0.8656	1.7810	0.6100	0.6550	0.4750	0.0500	0.0500												
22.000	22.0000	41.0000	14.4000	14.6000	11.4000	1.0000	1.0000	10.0	18.4	21.2	8 000	11 000	0.096	CBK 323B	442327N (SKF)	0.26	0.27	1.25	
23.000	23.0000	52.0000	15.0000	14.2600	12.7000	3.0000	1.5000	11.0	27.1	29.3	7 500	10 000	0.126	CBK 258	639175 (SKF)	0.40	1.51	0.83	
25.400	25.4000	50.2920	14.2240	14.7320	10.6680	1.3000	1.3000	11.0	25.5	29.0	7 500	10 000	0.130	513-720	K-L44643/K-L 44610	0.37	1.60	0.90	
	1.0000	1.9800	0.5600	0.5800	0.4200	0.0500	0.0500												
25.400	25.4000	57.1500	19.4310	19.4310	14.7320	1.5000	1.5000	16.0	42.0	48.5	6 900	9 200	0.240	M 84548/M84510	M 84548/M84510	0.55	1.10	0.60	
	1.0000	2.2500	0.7650	0.7650	0.5800	0.0600	0.0600												
25.400	25.4000	59.5300	23.3680	23.1140	18.2880	0.8000	1.5000	11.0	50.0	58.0	6 300	9 000	0.320	CBK 247	K-M 84249 / K-M 84210	0.55	1.10	0.60	
	1.0000	2.3437	0.8200	0.8100	0.5625	0.0300	0.0600												
26.000	26.0000	52.0000	15.0000	14.2600	12.7000	2.8000	1.5000	11.0	27.1	29.3	7 500	10 000	0.138	CBK 171	63174 (SKF)	0.40	1.51	0.83	
26.988	26.9880	50.2920	14.2240	14.7320	10.6680	3.5000	1.3000	11.0	25.5	29.0	7 500	10 000	0.110	L 44649/L 44610	K-L 44649/K-L 44610	0.37	1.60	0.90	
	1.0625	1.9800	0.5600	0.5800	0.4200	0.1400	0.0500												
29.000	29.0000	50.2920	14.2240	14.7320	10.6680	3.5000	1.3000	11.0	25.4	31.8	7 000	9 500	0.110	L 45449/L 45410	L-45449/L45410	0.37	1.60	0.90	
	1.1417	1.9800	0.5600	0.5800	0.4200	0.1400	0.0500												
30.162	30.1620	64.2920	21.4330	21.4330	16.6700	1.5000	1.5000	18.0	49.0	60.0	6 300	8 000	0.350	CBK 248	K-M86649/K-M 86610	0.55	1.10	0.50	
	1.1875	2.5312	0.8438	0.8438	0.6563	0.1400	0.1400												
31.750	31.7500	59.1310	15.8750	16.7640	11.8110	3.5000	1.3000	13.0	33.0	44.0	6 300	8 000	0.180	CBK 088	K-LM 67048/L-LM 67010	0.41	1.50	0.80	
	1.2500	2.3280	0.6250	0.6600	0.4650	0.1400	0.0500												
31.750	31.7500	62.0000	18.1610	19.0500	14.2880	4.0000	1.3000	13.0	48.5	57.0	6 000	8 000	0.240	15123/15245	K-15123/K-15245	0.35	1.70	0.90	
	1.2500	2.4409	0.7150	0.7500	0.5625	0.1600	0.0500												
31.750	31.7500	69.0120	19.8450	19.5830	15.8750	3.5000	1.3000	15.0	53.9	67.0	5 600	7 500	0.350	14125A/14276	K-14125A/K-14276	0.37	1.60	0.80	
	1.2500	2.4170	0.7813	0.7710	0.6250	0.1400	0.0500												
31.750	31.7500	69.8500	23.8120	25.3570	19.0500	0.8000	1.3000	17.0	70.1	83.2	5 600	7 500	0.440	2580/2523	2580/2523	0.27	2.19	1.21	
	1.2500	2.7500	0.9375	0.9983	0.7500	0.0315	0.0512												
33.338	33.3380	76.2000	29.3700	28.5750	23.0200	0.8000	2.0000	23.0	78.1	106.0	4 800	6 300	0.680	CBK 093	K-HM 99443/K-HM 89410	0.54	1.10	0.60	
	1.3125	3.0000	1.1563	1.1250	0.9063	0.0300	0.0800												
34.925	34.9250	65.0880	18.0340	18.2880	13.9700	3.6000	1.3000	14.0	43.2	50.9	5 600	7 500	0.300	CBK 333	K-LM 48548/K-LM 48510	0.37	1.60	0.90	
	1.3750	2.5625	0.7100	0.7200	0.5500	0.1400	0.0500												
34.925	34.9250	69.0120	19.9450	19.5830	15.8750	1.5000	1.3000	15.0	53.0	59.6	5 600	7 500	0.340	CBK 348	K-14137A/K-14276	0.38	1.60	0.90	
	1.3750	2.7170	0.7813	0.7710	0.6250	0.0600	0.0500												
34.925	34.9250	72.2340	25.4000	25.4000	19.8420	2.5000	2.5000	21.0	66.0	87.0	5 300	7 000	0.450	HM 88649/88610	HM 88649/88610	0.55	1.10	0.60	
34.925	34.9250	73.0250	23.8120	24.6090	19.0500	1.5000	2.3000	15.0	64.8	78.1	5 300	7 000	0.470	CBK 350	K-25877/K-25820	0.29	2.00	1.10	
	1.3750	2.8750	0.9375	0.9688	0.7500	0.0600	0.0900												
34.925	34.9250	76.2000	29.3700	28.5750	23.0200	3.5000	3.3000	23.0	79.0	106.5	4 800	6 300	0.660	CBK 094	K-HM 89446/K-HM 89410	0.54	1.10	0.60	
	1.3750	3.0000	1.1563	1.2500	0.9063	0.1400	0.1300												
34.988	34.9880	59.9740	15.8750	16.7640	11.9380	3.5000	1.3000	13.0	33.0	44.0	6 000	8 000	0.172	513-719	K-L-68149/K-L 68111	0.43	1.40	0.80	
	1.3775	2.3612	0.6250	0.6600	0.4700	0.1400	0.0500												
35.000	35.0000	60.0000	15.8750	18.4600	11.9380	2.0000	1.3000	13.0	33.0	44.0	5 000	6 700	0.170	JL 68145/JL 68111 Z	K-JL 68145/K-JL 68111	0.43	1.40	0.80	
35.000	35.0000	80.0000	32.0000	32.0000	25.0000	1.5000	0.3000	13.0	99.0	134.0	5 000	6 700	0.810	514-747		0.36	1.48	0.92	
36.000	36.0000	68.0000	16.5000	16.5000	13.7500	1.5000	1.5000	15.0	36.4	40.6	5 000	6 700	0.280	CBK 091	639180 (SKF)	0.44	1.40	0.75	
36.512	36.5120	76.2000	29.3700	28.5750	23.0200	3.5000	3.3000	23.5	78.0	105.0	5 100	6 800	0.626	HM89449/HM89410	HM89449/HM89410	0.55	1.10	0.60	
	1.4375	3.0000	1.1563	1.1250	0.9063	0.1400	0.1300												

FLT Special and inch size tapered roller bearings



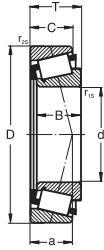
SHAFT mm	DIMENSIONS								BASIC LOAD RATING		LIMITING SPEEDS		MASS ~ kg	DESIGNATION		CALCULATION FACTORS		
	d	D	T	B	C	r _{s1} min	r _{s2} max	a ~	dynamic C	static C ₀	grease	oil		FLT	Equivalent	e	y ₁	y ₀
	mm								kN		r/min							
38.000	38.0000	63.0000	17.0000	17.0000	13.5000	1.3000	1.3000	15.0	40.5	56.5	5 300	7 000	0.200	JL 69349/JL 69310	JL 69349/JL 69310	0.42	1.40	0.80
38.000	38.0000	63.0000	17.1000	17.0000	13.5000	2.0000	1.5000	14.0	44.0	59.0	5 300	7 000	0.200	513-716A	K-JL 69349A/K-JL69399	0.43	1.40	0.80
38.100	38.1000	65.0880	18.0340	18.2880	13.9700	2.3000	1.3000	13.0	42.9	57.0	5 600	7 500	0.240	LM 29749/LM 29710	LM 29749/LM 29710	0.33	1.80	1.00
	1.5000	2.5625	0.7100	0.7200	0.5500	0.0900	0.0500											
	38.1000	79.3750	29.3700	29.7710	23.8120	4.0000	4.0000	21.0	90.5	120.0	5 000	6 700	0.690	514-809	3490/3420	0.37	1.60	0.88
39.000	39.0000	72.0150	21.5000	20.6400	16.7400	2.0000	0.5000	15.0	48.7	60.6	4 800	6 300	0.370	CBK 187	639330 (SKF)	0.40	1.50	0.82
40.000	40.0000	70.0000	17.0000	16.5000	14.2500	1.8000	1.3000	15.0	38.8	48.7	4 800	6 300	0.310	CBK 172	639163 (SKF)	0.44	1.35	0.74
41.275	41.2750	72.1100	19.5580	19.8120	14.7320	2.2000	1.5000	16.0	55.2	68.6	4 800	6 300	0.320	514-873		0.40	1.50	0.83
	1.6250	2.8390	0.7700	0.7800	0.5800	0.0866	0.0591											
41.275	41.2750	73.4310	19.5580	19.8120	14.7320	3.5000	1.3000	16.0	55.5	69.5	4 800	6 300	0.330	LM 501349/LM 501310	K-LM 501349/K-LM 501310	0.40	1.50	0.80
	1.6250	2.8910	0.7700	0.7800	0.5800	0.1400	0.0500											
41.275	41.2750	82.5500	26.5430	25.6540	20.1930	3.5000	3.3000	22.0	73.1	92.3	4 500	6 000	0.620	CBK 387	K-M 802048/K-M 802011	0.54	1.10	0.60
	1.6250	3.2500	1.0450	1.0900	0.7900	0.1400	0.1300											
41.275	41.2750	104.7750	36.5120	36.5120	28.5750	1.6000	3.3000	29.0	142.0	198.0	2 400	3 400	1.690	HM 807035/807010	HM 807035/807010			
44.450	44.4500	82.9310	23.8130	25.4000	19.0500	3.5000	0.8000	17.0	81.5	107.0	4 500	6 000	0.570	25580/25520	K-25580/K-25520	0.33	1.80	1.00
	1.7500	3.2650	0.9375	1.0000	0.7500	0.7400	0.0300											
44.450	44.4500	87.3120	30.1620	30.8860	23.8120	3.5000	3.3000	20.1	94.0	117.0	4 400	5 900	0.779	3578/3525	3578/3525	0.31	1.96	1.08
	1.7500	3.4375	1.1875	1.2160	0.9375	0.1400	0.1300											
44.450	44.4500	88.9000	30.1620	29.3700	23.0200	3.5000	3.4000	26.0	101.0	127.0	4 000	5 300	0.850	HM 803149/HM 803110	HM 803149/HM 803110	0.55	1.10	0.60
44.450	44.4500	95.2500	27.7830	28.5750	22.2250	0.8000	0.8000	20.0	105.0	137.0	4 000	5 300	0.990	CBK 327	K-33885/K-33822	0.33	1.80	1.00
	1.7500	3.7500	1.0938	1.1250	0.8750	0.0300	0.0300											
44.450	44.4500	95.2500	30.9580	28.5750	22.2250	3.6000	0.8000	30.0	97.9	119.0	4 300	5 600	1.110	CBK 334	K-HM 903249/K-HM 903210	0.75	0.80	0.45
	1.7500	3.7500	1.2188	1.1250	0.8750	0.1400	0.0300											
44.450	44.4500	104.7750	36.5120	36.5120	28.5750	3.5000	3.4000	29.0	159.0	223.0	3 600	4 800	1.590	HM 807040/HM 807010	HM 807040/HM 807010	0.49	1.23	0.68
	1.7500	4.1250	1.4375	1.4375	1.1250	0.1400	0.1300											
45.618	45.6180	82.9310	23.8120	25.4000	19.0500	3.6000	0.8000	17.0	74.2	96.0	4 500	6 000	0.550	CBK 349	K-25590/K-25520	0.33	1.80	1.00
	1.7900	3.2650	0.9375	1.0000	0.7500	0.1400	0.0300											
45.987	45.9870	74.9760	18.0000	18.0000	14.0000	1.5000	1.5000	16.0	47.3	63.2	4 800	6 300	0.310	CBK 331A	K-LM 503349/K-LM 503310	0.40	1.50	0.80
	1.8105	2.9518	0.7087	0.7087	0.5512	0.0600	0.0600											
47.625	47.6250	96.8380	21.0000	21.9460	15.8750	0.8000	0.8000	18.0	74.5	76.0	3 800	5 500	0.730	CBK 351	K-386A/K-382A	0.35	1.70	0.90
	1.8750	3.8125	0.8268	0.8640	0.6250	0.0300	0.0300											
49.213	49.2130	103.1880	43.6580	44.4750	36.5120	3.5000	3.3000	27.0	179.0	241.0	3 800	5 000	1.730	5395/5335	5395/5335	0.30	2.02	1.11
50.000	50.0000	84.0000	22.0000	22.0000	17.5000	3.5000	1.5000	19.7	69.5	94.5	4 300	5 700	0.466	JLM704649/JLM704610	JLM704649/JLM704610	0.44	1.37	0.75
	1.9685	3.3071	0.8661	0.8661	0.6693	0.1400	0.0600											
50.000	50.0000	110.0000	22.0000	21.9960	18.8250	1.5000	1.0000	21.2	91.6	125.0	3 200	4 300	1.050	396A/394A	396A/394A	0.40	1.49	0.80
	1.9685	4.3307	0.8661	0.8600	0.7411	0.0600												
50.800	50.8000	93.2640	30.1620	30.3020	23.8120	3.5000	3.3000	22.0	99.6	138.5	4 000	5 300	0.840	3780/3720	3780/3720	0.34	1.77	0.97
	2.0000	3.6718	1.1875	1.1930	0.9375	0.1378	0.1299											
50.800	50.8000	95.2500	27.7830	28.5750	22.2250	3.5000	0.8000	20.0	105.0	134.0	4 000	5 300	0.880	CBK 322	K-33889/K33822	0.33	1.80	1.00
	2.0000	3.7500	1.0938	1.1250	0.8750	0.1400	0.0300											
50.800	50.8000	100.0000	35.0000	35.0000	27.0000	2.0000	2.0000	29.0	135.7	178.2	4 000	5 300	0.920	CBK 393	331305 (SKF)	0.40	1.50	0.83
50.800	50.8000	104.7750	30.1620	30.9580	23.8120	2.3000	3.3000	23.0	130.0	169.0	3 500	4 700	1.230	45285/45520	45285/45520	0.33	1.80	0.99
	2.0000	4.1250	1.1875	1.2188	0.9375	0.0900	0.1300											
50.800	50.8000	104.7750	36.5120	36.5120	28.5750	3.5000	3.3000	29.0	130.0	192.0	3 400	4 500	1.500	CBK 347	K-HM 807046/K-HM 807010	0.47	1.27	0.70
	2.0000	4.1250	1.4375	1.4375	1.1250	0.1400	0.1300											
55.000	55.0000	93.0000	50.8000		39.8000	3.3000	0.3000		134.0	227.0	3 000	4 000	1.407	CBK-260				
57.000	57.0000	85.0000	18.5000	19.0000	14.0000	1.5000	1.5000	20.0	53.0	52.0	3 400	4 500	0.330	CBK 494	639352 (SKF)	0.32	1.80	1.00
57.150	57.1500	104.7750	27.7830	29.3170	24.6050	2.4000	3.3000	24.0	114.0	148.0	3 200	4 300	1.050	CBK 335		0.32	1.88	1.00
	2.2500	4.1250	1.0938	1.1543	0.9688	0.1000	0.1300											
57.150	57.1500	104.7750	30.1620	29.3170	24.6050	2.3000	3.3000	-7.1	117.3	151.9	3 200	4 300	1.230	462/453	462/453	0.34	1.79	0.98
	57.1500	112.7120	30.1620	30.1620	23.8120	3.5000	3.3000	23.0	127.0	159.0	3 200	4 300	1.400	514-765	K-39581/K-39520	0.33	1.80	1.00
	2.2500	4.4375	1.1875	11.8750	0.9375	0.4000	0.1300											

