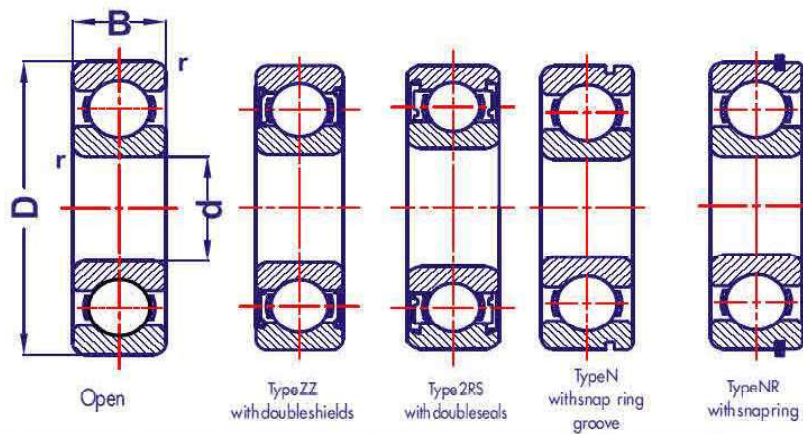
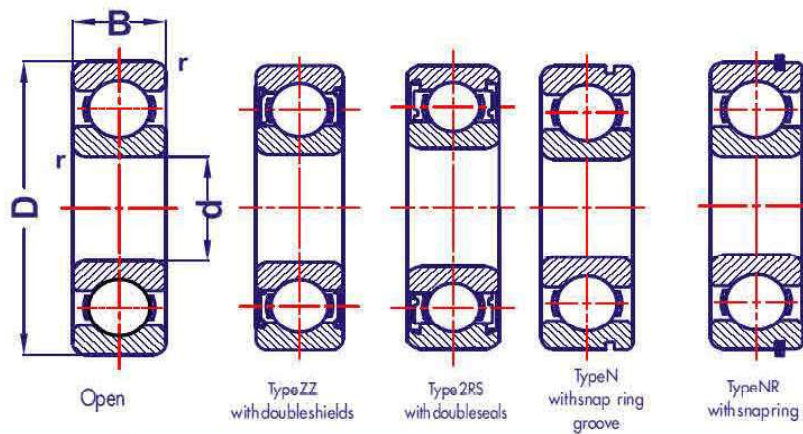


8.1 SINGLE ROW DEEP GROOVE BALL BEARINGS (METRIC SERIES)



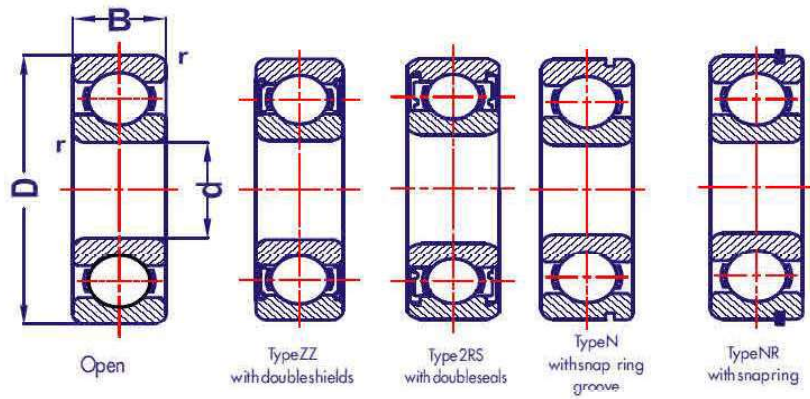
Boundary Dimensions				Basic Load Rating (N)		Limiting Speed (rpm)		Mass (Kg)	Bearing Number TYPE				
d (mm)	D (mm)	B (mm)	r (mm) min.	Dynamic C	Static Co	Grease	Oil		Open	ZZ	2RS	N	NR
10	26	8	0.3	4100	1700	27000	32000	0.019	6000	ZZ	2RS	N	NR
	30	9	0.6	4500	2000	21000	27000	0.032	6200	ZZ	2RS	N	NR
	35	11	0.6	7200	3100	18000	23000	0.053	6300	ZZ	2RS	N	NR
12	28	8	0.3	4500	2000	23000	28500	0.022	6001	ZZ	2RS	N	NR
	32	10	0.6	6100	2700	19000	25000	0.037	6201	ZZ	2RS	N	NR
	37	12	1.0	8700	3600	17000	21000	0.060	6301	ZZ	2RS	N	NR
15	32	9	0.3	5000	2500	19000	25000	0.030	6002	ZZ	2RS	N	NR
	35	11	0.6	7000	3300	17000	21000	0.045	6202	ZZ	2RS	N	NR
	42	13	1.0	10000	4800	15000	18000	0.082	6302	ZZ	2RS	N	NR
17	35	10	0.3	5400	2900	17000	21000	0.039	6003	ZZ	2RS	N	NR
	40	12	0.6	8500	4200	15000	18000	0.065	6203	ZZ	2RS	N	NR
	47	14	1.0	12000	5800	14500	17000	0.120	6303	ZZ	2RS	N	NR
	62	17	1.1	20600	9700	10800	13500	0.270	6403	ZZ	2RS	N	NR
20	42	12	0.6	8300	4500	15000	18000	0.069	6004	ZZ	2RS	N	NR
	47	14	1.0	11500	5800	13500	13500	0.110	6204	ZZ	2RS	N	NR
	52	15	1.1	14000	7000	11200	14400	0.140	6304	ZZ	2RS	N	NR
	72	19	1.1	27600	13500	9000	11700	0.400	6404	ZZ	2RS	N	NR
25	47	12	0.6	10000	5800	13500	16000	0.080	6005	ZZ	2RS	N	NR
	52	15	1.0	12500	7000	10800	13500	0.130	6205	ZZ	2RS	N	NR
	62	17	1.1	20200	10500	10000	12500	0.230	6305	ZZ	2RS	N	NR
	80	21	1.5	32200	17300	8100	10000	0.530	6405	ZZ	2RS	N	NR
30	55	13	1.0	12000	7500	10800	13500	0.120	6006	ZZ	2RS	N	NR
	62	16	1.0	17500	10800	9000	11200	0.200	6206	ZZ	2RS	N	NR
	72	19	1.1	25200	14500	8100	10000	0.350	6306	ZZ	2RS	N	NR
	90	23	1.5	39200	21200	7600	9000	0.740	6406	ZZ	2RS	N	NR

8.1 SINGLE ROW DEEP GROOVE BALL BEARINGS (METRIC SERIES)



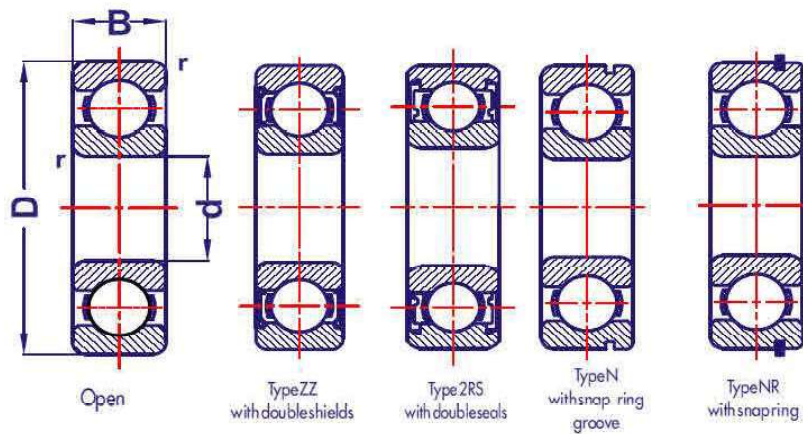
Boundary Dimensions				Basic Load Rating (N)		Limiting Speed (rpm)		Mass (Kg)	Bearing Number TYPE				
d (mm)	D (mm)	B (mm)	r (mm) min.	Dynamic C	Static Co	Grease	Oil		Open	ZZ	2RS	N	NR
35	62	14	1.0	14000	9200	9000	11700	0.160	6007	ZZ	2RS	N	NR
	72	17	1.1	23000	13700	8100	10000	0.290	6207	ZZ	2RS	N	NR
	80	21	1.5	30000	17000	7600	9000	0.460	6307	ZZ	2RS	N	NR
	100	25	1.5	49000	28000	6300	7600	0.950	6407	ZZ	2RS	N	NR
40	68	15	1.0	15200	10500	8500	10800	0.190	6008	ZZ	2RS	N	NR
	80	18	1.1	27600	17000	7600	9000	0.370	6208	ZZ	2RS	N	NR
	90	23	1.5	36900	21600	6700	8100	0.630	6308	ZZ	2RS	N	NR
	110	27	2.0	57300	32800	6000	7200	1.250	6408	ZZ	2RS	N	NR
45	75	16	1.0	18700	13100	8100	10000	0.250	6009	ZZ	2RS	N	NR
	85	19	1.1	29800	19500	6700	8100	0.410	6209	ZZ	2RS	N	NR
	100	25	1.5	47400	28300	6000	7200	0.830	6309	ZZ	2RS	N	NR
	120	29	2.0	68500	40500	5400	6300	1.550	6409	ZZ	2RS	N	NR
50	80	16	1.0	19500	14400	7600	9000	0.260	6010	ZZ	2RS	N	NR
	90	20	1.1	31500	20800	6300	7600	0.460	6210	ZZ	2RS	N	NR
	110	27	2.0	55600	34200	5600	6700	1.050	6310	ZZ	2RS	N	NR
	130	31	2.1	78400	46800	4800	5200	1.900	6410	ZZ	2RS	N	NR
55	90	18	1.1	25300	19000	6700	8100	0.390	6011	ZZ	2RS	N	NR
	100	21	1.5	39200	26100	5600	6700	0.610	6211	ZZ	2RS	N	NR
	120	29	2.0	64300	40500	5000	6000	1.350	6311	ZZ	2RS	N	NR
	140	33	2.1	89500	55800	4500	5400	2.300	6411	ZZ	2RS	N	NR
60	95	18	1.1	26600	20800	6000	7200	0.420	6012	ZZ	2RS	N	NR
	110	22	1.5	42700	29200	5400	6300	0.780	6212	ZZ	2RS	N	NR
	130	31	2.1	73200	46800	4500	5400	1.700	6312	ZZ	2RS	N	NR
	150	35	2.1	97200	62500	4300	5000	2.750	6412	ZZ	2RS	N	NR

8.1 SINGLE ROW DEEP GROOVE BALL BEARINGS (METRIC SERIES)



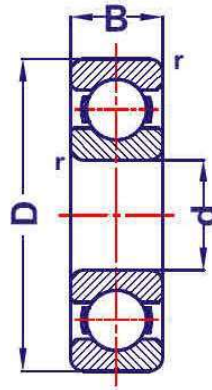
Boundary Dimensions				Basic Load Rating (N)		Limiting Speed (rpm)		Mass (Kg)	Bearing Number TYPE				
d (mm)	D (mm)	B (mm)	r (mm) min.	Dynamic C	Static Co	Grease	Oil		Open	ZZ	2RS	N	NR
65	100	18	1.1	27600	22500	5600	6700	0.440	6013	ZZ	2RS	N	NR
	120	23	1.5	50300	36400	4200	5600	0.990	6213	ZZ	2RS	N	NR
	140	33	2.1	83000	54000	4300	5000	2.100	6313	ZZ	2RS	N	NR
	160	37	2.1	107100	70200	4000	4800	2.300	6413	ZZ	2RS	N	NR
70	110	20	1.1	33900	27900	5400	6300	0.600	6014	ZZ	2RS	N	NR
	125	24	1.5	54400	40500	4500	5400	1.050	6214	ZZ	2RS	N	NR
	150	35	2.1	73600	61200	4000	4700	2.500	6314	ZZ	2RS	N	NR
75	115	20	1.1	35700	30500	5000	6000	0.640	6015	ZZ	2RS	N	NR
	130	25	1.5	59600	44100	4300	5000	1.200	6215	ZZ	2RS	N	NR
	160	37	2.1	102600	68800	3800	4500	3.000	6315	ZZ	2RS	N	NR
80	125	22	1.1	42700	36000	4700	5600	0.850	6016	ZZ	2RS	N	NR
	140	26	2.0	63100	49500	4000	4700	1.400	6216	ZZ	2RS	N	NR
	170	39	2.1	111600	77800	3400	4000	3.600	6316	ZZ	2RS	N	NR
85	130	22	1.1	44400	38700	4500	5400	0.890	6017	ZZ	2RS	N	NR
	150	28	2.0	74800	57600	3800	4500	1.800	6217	ZZ	2RS	N	NR
	180	41	3.0	119700	86800	3200	3800	4.250	6317	ZZ	2RS	N	NR
90	140	24	1.5	52600	45000	4300	5000	1.150	6018	ZZ	2RS	N	NR
	160	30	2.0	86000	66100	3400	4000	2.150	6218	ZZ	2RS	N	NR
	190	43	3.0	128700	97200	3000	3600	4.900	6318	ZZ	2RS	N	NR
95	145	24	1.5	54400	48600	4000	4700	1.200	6019	ZZ	2RS	N	NR
	170	32	2.1	97200	73300	3200	3800	2.600	6219	ZZ	2RS	N	NR
	200	45	3.0	137700	106200	2800	3400	5.650	6319	ZZ	2RS	N	NR
100	150	24	1.5	54400	48600	3800	4500	1.250	6020	ZZ	2RS	N	NR
	180	34	2.1	111600	83700	3000	3600	3.150	6220	ZZ	2RS	N	NR
	215	47	3.0	156600	126000	2700	3200	7.00	6320	ZZ	2RS	N	NR

8.1 SINGLE ROW DEEP GROOVE BALL BEARINGS (METRIC SERIES)



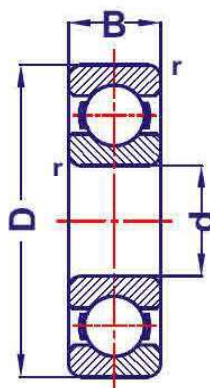
Boundary Dimensions				Basic Load Rating (N)		Limiting Speed (rpm)		Mass (Kg)	TYPE				
d (mm)	D (mm)	B (mm)	r (mm) min.	Dynamic C	Static Co	Grease	Oil		Open	ZZ	2RS	N	NR
105	190	36	2.1	113000	86000	2500	3000	3.70	6221	-	-	-	-
	225	49	3.0	154000	127000	2200	2700	8.25	6321	-	-	-	-
110	200	38	2.1	121000	98000	2400	2880	4.35	6222	-	-	-	-
	240	50	3.0	172000	149000	2100	2600	9.55	6322	-	-	-	-
120	215	40	2.1	124000	98000	2200	2700	5.15	6224	-	-	-	-
	260	55	3.0	177000	154000	1900	2400	12.50	6324	-	-	-	-
130	230	40	3.0	132000	109000	2100	2600	5.80	6226	-	-	-	-

8.1 SINGLE ROW DEEP GROOVE BALL BEARINGS (METRIC SERIES)



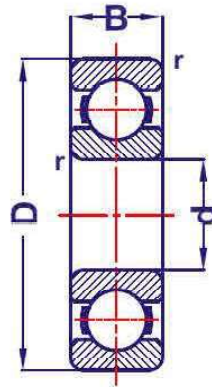
Boundary Dimensions				Basic Load Rating (N)		Limiting Speed (rpm)		Mass (Kg)	Bearing Number
d (mm)	D (mm)	B (mm)	r (mm) min.	Dynamic C	Static Co	Grease	Oil		
12	40	12	2.00	8267	3527	15500	19000	0.071	613963
25	52	9	2.00	14000	7800	12000	15000	0.084	98205
	62	12	2.00	14000	7800	12000	15000	0.170	98305/1838001
30	72	28/25	2.50	25500	15300	9000	11000	0.479	411280
40	90	33	2.75	41000	24000	7500	9000	0.890	62308
45	85	23	2.75	33200	21600	7500	9000	0.480	62209
	85	27/21	2.75	33200	21600	7500	9000	0.597	88509
55	100	25/21	2.00	39200	26100	5600	6700	0.70	88511

8.1 SINGLE ROW DEEP GROOVE BALL BEARINGS (INCH SERIES)



Boundary Dimensions				Basic Load Rating (N)		Limiting Speed (rpm)		Mass (Kg)	Bearing Number
d mm/ inch	D mm/ inch	B mm/ inch	r mm/ inch	Dynamic C	Static Co	Grease	Oil		
12.700 0.5000	33.338 1.3125	9.525 0.3750	0.8 0.03	5500	2500	18200	22000	0.037	LS-5
15.875 0.6250	39.688 1.5625	11.113 0.4375	0.8 0.03	8700	4100	17500	21000	0.059	LS-7
	46.038 1.8125	15.875 0.6250	1.6 0.06	10500	5100	14500	16500	0.120	MS-7
19.050 0.7500	47.625 1.8750	14.288 0.5625	1.6 0.06	12500	6000	13800	16500	0.110	LS-8
	50.800 2.0000	17.463 0.6875	1.6 0.06	14500	7100	13100	15500	0.122	MS-8
22.225 0.8750	50.800 2.0000	14.288 0.5625	1.6 0.06	11700	6200	12700	15500	0.125	LS-9
	57.150 2.2500	17.463 0.6875	1.6 0.06	14000	7500	12000	13700	0.213	MS-9
25.400 1.0000	57.150 2.2500	15.875 0.6250	1.6 0.06	16000	8800	11500	13700	0.166	LS-10
	63.500 2.5000	19.050 0.7500	2.4 0.09	19200	10000	10900	12700	0.267	MS-10
28.575 1.1250	71.438 2.8125	20.638 0.8125	2.4 0.09	24500	13000	9500	11500	0.363	MS-11
31.750 1.2500	79.375 3.1250	22.225 0.8750	2.4 0.09	30000	16300	8400	9500	0.480	MS-12

8.1 SINGLE ROW DEEP GROOVE BALL BEARINGS (INCH SERIES)



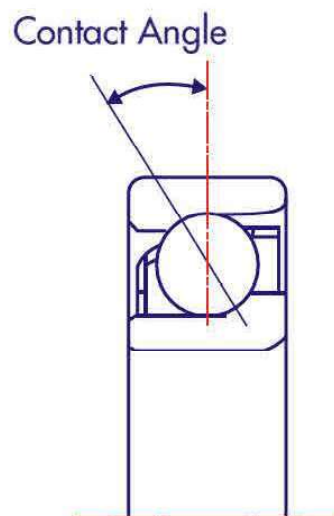
Boundary Dimensions				Basic Load Rating (N)		Limiting Speed (rpm)		Mass (Kg)	Bearing Number
d mm/ inch	D mm/ inch	B mm/ inch	r mm/ inch	Dynamic C	Static Co	Grease	Oil		
34.925 1.3750	76.200 3.0000	17.462 0.6875	1.6 0.06	23500	16100	9000	10000	0.3635	LS12½
38.100 1.5000	68.262 2.6875	14.287 0.5625	3.00 0.12	10800	7600	9500	12000	0.195	XU1½
	95.250 3.7500	23.813 0.9375	2.4 0.09	43000	24100	7300	8600	0.764	MS-13
	82.550 3.2500	19.050 0.7500	2.50 0.10	26300	18200	7500	9000	0.439	LS-13
41.275 1.6250	88.900 3.5000	19.050 0.7500	3.50 0.14	29200	20400	7500	9000	0.518	LS13½
50.800 2.0000	101.600 4.0000	20.638 0.8125	3.50 0.14	38300	28400	7000	8500	0.689	RLS16
	101.600 4.0000	20.638 0.8125	2.4 0.09	44000	28100	7100	8300	0.671	LS-15
	114.600 4.5118	26.988 1.0625	2.4 0.09	56000	34700	6100	7300	1.189	MS-15
57.150 2.2500	114.300 4.5000	22.225 0.8750	4.00 0.16	45400	33400	5000	6000	0.938	RLS-18
	127.000 5.0000	31.750 1.2500	4.50 0.18	58500	43200	5000	6000	1.701	RMS-18
63.5 2.5000	127.000 5.0000	23.813 0.9375	3.50 0.14	49400	37600	4800	5600	1.222	RLS-20
	139.700 5.5000	31.750 1.2500	4.00 0.16	72600	56700	4800	5600	2.034	RMS-20
76.200 3.0000	177.8.00 7.0000	39.687 1.5625	6.00 0.24	133000	96500	3600	4300	4.472	RMS-24

8.2 SINGLE ROW ANGULAR CONTACT BALL BEARINGS



SINGLE ROW ANGULAR CONTACT BALL BEARINGS

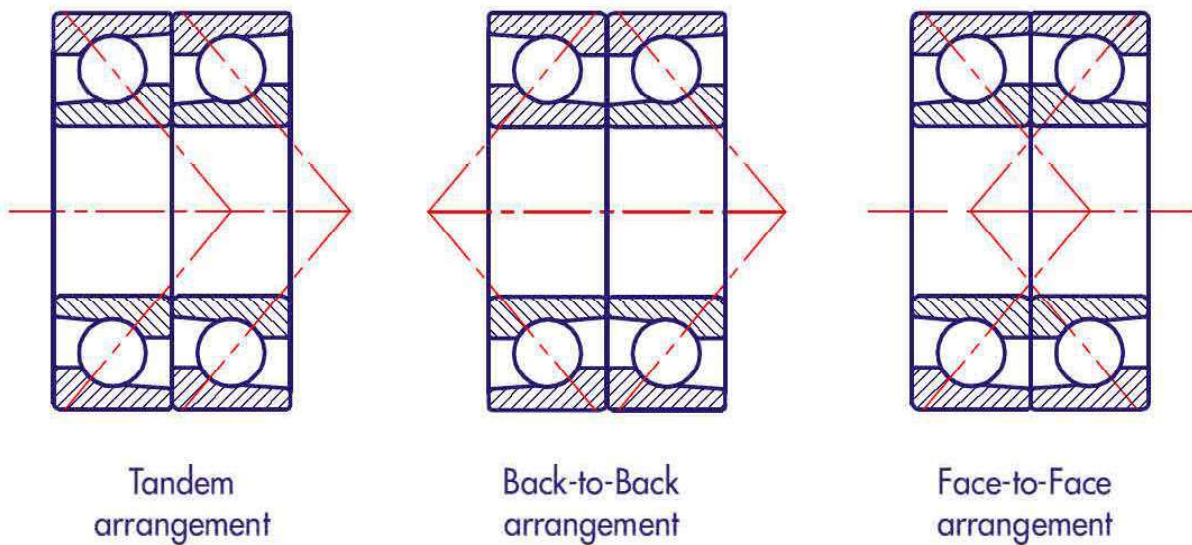
- ⇒ They are non separable type Bearings generally used in pairs facing each other with proper clearance adjustment
- ⇒ They are capable of taking radial loads & axial loads in one direction along which loads is transmitted from one raceway to other.
- ⇒ The line connecting the contact points create an angle with the line drawn in radial direction called contact angle. The magnitude of angle is indicated by suffix destination. The standard contact angle is 30° . "B" suffix bearings have contact angle 40°



- ⇒ The larger the contact angle the higher the axial load capacity.

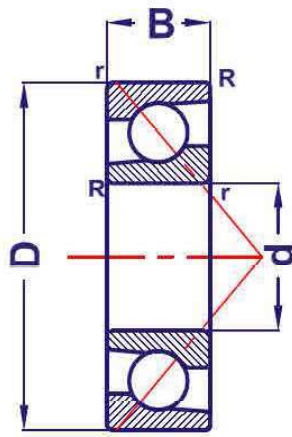
- ⇒ Pressed steel cages are generally used. For high speed precision applications with a contact angle less than 30° , polyamide resin cages are used. Additives in lubricating oil or aged oil or higher temperature may reduce these cage life.
- ⇒ Three types of duplex arrangements for angular contact ball bearings are possible as shown

BEARING PAIRS



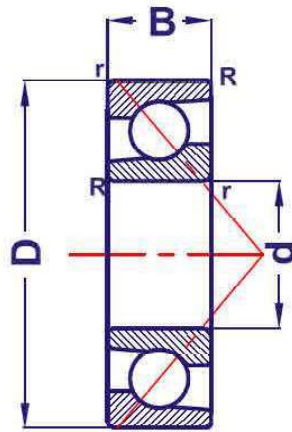
- ⇒ The face to face arrangement has smaller loading capacity but larger allowable misalignment than that of back to back arrangement, while tandem arrangement takes heavy axial loads in only one direction
- ⇒ Increased misalignment increases ball loads & cage stresses, reducing bearing life & increasing running noise.
- ⇒ Bearings pairs can reach an operating speed which is about 20% lower than the permissible operating speed.

8.2 SINGLE ROW ANGULAR CONTACT BALL BEARINGS (METRIC SERIES)



Boundary Dimensions				Basic Load Rating (N)		Limiting Speed (rpm)		Mass (Kg)	Bearing Number
d (mm)	D (mm)	B (mm)	r/R (mm) min	Dynamic C	Static Co	Grease	Oil		
15	35	11	0.6/0.3	7900	4300	16000	22000	0.045	7202B
	42	13	1.0/0.6	12500	6600	14000	19000	0.057	7302B
17	40	12	0.6/0.3	9900	5500	14000	19000	0.065	7203B
	47	14	1.0/0.6	14800	8000	13000	17000	0.110	7303B
20	47	14	1.0/0.6	13300	7600	12000	16000	0.110	7204B
	52	15	1.1/0.6	17200	9600	11000	15000	0.140	7304B
25	52	15	1.0/0.6	14800	9400	10000	14000	0.130	7205B
	62	17	1.1/0.6	24400	14600	9000	13000	0.230	7305B
30	62	16	1.0/0.6	20500	13500	8500	12000	0.200	7206B
	72	19	1.1/0.6	31000	19300	8000	11000	0.340	7306B
35	72	17	1.1/0.6	27100	18400	7500	10000	0.280	7207B
	80	21	1.5/1.0	36500	24200	7100	9500	0.450	7307B
40	80	18	1.1/0.6	32000	23000	6700	9000	0.370	7208B
	90	23	1.5/1.0	45000	30500	6300	8500	0.630	7308B
45	85	19	1.1/0.6	36000	26200	6300	8500	0.420	7209B
	100	25	1.5/1.0	58500	40000	5600	7500	0.850	7309B
50	90	20	1.1/0.6	37500	28600	5600	8000	0.470	7210B
	110	27	2.0/1.0	68000	48000	5000	6700	1.100	7310B
55	100	21	1.5/1.0	46500	36000	5300	7100	0.612	7211B
	120	29	2.0/1.0	79000	56500	4500	6300	1.420	7311B

8.2 SINGLE ROW ANGULAR CONTACT BALL BEARINGS (METRIC SERIES)



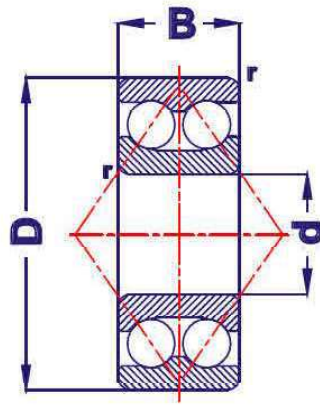
Boundary Dimensions				Basic Load Rating (N)		Limiting Speed (rpm)		Mass (Kg)	Bearing Number
d (mm)	D (mm)	B (mm)	r/R (mm) min	Dynamic C	Static Co	Grease	Oil		
60	110	22	1.5/1.0	56000	44500	4800	6300	0.780	7212B
	130	31	2.1/1.1	90000	65500	4300	5600	1.770	7312B
65	120	23	1.5/1.0	63500	52500	4300	6000	0.981	7213B
	140	33	2.1/1.1	102000	75500	3800	5300	2.150	7313B
70	125	24	1.5/1.0	69000	58000	4000	5600	1.110	7214B
	150	35	2.1/1.1	114000	86000	3600	5000	2.610	7314B
75	130	25	1.5/1.0	68500	58500	3800	5300	1.190	7215B
	160	37	2.1/1.1	125000	97500	3400	4800	3.130	7315B
80	140	26	2.0/1.0	80500	69500	3600	5000	1.420	7216B
	170	39	2.1/1.1	135000	109000	3200	4300	3.720	7316B
85	150	28	2.0/1.0	93000	81000	3400	4800	1.820	7217B
90	160	30	2.0/1.0	107000	94000	3200	4300	2.220	7218B

8.3 DOUBLER ROW ANGULAR CONTACT BALL BEARINGS



- ⇒ They are like arranging two single row angular contact ball bearings back to back, with inner & outer ring as one piece respectively therefore they are narrower. They can take axial load in either direction. The contact angle is 30° .
- ⇒ Bearing series 32 & 33 are with filling slot while series 52 & 53 are without filling slot. (Therefore can accommodate axial loads of some magnitude in both direction)
- ⇒ They have normal axial internal clearance or any desired smaller or larger clearance.
- ⇒ Increased misalignment increases ball loads & cage stresses, reducing bearing life & increasing ruining noise. Their self-aligning capability is very limited.
- ⇒ Pressed steel cages are generally used. For high speed precision applications with a contact angle less than 30° , polyamide resin cages are used. Additives in lubricating oil or aged oil or higher temperature may reduce these cage life.
- ⇒ Generally, the maximum attainable speed of rolling bearing is dictated by the permissible operating temperature which in turn depends upon in addition to frictional heat generated within the bearing also on surrounding parts, environment, oil viscosity, load type etc. But generally mechanical limits are decisive criteria.