FLT Special and inch size tapered roller bearings



SHAFT mm	DIMENSIONS								BASIC LOAD RATING		LIMITING SPEEDS		MASS ~ kg	DESIGNATION		CALCULATION FACTORS			
	d	D	T	B	C	r _{s1} min	r _{s2} max	a ~	dynamic C	static C ₀	grease	oil		FLT	Equivalent	e	y ₁	y ₀	
	mm								kN		r/min		kg						
60.000	60.0000	127.0000	36.5130	36.5130	26.9880	3.5000	1.5000	32.0	165.0	228.0	3 000	4 000	2.050	CBK 261	K-HM 813839/K-HM 813810	0.52	1.15	0.63	
60.000	60.0000	135.0000	33.5500	30.9500	22.0000	3.0000	2.5000	41.0	143.0	176.0	2 600	3 600	2.500	400371	400371 (CBF)	0.83	0.73	0.40	
63.500	63.5000	95.0000	17.0000	15.5000	11.5500	2.0000	2.0000	19.0	37.5	55.0	3 400	4 500	0.300	CBK 200	431629 (SKF)	0.78	1.77	0.42	
65.000	65.0000	95.0000	17.0000	16.0000	13.0000	1.0000	1.0000	21.0	42.2	64.5	3 400	4 500	0.380	514-683		0.49	1.23	0.68	
65.000	65.0000	105.0000	24.0000	23.0000	28.5000	3.0000	1.0000	24.0	94.0	128.0	3 300	4 500	0.810	JLM 710949/JLM 710910	JLM 710949/JLM 710910	0.45	1.32	0.73	
	65.0000	120.0000	39.0000	38.5000	32.0000	1.5000	1.5000	21.3	197.0	261.0	2 800	3 900	2.063	CBK-278A					
	65.0000	110.0000	28.0000	28.0000	22.5000	3.0000	2.8000	24.5	136.0	191.0	3 400	4 600	1.071	JM511946/JM511910	JM511946/JM511910	0.40	1.49	0.82	
	2.5591	4.3307	1.1024	1.1024	0.8858														
66.675	66.6750	110.0000	22.0000	21.9960	18.8240	0.8000	1.3000	21.0	91.5	114.0	3 200	4 300	0.790	CBK 336	K-395A/K-394A	0.40	1.50	0.80	
	2.6250	4.3307	0.8661	0.8660	0.7411	0.0300	0.0500												
66.675	66.6750	110.0000	22.0000	21.9960	22.0000	0.8000	1.3000	21.0	88.2	117.9	3 200	4 300	0.840	395A/394A	395A/394A	0.40	1.49	0.82	
	2.6250	4.3307	0.8661	0.8660	0.8661	0.0315	0.0512												
66.675	66.6750	110.0000	30.1620	30.0480	23.8120	3.5000	3.3000	25.5	129.0	191.0	3 200	4 300	1.060	3984/3927X	3984/3927X	0.40	1.49	0.82	
	2.6250	4.3307	1.1875	1.1830	0.9375	0.1400	0.1300												
66.675	66.6750	112.7120	30.1620	30.0480	23.8120	3.5000	3.3000	25.0	132.0	183.0	3 200	4 300	1.150	CBK 337	K-3984/K-3920	0.41	1.47	0.80	
70.000	70.0000	136.5250	46.0380	46.0380	36.5130	2.2000	2.2000	26.0	229.6	356.3	2 400	3 400	3.150	CBK 262	K-H 715347/K-H 715311	0.48	1.24	0.68	
	2.7559	5.3750	1.8125	1.8125	1.4375	0.0900	0.0900												
72.000	72.0000	99.2400	17.0000	16.0000	13.0000	1.0000	1.0000	19.0	51.0	82.5	3 400	4 500	0.360	514-685		0.37	1.62	0.89	
73.025	73.0250	112.7120	25.4000	25.4000	19.0500	3.5000	3.3000	26.0	97.4	155.2	3 000	4 000	0.880	29685/29620	29685/29620	0.49	1.23	0.68	
	2.8750	4.4375	1.0000	1.0000	0.7500	0.1378	0.7299												
73.025	73.0250	112.7120	25.4000	25.4000	19.0500	3.6000	3.3000	26.0	96.0	149.0	3 000	4 000	0.890	CBK 344	K-29685/K-29620	0.48	1.25	0.70	
	2.8750	4.4375	1.0000	1.0000	0.7500	0.1400	0.7300												
73.025	73.0250	117.4750	30.1620	30.1620	23.8120	3.5000	3.3000	26.0	119.8	181.1	3 000	4 000	1.170	33287/33462	33287/33462	0.44	1.38	0.76	
	2.8750	4.6250	1.1875	1.1875	0.9375	0.7378	0.7299												
75.000	75.0000	115.0000	25.0000	25.0000	19.0000	3.0000	2.5000	25.0	102.8	153.1	2 600	3 600	0.870	JLM714149/JLM714110	JLM714149/JLM714110	0.46	1.31	0.72	
75.000	75.0000	120.0000	31.0000	29.5000	25.0000	3.0000	2.5000	29.0	131.0	197.0	2 900	3 900	1.290	JM714249/JM714210	JM714249/JM714210	0.44	1.35	0.74	
	2.9528	4.7244	1.2205	1.1614	0.9843	0.1200	0.1000												
76.200	76.2000	136.5250	30.1630	29.7690	22.2250	3.6000	3.2000	29.0	145.0	220.0	2 400	3 400	1.850	CBK 528	K-495A/K-493	0.44	1.35	0.80	
	3.0000	5.3750	1.1875	1.1720	0.8750	0.7400	0.7300												
76.200	76.2000	139.9920	36.5120	36.0980	28.5750	2.5000	2.0000	32.0	197.0	262.0	2 200	3 200	2.390	515-764	575S/572	0.41	1.43	0.79	
	3.0000	5.5115	7.4375	1.4212	1.1250	0.0984	0.0787												
78.000	78.0000	106.0000	17.0000	17.7500	13.1250	2.0000	1.0000	19.0	58.5	97.5	3 200	4 300	0.430	514-874		0.37	1.60	0.88	
80.000	80.0000	130.0000	35.0000	34.0000	28.5000	3.0000	2.5000	30.0	181.0	286.0	2 200	3 200	1.770	515-1210	JM515649/JM515610	0.39	1.55	0.85	
82.000	82.0000	140.0000	36.5120	36.0980	28.5750	10.0000	3.5000	31.0	171.0	252.0	2 200	3 200		515-813		0.40	1.49	0.82	
82.550	82.5500	125.4120	25.4000	25.4000	19.8450	3.6000	1.6000	25.0	113.0	159.0	2 600	3 600	1.100	CBK 338	K-27687/K-27620	0.40	1.49	0.82	
	3.2500	4.9375	1.0000	1.0000	0.7813	0.7400	0.0600												
82.550	82.5500	133.3500	33.3380	33.3380	26.1950	3.5000	3.3000	29.0	142.4	219.3	2 400	3 400	1.690	47686/47620	47686/47620	0.40	1.48	0.82	
	3.2500	5.2500	1.3125	1.3125	1.0373	0.7378	0.7299												
88.900	88.9000	152.4000	39.6880	39.6880	30.1620	6.4000	3.3000	37.0	234.0	324.8	2 000	3 000	2.800	515-745	K-593A/K-592	0.40	1.49	0.82	
	3.5000	6.0000	1.5625	1.4300	1.1875	0.2500	0.7300												
90.000	90.0000	147.0000	40.0000	40.0000	32.5000	7.0000	3.5000	31.0	226.0	349.0	2 200	3 200	2.500	HM218248/HM218210	K-HM218248/K-HM218210	0.33	1.80	1.00	
90.000	90.0000	145.0000	35.0000	34.0000	27.0000	6.0000	2.5000	33.4	207.0	320.0	2 200	3 200	2.110	515-121	JM 718149/JM 718110	0.44	1.35	0.74	
90.000	90.0000	147.0000	40.0000	40.0000	32.5000	5.8000	3.5000	30.0	226.0	349.0	2 200	3 200	2.480	515-1005		0.33	1.80	0.99	
95.000	95.0000	135.0000	20.0000	20.0000	14.0000	5.0000	2.5000		76.5	133.0	2 500	3 200	0.850	515-838	JL819349/JL819310	0.58	1.03	0.57	
95.250	95.2500	136.5250	122.2350			0.3000	1.0000		318.0	753.0	1 800	2 600	4.707	CBK-184					
96.838	96.8380	148.4300	28.5750	28.9710	21.4330	3.5000	3.5000	31.0	130.0	196.0	2 200	3 200	1.650	CBK-529	K-42381/K-42584	0.49	1.20	0.70	
	3.8725	5.8937	1.1250	1.1406	0.8438	0.7400	0.7400												
99.974	99.9740	156.9750	42.0000	42.0000	34.0000	8.0000	3.5000	32.0	257.0	420.0	2 000	3 000	2.820	HM220149/HM220110	HM220149/HM220110	0.33	1.80	0.99	
100.000	100.0000	160.0000	41.0000	40.0000	32.0000	2.0000	2.0000	32.0	250.0	396.0	1 900	2 800	3.050	CBK 263	K-JHM 720249/K-JHM 720210	0.46	1.31	0.72	
100.000	100.0000	145.0000	24.0000	22.5000	17.5000	3.0000	3.0000	30.0	113.0	165.0	2 000	3 000	1.130	JP10049/JP10010	JP10049/JP10010	0.47	1.27	0.70	
107.950	107.9500	158.7500	23.0200	21.4380	15.8750	3.5000	3.3000	37.0	97.0	145.0	1 900	2 800	1.400	CBK 339	K-37425/K-37625	0.61	0.98	0.54	
	4.2500	6.2500	0.9063	0.8440	0.6250	0.7400	0.7300												

FLT Special and inch size tapered roller bearings



SHAFT mm	DIMENSIONS								BASIC LOAD RATING		LIMITING SPEEDS		MASS ~ kg	DESIGNATION		CALCULATION FACTORS		
	d	D	T	B	C	r _{s1} min	r _{s2} max	a ~	dynamic C	static C ₀	grease r/min	oil r/min		FLT	Equivalent	e	y ₁	y ₀
109.539	109.5390	158.7500	23.0200	21.4380	15.8750	3.5000	3.3000	37.0	95.5	142.2	1 900	2 800	1.300	515-761	37431 A/37625	0.61	0.98	0.54
	4.3125	6.2500	0.9063	0.8440	0.6250	0.7400	0.7300											
110.000	110.0000	180.0000	41.2750	41.2750	30.1630	3.5000	3.3000	42.0	264.0	432.0	1 800	2 600	1.650	CBK 264	K-64432/K-64708	0.50	1.20	0.66
110.000	110.0000	165.0000	35.0000	35.0000	26.5000	5.0000	2.5000	32.0	200.0	352.0	1 800	2 600	2.450	JM822049/JM822010	JM822049/JM822010	0.50	1.20	0.66
120.000	120.0000	170.0000	27.0000	25.0000	19.5000	3.0000	3.0000	35.0	178.0	283.0	1 800	2 600	1.700	JP12049/JP 12010	JP12049/JP 12010	0.47	1.27	0.70
130.000	130.0000	185.0000	29.0000	27.0000	21.0000	3.0000	3.0000	8.9	181.5	290.0	1 800	2 600	2.160	JP13049/JP13010	JP13049/JP13010	0.47	1.27	0.70
133.350	133.3500	177.0080	25.4000	26.1950	20.6380	1.5000	1.5000	29.2	139.0	288.0	1 800	2 600	1.800	515-1106	L327249/L327210	0.35	1.72	0.95
140.000	140.0000	195.0000	29.0000	27.0000	21.0000	3.0000	3.0000	11.9	206.1	344.0	1 700	2 300	2.310	JP14049A/JP14010	JP14049A/JP14010	0.50	1.19	0.66
142.875	142.8750	200.0250	41.2750	39.6880	34.1300	8.0000	3.3000	38.0	277.0	535.0	1 600	2 100	3.740	48684/48620	48684/48620	0.34	1.78	1.00
146.050	146.0500	193.6750	28.5750	28.5750	23.0200	1.5000	1.5000	33.5	168.0	352.0	1 600	2 200	2.330	515-822	36690/36620	0.37	1.60	0.89
152.400	152.4000	192.0880	25.0000	24.0000	19.0000	2.0000	2.0000	35.0	130.0	261.0	1 600	2 100	1.530	L630349/L630310	L630349/L630310	0.42	1.44	0.79
	6.0000	7.5625	0.9843	0.9449	0.7480	0.0800	0.0800											
158.750	158.7500	205.5830	23.8120	23.8120	18.2580	1.5000	1.5000	33.0	135.0	263.0	1 500	2 000	1.930	516-819	L-432349/L-432310	0.37	1.60	0.89
196.850	196.8500	241.3000	23.8120	23.0170	17.4620	1.5000	1.5000	17.5	154.8	321.6	1 000	1 500	2.120	LL639249/LL639210	LL639249/LL639210	0.42	1.44	0.79
	196.8500	254.0000	28.5750	27.7830	21.4330	1.5000	1.5000	14.2	180.5	365.9	1 000	1 500	3.370	L540049/L540010	L540049/L540010	0.40	1.51	0.83
215.900	215.9000	290.0100	31.7500	31.7500	22.2250	3.5000	3.3000	13.0	284.0	493.0	1 000	1 500	5.530	543085/543114	543085/543114	0.39	1.50	0.80
231.775	231.7750	317.5000	47.6250	52.3880	36.5120	3.2000	3.2000	49.9	500.0	980.0	1 300	2 000	10.500	LM245848/LM245810	LM245848/LM245810	0.31	1.90	1.10
247.650	247.6500	346.0750	63.5000	63.5000	50.8000	6.4000	6.4000	62.2	682.0	1 390.0	850	1 200	17.400	M348499/M348410	M348499/M348410	0.34	1.75	0.97
304.800	304.8000	393.7000	50.8000	50.8000	38.1000	6.4000	3.0000	61.5	590.0	1 320.0	1 000	1 500	14.500	517-1208	L357049/L357010	0.36	1.67	0.92
381.000	381.0000	479.4250	49.2130	47.6000	34.9000	6.4000	3.3000	91.9	595.0	1 450.0	600	800	18.200	518-1206		0.50	1.21	0.67
381.050	381.0500	479.4750	49.2130	47.6250	34.9250	8.0000	3.2000	42.5	443.0	1 070.0	600	800	20.000	CBK-433	L865547/L865512	0.49	1.21	0.67
406.400	406.4000	508.0000	61.9120	61.9120	47.6250	3.3000	3.3000	20.3	842.0	2 230.0	670	900	26.300	L467549/L467510	L467549/L467510	0.37	1.64	0.89
409.575	409.5750	546.1000	87.3120	87.3120	68.2620	6.4000	6.4000	17.7	1 360.0	3 200.0	260	360	54.800	518-1141	M667948/667911	0.42	1.44	0.79
536.575	536.5750	820.0000	152.0000	146.0000	112.0000	6.0000	5.0000	9.0	3 950.0	7 960.0			273.000	518-1142		0.43	1.41	0.78
635.000	635.0000	933.4500	179.3880	177.8000	141.2880	11.9000	6.4000	-14.0	5 080.0	11 600.0			410.000	518-1144		0.33	1.80	0.99

SPECIAL BALL AND ROLLER BEARINGS



Deep groove ball bearings

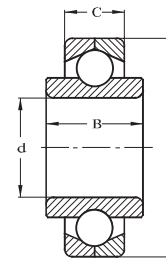


Fig. 1

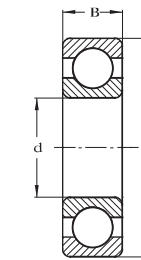


Fig. 2

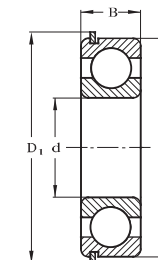


Fig. 3

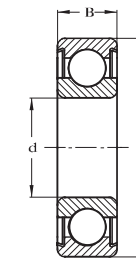


Fig. 4

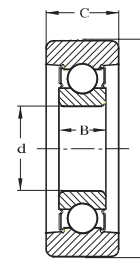


Fig. 5

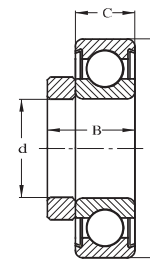


Fig. 6

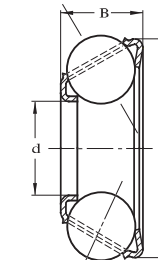


Fig. 7

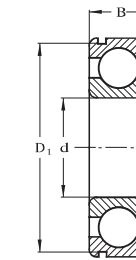
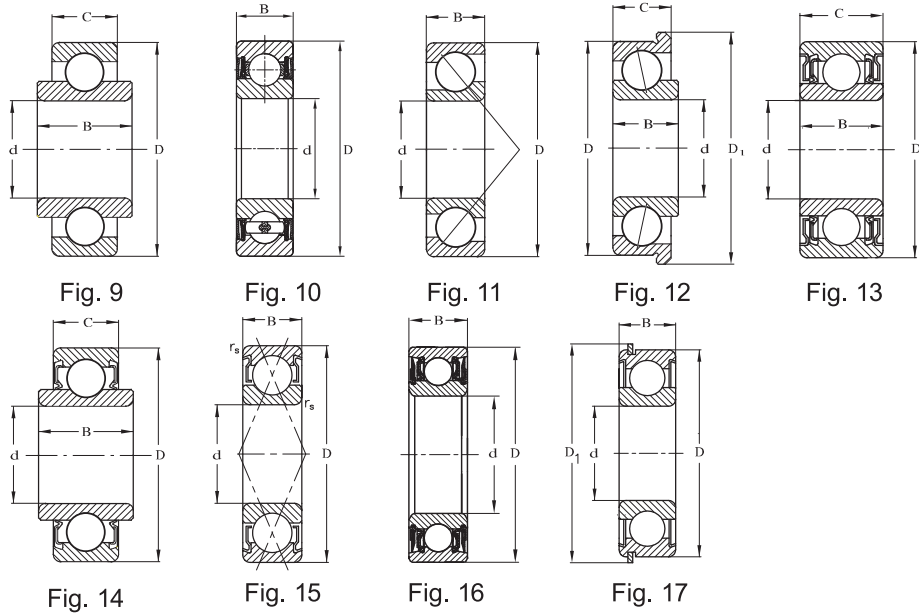