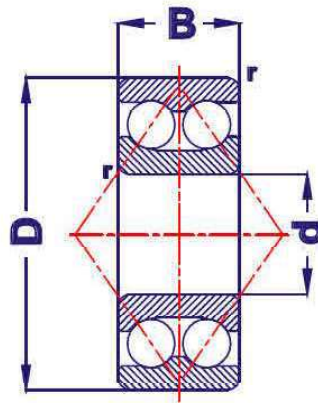
8.3 DOUBLE ROW ANGULAR CONTACT BALL BEARINGS (METRIC SERIES)



Boundary Dimensions				Basic Load Rating (N)		Limiting Speed (rpm)		Mass (Kg)	Bearing Number
d (mm)	D (mm)	B (mm)	r (mm) min	Dynamic C	Static Co	Grease	Oil		
17	40	17.5	0.6	12600	7800	9000	13500	0.096	3203
	47	22.2	1.0	19100	11300	8600	12600	0.180	3303
20	47	20.6	1.0	16800	10800	8200	11800	0.160	3204
	52	22.2	1.1	20000	13000	7700	10800	0.220	3304
25	52	20.6	1.0	18300	12600	7200	10000	0.180	3205
	62	25.4	1.1	27200	18800	6800	9000	0.350	3305
30	62	23.8	1.0	25500	18200	6400	8600	0.290	3206
	72	30.2	1.1	37000	25700	5700	7700	0.530	3306
35	72	27	1.1	33500	25000	5500	7300	0.440	3207
	80	34.9	1.5	44000	30700	5100	6800	0.730	3307
40	80	30.2	1.1	40500	30200	5100	6800	0.580	3208
	90	36.5	1.5	53500	38800	4500	6100	0.950	3308
45	85	30.2	1.1	42800	34200	4500	6100	0.630	3209
	100	39.7	1.5	65000	66200	4100	5500	1.400	3309
50	90	30.2	1.1	42800	35200	4400	5700	0.660	3210
	110	44.4	2.0	79300	87000	3600	4800	1.950	3310
55	100	33.3	1.5	51500	60500	3900	5100	1.050	3211
	120	49.2	2.0	85700	97500	3500	4500	2.550	3311
60	110	36.5	1.5	65000	76500	3500	4500	1.400	3212
	130	54	2.1	101000	114500	3100	4100	3.250	3312

Also available in **2RS**.

8.3 DOUBLE ROW ANGULAR CONTACT BALL BEARINGS (METRIC SERIES)



Boundary Dimensions				Basic Load Rating (N)		Limiting Speed (rpm)		Mass (Kg)	Bearing Number
d (mm)	D (mm)	B (mm)	r (mm) min	Dynamic C	Static Co	Grease	Oil		
65	120	38.10	1.5	70300	85500	3300	4400	1.75	3213
	140	58.70	2.1	115200	135000	2900	3900	4.10	3313
70	125	39.70	1.5	68900	88200	2900	3900	1.90	3214
	150	63.50	2.1	132300	155700	2600	3500	5.05	3314
75	130	41.30	1.5	75800	99000	2900	3900	2.10	3215
	160	68.30	2.1	140300	167400	2400	3300	6.15	3315
80	140	44.40	2.0	90900	120600	2600	3500	2.65	3216
	170	68.30	2.1	158400	190800	2200	3100	6.95	3316
85	150	49.20	2.0	99000	131400	2400	3300	3.40	3217
	180	73.00	3.0	174600	216000	2000	2900	8.30	3317
90	160	52.40	2.0	115200	155700	2200	3100	4.15	3218
	190	73.00	3.0	198200	256500	1800	2700	9.25	3318
95	170	55.60	2.1	132300	183600	2000	2600	5.00	3219
	200	77.80	3.0	214200	283500	1700	2600	11.00	3319
100	180	60.30	2.1	141300	198000	1800	2700	6.100	3220
	215	82.60	3.0	229500	319500	1700	2400	13.50	3320

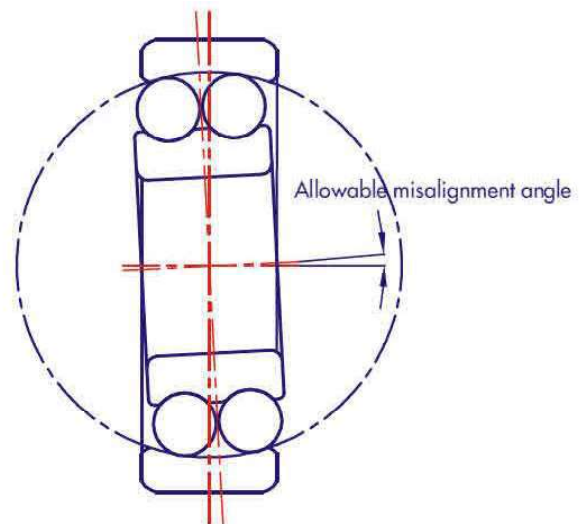
Also available in **2RS**.

8.4 SELF-ALIGNING BALL BEARINGS



- ⇒ Self-aligning ball bearings have two rows of ball on inner race with a common spherical surface on outer race with center coinciding with bearings center.
- ⇒ This design gives bearing self-aligning feature, permitting misalignments of about 0.07 radian (4°) with ordinary loads.

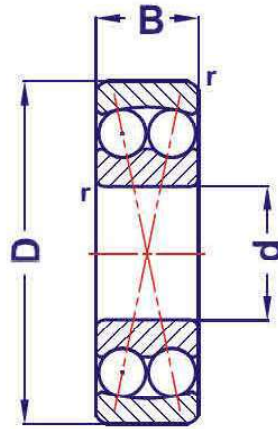
- ⇒ For heavier loads, spherical roller bearings, also having self-aligning features are used.



- ⇒ These bearings are available with normal clearance & if desired with lower or higher clearance.

- ⇒ Self-aligning ball bearings are available with cylindrical & Taper bore. Self-aligning ball bearings with bore taper 1: 12 (suffix K) can be mounted either directly on a tapered shaft or on a cylindrical shaft using adapter sleeves.

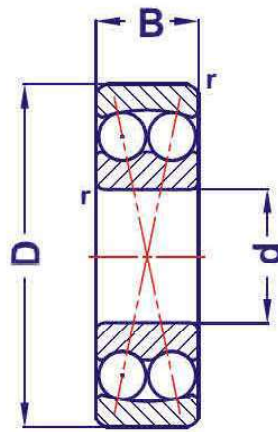
8.4 SELF ALIGNING BALL BEARINGS (METRIC SERIES)



Boundary Dimensions				Basic Load Rating (N)		Limiting Speed (rpm)		Mass (Kg)	Bearing Number
d (mm)	D (mm)	B (mm)	r (mm) min	Dynamic C	Static Co	Grease	Oil		
12	32	10	0.6	5100	1200	16200	19800	0.040	1201
	32	14	0.6	6900	1600	16200	18000	0.053	2201
	37	12	1	8500	2000	14400	16200	0.067	1301
15	35	11	0.6	6700	1600	14400	17100	0.049	1202
	35	14	0.6	7000	1700	13500	16200	0.060	2202
	42	13	1	8600	2100	11700	14400	0.094	1302
17	40	12	0.6	7100	1800	12600	15300	0.073	1203
	40	16	0.6	8800	2200	11700	14400	0.088	2203
	47	14	1	11300	2900	10800	12600	0.130	1303
20	47	14	1	8900	2400	11700	13500	0.120	1204
	47	18	1	11400	3000	10800	12600	0.140	2204
	52	15	1.1	11200	3000	10000	11700	0.160	1304
	52	21	1.1	16300	3700	19000	10800	0.210	2304
25	52	15	1	10900	3000	10000	11700	0.140	1205
	52	18	1	11100	3100	9000	10800	0.160	2205
	62	17	1.1	16200	4500	8200	10000	0.260	1305
	62	24	1.1	22000	6000	7700	9000	0.340	2305
30	62	16	1	14000	4200	8300	10000	0.220	1206
	62	20	1	13700	4100	7800	9000	0.260	2206
	72	19	1.1	19200	5700	7000	8200	0.390	1306
	72	27	1.1	28400	7900	6500	7700	0.500	2306

Bearings with tapered bore are also available.

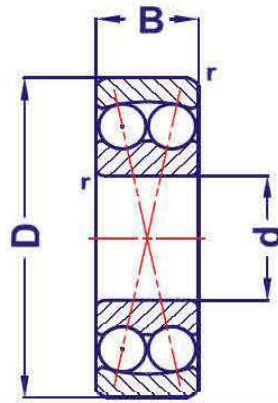
8.4 SELF ALIGNING BALL BEARINGS (METRIC SERIES)



Boundary Dimensions				Basic Load Rating (N)		Limiting Speed (rpm)		Mass (Kg)	Bearing Number
d (mm)	D (mm)	B (mm)	r (mm) min	Dynamic C	Static Co	Grease	Oil		
35	72	17	1.1	14200	4600	7200	9000	0.320	1207
	72	23	1.1	19400	6000	6800	8000	0.400	2207
	80	21	1.5	22600	7100	6200	7200	0.510	1307
	80	31	1.5	35500	10200	5700	6700	0.680	2307
40	80	18	1.1	17400	5900	6400	7600	0.420	1208
	80	23	1.1	20100	6600	6100	7100	0.510	2208
	90	23	1.5	26700	8800	5400	6300	0.720	1308
	90	33	1.5	40700	12200	5100	6000	0.930	2308
45	85	19	1.1	19700	6600	5800	6800	0.470	1209
	85	23	1.1	20900	7400	5400	6400	0.550	2209
	100	25	1.5	34200	11500	4900	5700	0.960	1309
	100	36	1.5	48600	15000	4500	5300	1.250	2309
50	90	20	1.1	20500	7300	5300	6200	0.530	1210
	90	23	1.1	20900	7600	5000	5800	0.600	2210
	110	27	2.0	39200	12700	4400	5300	1.200	1310
	110	40	2.0	58000	18200	4200	4900	1.650	2310
55	100	21	1.5	24200	9000	4800	5600	0.710	1211
	100	25	1.5	23900	8900	4500	5300	0.810	2211
	120	29	2.0	46400	16100	4100	4700	1.600	1311
	120	43	2.0	68000	21600	3800	4400	2.100	2311
60	110	22	1.5	27000	10400	4400	5300	0.900	1212
	110	28	1.5	30600	11400	4200	4900	1.100	2212
	130	31	2.1	51300	18700	3700	4400	1.950	1312
	130	46	2.1	78300	25400	3500	4100	2.600	2312

Bearings with tapered bore are also available.

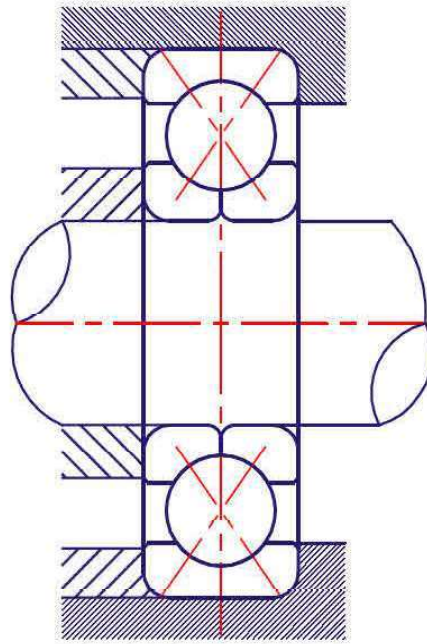
8.4 SELF ALIGNING BALL BEARINGS (METRIC SERIES)



Boundary Dimensions				Basic Load Rating (N)		Limiting Speed (rpm)		Mass (Kg)	Bearing Number
d (mm)	D (mm)	B (mm)	r (mm) min	Dynamic C	Static Co	Grease	Oil		
65	120	23	1.5	27900	11300	4100	4800	1.150	1213
	120	31	1.5	39200	14800	3800	4500	1.450	2213
	140	33	2.1	55800	20600	3500	4100	2.450	1313
	140	48	2.1	86400	29300	3300	3800	3.250	2313
70	125	24	1.5	31100	12500	3800	4400	1.250	1214
	125	31	1.5	42000	16500	3800	4500	1.520	2214
	150	35	2.5	67000	25000	3200	3800	3.000	1314
	150	51	2.1	108000	36000	3200	3800	3.920	2314
75	130	25	1.5	35100	14200	3500	4200	1.350	1215
	130	31	1.5	42500	17000	3600	4200	1.580	2215
	160	37	2.1	71500	37000	3000	3500	3.550	1315
80	140	26	2.0	36000	15300	3400	3900	1.650	1216
	170	39	2.1	79700	29700	2800	3300	4.200	1316
85	150	28	2.0	44100	18800	3200	3700	2.050	1217
	180	41	3.0	87800	34200	2600	3100	5.000	1317
90	160	30	2.0	51300	21200	3000	3500	2.500	1218
	190	43	3.0	104400	40000	2500	2900	5.800	1318
95	170	32	2.1	57600	24400	2800	3300	3.100	1219
	200	45	3.0	118800	45900	2400	2700	6.700	1319
100	180	34	2.1	68000	29000	2800	3000	3.700	1220

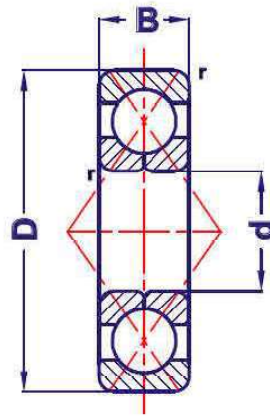
Bearings with tapered bore are also available.