Fig. 8

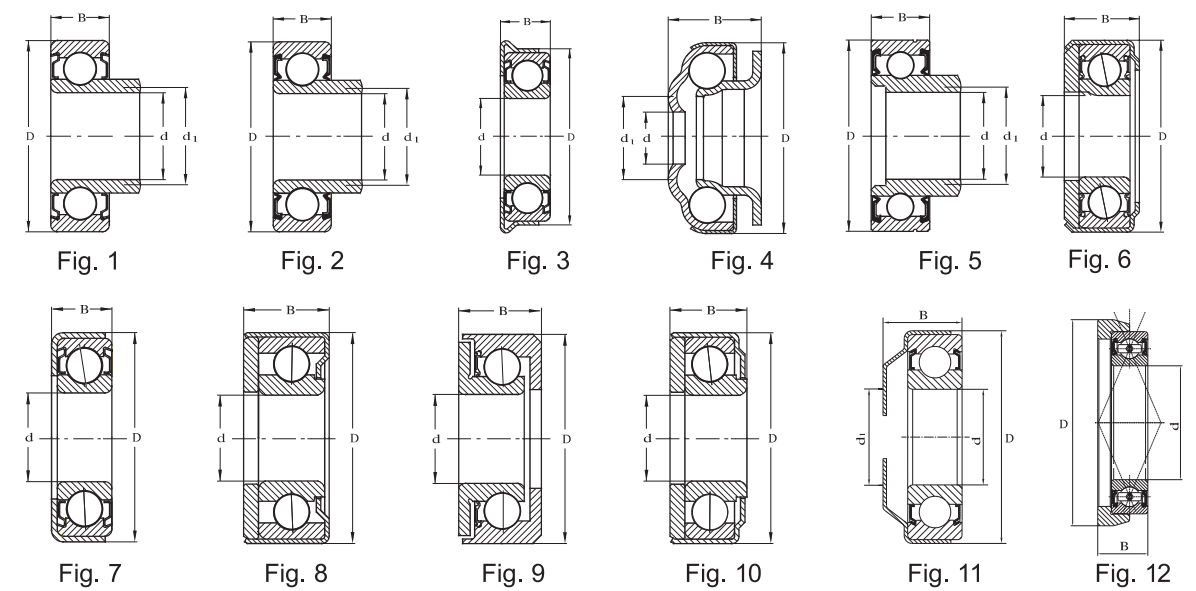
DIMENSIONS			BASIC LOAD RATING		BEARING DESIGNATIONS	MASS ~	FIG No	
d	D/D1	B/C	dynamic C	static C ₀				
mm			kN		kg			
25.000	52	25	15	19.7	13.1	113-1048	0.171	1
	62	12		16.6	9.6	68305	0.173	2
	62	14		20.6	11.2	68341	0.190	2
28.000	67	73.6	18	25.0	13.8	114-618 NR	0.289	3
28.575	71.425		20.638	28.2	15.8	MS-11	0.330	2
28.580	71.425		20.638	29.7	15.7	CBK-296	0.306	2
30.000	42	7	6	4.1	3.3	113-817	0.250	9
	55	16		13.2	8.3	113-945-2RS3-2BRS3	0.175	16
	57	16		13.2	8.3	113-867TNG 2RSRS6	0.177	16
	62	16		22.5	14.7	133-759	0.212	11
	62	16		16.0	10.3	113-1065-2RS3-2BRS8	0.250	16
	75	80.4	19	30.0	16.1	CBK-083-2RSP66	0.380	17
	65	21		21.2	12.4	CBK-086 B	0.330	4
	84	19	27.3	28.2	15.8	CBK-468	0.623	5
34.800	72	31.5	21.5	25.7	15.3	114-755-2RS	0.424	6

*R5-20 – Bearing with radial clearance 5-20 μm
2RSZ – Bearing with seals and shields

Deep groove ball bearings



Clutch's ball bearings for cars, trucks and tractors



DIMENSIONS					BASIC LOAD RATING		BEARING DESIGNATIONS	MASS ~	FIG No	DIMENSIONS			PRESSURE DIAMETER d1	BASIC LOAD RATING		BEARING DESIGNATIONS	MASS ~	FIG No
d	D	D1	B	C	dynamic C	static Co				d	D	B		dynamic C	static Co			
mm					kN			kg		mm			mm	kN			kg	
35.000	62		16		16.0	10.3	113-818-2RS	0.179	10	29.500	52.7	15.000	34.0	11.9	8.0	173-722	0.069	4
	72		25	25	25.7	15.3	114-865-2RSZ* C3	0.406	13	30.000	55.0	13.000	34.0	13.2	8.3	CBK-206-2Z	0.135	1
	85	91.6	23		33.5	18.3	114-942-2RSNR	0.606	17		55.0	13.000	34.0	13.2	8.3	CBK-206-2RS	0.135	2
	93.5		21	37.25	25.8	18.3	11/6307-2RSA R5-20*	1.020	5	30.700	53.0	15.000	39.5	11.9	8.0	173-723	0.068	4
	96.25		21	37.25	25.8	18.3	12/6307-2RS R5-20*	1.240	5	32.000	58.0	14.500		13.2	8.3	CBK-182A	0.130	3
	97		21	37.25	25.8	18.3	12/6307-2RSA R5-20	1.240	5	35.900	62.0	14.000	39.5	16.0	10.3	CBK-269	0.153	1
37.000	55		11.25		22.5	14.8	CBK-361	0.061	7		62.0	14.000	39.5	11.6	10.3	CBK-269ZRS	0.153	1
38.892	80		27.5	21	29.1	17.9	114-743-2RSRC5	0.460	14	37.000	62.0	14.000	39.5	16.0	10.3	CBK-269X1	0.163	1
40.000	80		27	21	29.1	17.9	114-732-2RSR	0.425	14		62.0	14.000	39.5	16.0	8.2	CBK-302	0.300	5
45.000	75		19	16	21.0	15.2	114-751-2RS	0.400	14	50.000	81.6	25.000		21.8	16.6	114-733	0.440	6
	75		19		21.0	15.2	114-878(9)BTNG2RS-2RS3S0	0.290	16		90.5	22.000		33.0	31.0	174-1075	0.445	12
	85		50	19	32.7	20.5	114-771	0.630	9	52.388	84.5	19.250		21.8	16.6	CBK-197	0.260	7
	85		27	21	32.7	20.5	88509	0.580	14		84.3	27.000	54.0	21.8	16.6	114-791-2Z	0.380	11
	75		19		21.0	15.2	114-1110TNG 2RS3-2BRS3	0.400	16	52.413	91.6	22.800		28.3	21.3	114-742	0.560	8
50.000	80		16		33.0	31.0	134-956-ZZ	0.290	15	55.000	92.0	28.500		28.3	21.3	114-744TNRS	0.660	9
	80		16		33.0	31.0	134-956-2RS	0.300	15	63.505	100.0	21.971		30.5	25.2	CBK-297	0.560	10
52.413	90		18		28.3	21.3	114-741	0.392	2	65.000	100.0	21.971		30.5	25.2	CBK-297X1	0.535	10
55.000	90		22		28.3	21.3	114-1015-2RS-2BRS	0.450	16	75.000	117.0	27.000		39.5	33.5	114-740	0.870	6
	100		21		66.3	55.0	134-955-2Z	0.604	15									
60.000	110		55	22	46.1	33.1	114-772	1.148	9									
	80		12		20.2	19.2	114-940TN	0.109	2									
	110		26		46.1	33.1	114-1019-2RSR2-2BRS2	0.850	16									
70.000	110		26		38.0	30.9	114-980-2RSR2-2BRS2	0.760	16									
	115		26		30.9	38.0	114-1151-2RSR2-2BRS2	0.800	16									
75.000	115		26		39.5	33.5	114-1046-2RSR2-2BRS	0.810	16									
85.000	115		26		19.2	19.8	114-1079TNG 2RSR2-2BRS2	0.750	16									
110.000	160		30		43.6	44.5	115-1189TNG 2RS	1.780	4									
140.000	215	225	43	38	116.0	139.0	CBK - 031	7.450	12									

A - Changed internal design
 2Z - Bearing with two shields
 2RS - Bearing with two rubber seals
 TNRS - Bearing with plastic cage and rubber seals

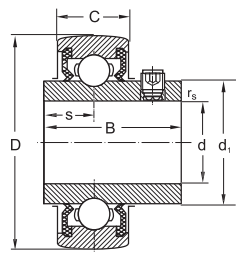


Fig. 1

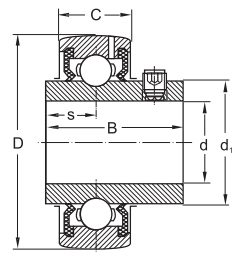


Fig. 2

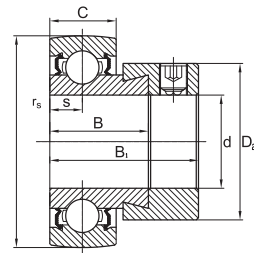


Fig. 3

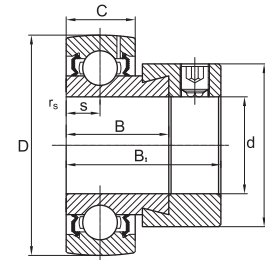


Fig. 4

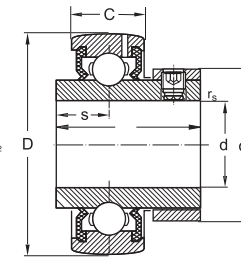


Fig. 5

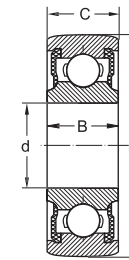


Fig. 6

SHAFT	DIMENSIONS									BASIC LOAD RATING		MASS ~ kg	FIG No	DESIGNATION			
	d	D	B	B ₁	C	r _s min	S	d ₁	d ₂	dynamic C	static C ₀			FLT	SKF	KOYO	
mm																	
20	20	47.0	31.0		14	0.6					-	6.55	0.140	4	FD204	YAR204	
25	25	52.0	34.1		15	0.6				-	7.80	0.170	4	FD205	YAR205		
30	30	62.0	39.1		19	1.0	15.9	40.70		19.50	11.35	0.320	1	C206			
	30	62.0	39.1		19	1.0	15.9	40.70		19.50	11.35	0.320	2	FC206	YAR 206	UC206	
	30	62.0	23.8	35.7	18	1.0	9.0		45.00	19.50	11.35	0.300	3	D206		SA206M	
	30	62.0	23.8	35.7	18	1.0	9.0		45.00	19.50	11.35	0.300	4	FD206	YET206		
	30	62.0	16.0		16	1.0				19.50	11.35	0.180	6	K62062RS	1726206-2RS1		
35	35	72.0	42.9		20	1.1	17.5	46.90		19.70	15.30	0.570	1	C207			
	35	72.0	42.9		20	1.1	17.5	46.90		19.70	15.30	0.570	2	FC207	YAR207	UC207	
	35	72.0	25.4	38.9	19	1.1	9.5		56.50	19.70	15.30	0.480	3	D207		SA207M	
	35	72.0	25.4	38.9	19	1.1	9.5		56.50	19.70	15.30	0.480	4	FD207	YET207		
	35	72.0	42.9		20	1.1	17.5		58.90	19.70	15.30	0.590	5	FB207			
40	35	72.0	17.0		17	1.1				19.70	15.30	0.250	6	K62072RS	1726207-2RS1		
	40	80.0	49.2		21	1.1	19.0	52.40		22.40	17.90	0.640	2	FC208	YAR208	UC208	
	40	80.0	29.7	43.7	21	1.1	11.0		60.00	22.40	17.90	0.590	4	FD208	YET208		
	40	80.0	49.2		19	1.1	19.0		66.50	22.40	17.90	0.720	5	FB208			
	40	80.0	18.0		18	1.1				29.10	17.90	0.320	6	K62082RS	1726208-2RS1		
	40	67.5	52.0		32	1.5	22.0	67.50		62.00	37.90	1.890	1	114-981 2RS 2Z			
45	40	95.0	52.0		28	1.1	19.0	55.20		40.70	23.90	1.117	1	114-708(728) 2RS			
	45	85.0	49.2		22	1.1	19.0	57.40		25.20	20.50	0.680	2	FC209	YAR209	UC209	
	45	85.0	29.7	43.7	22	1.1	11.0		63.50	25.20	20.50	0.660	4	FD209	YET209		
	45	85.0	19.0		19	1.1				32.70	20.50	0.370	6	K6209 2RS	1726209-2RS1		
	45	85.0	30.0		22	1.0	15.0	56.57		25.20	20.50	0.550	1	114-802K			
50	50	90.0	51.6		24	1.1	19.0	62.40		35.10	23.20	0.800	2	FC210	YAR210	UC210	
	50	90.0	51.6		22	1.1	19.0		79.00	35.10	23.20	1.000	5	FB210			
55	55	100.0	55.6		25	1.5	22.2	68.70		33.40	29.20	1.110	2	FC211	YAR211	UC211	
	55	100.0	55.6		25	1.5	22.2		88.00	33.40	29.20	1.350	5	FB211			