8.5 FOUR POINT CONTACT BALL BEARINGS



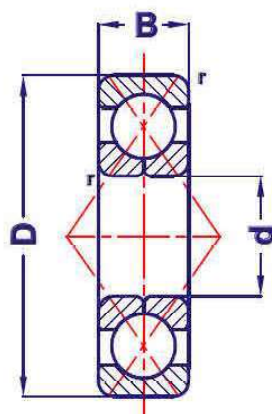
- ⇒ In Four Point Contact Ball Bearings inner ring is split radially into two pieces. This allows a large complement of balls to be filled in. The outer ring with ball set, inner ring halves can be mounted individually.
- ⇒ They can accommodate high axial loads in both directions and low radial loads. The high load carrying capacity in the axial direction is achieved by the larger number of balls, the high shoulders and the contact angle of 35° .
- ⇒ These bearings have generally normal tolerances & Clearances.
- ⇒ They are fitted with machined brass cages, outer ring guided.
- ⇒ They attain high speeds if are subjected to purely axial loads.

8.5 FOUR POINT CONTACT BALL BEARINGS (MTRIC SERIES)



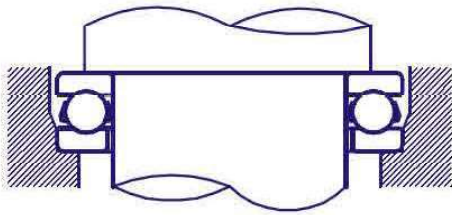
Boundary Dimensions				Basic Load Rating (N)		Limiting Speed (rpm)		Mass (Kg)	Bearing Number
d (mm)	D (mm)	B (mm)	r (mm) min	Dynamic C	Static Co	Grease	Oil		
30	62	16	1.0	31600	25700	7700	11000	0.240	QJ206
	72	19	1.1	44500	35200	6800	9000	0.420	QJ306
35	72	17	1.1	41600	35200	6800	9000	0.350	QJ207
	80	21	1.5	53500	42000	6400	8600	0.570	QJ307
40	80	18	1.1	47500	40500	6100	8200	0.450	QJ208
	90	23	1.5	64500	52700	5700	7700	0.780	QJ308
45	85	19	1.1	52700	46000	5700	7700	0.520	QJ209
	90	20	1.1	55700	50500	5100	6500	0.680	QJ210/45
	100	25	1.5	84500	69000	5100	6800	1.050	QJ309
50	90	20	1.1	55700	50500	5100	6800	0.590	QJ210
	110	27	2.0	100000	82500	4500	6100	1.350	QJ310
55	100	21	1.5	62500	69000	4800	6400	0.770	QJ211
	120	29	2.0	114500	97500	4100	5500	1.750	QJ311
60	110	22	1.5	83100	78000	4400	5700	0.990	QJ212
	130	31	2.1	131500	112500	3900	5100	2.150	QJ312
65	120	23	1.5	93700	93600	3900	5100	1.200	QJ213
	140	33	2.1	148500	131500	3600	4800	2.700	QJ313
70	125	24	1.5	102700	102600	3900	5100	1.300	QJ214
	150	35	2.1	167500	149500	3300	4400	3.150	QJ314
75	130	25	1.5	105000	110000	3600	4800	1.450	QJ215
	160	37	2.1	180000	167500	3100	5100	3.900	QJ315

8.5 FOUR POINT CONTACT BALL BEARINGS (MTRIC SERIES)

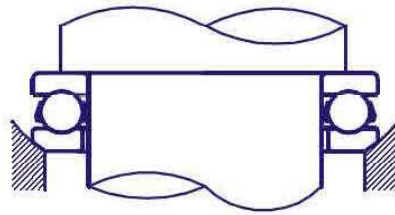


Boundary Dimensions				Basic Load Rating (N)		Limiting Speed (rpm)		Mass (Kg)	Bearing Number
d (mm)	D (mm)	B (mm)	r (mm) min	Dynamic C	Static Co	Grease	Oil		
80	140	26	2.0	124 200	131 400	3300	4400	1.850	QJ216
	170	39	2.1	194 400	187 200	2900	3900	4.600	QJ316
85	150	28	2.0	133 200	144 000	3100	4100	2.250	QJ217
	180	41	3.0	210 600	212 400	2700	3600	5.450	QJ317
90	160	30	2.0	156 600	167 400	2900	3900	2.750	QJ218
	190	43	3.0	238 500	256 500	2600	3500	6.450	QJ318
95	170	32	2.1	179 100	190 800	2700	3600	3.350	QJ219
	200	45	3.0	257 400	283 500	2400	3300	7.450	QJ319
100	180	34	2.1	202 500	216 000	2600	3300	4.050	QJ220
	215	47	3.0	276 300	306 000	2200	3100	9.300	QJ320

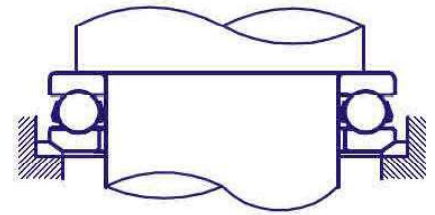
8.6 SINGLE DIRECTION THRUST BALL BEARINGS



WITH FLAT SEAT



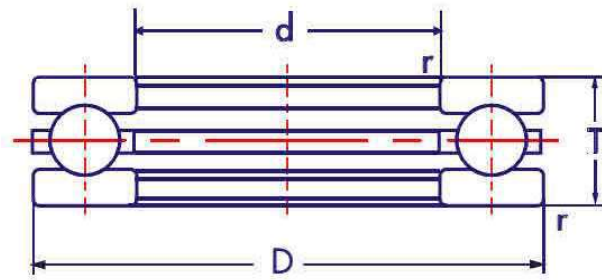
WITH ALIGNING SEAT



WITH ALIGNING SEAT WASHER

- ⇒ Single direction thrust ball bearing is a shaft washer (slide fit) with raceway groove, ball and cage assembly and a housing washer (tight fit) with raceway groove. The contact angle is 90° . Shaft washer (rotating ring) have a flat back face, the housing washer (fixed ring) can have either a flat or spherical back face (to take some misalignment) and may be provided with additional sphered seat washer.
- ⇒ They accommodate axial loads in one direction.
- ⇒ They should not be subjected to any radial load.
- ⇒ They are provided with pressed steel cages (in small sizes) or machined brass or steel cages (in large sizes.)
- ⇒ Generally these bearings are unsuitable for high speed operation.

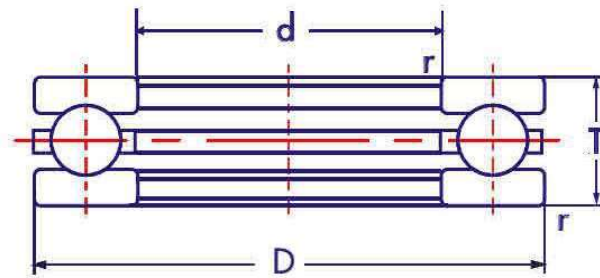
8.6 SINGLE DIRECTION THRUST BALL BEARINGS



FLAT SEAT

Boundary Dimensions				Basic Load Rating (N)		Limiting Speed (rpm)		Mass Kg	Bearing Number
d (mm)	D (mm)	T (mm)	r (mm)	Dynamic C	Static Co	Grease	Oil		
10	24	9	0.3	9500	15000	6700	9500	0.020	51100
12	26	9	0.3	10000	16200	6700	9000	0.022	51101
15	28	9	0.3	9000	15000	6000	8200	0.023	51102
	32	12	0.6	16000	26500	5200	6800	0.046	51202
17	30	9	0.3	9500	15500	6000	8200	0.025	51103
20	35	10	0.3	12500	22500	5500	7200	0.038	51104
	40	14	0.6	22000	39000	4400	5800	0.083	51204
25	42	11	0.6	15500	31000	4500	6000	0.056	51105
	47	15	0.6	27000	54000	3800	5200	0.130	51206
30	47	11	0.6	16500	35000	4200	5500	0.063	51106
	52	16	0.6	25000	50000	3500	4800	0.130	51206
35	52	12	0.6	17000	40000	4000	5200	0.080	51107
	62	18	1.0	345000	73000	2800	3800	0.220	51207
40	60	13	0.6	23000	55000	3500	4800	0.120	51108
	68	19	1.0	46000	105000	2600	3700	0.280	51208
45	65	14	0.6	24000	60500	3200	4200	0.140	51109
	73	20	1.0	38000	85500	2500	3500	0.300	51209
50	70	14	0.6	25000	65000	3000	4100	0.160	51110
	78	22	1.0	48500	115000	2300	3200	0.370	51210
	95	31	1.1	87500	188000	1700	2500	0.940	51310
55	78	16	0.6	30500	85000	2600	3500	0.230	51111
	90	25	1.0	60000	145000	1800	2700	0.590	51211
60	85	17	1.0	36000	100000	2500	3200	0.200	51112
	95	26	1.0	62000	148000	1800	2700	0.650	51212

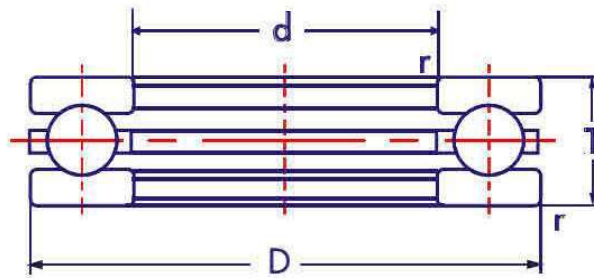
8.6 SINGLE DIRECTION THRUST BALL BEARINGS



FLAT SEAT

Boundary Dimensions				Basic Load Rating (N)		Limiting Speed (rpm)		Mass Kg	Bearing Number
d (mm)	D (mm)	T (mm)	r (mm)	Dynamic C	Static Co	Grease	Oil		
65	90	18	1.0	37000	107000	2200	3100	0.330	51113
	100	27	1.0	63000	160000	1700	2500	0.780	51213
70	95	18	1.0	37500	110000	2200	3100	0.350	51114
	105	27	1.0	64500	170000	1700	2500	0.790	51214
	125	31	1.1	87500	188000	1700	2500	0.940	51310
75	100	19	1.0	44000	144000	2000	3000	0.400	51115
	110	27	1.0	67000	180000	1600	2300	0.830	51215
80	105	19	1.0	44400	151000	1900	2800	0.420	51116
	115	28	1.0	75000	206000	1600	2300	0.910	51216
85	110	19	1.0	46000	160000	1900	2800	0.440	51117
	125	31	1.0	97000	270000	1500	2000	1.200	51217
90	120	22	1.0	58500	205000	1700	2500	0.670	51118
	135	35	1.1	118000	320000	1400	1900	1.700	51218
	155	50	1.5	190000	490000	1000	1400	3.800	51318
100	135	25	1.0	84800	288000	1600	2300	0.970	51120
	150	38	1.1	122000	340000	1200	1700	2.200	51220
110	145	25	1.0	86000	310000	1500	2100	1.050	51122
	160	38	1.1	128000	385000	1100	1600	2.400	51222
130	225	75	2.1	350000	1650000	700	900	13.000	51326

8.6 SINGLE DIRECTION THRUST BALL BEARINGS (Inch)



FLAT SEAT

Boundary Dimensions				Basic Load Rating (N)		Limiting Speed (rpm)		Mass Kg	Bearing Number
d (mm)	D (mm)	T (mm)	r (mm)	Dynamic C	Static Co	Grease	Oil		
12.700	32.544	15.875	0.8	18600	25100	4300	6500	0.077	O-04
15.875	35.719	15.875	0.8	19400	28300	4100	6200	0.086	O-05
19.050	38.894	15.875	0.8	21400	34500	4000	6000	0.095	O-06
44.450	68.262	19.050	1.6	32500	77500	2700	4100	0.250	O-14
47.625	71.438	19.050	1.6	37500	89000	2700	4000	0.285	O-15
50.800	75.406	19.050	2.4	38000	94000	2600	3900	0.300	O-16
53.975	81.756	22.225	2.4	49000	118000	2600	3500	0.405	O-17
57.150	84.931	22.225	2.4	50000	125000	2300	3400	0.450	O-18
60.325	91.261	25.400	2.4	58000	145000	2000	3100	0.500	O-19
63.500	94.456	25.400	2.4	58500	152000	2000	3000	0.510	O-20

8.7 TAPERED ROLLER BEARINGS



Single Row Tapered
Roller Bearings

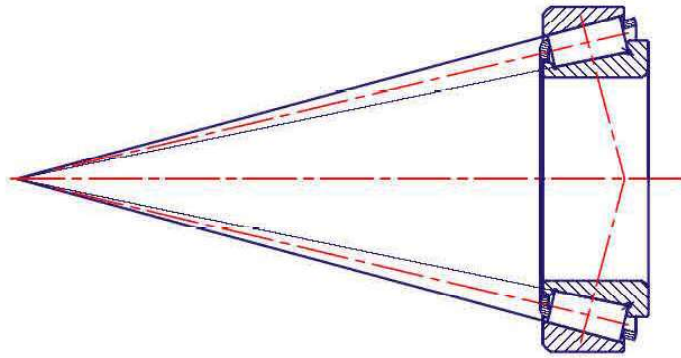
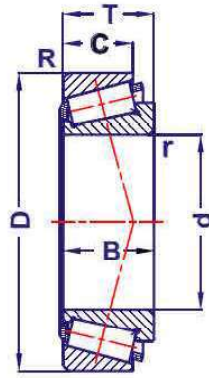


Fig. 1

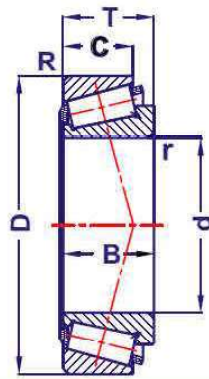
- ⇒ Tapered roller bearings are designed such that their conical rollers and raceways are so that all element of the roller and raceway cones meet at a common apex on the bearing axis (refer to fig. 1.) The rollers are guided by the contact between the large end of the roller and the rib on the inner ring (cone.). This construction provides a high capacity for radial loads, axial loads, and combined loads. The larger the contact angle, the greater the loading capacity becomes. When a pure radial load is placed on the bearing, an induced load in the axial direction is also generated. So these bearings are generally used in pairs opposing each other. Proper running clearance or preload can be obtained by adjusting the distance of the two bearings against one another. Since the inner (cone) and outer (cup) rings are separable, each ring can be mounted individually, allowing both rings to use tight fitting practices, if desired.
- ⇒ Both metric and inch systems are standardized by bearing series and both systems are widely used. The metric system's specified in ISO (ISO 355) and JIS B 1512 and the inch system (including J series) is standardized in AFBMA standard.
- ⇒ Press steel cages are generally used in these bearings, however, large-sized bearings use machined or pin type cages. Smaller sizes sometimes use plastic cages depending on the application
- ⇒ Subunits : Tapered roller bearings can be disassembled into subunits, this is, the inner ring with rollers (cone) and the outer rings (cup.) The subunit dimensions are standardized on ISO and AFBMA standards, the unified subunits provide interchangeability within each dimensional standard. Furthermore, since high precision grade bearings are not interchangeable these bearings should be assembling subunits with the identical manufacturing number.
- ⇒ Regarding the single row tapered roller bearings described in the dimensional table, the dimensions for these subunits are standardized for both metric and inch systems (including J-series) unless otherwise noted.
- ⇒ Allowable misalignment: By suitably setting the contact condition of the rollers with the raceway ring, not only is edge loading prevented. The allowable misalignment between the inner and outer rings caused by mounting error can be permitted. The allowable misalignment for tapered roller bearing is about 0.0005 radian ($0^\circ, 15'$) for single row or back to back arrangement and 0.001 radian ($0^\circ, 3.5'$) for face arrangement. When a larger misalignment is required by the bearing, please consult with ARB.

8.7 TAPER ROLLER BEARINGS (METRIC SERIES)



Boundary Dimensions					Basic Load Rating (N)		Limiting Speed (rpm)		Mass (Kg)	Bearing Number	
d (mm)	D (mm)	T (mm)	B (mm)	C (mm)	Dynamic C	Static C ₀	r/R (mm)	Grease			Oil
15	35	11.75	11	10	14800	13200	0.6/0.6	11000	15000	0.053	30202
	42	14.25	13	11	20200	18000	1.0/1.0	8100	11700	0.095	30302
	42	13	13.5	10	16000	16500	2.0/1.5	8100	11700	0.960	639213
17	40	13.25	12	11	17100	16800	1.0/1.0	8100	11700	0.075	30203
	47	15.25	14	12	25300	22500	1.0/1.0	7700	10800	0.130	30303
	47	15.10	14	10.5	17600	19100	1.0/1.0	7700	10800	0.110	30303D
18	47	14.30	14.3	11.1	25600	26400	1.5/1.5	7200	9900	0.122	100545A/46
20	42	15.00	15	12	20300	24600	0.6/0.6	7700	10800	0.097	32004
	47	15.25	14	12	24800	25200	1.0/1.0	7200	9900	0.120	30204
	47	19.25	18	15	28500	29500	1.0/1.0	7200	9900	0.160	32204
	52	16.25	15	13	27800	29200	1.5/1.5	7200	9000	0.170	30304
25	47	15.00	15	11.5	22700	29800	0.6/0.6	7200	9000	0.110	32005
	47	17.00	17	14	30500	38500	0.6/0.6	7500	9000	0.131	33005JR
	52	16.25	15	13	27800	30200	1.0/1.0	6800	9000	0.150	30205
	52	19.25	18	15	32300	39600	1.0/1.0	6300	8600	0.190	32205R
	52	22.00	22	18	39600	52000	1.0/1.0	6100	8100	0.230	33205
	62	18.25	17	15	36500	38300	1.5/1.5	6100	8100	0.260	30305
	62	18.25	17	13	34200	36000	1.5/1.5	5100	6800	0.260	31305 (30305D)
	62	25.25	24	20	54500	57000	1.5/1.5	5400	7200	0.360	32305
30	55	17.00	17	13	32300	39600	1.0/1.0	6100	8100	0.170	32006
	62	17.25	16	14	32400	37800	1.0/1.0	5700	7700	0.230	30206
	62	21.25	20	17	32200	37600	1.0/1.0	5700	7700	0.280	32206
	62	25.00	25	19.5	58000	68900	1.0/1.0	5100	6800	0.370	33206
	72	20.75	19	16	44100	49100	1.5/1.5	5100	6800	0.390	30306
	72	20.75	19	14	42600	45000	1.5/1.5	4500	6100	0.390	31306 (30306D)
	72	28.75	27	23	68900	76500	1.5/1.5	4800	6300	0.550	32306
32	58	17.00	17	13	36500	49000	1.5/1.5	6000	8000	0.190	320/32X

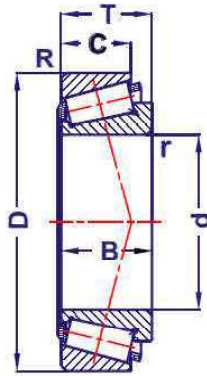
8.7 TAPER ROLLER BEARINGS (METRIC SERIES)



Boundary Dimensions					Basic Load Rating (N)			Limiting Speed (rpm)		Mass (Kg)	Bearing Number
d (mm)	D (mm)	T (mm)	B (mm)	C (mm)	Dynamic C	Static Co	r/R (mm)	Grease	Oil		
35	62	18.00	18	14	39200	54700	1.0/1.0	5400	7200	0.220	32007
	62	18.00	18	14	39200	54700	3.0/1.0	5400	7200	0.210	10R32007
	72	18.25	17	15	34700	39200	1.5/1.5	4800	6300	0.320	30207
	72	24.25	23	19	59400	70200	1.5/1.5	4800	6300	0.430	32207
	72	28.00	28	22	75800	95400	1.5/1.5	4400	5700	0.560	33207
	80	22.75	21	18	64900	66200	2.0/1.5	4500	6100	0.520	30307
	80	22.75	21	15	55500	60300	2.0/1.5	4100	5400	0.520	31307 (30307D)
	80	32.75	31	25	85700	95400	2.0/1.5	4400	5700	0.730	32307
	60	15.875	18.5	12	32000	45400	2.0/1.3	5000	7000	0.180	JL68145/111-Z
	60	16.00	18.5	12	34000	45300	1.5/1.0	5000	7000	0.180	540484A
80	32.00	32	25	85400	118800	2.5/2.5	3900	5100	0.787	529656	
40	68	19.00	19	14.5	39900	53400	1.0/1.0	4800	6300	0.270	32008
	80	19.75	18	16	45700	52900	1.5/1.5	4400	5700	0.420	30208
	80	24.75	23	19	74800	86500	1.5/1.5	4800	6300	0.530	32208
	80	32.00	32	25	85400	118800	1.5/1.5	3900	5100	0.770	33208
	80	34.00	34	27	97550	136200	2.5/2.0	4100	5400	0.794	40KW01
	85	33.00	32.5	28	108900	135000	2.5/2.0	4100	5400	0.900	T2EE-040
	90	25.25	23	20	71900	86900	2.0/1.5	4100	5400	0.720	30308
	90	22.25	23	17	66400	73400	2.0/1.5	3600	4800	0.720	31308 (30308D)
	90	35.25	33	27	105300	126000	2.0/1.5	3600	4800	1.000	32308
	95	27.30	25.0	19	88000	97200	2.5/2.5	3800	5000	0.900	518712
42	100	38.25	36	30	126000	153000	2.5/1.5	3300	4400	1.600	323/42A*
45	75	20.00	20	15.5	46600	69900	1.0/1.0	4400	5700	0.340	32009
	80	26.00	26	20.5	69800	104000	1.5/1.5	4100	5400	0.560	33109
	85	20.75	19	16	49500	60500	1.5/1.5	4100	5400	0.480	30209
	85	24.75	23	19	72800	88200	1.5/1.5	4100	5400	0.580	32209
	85	32.00	32	25	97200	128700	1.5/1.5	3600	4800	0.820	33209
	90	32.00	29.5	29	94100	127100	4.0/0.2	3600	4800	0.970	JHM803148/13*
	100	27.25	25	22	97200	108000	2.0/1.5	3600	4800	0.970	30309
	100	27.25	25	18	82200	91800	2.0/1.5	3100	4100	0.950	31309 (30309D)
100	38.25	36	30	126000	153000	2.0/1.5	3300	4400	1.350	32309	

* Rib on outer

8.7 TAPER ROLLER BEARINGS (METRIC SERIES)

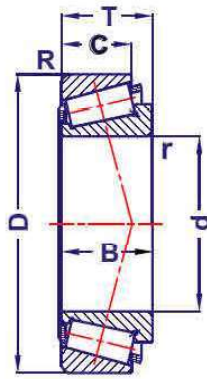


Boundary Dimensions					Basic Load Rating (N)			Limiting Speed (rpm)		Mass (Kg)	Bearing Number
d (mm)	D (mm)	T (mm)	B (mm)	C (mm)	Dynamic C	Static Co	r/R (mm)	Grease	Oil		
50	80	20.00	20	15.5	52400	80000	1.0/1.0	4100	5400	0.370	32010
	80	24.00	24	19	62400	91800	1.0/1.0	4100	5400	0.450	33010
	82	21.50	21.5	17	64900	90000	3.0/0.5	4100	5400	0.430	LM-104948/10
	85	26.00	26	20	77300	109800	1.5/1.5	3900	5100	0.590	33110
	90	21.75	20	17	68900	82400	1.5/1.5	3900	5100	0.540	30210
	90	24.75	23	19	74300	90000	1.5/1.5	3900	5100	0.610	32210
	90	32.00	32	24.5	96700	144700	1.5/1.5	3500	4500	0.900	33210
	90	28.00	28	23	95400	126000	3.0/2.5	3600	4800	0.750	205149/10
	100	36.00	35	30	140000	180000	2.5/2.5	3600	4500	1.30	T2ED050
	110	29.25	27	23	112500	126000	2.5/2.0	3300	4400	1.250	30310
	110	29.25	27	19	95400	108000	2.5/2.0	2900	3900	1.200	31310 (30310D)
	110	42.25	40	33	154800	190800	2.5/2.0	2900	3900	1.800	32310
110	42.25	40	33	168800	216800	2.5/2.0	2900	3900	1.800	32310CR	
55	90	23.00	23	17.5	64800	104700	1.5/1.5	3600	4800	0.550	32011

FLAT SEAT

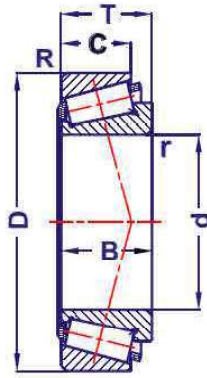
60	100	22.75	21	18	74800	98600	2.0/1.5	3500	4500	0.700	30211
	100	26.75	25	21	83700	112500	2.0/1.5	3300	4400	0.870	32211
	100	35.00	35	27	124200	171000	2.0/1.5	3100	4100	1.200	33211
	120	31.50	29	25	127800	146700	2.5/2.0	2900	3900	1.550	30311
	120	31.50	29	21	108900	123300	2.5/2.0	2600	3600	1.550	31311 (30311D)
	120	45.50	43	35	178200	225000	2.5/2.0	2700	3600	2.300	32311
	95	23.00	23	17.5	74300	109800	1.5/1.5	3500	4500	0.590	32012
	95	27.00	27	21	82200	128700	1.5/1.5	3500	4500	0.710	33012
	95	27.12	26	21	77650	113000	1.5/1.5	3900	5100	0.680	CR-1252
	100	30.00	30	23	105300	153000	1.5/1.5	3300	4400	0.920	33112
110	23.75	22	19	89100	102600	2.0/1.5	3100	4100	0.880	30212	
110	29.75	28	24	112500	144000	2.0/1.5	3100	4100	1.150	32212	
130	33.50	31	26	151200	176400	3.0/2.5	2700	3600	1.950	30312	
135	33.50	31	22	130500	149400	3.0/2.5	2400	3300	1.900	31312L	
130	48.50	46	37	206100	261000	3.0/2.5	2400	3300	2.850	32312	
130	39.00	35.5	25.5	175600	216000	3.0/2.5	2700	3600	2.294	521471A	
135	37.00	31	25.5	166400	180600	4.0/4.0	2700	3600	2.177	562830	
63.5	95	17	15.6	11.9	33950	48300	2.0/1.5	5000	7000	0.350	431629
65	95	17.00	16	13	47500	75700	1.5/1.3	4400	5700	0.360	639068

8.7 TAPER ROLLER BEARINGS (METRIC SERIES)



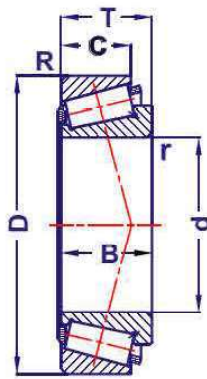
Boundary Dimensions					Basic Load Rating (N)			Limiting Speed (rpm)		Mass (Kg)	Bearing Number
d (mm)	D (mm)	T (mm)	B (mm)	C (mm)	Dynamic C	Static Co	r/R (mm)	Grease	Oil		
65	100	23.00	23	17.5	75800	114300	1.5/1.5	3100	4100	0.630	32013
	100	27.00	27	21	79400	141800	1.5/1.5	3100	4100	0.780	33013
	110	34.00	34	26.5	127800	187200	1.5/1.5	2900	3600	1.300	33113
	110	28.00	28	22.5	110700	164700	3.0/2.5	2900	3900	1.050	JHM511946/10
	110	31.00	31	25	77000	91400	3.0/3.0	4000	5200	1.150	T2DD065
	120	24.75	23	20	114000	134000	2.0/1.5	3000	4000	1.150	30213
	120	32.75	31	27	116600	164600	2.0/1.5	2700	3600	1.500	32213
	120	32.75	31	27	116600	164600	2.0/spl.	2700	3600	1.460	32213UXI
	120	41.00	41	32	163800	245500	2.0/1.5	2600	3500	2.050	33213
	130	51.00	48	39	238800	325500	3.0/2.5	2000	2900	2.917	CR-1355
	140	36.00	33	28	174600	205200	3.0/2.5	2400	3300	2.400	30313
	140	36.00	33	23	148500	173700	3.0/2.5	2000	2900	2.350	31313 (30313D)
	145	36.00	33	23	148500	173700	3.0/2.5	2000	2900	2.550	509033
	140	51.00	48	39	221400	310500	3.0/2.5	2000	2900	3.350	32313
	145	39.50	36.5	26.4	180000	216000	3.0/2.5	2300	2900	2.600	77213L
	145	39.00	36.35	26.45	199900	225300	4.0/3.0	2200	3100	2.670	521618
	150	38.00	35	30	198000	234000	3.0/0.60	2200	3100	3.100	30314Q/BT1B328406
70	110	25.00	25	19	90900	137700	1.5/1.5	2900	3900	0.840	32014
	110	31.00	31	25.5	130000	176400	1.5/1.5	2900	3900	1.100	33014
	120	37.00	37	29	154800	225000	2.0/1.5	2700	3600	1.700	33114
	125	26.25	24	21	112500	140400	2.0/1.5	2700	3600	1.250	30214
	125	33.25	31	27	141300	187200	2.0/1.5	2600	3500	1.600	32214
	125	41.00	41	32	180000	250000	2.0/1.5	2300	3200	2.100	33214U
	150	38.00	35	30	198000	234000	3.0/2.5	2200	3100	2.900	30314
	150	54.00	51	42	267300	342000	3.0/2.5	2000	2900	4.300	32314
	130	57.00	56	35	235150	324400	spl./1.5	2000	2900	2.832	528983-A
	130	57.00	56	35	235150	324400	spl./1.5	2000	2900	2.783	534565
75	115	25.00	25	19	95400	146700	1.5/1.5	2700	3600	0.900	32015
	115	31.00	31	25.5	120600	205200	1.5/1.5	2700	3600	1.150	33015
	125	37.00	37	29	158400	238500	2.0/1.5	2600	3500	1.800	33115
	130	27.25	25	22	126000	158400	2.0/1.5	2600	3500	1.400	30215
	130	33.25	31	27	144900	190800	2.0/1.5	2400	3300	1.700	32215
	130	41.00	41	31	188100	270000	2.0/1.5	2200	3100	2.250	33215
	160	40.00	37	31	221400	261000	3.0/2.5	2000	2900	3.450	30315
	160	58.00	55	45	302400	396000	3.0/2.5	1800	2700	5.200	32315