FLT Ball bearings. Track rollers. Support rollers. Mast Guide bearings

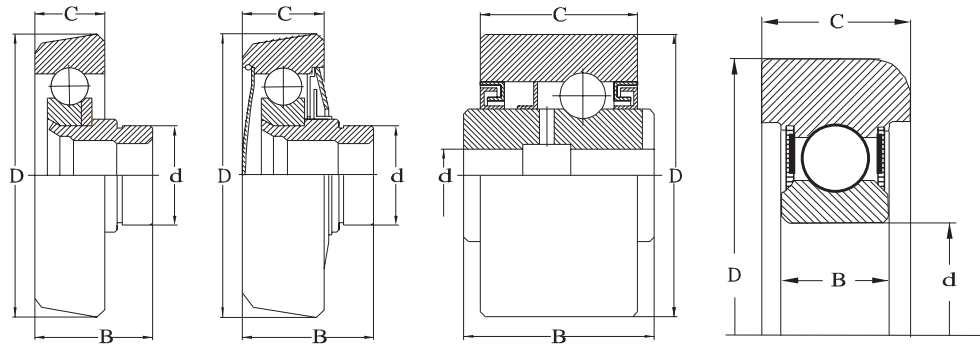


Fig. 1

Fig. 2

Fig. 3

Fig. 4

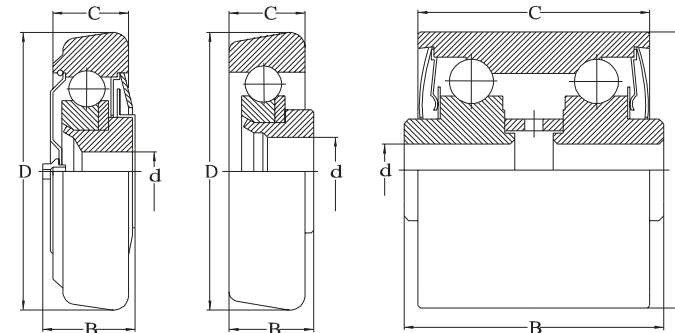


Fig. 9

Fig. 10

Fig. 11

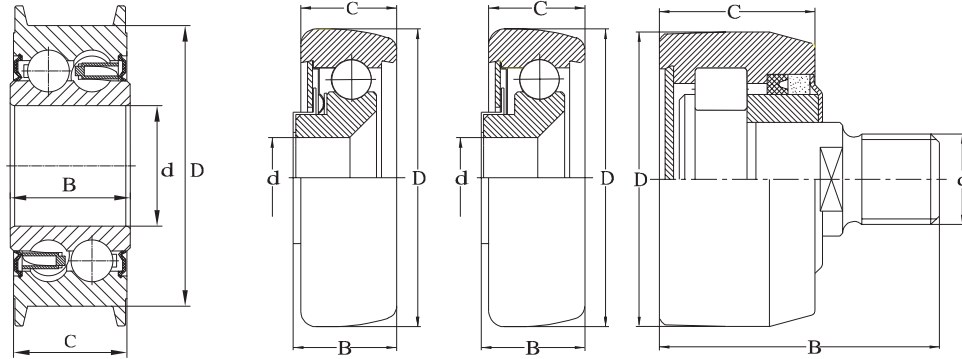


Fig. 5

Fig. 6

Fig. 7

Fig. 8

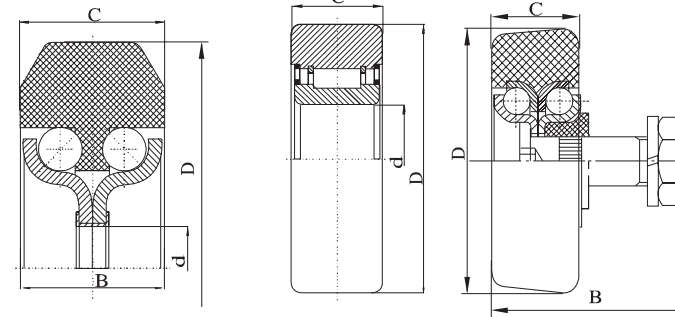


Fig. 12

Fig. 13

Fig. 14

DIMENSIONS				BASIC LOAD RATING		BEARING DESIGNATIONS	MASS ~	FIG No	DIMENSIONS				BASIC LOAD RATING		BEARING DESIGNATIONS	MASS ~	FIG No
d	D/D1	B/C	dynamic C	static C ₀	d				D/D1	B/C	dynamic C	static C ₀					
mm				kN			kg	mm				kN			kg		
9.55	50.500	15.3	16			NG-2WHEEL	0.051	12	45.00	105.000	41.0	38	52.0	39.9	174-1057 TNG-2RS	1.270	5
12.20	71.400	55.5	52	50.0	37.0	124-659DV-2Z	1.151	11		114.000	25.0	30	53.0	31.7	114-851-2RS	1.410	4
	71.400	71.0	65.1	50.0	37.0	124-662DV-2Z	1.440	11		115.000	25.0	30	53.0	31.7	114-850-2RS	1.460	4
14.05	63.000	44.0	34.5	16.0	7.9	CBK-191	0.669	3		116.000	25.0	30	53.0	31.7	114-886-2RS	1.500	4
16.00	59.000	20.5	19	14.0	7.9	CBK-274B	0.227	6		117.000	25.0	32	53.0	31.7	114-902-2RS	1.630	4
	59.000	20.5	19	14.0	7.9	CBK-274C	0.227	7		118.000	25.0	32	53.0	31.7	114-903-2RS	1.670	4
16.05	76.000	50.0	39	28.2	15.8	CBK-196	1.046	3		119.000	25.0	32	53.0	31.7	114-947-2RS	1.710	4
	60.325	46.8	19.3			FW-100-2-3/8	0.163	14		120.000	25.0	32	53.0	31.7	114-948-2RS	1.760	4
20.00	52.000	59.0	30.6	25.0	21.7	CBK-320	0.512	8		129.000	27.0	34	62.0	37.9	115-914-2RS	2.090	4
	80.000	52.0	27	21.2	10.9	CBK-188	0.780	2		130.000	27.0	34	62.0	37.9	115-915-2RS	2.140	4
	80.000	52.0	27	30.3	18.7	CBK-188 VA*	0.840	1		131.000	27.0	34	62.0	37.9	115-916-2RS	2.190	4
23.00	82.000	26.5	24	23.7	13.4	CBK-189	0.566	9		132.000	27.0	34	62.0	37.9	115-946-2RS	2.250	4
	82.000	26.5	24	34.4	23.4	CBK-189 V*	0.620	10		136.652	27.0	46.304	144.0	231.0	675-815-2RS	3.860	13
25.40	82.000	29.5	27	28.2	15.8	CBK-243 B	0.620	6		149.000	31.0	36	82.0	52.0	115-933	2.987	4
	82.000	29.5	27	28.2	15.8	CBK-243 C	0.620	7		150.000	31.0	36	82.0	52.0	115-934	3.051	4
28.00	134.000	33.5	30	43.4	29.2	CBK-195A	2.330	9		151.000	31.0	36	82.0	52.0	115-935	3.115	4
40.00	99.000	23.0	27	40.7	23.9	114-841-2RS	1.125	4		174.625	61.925	61.925	279.0	424.0	675-846-2RS	8.300	13
	100.000	23.0	27	40.7	23.9	114-842-2RS	1.125	4									
	101.000	23.0	27	40.7	23.9	114-869-2RS	1.004	4									
	102.000	23.0	27	40.7	23.9	114-870-2RS	1.036	4									

*Bearings without cage with full quantity of rolling elements

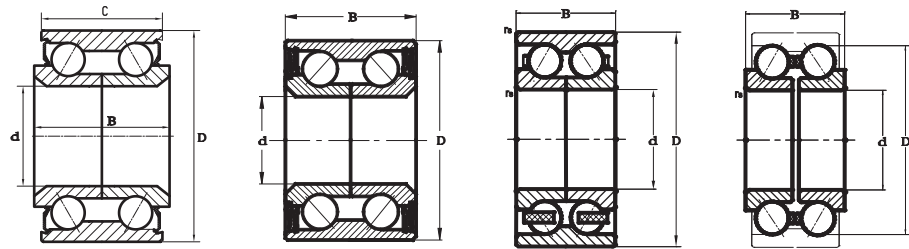


Fig. 1 Fig. 2 Fig. 3 Fig. 4

Bearings without cage with full quantity of rolling elements

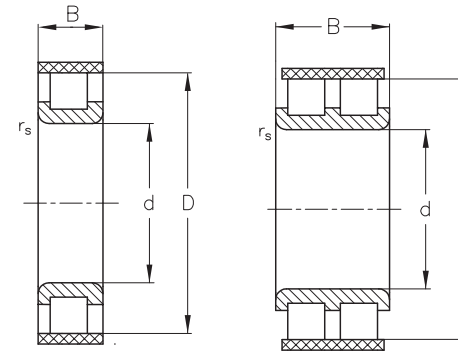
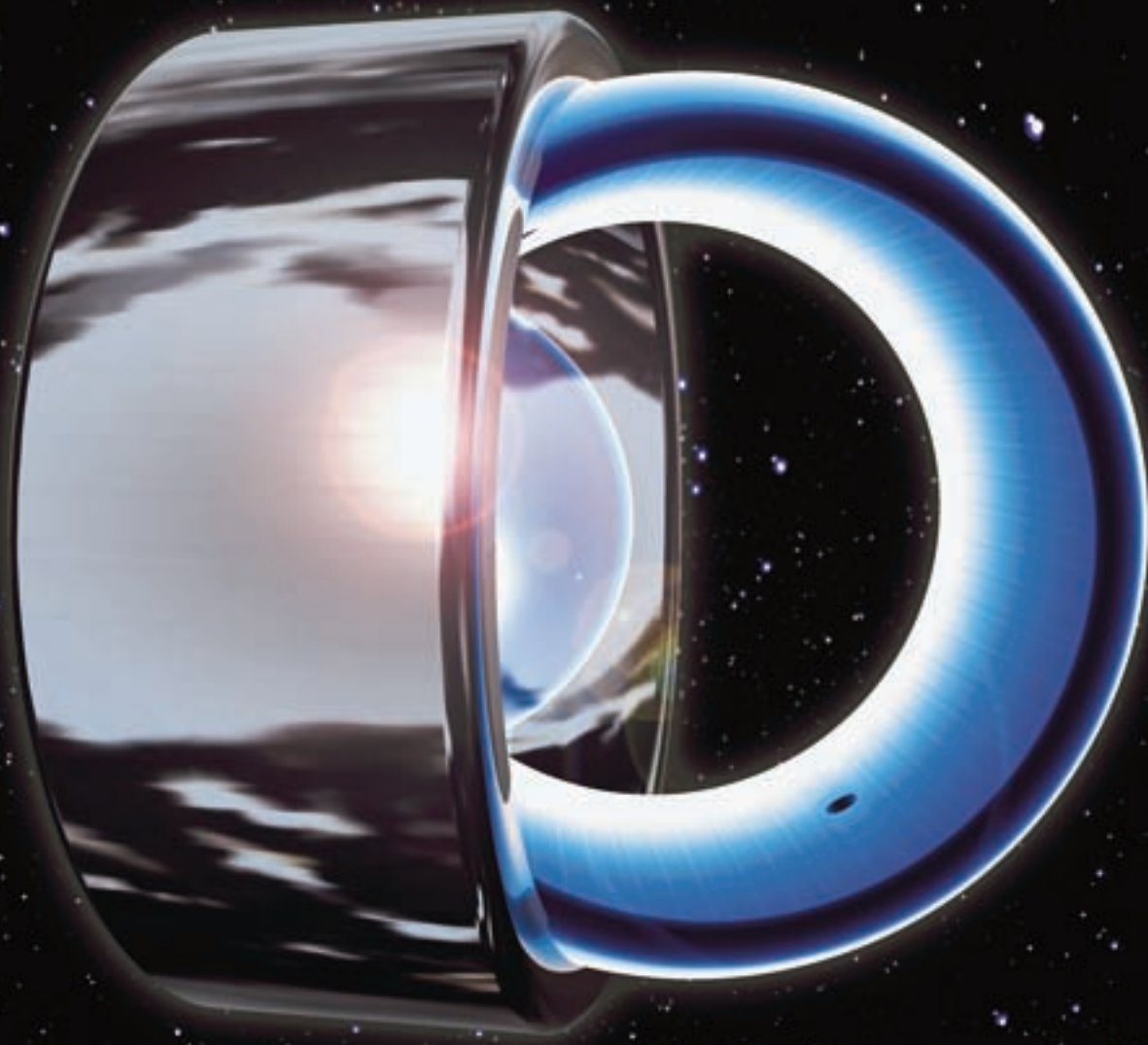