8.7 TAPER ROLLER BEARINGS (METRIC SERIES)



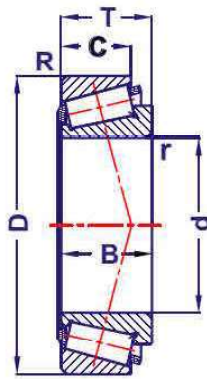
Boundary Dimensions					Basic Load Rating (N)		Limiting Speed (rpm)		Mass (Kg)	Bearing Number	
d (mm)	D (mm)	T (mm)	B (mm)	C (mm)	Dynamic C	Static Co	r/R (mm)	Grease			Oil
80	125	29.00	29	22	124200	194000	1.5/1.5	2400	3300	1.300	32016
	125	36.00	36	29.5	151200	256500	1.5/1.5	2400	3300	1.650	33016
	130	37.00	37	29	161100	252000	2.0/1.5	2400	3400	1.900	33116JR
	140	28.25	26	22	124700	168500	2.5/2.0	2200	3100	1.600	30216
	140	35.25	33	28	153600	218400	2.5/2.0	2200	3100	2.050	32216
	140	46.00	46	35	225900	337500	2.5/2.0	2000	2900	2.900	33216
	170	42.50	39	27	201600	238500	3.0/2.5	1700	2600	4.050	31316
	170	61.50	58	48	342000	450000	3.0/2.5	1700	2600	6.200	32316
	130	35	34	28.5	152000	232000	3.0/2.5	2500	3500	1.680	JHM515649/10
	140	39.25	39.20	32.0	219400	351400	3.0/3.0	2000	2900	2.550	804358
85	130	29.00	29	22	112500	191000	1.5/1.5	2200	3100	1.350	32017
	130	36.00	36	29.5	164700	279000	1.5/1.5	2400	3300	1.750	33017
	140	41.00	41	32	198000	306000	2.5/2.0	2200	3100	2.450	33117
	150	30.50	28	24	158400	198000	2.5/2.0	2000	2900	2.050	30217
	150	38.50	36	30	187800	276300	2.5/2.0	2000	2900	2.600	32217
	150	49.00	49	37	214700	326700	2.5/2.0	1800	2700	3.700	33217
	180	44.50	41	28	217800	256500	4.0/3.0	1700	2400	4.600	31317
	180	63.50	60	49	361800	477000	4.0/3.0	1700	2400	6.850	32317
	130	30	29	24	110000	200000	3.0/2.5	2100	3200	1.400	JHM716649/10
	90	140	32.00	32	24	138600	243700	2.0/1.5	2000	2900	1.750
140		39.00	39	32.5	194400	319500	2.0/1.5	2000	2900	2.200	33018
145		35.00	34	27	174600	265000	3.0/2.5	2000	3000	2.14	JHM718149/10
150		45.00	45	35	225900	351000	2.5/2.0	1800	2700	3.100	33118
160		32.50	30	26	174600	220500	2.5/2.0	1800	2700	2.550	30218
160		42.50	40	34	225900	306000	2.5/2.0	1800	2700	3.350	32218
160		55.00	55	42	310000	460000	2.5/2.0	2200	3000	4.492	33218
95		145	32.00	32	24	151200	243000	2.0/1.5	2000	2900	1.800
	145	39.00	39	32.5	198000	337500	2.0/1.5	2000	2900	2.300	33019
	170	34.50	32	27	194400	247500	3.0/2.5	1700	2600	3.000	30219
	170	45.50	43	37	252900	351000	3.0/2.5	1700	2600	4.050	32219

8.7 TAPER ROLLER BEARINGS (METRIC SERIES)



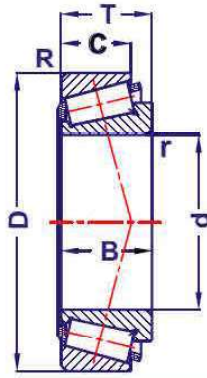
Boundary Dimensions					Basic Load Rating (N)			Limiting Speed (rpm)		Mass (Kg)	Bearing Number
d (mm)	D (mm)	T (mm)	B (mm)	C (mm)	Dynamic C	Static Co	r/R (mm)	Grease	Oil		
100	150	32.00	32	24	154800	252000	2.0/1.5	1800	2700	1.900	32020
	150	39.00	39	32.5	201600	351000	2.0/1.5	1800	2700	2.400	33020
	160	41.00	40	32	225000	360000	3.0/2.5	1700	2600	3.050	JHM720249/10
	165	47.00	46	39	280000	450000	3.0/3.0	2500	3800	3.90	T2EE100
	180	37.00	34	29	221400	288000	3.0/2.5	1700	2600	3.650	30220
	180	49.00	46	39	287100	396000	3.0/2.5	1700	2400	4.900	32220
105	160	35.00	35	26	180900	301500	2.5/2.0	1700	2600	2.400	32021
	160	43.00	43	34	184100	345800	2.5/2.0	1700	2600	3.050	33021
	170	38.00	38	29	230400	446000	2.5/2.0	1700	2400	2.940	528946
	190	39.00	36	30	243000	319500	3.0/2.5	1700	2400	4.250	30221
	190	53.00	50	43	322200	459000	3.0/2.5	1700	2600	6.000	32221
110	150	20.50	20.5	15.5	99800	167350	2.0/2.0	2600	3500	0.974	CR2256
	170	38.00	38	29	230400	446000	2.5/2.0	1700	2400	3.050	32022
	170	47.00	47	37	252900	450000	2.5/2.0	1700	2400	3.850	33022
	180	47.00	46	38	287100	468000	3.0/2.5	1700	2400	4.650	JHM522649/10
	200	41.00	38	32	277200	364500	3.0/2.5	1600	2200	5.100	30222
	200	56.00	53	46	361800	513000	3.0/2.5	1600	2200	7.100	32222A
	165	35.00	35	26.5	170000	290000	3.0/2.5	1800	2300	2.380	JM822049/10
120	165	29.00	27	23	140000	270000	1.5/1.5	1800	2300	1.624	32924
	170	27.00	25	19.5	147600	224800	3.0/3.0	2000	2900	1.670	JP-12049/10
	180	38.00	38	29	217800	373500	2.5/2.0	1600	2200	3.250	32024
	180	48.00	48	38	260800	500000	2.5/2.0	1600	2200	4.20	33024
	215	61.50	58	50	421200	625500	3.0/2.5	1500	2000	9.150	32224
130	200	45.00	45	34	282600	486000	2.5/2.0	1500	2000	4.950	32026
	230	67.75	64	54	495000	747000	4.0/3.0	1400	1800	11.500	32226
140	210	45.00	45	34	297000	526500	2.5/2.0	1500	2000	5.250	32028
	250	71.75	68	58	579600	900000	4.0/3.0	1300	1700	14.500	32228
150	225	48.00	48	36	329100	589500	3.0/2.5	1300	1800	6.350	32030
	270	77.00	73	60	663300	1026000	4.0/3.0	1100	1600	17.500	32230

8.7 TAPER ROLLER BEARINGS (INCH SERIES)



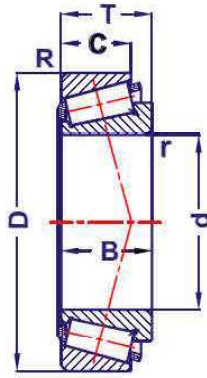
Boundary Dimensions					Basic Load Rating (N)		r/R (mm) inch	Limiting Speed (rpm)		Mass (Kg)	Bearing Number
d (mm) inch	D (mm) inch	T (mm) inch	B (mm) inch	C (mm) inch	Dynamic C	Static Co		Grease	Oil		
15.875 0.6250	42.862 1.6875	14.288 0.5625	14.288 0.5625	9.525 0.3750	15900	15800	1.5/1.5 0.06/0.06	7700	10800	0.100	11590/11520
17.462 0.6875	39.878 1.5700	13.843 0.5450	14.605 0.5750	10.668 0.4200	19100	18800	1.3/1.3 0.05/0.05	8100	11700	0.081	LM11749/11710
19.050 0.7500	49.225 1.9380	18.034 0.7100	19.050 0.7500	14.288 0.5625	35200	36000	1.3/1.3 0.05/0.05	7200	9900	0.180	09067/09195
	45.237 1.7810	15.494 0.6100	16.637 0.6550	12.065 0.4750	24800	24700	1.3/1.3 0.05/0.05	7700	10800	0.120	LM11949/11910
	53.975 2.1250	22.225 0.8750	21.839 0.8598	15.875 0.6250	35700	35100	1.5/2.3 0.06/0.09	6800	9000	0.250	21075/21212
20.625 0.8120	49.225 1.9380	23.020 0.7813	21.539 0.8480	17.462 0.6875	35200	36000	1.5/1.5 0.06/0.06	7200	9900	0.200	09081/09196
21.430 0.8437	50.005 1.9687	17.526 0.6900	18.288 0.7200	13.970 0.5500	33200	34200	1.3/1.3 0.05/0.05	7200	9900	0.170	M12649/12610
21.986 0.8656	45.237 1.7810	15.494 0.6100	16.637 0.6550	12.065 0.4750	22800	28300	1.3/1.3 0.05/0.05	7200	9900	0.120	LM12749/12710
	45.974 1.8100	15.494 0.6100	16.637 0.6550	12.065 0.4750	22800	28300	1.3/1.3 0.05/0.05	7200	9900	0.120	LM12749/12711
25.400 1.0000	57.150 2.2500	19.431 0.7650	19.431 0.7650	14.732 0.5800	35700	40500	1.5/1.5 0.06/0.06	6100	8100	0.240	M84548/84510
	57.150 2.2500	17.462 0.6874	17.462 0.6874	13.495 0.5313	35500	41500	1.3/1.5 0.05/0.06	6100	8100	0.245	15578/15520
	50.292 1.9800	14.224 0.5600	14.732 0.5800	10.668 0.4200	23400	27000	1.3/1.3 0.05/0.05	6800	9000	0.130	L44643R/44610
26.000 1.0236	57.150 2.2500	17.550 0.6909	17.500 0.6889	13.800 0.5433	40200	46300	3.0/1.3	7500	10000	0.220	7805/26
26.988 1.0625	50.292 1.9800	14.224 0.5600	14.732 0.5800	10.668 0.4200	21000	26000	3.5/1.3 0.14/0.06	6800	9000	0.110	L44649/44610
	63.500 2.5000	20.638 0.8125	20.638 0.8125	15.875 0.6250	45000	50000	0.8/1.5 0.03/0.06	5500	7500	0.310	15106/15250X

8.7 TAPER ROLLER BEARINGS (INCH SERIES)



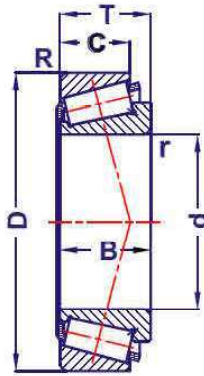
Boundary Dimensions					Basic Load Rating (N)			Limiting Speed (rpm)		Mass (Kg)	Bearing Number
d (mm) inch	D (mm) inch	T (mm) inch	B (mm) inch	C (mm) inch	Dynamic C	Static Co	r/R (mm) inch	Grease	Oil		
28.000 1.1024	57.150 2.2500	17.550 0.6909	17.500 0.6889	13.800 0.5433	40200	46300	3.0/1.3 0.12/0.05	7500	10000	0.210	7805/28
28.575 1.1250	57.150 2.2500	19.845 0.7813	19.355 0.7620	15.875 0.6250	42600	49500	3.5/1.5 0.14/0.06	6100	8100	0.220	1988/1922
	73.025 2.8750	22.225 0.8750	22.225 0.8750	17.462 0.6875	49100	58100	0.8/3.3 0.03/0.13	4800	6400	0.480	02872/02820
	63.500 2.5000	20.638 0.8125	20.638 0.8125	15.875 0.6250	43600	51300	3.5/1.5 0.14/0.06	5400	7200	0.310	15112/15250X
29.000 1.1417	50.292 1.9800	14.224 0.5600	14.732 0.5800	10.668 0.4200	24200	30600	3.5/1.3 0.14/0.05	6400	8600	0.120	L-45449/45410
	50.292 1.9800	14.224 0.5600	17.460 0.6870	10.668 0.4200	26500	34000	2.5/0.8	6200	8000	0.120	329013
30.162 1.1875	64.292 2.5312	21.433 0.8438	21.433 0.8438	16.670 0.6583	44600	54900	1.5/1.5 0.06/0.06	5400	7200	0.330	M86649/86610
31.750 1.2500	62.000 2.4409	18.161 0.7150	19.050 0.7500	14.288 0.5625	43600	51300	4.0/1.3 0.16/0.05	5400	7200	0.240	15123/15245
	59.131 2.3280	15.875 0.6250	16.764 0.6600	11.811 0.4650	24200	29800	3.6/1.3 0.14/0.05	5700	7100	0.180	LM67048/67010
	68.262 2.6875	22.225 0.8750	22.225 0.8750	17.462 0.6875	50000	60500	1.5/1.5 0.06/0.06	5300	6100	0.400	M88046/88010
	73.025 2.8750	29.370 1.1562	27.783 1.0938	23.020 0.9063	62200	88000	1.3/3.3 0.05/0.13	4500	6100	0.620	HM88542/88510
	66.421 2.6150	25.400 1.0000	25.357 0.9983	20.638 0.8125	61000	72500	0.8/3.3 0.03/0.13	5100	6800	0.400	2580/2520
33.338 1.3125	68.262 2.6875	22.225 0.8750	22.225 0.8750	17.462 0.6875	43100	59300	0.8/1.5 0.03/0.06	5100	6800	0.380	M88048/88010
	76.200 3.0000	23.812 0.9375	25.654 1.0100	19.050 0.7500	65000	80500	1.5/3.3	4500	6000	0.553	2790R/2720
	69.012 2.7170	19.845 0.7813	19.583 0.7710	15.875 0.6250	45500	55000	0.8/1.3 0.03/0.05	5000	7000	0.346	CK14131/14276