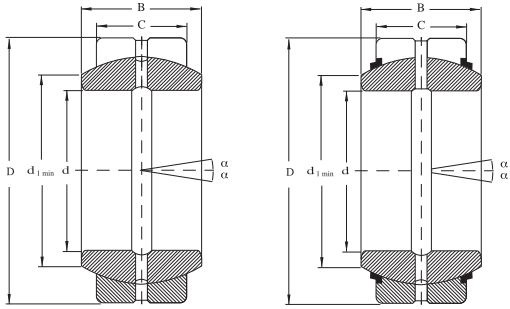
Fig. 1 Fig. 2

SHAFT	DIMENSIONS					BASIC LOAD RATING		LIMITING SPEEDS		DESIGNATION FLT	MASS ~	FIG No	DIMENSIONS				FLT	BASIC LOAD RATING		LIMITING SPEEDS		MASS ~	FIG No
	d	D	B	C	r _{1s} min	dynamic C	static C ₀	grease	oil				d	D	B	r _{1s} min		dynamic C	static C ₀	grease	oil		
	mm					kN		r/min					mm					kN		r/min			
30	30	60.000	37.000	37.0	2.5	37.80	31.10	7 000		CBK-199TNG	0.450	1	18	30.52	13.0	2.0	263-899	19.9	21.2	4 600	6 200	0.044	1
	30	60.000	37.000	37.0	2.5	36.90	30.40	7 000		CBK-199BTNG	0.450	2	20	36.81	16.0	2.6	263-919	27.5	27.9	3 900	5 200	0.061	1
	30	60.030	37.000	37.0	2.5	37.80	31.10	7 000		CBK-441TNG	0.450	1		33.90	16.0	2.6	263-1023	27.0	30.0	3 900	5 200	0.065	1
	30	60.030	37.000	37.0	3.2	37.80	31.10	7 000		CBK-441BTNG	0.450	2	24	40.25	26.0	2.5	263-904	44.0	59.8	3 400	4 600	0.137	2
	30	60.030	37.000	37.0	0.3	37.80	31.10	7 000		133-637TNG-2RS	0.450	1	25	42.51	12.0	2.6	263-1122	21.9	21.8	3 100	4 100	0.070	1
34	34	64.000	37.000	37.0	2.4	42.20	35.40	6 300		133-639BATNG	0.430	2		46.52	18.0	3.0	263-898	45.0	48.1	3 100	4 100	0.156	1
	34	66.000	37.000	37.0	2.4	42.20	35.40	6 300		134-1009TNG 2RS	0.440	2		42.51	16.0	2.5	263-1021	31.2	34.4	3 100	4 100	0.095	1
35	34	64.000	37.000	37.0	2.4	42.20	35.40	6 300		133-639BATN-2RS-2RSS6	0.430	2		40.25	26.0	2.5	263-1092	44.0	59.8	3 100	4 100	0.175	2
	35	66.000	33.000	33.0	2.5	43.70	36.80	6 300		134-781TNG-2RS	0.440	1		42.55	18.0	3.0	263-1105	40.5	47.8	3 100	4 100	0.110	1
	35	68.000	37.000	37.0	2.5	43.60	37.20	6 300		134-643DTNG-2RS	0.490	1	30	49.60	26.0	3.0	263-920	57.1	70.4	2 800	3 800	0.217	2
	35	68.000	37.000	37.0	2.5	43.60	37.20	6 300		134-738BTNG-2RS	0.430	2		49.60	26.0	3.0	263-922	57.1	70.4	2 800	3 800	0.188	2
	35	68.015	37.000	37.0	2.5	41.70	35.50	6 300		134-863TNG-2RS	0.563	1		49.60	25.0	3.0	263-1089	57.1	70.4	2 800	3 800	0.183	2
37	37	72.000	37.000	37.0	2.4	44.20	39.70	5 000		134-964TNG-2RS	0.577	1	32	51.75	29.0	3.0	263-1017	71.5	95.5	2 600	3 500	0.232	2
39	39	68.000	37.000	37.0	3.2	39.80	26.30	5 600		134-746BDTNG-2RS	0.420	2		46.60	25.0	3.0	263-1022	54.3	82.5	2 600	3 500	0.159	2
	39	72.000	37.000	37.0	2.4	44.20	39.70	5 000		134-725BTNG-2RS	0.500	2	38	52.95	28.0	3.0	263-921	59.2	97.0	2 500	3 400	0.195	2
40	40	72.000	37.000	37.0	2.4	44.20	39.70	5 000		134-797BTNG-2RS	0.540	2	40	57.81	34.0	3.2	263-1177	86.0	141.0	2 300	3 000	0.291	2
42	42	80.000	42.000	42.0	2.4	65.00	55.50	5 000		134-739BTNG-2RS	0.753	2		61.74	28.0	3.5	263-918	70.6	90.6	2 300	3 000	0.279	2
	42	80.000	42.000	42.0	2.4	65.00	55.50	5 000		134-806BTNG-2RS	0.800	2		61.74	32.0	3.0	263-917	85.4	115.8	2 300	3 000	0.329	2
48	48	82.000	37.000	33.0	3.2	53.00	50.00	5 000		134-905TNGRS6RS	0.631	1		61.74	38.0	1.1	263-962	101.0	143.0	2 300	3 000	0.377	2
100	100	125.000	29.000		1.0	34.30	43.70	3 200		135-1042TNG	0.640	3		75.63	78.0	1.1	264-175	248.0	325.0				2
110	110	140.000	30.000		1.0	43.00	57.00	2 800		135-954TNG	0.908	3	42	60.75	37.0	3.0	263-924	100.7	156.9	2 300	3 000	0.347	2
130	130	172.000	38.000		1.0	86.70	109.80	2 300		135-929TNG	1.870	3	44	62.97	37.0	2.5	263-1020	103.5	164.4	2 100	2 800	0.267	2
160	160	204.576	53.000		1.8	171.00	263.00			166-1012TNG	2.620	4	45	66.85	37.5	3.5	263-923	106.0	157.0	2 100	2 800	0.428	2
190	190	254.035	70.126		2.5	281.00	440.00			166-997TNG	5.290	4		72.33	40.0	1.1	263-1024	131.0	195.0	1 800	2 500	0.489	2
200	200	280.446	93.126		2.5	385.00	620.00			167-994TNG	9.220	4		83.88	85.0	1.1	264-176	275.0	380.0				2
230	230	311.446	91.626		3.0	405.00	700.00			167-995TNG	10.640	4	50	72.33	42.0	1.1	263-963	131.0	195.0	1 800	2 500	0.500	2
														94.75	44.0	6.2	264-1018	178.0	237.0	1 400	1 900	1.270	2
													72.00	31.0	4.0	264-1064	114.8	178.7	1 800	2 500	0.391	2	
													55	94.80	100	1.1	264-177	330	475				2
													65	110.00	110	1.5	264-178	455	660				2
													75	127.55	120	2.0	265-175	550	860				2
													80	141.92	130	2.0	265-180	730	1110				2
													95	155.87	150	2.0	265-181	860	1400				2

SPHERICAL PLAIN BEARINGS



F&T Spherical plain bearings

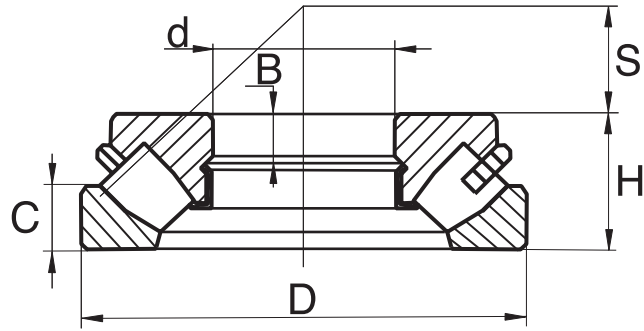


SPHERICAL ROLLER THRUST BEARINGS



DIMENSIONS						BASIC LOAD RATING		BASIC DESIGNATIONS		MASS
d	D	B	C	$d_{1\min}$	α°	dynamic C	static C_0			~
mm						kN				kg
15	26	12	9	16.6	8	18.0	45	GE15ES		0.032
20	35	16	12	21.8	9	31.5	78	GE20ES		0.065
25	42	20	16	27.7	7	51.0	127	GE25ES		0.120
30	47	22	18	34.0	6	62.0	310	GE30ES	GE30ES - 2RS	0.150
35	55	25	20	39.0	6	80.0	400	GE35ES	GE35ES - 2RS	0.230
40	62	28	22	45.0	7	100.0	500	GE40ES	GE40ES - 2RS	0.310
45	68	32	25	50.0	7	127.0	637	GE45ES	GE45ES - 2RS	0.410
50	75	35	28	55.0	6	156.0	780	GE50ES	GE50ES - 2RS	0.560
60	90	44	36	66.0	6	245.0	1 220	GE60ES	GE60ES - 2RS	1.010
70	105	49	40	77.0	6	315.0	1 560	GE70ES	GE70ES - 2RS	1.530
80	120	55	45	88.0	6	400.0	2 000	GE80ES	GE80ES - 2RS	2.280
90	130	60	50	98.0	5	490.0	2 450	GE90ES	GE90ES - 2RS	2.730
100	150	70	55	109.0	7	610.0	3 050	GE100ES	GE100ES - 2RS	4.380
110	160	70	55	120.0	6	655.0	3 250	GE110ES	GE110ES - 2RS	4.800
120	180	85	70	130.0	6	950.0	4 750	GE120ES	GE120ES - 2RS	7.950
140	210	90	70	150.0	7	1 071.0	5 355	GE140ES	GE140ES - 2RS	10.980
160	230	105	80	170.0	8	1 360.0	6 800	GE160ES	GE160ES - 2RS	13.980
180	260	105	80	192.0	6	1 496.0	7 480	GE180ES	GE180ES - 2RS	18.580