8.7 TAPER ROLLER BEARINGS (INCH SERIES)



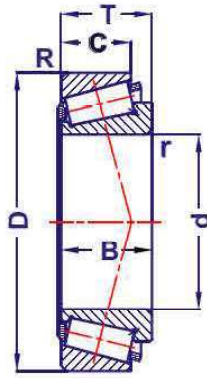
Boundary Dimensions					Basic Load Rating (N)			Limiting Speed (rpm)		Mass (Kg)	Bearing Number
d (mm) inch	D (mm) inch	T (mm) inch	B (mm) inch	C (mm) inch	Dynamic C	Static Co	r/R (mm) inch	Grease	Oil		
34.925 1.3750	65.088	18.034	18.288	13.970	42300	51300	3.6/1.3	5100	6800	0.250	LM48548/48510
	2.5625	0.7100	0.7200	0.5500			0.14/0.05				
	68.262	20.638	20.638	15.875	43550	53750	3.5/2.3	5100	6800	0.320	14585/14525
	2.6874	0.8125	0.8125	0.6250			0.14/0.09				
	73.025	23.812	24.608	19.050	64900	79200	1.5/0.8	4800	6300	0.470	25877/25821
	2.8750	0.9375	0.9688	0.7500			0.06/0.03				
	76.200	29.370	28.575	23.812	77300	95400	1.5/3.3	4500	6100	0.630	31594/31520
	3.0000	1.1563	1.1250	0.9375			0.06/0.13				
76.200	29.370	28.575	23.020	71000	95000	3.5/3.3	4300	5700	0.660	HM89446/89410	
3.0000	1.1563	1.1250	0.9063			0.14/0.13					
34.988 1.3775	59.974	15.875	16.764	11.938	29700	39600	3.5/1.3	5400	7200	0.170	L68149/68111
	2.3612	0.6250	0.6600	0.4700			0.14/0.05				
	59.974	15.875	18.473	11.938	29700	39600	1.5/0.8	5400	7200	0.190	332541
2.3612	0.6250	0.7273	0.4700			0.06/0.03					
36.512 1.4375	76.200	29.370	28.575	23.020	68000	90500	0.8/3.3	4500	6000	0.629	HM89448/89410
	3.0000	1.1563	1.1250	0.9063			0.03/0.13				
93.662	31.750	31.750	26.195	100000	130000	1.5/3.3	3800	5200	1.141	46143/46368	
						0.06/0.13					
38.100 1.5000	65.088	17.980	21.085	13.895	40800	53600	Spec./1.3	4800	6300	0.240	38KW01
	2.5625	0.7079	0.8301	0.5470							
	65.088	18.034	18.288	13.970	38600	51300	2.3/1.3	5100	6800	0.240	LM29749/29710
	2.5625	0.7100	0.7200	0.5500			0.09/0.05				
	65.088	18.034	18.288	13.970	38600	51300	spec.	5100	6800	0.240	LM29748/29710
	2.5625	0.7100	0.7200	0.5500							
	72.238	20.638	20.638	15.875	44600	54000	3.5/1.3	4800	6300	0.360	16150/16284
	2.8440	0.8125	0.8125	0.6250			0.14/0.05				
76.200	23.812	25.654	19.050	67400	83700	3.5/3.3	4500	6100	0.500	2788R/2720	
3.0000	0.9375	1.0100	0.7500			0.14/0.13					
79.375	29.370	29.771	23.812	75500	109400	3.5/3.3	4500	6100	0.670	3490/3420	
3.1250	1.1563	1.1721	0.9375			0.14/0.13					

8.7 TAPER ROLLER BEARINGS (INCH SERIES)



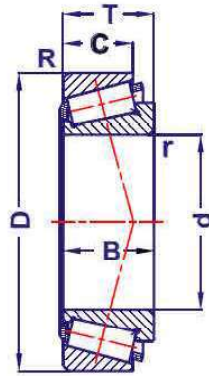
Boundary Dimensions					Basic Load Rating (N)			Limiting Speed (rpm)		Mass (Kg)	Bearing Number
d (mm) inch	D (mm) inch	T (mm) inch	B (mm) inch	C (mm) inch	Dynamic C	Static Co	r/R (mm) inch	Grease	Oil		
38.100 1.5000	82.550 3.2500	29.370 1.1563	28.575 1.1250	23.020 0.9063	77300	106200	0.8/3.3 0.03/0.13	4100	5400	0.780	HM801346/801310
	88.500 3.4843	26.988 1.0625	29.083 1.1450	22.225 0.8750	90900	102600	3.5/1.5 0.14/0.06	4400	5700	0.830	418/414
	82.931 3.2650	23.812 0.9375	25.400 1.0000	19.050 0.7500	70000	85000	0.8/0.8 0.03/0.03	4000	5500	0.631	25572/25520
39.688 1.5625	76.200 3.0000	23.812 0.9375	25.654 1.0100	19.050 0.7500	63000	80000	3.5/3.3 0.14/0.13	4500	6000	0.477	2789/2720
	76.200 3.0000	23.812 0.9375	25.654 1.0100	19.050 0.7500	63000	80000	3.5/0.8 0.14/0.03	4500	6000	0.477	2789/2729
40.000 1.5748	80.000 3.1496	21.000 0.8267	22.403 0.8820	17.826 0.7018	60500	70000	0.8/1.3 0.03/0.05	4000	5800	0.480	344A/332
	107.950 4.2500	36.512 1.4375	36.957 1.4550	28.575 1.1250	130000	150000	3.5/3.3 0.14/0.13	3200	4200	1.770	543/532X
40.988 1.6137	67.975 2.6762	17.500 0.6890	18.000 0.7087	13.500 0.5315	39600	52700	3.6/1.5 0.14/0.06	4800	6300	0.240	LM300849/300811
41.275 1.625	73.431 2.8909	19.558 0.77000	19.812 0.7800	14.732 0.5800	43200	59600	3.5/0.8 0.14/0.03	4400	5700	0.330	LM501349/501310
	76.200 3.000	22.225 0.8750	23.020 0.9063	17.462 0.6875	61400	77900	3.5/0.8 0.14/0.03	4500	6100	0.430	24780/24720
	76.200 3.000	18.009 0.7090	17.384 0.6844	14.288 0.5625	41200	50400	1.5/1.5 0.06/0.06	4500	6100	0.340	11162/11300
	87.312 3.4375	30.162 1.1875	30.886 1.2160	23.812 0.9375	91800	118800	1.5/3.3 0.06/0.13	4100	5400	0.850	3585/3525
	90.488 3.5625	39.688 1.5625	40.386 1.5900	33.338 1.3125	120000	150000	3.5/3.3 0.14/0.13	4000	5000	1.250	4388/4335
	79.375 3.1250	23.812 0.9375	25.400 1.0000	19.050 0.7500	65000	85000	1.5/0.8 0.06/0.03	4200	5800	0.450	26882T/26822
	87.312 3.4375	30.162 1.1875	30.886 1.2160	23.812 0.9375	90000	119000	3.5/3.3 0.14/0.13	4100	5400	0.850	3577/3525

8.7 TAPER ROLLER BEARINGS (INCH SERIES)



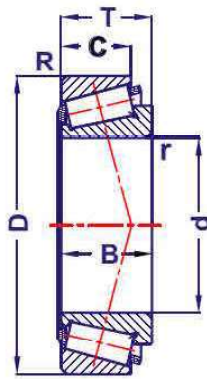
Boundary Dimensions					Basic Load Rating (N)			Limiting Speed (rpm)		Mass (Kg)	Bearing Number
d (mm) inch	D (mm) inch	T (mm) inch	B (mm) inch	C (mm) inch	Dynamic C	Static Co	r/R (mm) inch	Grease	Oil		
41.275 1.6250	82.550 3.2500	26.543 1.0450	25.654 1.0100	20.193 0.7950	70500	90000	3.5/3.3 0.14/0.13	4000	5400	0.620	M802048/802011
	88.900 3.5000	30.162 1.1875	29.370 1.1563	23.020 0.9063	85000	110000	3.5/3.3 0.14/0.13	4000	5000	0.900	HM803146/803110
	101.600 4.0000	34.925 1.3750	36.068 1.4200	26.988 1.0625	140000	170000	3.5/3.3 0.14/0.13	3500	4500	1.450	526/522
	104.775 4.1250	36.512 1.4374	36.512 1.4374	28.575 1.125	141950	178900	1.5/3.3 0.06/0.13	3500	4500	1.580	59162/59412
42.862 1.6875	87.312 3.4375	30.162 1.1875	30.886 1.2160	23.812 0.9375	91800	118800	3.5/3.3 0.14/0.13	4100	5400	0.800	3579/3525
42.875 1.6880	82.931 3.2650	26.988 1.0625	25.400 1.0000	22.225 0.8750	72800	95400	3.5/2.3 0.14/0.09	4100	5400	0.610	25577/25523
44.450 1.7500	127.000 5.0000	50.800 2.0000	52.388 2.0625	41.275 1.6250	225000	288000	3.5 0.14	2900	3900	3.580	6277/6220
	82.931 3.2650	23.812 0.9375	25.400 1.0000	19.050 0.7500	72800	95400	3.5/0.8 0.14/0.03	4100	5400	0.570	25580/25520
	95.250 3.7500	30.958 1.2188	28.575 1.1250	22.225 0.8750	90900	109800	3.5/0.8 0.14/0.03	3300	4400	1.000	HM903249/903210
	92.075 3.6250	30.162 1.1875	29.370 1.1563	23.020 0.9063	89700	112500	3.5 0.14	3500	4900	0.920	HM803149/803112
	111.125 4.3750	38.100 1.5000	36.957 1.4550	30.162 1.1875	135900	171000	3.5/3.3 0.14/0.13	3300	4400	1.900	535/532A
	101.600 4.0000	34.925 1.3750	36.068 1.4200	26.988 1.0625	135900	171000	3.5/3.3 0.14/0.13	3500	4500	1.350	527/522
	88.900 3.5000	30.162 1.1875	29.370 1.1563	23.020 0.9063	85700	114300	3.5/3.3 0.14/0.13	3900	5100	0.850	HM803149/803110
	93.662 3.6875	31.750 1.2500	31.750 1.2500	25.400 1.0000	110000	135000	3.5/3.3 0.14/0.13	3500	5000	0.972	49175/49368

8.7 TAPER ROLLER BEARINGS (INCH SERIES)



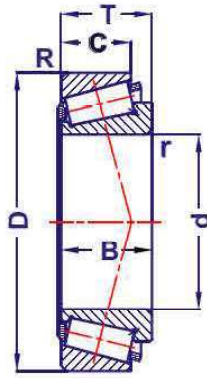
Boundary Dimensions					Basic Load Rating (N)			Limiting Speed (rpm)		Mass (Kg)	Bearing Number
d (mm) inch	D (mm) inch	T (mm) inch	B (mm) inch	C (mm) inch	Dynamic C	Static C ₀	r/R (mm) inch	Grease	Oil		
44.450 1.7500	82.931 3.2650	23.812 0.9375	25.400 1.0000	19.050 0.7500	65000	82000	0.5/0.8 0.19/0.03	4000	5300	0.563	25581/25520
	93.264 3.6718	30.162 1.1875	30.302 1.1930	23.812 0.9375	99000	131400	3.5/3.3 0.14/0.13	3600	4800	0.960	3782/3720
	104.775 4.1250	36.512 1.4374	36.512 1.4374	28.575 1.1250	141950	178700	3.5/3.3 0.14/0.13	3500	4500	1.520	59175/59412
44.988 1.7711	112.712 4.4374	34.528 1.3593	33.734 1.3281	25.400 1.0000	134900	146100	3.0/3.0 0.12/0.12	2400	3300	1.600	518713
45.242 1.7812	77.788 3.0625	19.842 0.7812	19.842 0.7812	15.080 0.5937	48500	62600	3.5/0.8 0.14/0.03	4400	5700	0.370	LM603049/603011
	77.788 3.0625	21.430 0.8437	19.842 0.7812	16.667 0.6562	48500	62600	3.5/0.8 0.14/0.03	4400	5700	0.390	LM603049/603012
	73.431 2.8910	19.558 0.7700	19.812 0.7800	15.748 0.6200	48200	67500	3.5/0.8 0.14/0.03	4400	5700	0.320	LM102949/102910
45.618 1.7960	82.931 3.2650	23.812 0.9375	25.400 1.0000	19.050 0.7500	72800	95400	3.5/0.8 0.14/0.03	4100	5400	0.550	25590/25520
	82.931 3.2650	26.988 1.0625	25.400 1.0000	22.225 0.8750	72800	95400	3.5/2.3 0.14/0.09	4100	5400	0.588	25590/25523
	83.058 3.2700	23.812 0.9375	25.400 1.0000	19.050 0.7500	72800	95400	3.5/3.3 0.14/0.13	4100	5400	0.541	25590/25521
	83.058 3.2700	23.876 0.9400	25.400 1.0000	19.114 0.7525	72800	95400	3.5/2.0 0.14/0.08	4100	5400	0.55	25590/25522
45.987 1.8105	74.976 2.9518	18.000 0.7087	18.000 0.7087	14.000 0.5512	45000	64000	2.3/1.5 0.09/0.06	4300	5700	0.310	LM503349/503310
46.038 1.8125	79.375 3.1250	17.462 0.6875	17.462 0.6875	13.495 0.5313	36800	49300	2.8/1.5 0.11/0.06	4400	5700	0.330	18690/18620
	85.00 3.3465	20.638 0.8125	21.692 0.8540	17.462 0.6875	62000	72500	2.3/1.5 0.09/0.06	4100	5400	0.490	359A/354X