F&T Spherical roller thrust bearings

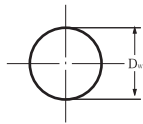


BALLS, NEEDLE
ROLLERS

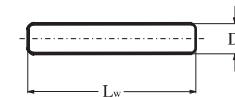
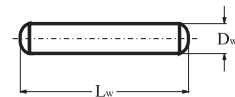
DIMENSIONS						BASIC LOAD RATING		BASIC DESIGNATIONS	MASS ~ kg
d	D	H	B	C	S	dynamic C _r	static C ₀		
mm						kN			
60	130	42	15	20.0	38	335	900	29412M	2.23
65	140	45	16	21.0	42	380	1 020	29413M	3.03
70	150	48	17	23.0	44	430	1 200	29414M	3.70
80	170	54	19	26.0	50	550	1 560	29416M	5.28
85	180	58	21	27.3	54	510	1 450	29417M	7.19
100	210	67	43	32.0	62	836	2 500	29420	7.50
	210	67	24	32.4	62	680	1 900	29420M	11.20
110	190	48	26	35.0	69	950	2 800	29322M	13.10
	230	73	26	34.5	69	780	2 340	29422M	14.70
120	210	54	19	22.2	70	686	2 223	29324	7.35
	210	54	18	25.9	70	520	1 740	29324M	7.96
	250	78	28	36.6	74	915	2 770	29424M	18.50
130	270	85	31	41.0	81	1 250	3 900	29426M	19.00
140	240	60	22	29.0	82	800	2 700	29328M	9.90
160	270	67	24	32.0	92	965	3 350	29332M	13.60
	320	95	34	47.1	99	1 430	4 370	29432M	35.90
190	380	115	41	54.9	117	1 930	4 010	29438M	55.50
260	420	95	32	47.5	148	1 370	6 080	29352E	51.50
300	480	109	54	54.0	168	2 280	10 396	29360M	72.60
340	620	170	82	84.0	201	5 200	19 300	29468M	197.00
380	600	132	44	63.0	216	3 340	14 000	29376	140.00
	670	175	65	85.0	230	6 400	24 500	29476	260.00
400	620	132		64.0	225	3 295	15 865	29380M	146.00
	710	185		92.3	234	5 730	25 800	29480M	300.00
440	780	206	74	100.0	260	765	30 000	29488EMB	393.00



FLT Steel balls



FLT Needle rollers



Forme A

Forme B

NOMINAL DIAMETER		MASS PER 1000 BALLS
D		
mm	inch	kg
3.969	5/32	0.254
4.5		0.3707
4.762	3/16	0.439
5.000		0.509
5.556	7/32	0.698
6.000		0.879
6.35	1/4	1.042
7.000		1.395
7.144	9/32	1.483
7.938	5/16	2.035
8.000		2.083
8.731	11/32	2.708
9.525	3/8	3.516
10.000		4.068
10.319	13/32	4.469
11.112	7/16	5.582
11.509	29/64	6.202
11.906	15/32	6.867
12.000		7.026
12.303	31/64	7.576
12.5		7.946
12.7	1/2	8.333
13.494	17/32	9.996
14.288	9/16	11.87
15.081	19/32	13.96
15.875	5/8	16.28
16.669	21/32	18.84
17.462	11/16	21.662
18.000		23.728
18.256	23/32	24.753
19.05	3/4	28.13
19.844	25/32	31.791
20.000		32.547
20.638	13/16	35.762
21.431	27/32	40.044
22.000		43.319
22.225	7/8	44.662
23.019	29/32	49.68
23.812	15/16	54.929
24.606	31/32	60.609
25.000		63.568
25.4	1	66.67

NOMINAL DIAMETER		MASS PER 1000 BALLS	DESIGNATIONS	DIMENSIONS		MASS PER 1000 PCS
D				Dw	Lw	
mm	inch	kg	mm		kg	
26.988	1 1/16	79.97	2.0 x 6.8 B	2.0000	6.8	0.166
28.575	1 1/8	94.9	2.0 x 7.8 A	2.0000	7.8	0.184
30.162	1 3/16	111.6	2.0 x 8.8 B	2.0000	8.8	0.215
31.75	1 1/4	130.2	2.0 x 9.05 B	2.0000	9.05	0.221
33.338	1 5/16	150.7	2.0 x 9.3 A	2.0000	9.3	0.221
34.925	1 3/8	173.3	2.0 x 9.4 A	2.0000	9.4	0.223
36.512	1 7/16	198.000	2.0 x 9.8 A	2.0000	9.8	0.233
38.1	1 1/2	225.000	2.0 x 10.2 A	2.0000	10.2	0.243
40.000		260.375	2.0 x 10.4 A	2.0000	10.4	0.247
41.275	1 5/8	286.1	2.0 x 10.8 A	2.0000	10.8	0.257
42.862	1 11/16	320.359	2.0 x 11.2 A	2.0000	11.2	0.266
44.45	1 3/4	357.301	2.0 x 11.7 B	2.0000	11.7	0.289
45.000		370.729	2.0 x 11.8 A	2.0000	11.8	0.282
47.625	1 7/8	439.465	2.0 x 12.8 A	2.0000	12.8	0.306
			2.0 x 13.8 A	2.0000	13.8	0.33
			2.0 x 15.8 A	2.0000	15.8	0.379
			2.0 x 17.8 A	2.0000	17.8	0.428
			2.0 x 19.8 A	2.0000	19.8	0.477
			2.5 x 7.8 A	2.5	7.8	0.281
			2.5 x 9.8 A	2.5	9.8	0.358
			2.5 x 9.8 B	2.5	9.8	0.374
			2.5 x 17.8 B	2.5	17.8	0.679
			2.5 x 19.8 A	2.5	19.8	0.739
			3.0 x 13.8 B	3.0000	13.8	0.758
			3.5 x 15.8 A	3.5	12.8	1.14
			3.5 x 17.8 A	3.5	17.8	1.29
			3.5 x 19.8 A	3.5	19.8	1.44
			4.0 x 11.8 B	4.0000	12.8	1.152
			4.0 x 15 B	4.0000	15.00	1.465
			4.0 x 23.8 B	4.0000	23.8	2.324
			4.0 x 29.8 B	4.0000	29.8	2.91
			4.0 x 32 A	4.0000	32.00	3.065
			5.0 x 19.8 B	5.0000	19.8	3.021
			5.0 x 23.8 A	5.0000	23.8	3.531
			5.0 x 25.8 A	5.0000	25.8	3.836
			5.0 x 29.8 A	5.0000	29.8	4.447
			6.0 x 17.8 B	6.0000	17.8	3.911
			6.0 x 21.8 A	6.0000	21.8	4.578
			6.0 x 21.8 B	6.0000	21.8	4.789
			6.35 x 21.59 B	6.35	21.59	5.312

Big balls only on special order

Material carbon chromium steel.
Hardness: 60-66 HRC.
Tolerances: grade G10 to G100. The dimensional and form accuracy to ISO 3290

Material: carbon chromium steel
Hardness: 58-65 HRC (670-840 HV)
Tolerances: grade G2, G3 and G5 in accordance with ISO 3096

FlT Bearing Data - General

Bearings tolerances

Normal tolerances for radial (except taper roller bearings)

Bearings tolerances

Class P6 tolerances for radial bearings (except taper roller bearings)

Inner ring

d		Δ_{dmp}		V _{dp}			V _{dmp}	ΔB_s		V _{Bs}	K _{ia}												
				DIAMETER SERIES																			
				8.9	0.1	2.3.4																	
over	incl.	high	low	max	max	max	max	high	low	max	max												
mm		μm		μm			μm	μm		μm	μm	mm		μm		μm	μm	μm	μm				
2.5	10	0	-8	10	8	6	6	0	-120	15	10	2.5	10	0	-7	9	7	5	5	0	-120	15	6
10	18	0	-8	10	8	6	6	0	-120	20	10	10	18	0	-7	9	7	5	5	0	-120	20	7
18	30	0	-10	13	10	8	8	0	-120	20	13	18	30	0	-8	10	8	6	6	0	-120	20	8
30	50	0	-12	15	12	9	9	0	-120	20	15	30	50	0	-10	13	10	8	8	0	-120	20	10
50	80	0	-15	19	19	11	11	0	-150	25	20	50	80	0	-12	15	15	9	9	0	-150	25	10
80	120	0	-20	25	25	15	15	0	-200	25	25	80	120	0	-15	19	19	11	11	0	-200	25	13
120	180	0	-25	31	31	19	19	0	-250	30	30												
150	250	0	-30	38	38	23	23	0	-300	30	40												
250	315	0	-35	44	44	26	26	0	-350	35	50												

Inner ring

d		Δ_{dmp}		V _{dp}			V _{dmp}	ΔB_s		V _{Bs}	K _{ia}													
				DIAMETER SERIES																				
				8.9	0.1	2.3.4																		
over	incl.	high	low	max	max	max	max	high	low	max	max													
mm		μm		μm			μm	μm		μm	μm	mm		μm		μm	μm	μm	μm					
2.5	10	0	-7	9	7	5	5	0	-120	15	10	2.5	10	0	-7	9	7	5	5	0	-120	15	6	
10	18	0	-7	9	7	5	5	0	-120	20	10	10	18	0	-7	9	7	5	5	0	-120	20	7	
18	30	0	-8	10	8	6	6	0	-120	20	13	18	30	0	-8	10	8	6	6	0	-120	20	8	
30	50	0	-10	13	10	8	8	0	-120	20	15	30	50	0	-10	13	10	8	8	0	-120	20	10	
50	80	0	-12	15	15	9	9	0	-150	25	20	50	80	0	-12	15	15	9	9	0	-150	25	10	
80	120	0	-15	19	19	11	11	0	-200	25	25	80	120	0	-15	19	19	11	11	0	-200	25	13	

Outer ring

d		Δ_{Dmp}		V _{dp}			BEARINGS WITH SHIELDS OR SEALS*	V _{dmp}	$\Delta C_s'$	V _{Cs}	K _{ea}												
				DIAMETER SERIES																			
				8.9	0.1	2.3.4																	
over	incl.	high	low	max	max	max	max			max													
mm		μm		μm			μm	μm		μm	mm		μm		μm	μm	μm						
6	18	0	-8	10	8	6	10	6		15	6	6	18	0	-7	9	7	5	9	5	Values are	8	
18	30	0	-9	12	9	7	12	7	Values	15	7	7	18	30	0	-8	10	8	6	10	6	identical to those	9
30	50	0	-11	14	11	8	16	8	are identical	20	8	8	30	50	0	-9	11	9	7	13	7	for inner ring	10
50	80	0	-13	16	13	10	20	10	to those for	25	10	10	50	80	0	-11	14	11	8	16	8	of the same	13
80	120	0	-15	19	19	11	26	11	inner ring	35	11	11	80	120	0	-13	16	16	10	20	10	bearing	18
120	150	0	-18	23	23	14	30	14	of the same	40	14	14	120	150	0	-15	19	19	11	25	11	($\Delta B_s'$, V _{Bs})	20
150	180	0	-25	31	31	19	38	19	bearing	45	19	19											
180	250	0	-30	38	38	23		23	($\Delta B_s'$, V _{Bs})	50	23	23											
250	315	0	-35	44	44	26		26		60	26	26											
315	400	0	-40	50	50	30		30		70	30	30											
400	500	0	-45	56	56	34		34		80	34	34											

Outer ring

d		Δ_{Dmp}		V _{dp}			BEARINGS WITH SHIELDS OR SEALS*	V _{dmp}	$\Delta C_s'$	V _{Cs}	K _{ea}													
				DIAMETER SERIES																				
				8.9	0.1	2.3.4																		
over	incl.	high	low	max	max	max	max			max														
mm		μm		μm			μm	μm		μm	mm		μm		μm	μm	μm							
6	18	0	-7	9	7	5	9	5	Values are	15	6	6	6	18	0	-7	9	7	5	9	5	Values are	8	
18	30	0	-8	10	8	6	10	6	identical to those	15	7	7	7	18	30	0	-8	10	8	6	10	6	identical to those	9
30	50	0	-9	11	9	7	12	7	for inner ring	20	8	8	8	30	50	0	-9	11	9	7	13	7	for inner ring	10
50	80	0	-10	13	10	8	16	8	of the same	25	10	10	10	50	80	0	-10	13	10	8	16	8	of the same	13
80	120	0	-11	14	11	8	20	10	bearing	35	11	11	11	80	120	0	-11	14	11	8	16	8	bearing	18
120	150	0	-12	15	15	9	26	11	($\Delta B_s'$, V _{Bs})	40	14	14	14	120	150	0	-12	15	15	9	20	10	($\Delta B_s'$, V _{Bs})	20
										45	19	19	19											
										50	23	23	23											
										60	26	26	26											
										70	30	30	30											
										80	34	34	34											

*Applies only to bearings of Diameter series 2, 3 and 4

*Applies only to bearings of Diameter series 0, 1, 2, 3 and 4

FlT Bearing Data - General

Bearings tolerances

Normal tolerances for taper roller bearings (metric sizes)

Inner ring and bearing width

d		Δd_{mp}		V_{dp}	V_{dmp}	ΔB_s		K_{ia}	ΔT_s		ΔT_{1s}		ΔT_{2s}	
over	incl.	high	low	max	max	high	low	max	high	low	high	low	high	low
mm		μm		μm	μm	μm		μm	μm		μm		μm	
10	18	0	-12	12	9	0	-120	15	+200	0	+100	0	+100	0
18	30	0	-12	12	9	0	-120	18	+200	0	+100	0	+100	0
30	50	0	-12	12	9	0	-120	20	+200	0	+100	0	+100	0
50	80	0	-15	15	11	0	-150	25	+200	0	+100	0	+100	0
80	120	0	-20	20	15	0	-200	30	+200	-200	+100	-100	+100	-100
120	180	0	-25	25	19	0	-250	35	+350	-250	+150	-150	+200	-100
180	250	0	-30	30	23	0	-300	50	+350	-250	+150	-150	+200	-100

Bearings tolerances

Tolerance for thrust bearings

Shaft washer

d		TOLERANCE CLASS			TOLERANCE CLASS	
		PO, P6			PO	P6
		ΔD_{mp}		V_{Dp}	S_i^*	S_i^*
over	incl.	high	low	max	max	max
mm		μm			μm	
18	30	0	-8	6	10	5
30	50	0	-10	8	10	5
50	80	0	-12	9	10	6
80	120	0	-15	11	10	7
120	180	0	-20	15	15	8
180	250	0	-25	19	15	9
250	315	0	-30	23	20	10
315	400	0	-35	26	25	13
400	500	0	-40	30	30	15
500	630	0	-45	34	30	18
		0	-50	38	35	21

*For double direction bearings, the value for the single direction bearing having the same outside diameter applies

Outer ring

D		ΔD_{mp}		V_{Dp}	V_{Dmp}	ΔC_s	K_{ea}
over	incl.	high	low	max	max		max
mm		μm		μm	μm	μm	μm
18	30	0	-12	12	9	Values are identical to those for inner ring of the same bearing (ΔB_s)	18
30	50	0	-14	14	11		20
50	80	0	-16	16	12		25
80	120	0	-18	18	14		35
120	150	0	-20	20	15		40
150	180	0	-25	25	19		45
180	250	0	-30	30	23		50
250	315	0	-35	35	26		60
315	400	0	-40	40	30		70

Housing washer

D		TOLERANCE CLASS			S_e
		ΔD_{mp}		V_{Dp}	
over	incl.	high	low	max	
mm		μm			μm
18	30	0	-13	10	
30	50	0	-16	12	
50	80	0	-19	14	
80	120	0	-22	17	Values are identical to those for inner ring of the same bearing (Si)
120	180	0	-25	19	
180	250	0	-30	23	
250	315	0	-35	26	
315	400	0	-40	30	
400	500	0	-45	34	
500	630	0	-50	38	
630	800	0	-75	55	
800	1000	0	-100	75	

Tolerances of hardened carbon chromium steel balls (ISO 3290)

Internal Clearances

Radial internal clearance of deep groove ball bearings

GRADE	BALL DIAMETER		TOLERANCES				GAUGE INTERVAL	GAUGE MEAN VALUES (deviation range)					BORE DIAMETER		RADIAL INTERNAL CLEARANCE									
			D _w		V _{Dws}	t _{Dw}							R _s	V _{DwL}	I	d		C2		NORMAL		C3		C4
	over	incl.	max	max	max	max	μm	μm	μm	μm	μm	μm	μm	μm		μm	μm	μm	μm	μm	μm			
	mm		μm				μm	μm					mm		μm		μm		μm		μm		μm	
G3	-	12.7	0.08	0.08	0.012	0.13	0.5	-5...	-0.5	0	+0.5...	+5	2.5	10	0	7	2	13	8	23	14	29	20	37
G5	-	12.7	0.13	0.13	0.020	0.25	1	-5...	-1	0	+1...	+5	10	18	0	9	3	18	11	25	18	33	25	45
G10	-	25.4	0.25	0.25	0.025	0.5	1	-9...	-1	0	+1...	+9	18	24	0	10	5	20	13	28	20	36	28	48
G16	-	25.4	0.4	0.4	0.032	0.8	2	-10...	-2	0	+2...	+10	24	30	1	11	5	20	13	28	23	41	30	53
G20	-	25.4	0.5	0.5	0.040	1	2	-10...	-2	0	+2...	+10	30	40	1	11	6	20	15	33	28	46	40	64
G28	25.4	50.8	0.7	0.7	0.050	1.4	2	-12...	-2	0	+2...	+12	40	50	1	11	6	23	18	36	30	51	45	73
G40	-	101.6	1	1	0.080	2	4	-16...	-4	0	+4...	+16	50	65	1	15	8	28	23	43	38	61	55	90
G100	101.6	152.4	2.5	2.5	0.125	5	5	-20...	-5	0	+5...	+20	65	80	1	15	10	30	25	51	46	71	65	105
	152.4	175	2.5	2.5	0.125	5	10	-40...	-10	0	+10...	+40	80	100	1	18	12	36	30	58	53	84	75	120
G200	175	250	5	5	0.200	10	15	-60...	-15	0	+15...	+60	100	120	2	20	15	41	36	66	61	97	90	140
													120	140	2	23	18	48	41	81	71	114	105	160
													140	160	2	23	18	53	46	91	81	130	120	180
													160	180	2	25	20	61	53	102	91	147	135	200
													180	200	2	30	25	71	63	117	107	163	150	230
													200	225	4	32	28	82	73	132	120	187	175	255

F&T Bearing Data - General

Internal Clearances

Internal Clearances

Radial internal clearance of self-aligning ball bearings

Radial internal clearance of cylindrical roller bearings

BORE DIAMETER		RADIAL INTERNAL CLEARANCE								BORE DIAMETER		RADIAL INTERNAL CLEARANCE							
d		C2		NORMAL		C3		C4		d		C2		NORMAL		C3		C4	
over	incl.	min	max	min	max	min	max	min	max	over	incl.	min	max	min	max	min	max	min	max
mm		µm		µm		µm		µm		mm		µm		µm		µm		µm	
Bearings with cylindrical bore										-	24	0	25	20	45	35	60	50	75
2.5	6	1	8	5	15	10	20	15	25	24	30	0	25	20	45	35	60	50	75
6	10	2	9	6	17	12	25	19	33	30	40	5	30	25	50	45	70	60	85
10	14	2	10	6	19	13	26	21	35	40	50	5	35	30	60	50	80	70	100
14	18	3	12	8	21	15	28	23	37	50	65	10	40	40	70	60	90	80	110
18	24	4	14	10	23	17	30	25	39	65	80	10	45	40	75	65	100	90	125
24	30	5	16	11	24	19	35	29	46	80	100	15	50	50	85	75	110	105	140
30	40	6	18	13	29	23	40	34	53	100	120	15	55	50	90	85	125	125	165
40	50	6	19	14	31	25	44	37	57	120	140	15	60	60	105	100	145	145	190
50	65	7	21	16	36	30	50	45	69	140	160	20	70	70	120	115	165	165	215
65	80	8	24	18	40	35	60	54	83	160	180	25	75	75	125	120	170	170	220
80	100	9	27	22	48	42	70	64	96	180	200	35	90	90	145	140	195	195	250
100	120	10	31	25	56	50	83	75	114	200	225	45	105	105	165	160	220	220	280
120	140	10	38	30	68	60	100	90	135	225	250	45	110	110	175	170	235	235	300
Bearings with tapered bore										250	280	55	125	125	195	190	260	260	330
18	24	7	17	13	26	20	33	28	42	280	315	55	130	130	205	200	275	275	350
24	30	9	20	15	28	23	39	33	50	315	355	65	145	145	225	225	305	305	385
30	40	12	24	19	35	29	46	40	59	355	400	100	190	190	280	280	370	370	460
40	50	14	27	22	39	33	52	45	65	400	450	110	210	210	310	310	410	410	510
50	65	18	32	27	47	41	61	56	80	450	500	110	220	220	330	330	440	440	550
65	80	23	39	35	57	50	75	69	98	500	560	120	240	240	360	360	480	480	600
80	100	29	47	42	68	62	90	84	116										
100	120	35	56	50	81	75	108	100	139										

FlT Bearing Data - General

Internal Clearances

Internal Clearances

Radial internal clearance of spherical roller bearings with cylindrical bore

Radial internal clearance of spherical roller bearings with tapered bore

BORE DIAMETER		RADIAL INTERNAL CLEARANCE										BORE DIAMETER		RADIAL INTERNAL CLEARANCE									
d		C2		NORMAL		C3		C4		C5		d		C2		NORMAL		C3		C4		C5	
over	incl.	min	max	min	max	min	max	min	max	min	max	over	incl.	min	max	min	max	min	max	min	max	min	max
mm		µm		µm		µm		µm		µm		mm		µm		µm		µm		µm		µm	
18	24	10	20	20	35	35	45	45	60	60	75	24	30	20	30	30	40	40	55	55	75	-	-
24	30	15	25	25	40	40	55	55	75	75	95	30	40	25	35	35	50	50	65	65	85	85	105
30	40	15	30	30	45	45	60	60	80	80	100	40	50	30	45	45	60	60	80	80	100	100	130
40	50	20	35	35	55	55	75	75	100	100	125	50	65	40	55	55	75	75	95	95	120	120	160
50	65	20	40	40	65	65	90	90	120	120	150	65	80	50	70	70	95	95	120	120	150	150	160
65	80	30	50	50	80	80	110	110	145	145	180	80	100	55	80	80	110	110	140	140	180	180	230
80	100	35	60	60	100	100	135	135	180	180	225	100	120	65	100	100	135	135	170	170	220	220	280
100	120	40	75	75	120	120	160	160	210	210	260	120	140	80	120	120	160	160	200	200	260	260	330
120	140	50	95	95	145	145	190	190	240	240	300	140	160	90	130	130	180	180	230	230	300	300	380
140	160	60	110	110	170	170	220	220	280	280	350	160	180	100	140	140	200	200	260	260	340	340	430
160	180	65	120	120	180	180	240	240	310	310	390	180	200	110	160	160	220	220	290	290	370	370	470
180	200	70	130	130	200	200	260	260	340	340	430	200	225	120	180	180	250	250	320	320	410	410	520
200	225	80	140	140	220	220	290	290	380	380	470	225	250	140	200	200	270	270	350	350	450	450	570
225	250	90	150	150	240	240	320	320	420	420	520	250	280	150	220	220	300	300	390	390	490	490	620
250	280	100	170	170	260	260	350	350	460	460	570	280	315	170	240	240	330	330	430	430	540	540	680
280	315	110	190	190	280	280	370	370	500	500	630	315	355	190	270	270	360	360	470	470	590	590	740
315	355	120	200	200	310	310	410	410	550	550	690	355	400	210	300	300	400	400	520	520	650	650	820
355	400	130	220	220	340	340	450	450	600	600	750	400	450	230	330	330	440	440	570	570	720	720	910
400	450	140	240	240	370	370	500	500	660	660	820	450	500	260	370	370	490	490	630	630	790	790	1000
450	500	140	260	260	410	410	550	550	720	720	900	500	560	290	410	410	540	540	680	680	870	870	1100
500	560	150	280	280	440	440	600	600	780	780	1000	560	630	320	460	460	600	600	760	760	980	980	1230
560	630	170	310	310	480	480	650	650	850	850	1100												
630	710	190	350	350	530	530	700	700	920	920	1190												
710	800	210	390	390	580	580	770	770	1010	1010	1300												



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