8.7 TAPER ROLLER BEARINGS (INCH SERIES)



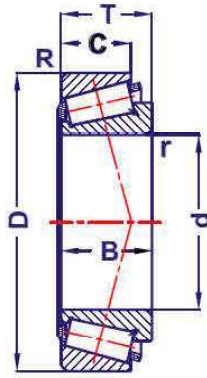
Boundary Dimensions					Basic Load Rating (N)			Limiting Speed (rpm)		Mass (Kg)	Bearing Number
d (mm) inch	D (mm) inch	T (mm) inch	B (mm) inch	C (mm) inch	Dynamic C	Static C ₀	r/R (mm) inch	Grease	Oil		
47.625 1.8750	88.900 3.5000	20.638 0.8125	22.225 0.8750	16.513 0.6501	68900	81500	2.3/1.3 0.09/.05	3700	5000	0.561	369S/362A
	92.250 3.7500	30.162 1.1875	29.370 1.1563	23.020 0.9063	95400	128700	3.5/3.3 0.14/0.13	3500	4800	0.980	HM804846/804810
50.00 1.9685	93.264 3.6718	30.162 1.1875	30.302 1.1930	23.812 0.9375	100900	131400	3.5/3.3 0.14/0.13	3600	4800	0.800	50KW01
	114.300 4.5000	44.450 1.7500	44.450 1.7500	34.925 1.3750	186300	231600	2.8/2.3 0.11/0.09	2600	3600	2.180	50KW02
50.800 2.0000	88.900 3.5000	20.638 0.8125	22.225 0.8750	16.513 0.6501	68900	82400	3.5/1.3 0.14/0.05	3900	5100	0.500	368A/362A
	93.264 3.6718	30.162 1.1875	30.302 1.1930	23.812 0.9375	99000	131400	3.5/3.3 0.14/0.3	3600	4800	0.870	3780/3720
	107.950 4.2500	36.512 1.4375	36.957 1.4550	28.575 1.1250	135000	170000	3.5/3.3 0.14/0.13	3200	4300	1.550	537/532X
	90.000 3.5433	25.000 0.9843	22.225 0.8750	20.000 0.7874	68900	82400	3.5/2.0 0.14/0.08	3900	5100	0.580	368A/362X
	85.000 3.3465	17.462 0.6875	17.462 0.6875	13.495 0.5313	39400	54500	3.5/1.5 0.14/0.06	3900	5100	0.370	18790/18720
	104.775 4.1250	36.512 1.4375	36.512 1.4375	28.575 1.1250	130500	183600	3.5/3.3 0.14/0.13	3100	4100	1.500	HM807046/807010
	82.550 3.2500	21.590 0.8500	22.225 0.8750	16.510 0.6500	56600	84000	3.5/1.3 0.14/.05	3900	5200	0.435	LM104949/104911
	92.075 3.6250	24.608 0.9688	25.400 1.0000	19.845 0.7813	78000	105000	3.5/0.8 0.14/0.3	3500	4800	0.720	28580/28521
	101.600 4.0000	31.7500 1.2500	31.7500 1.2500	25.4000 1.0000	90000	120000	3.5/3.3 0.14/0.13	3200	4300	1.115	49585/49520
	111.125 4.3750	30.163 1.1875	26.909 1.0594	20.638 0.8125	90000	120000	3.5/3.3 0.14/0.13	3000	3800	1.340	55200C/55437
	92.075 3.6250	24.608 0.9688	25.400 1.0000	19.845 0.7813	80000	110000	3.5/0.8 0.14/0.03	3500	4800	0.710	28580/28521
52.388 2.0625	92.075 3.6250	24.608 0.9688	25.400 1.0000	19.845 0.7813	76100	105300	3.5/0.8 0.14/0.03	3600	4800	0.680	28584/28521

8.7 TAPER ROLLER BEARINGS (INCH SERIES)



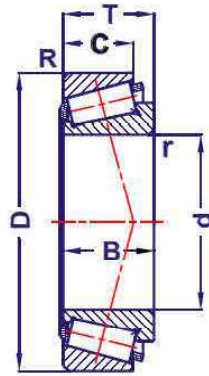
Boundary Dimensions					Basic Load Rating (N)			Limiting Speed (rpm)		Mass (Kg)	Bearing Number
d (mm) inch	D (mm) inch	T (mm) inch	B (mm) inch	C (mm) inch	Dynamic C	Static Co	r/R (mm) inch	Grease	Oil		
52.388 2.0625	111.125 4.3750	30.162 1.1875	26.909 1.0594	20.638 0.8125	90000	120000	3.5/3.3 0.14/0.13	3000	3800	1.320	55206C/55437
53.975 2.1250	107.950 4.2500	36.512 1.4375	36.957 1.4550	28.575 1.1250	135900	171000	3.5/3.3 0.14/0.13	3300	4400	1.500	539/532X
	123.825 4.8750	36.512 1.4375	32.791 1.2910	25.400 1.0000	128700	144000	3.5/3.3 0.14/0.13	2700	5600	1.920	72212/72487
	96.838 3.8125	21.000 0.8268	21.946 0.8640	15.875 0.6250	72000	90000	0.8/0.8 0.03/0.03	3200	4500	0.633	389A/382A
55.562 2.1875	97.630 3.8437	24.608 0.9688	24.608 0.9688	19.446 0.7656	81000	116000	3.5/0.8 0.14/0.03	3400	4500	0.760	28680/28622
57.150 2.2500	96.838 3.8125	25.400 1.000	21.946 0.8640	20.274 0.7982	72800	91800	2.3/2.3 0.09/0.09	3500	4500	0.590	387/382S
	96.838 3.8125	21.000 0.8268	21.946 0.8640	15.875 0.6250	58900	72800	3.5/0.8 0.14/0.03	3500	4500	0.590	387A/382A
	98.425 3.8750	21.000 0.8268	21.946 0.8640	17.826 0.7018	72800	91800	2.3/0.8 0.09/0.03	3500	4500	0.640	387/382
	98.425 3.8750	21.000 0.8268	21.946 0.8640	17.826 0.7018	72800	91800	3.5/0.8 0.14/0.03	3500	4500	0.640	387A/382
	104.775 4.1250	30.162 1.1875	29.317 1.1542	24.605 0.9687	108900	144000	2.3/3.3 0.09/0.13	3300	4400	1.050	462/453X
	107.950 4.2500	27.783 1.0938	29.317 1.1542	22.225 0.8750	108900	144000	2.3/2.3 0.09/0.09	3300	4400	1.050	462/453AS
	110.000 4.3307	27.200 1.0709	29.317 1.1542	27.000 1.0630	108900	144000	2.3/2.0 0.09/0.08	3300	4400	1.170	462/454
	112.712 4.4375	30.162 1.1875	30.162 1.1875	23.812 0.9375	127800	183600	8.0/3.3 0.31/0.13	2900	3900	1.400	39581/39520
	112.712 4.4375	30.162 1.1875	30.162 1.1875	23.812 0.9375	130000	184000	3.5/3.3 0.14/0.13	2900	3900	1.450	39580/39520
	119.985 4.7238	32.750 1.2894	30.162 1.1875	26.949 1.0610	127800	183600	3.5/0.8 0.14/0.03	2900	3900	1.750	39580/39528
120.650 4.7500	41.275 1.6250	41.275 1.6250	31.750 1.2500	190800	167400	3.5/3.3 0.14/0.13	2900	3900	2.100	623/612	
140.030 5.5130	36.512 1.4375	33.236 1.3085	23.520 0.9260	140000	170000	3.5/2.3 0.14/0.09	2300	3200	2.630	78225/78551	

8.7 TAPER ROLLER BEARINGS (INCH SERIES)



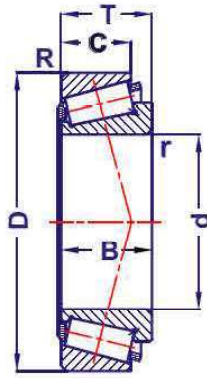
Boundary Dimensions					Basic Load Rating (N)			Limiting Speed (rpm)		Mass (Kg)	Bearing Number
d (mm) inch	D (mm) inch	T (mm) inch	B (mm) inch	C (mm) inch	Dynamic C	Static Co	r/R (mm) inch	Grease	Oil		
60.325 2.3750	100.000 3.9370	25.4000 1.0000	25.400 1.0000	19.845 0.7813	77300	112500	3.5/3.3 0.14/0.13	3300	4400	0.770	28985/28921
	101.600 4.0000	25.400 1.0000	25.400 1.0000	19.845 0.7813	77300	112500	3.5/3.3 0.14/0.13	3300	4400	0.810	28985/28920
61.912 2.4375	146.050 5.7500	41.275 1.6250	39.688 1.5625	25.400 1.0000	178200	212400	3.5/3.3 0.14/0.13	2000	2900	3.200	H913842/91310
63.500 2.5000	129.985 5.1175	37.000 1.4567	34.000 1.3386	28.000 1.1024	135000	180000	3.5/3.3 0.14/0.13	2600	3500	2.120	565M/562M
	112.712 4.4375	30.162 1.1875	30.048 1.1830	23.812 0.9375	110700	164700	3.5/3.3 0.14/0.13	2900	3900	1.250	3982/3920
	110.000 4.3307	29.370 1.1563	30.048 1.1830	23.020 0.9063	105000	160000	3.5/3.3 0.14/0.13	3000	4000	1.240	3982/3927X
	94.458 3.7188	19.050 0.7500	19.050 0.7500	15.083 0.5938	53100	90000	1.5/1.5 0.06/0.06	3300	4400	0.460	L610549/61510
	122.238 4.8125	38.100 1.5000	38.354 1.5100	29.718 1.1700	175000	230000	7.0/3.3 0.27/0.13	2600	3600	1.892	HM212047/212011
	123.825 4.8750	38.100 1.5000	36.678 1.4440	30.162 1.1875	145000	200000	3.5/3.3 0.14/0.13	2700	3800	2.010	559/552A
	107.950 4.2500	25.400 1.0000	25.400 1.0000	19.050 0.7500	85000	135000	1.5/3.3 0.059/0.13	3000	4000	0.942	29586/29520
65.088 2.5625	135.755 5.3447	53.975 2.1250	56.007 2.2050	44.450 1.7500	257400	360000	3.5/3.3 0.14/0.13	2600	3500	3.700	6379/6320
66.675 2.6250	110.00 4.3307	22.00 0.8661	21.996 0.8660	18.824 0.7411	79200	106200	0.8/1.3 0.03/0.05	2900	3900	0.790	395A/394A
	112.712 4.4375	30.162 1.1875	30.048 1.1830	23.812 0.9375	102700	166000	3.5/3.3 0.14/0.13	2900	3900	1.150	3984/3920
	112.712 4.4375	30.162 1.1875	30.162 1.1875	23.812 0.9375	127800	183600	3.5/3.3 0.14/0.13	2900	3900	1.200	39590/39520
	122.238 4.8125	38.100 1.5000	38.354 1.5100	29.718 1.1700	169200	220500	3.5/1.5 0.14/0.06	2700	3600	1.850	HM212049/212010
	122.238 4.8125	38.100 1.5000	38.354 1.5100	29.718 1.1700	169200	220500	3.5/3.3 0.14/0.13	2700	3600	1.800	HM212049/212011
	135.755 5.3447	53.975 2.1250	56.007 2.2050	44.450 1.7500	257400	360000	4.3/3.3 0.17/0.13	2600	3500	3.650	6386/6320

8.7 TAPER ROLLER BEARINGS (INCH SERIES)



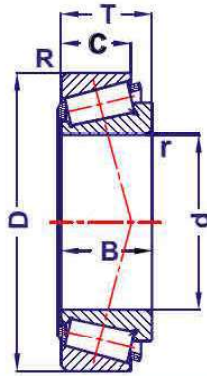
Boundary Dimensions					Basic Load Rating (N)			Limiting Speed (rpm)		Mass (Kg)	Bearing Number
d (mm) inch	D (mm) inch	T (mm) inch	B (mm) inch	C (mm) inch	Dynamic C	Static Co	r/R (mm) inch	Grease	Oil		
66.675 2.6250	123.825 4.8750	38.100 1.5000	36.678 1.4440	30.162 1.1875	145000	200000	3.5/3.3 0.14/0.13	2600	3800	1.920	560/552A
	136.525 5.3750	41.275 1.6250	41.275 1.6250	31.750 1.2500	180000	250000	3.5/3.3 0.14/0.13	2600	3500	2.740	641/632
69.850 2.7500	127.000 5.0000	36.512 1.4375	36.170 1.4240	28.575 1.1250	158400	229500	3.5/3.3 0.14/0.13	2600	3500	1.850	566/563X
	120.000 4.7244	32.545 1.2813	32.545 1.2813	26.195 1.0313	138600	205200	3.5/3.3 0.14/0.13	2700	3600	1.500	47487/47420
	120.000 4.7244	29.794 1.1730	29.007 1.1420	24.237 0.9542	118800	167400	3.5/2.0 0.14/0.08	2700	3600	1.350	482/472
	168.275 6.6250	53.975 2.1250	56.363 2.2190	41.275 1.6250	300000	420000	3.5/3.3 0.14/0.13	2000	2600	6.130	835/832
71.438 2.8125	120.000 4.7244	29.794 1.1730	30.162 1.1875	23.444 0.9223	110700	171000	3.5/0.8 0.14/0.03	2700	3600	1.350	33281/33472
	136.525 5.3750	41.275 1.6250	41.275 1.6250	31.750 1.2500	201600	261000	3.5/3.3 0.14/0.13	2400	3300	2.600	414249/414210
73.025 2.8750	112.712 4.4375	25.400 1.0000	25.400 1.0000	19.050 0.7500	77600	134200	3.5/3.3 0.14/0.13	2700	3600	0.890	29685/29620
75.987 2.9916	131.976 5.1959	39.000 1.5354	39.000 1.5354	32.000 1.2598	190000	280000	7.00/3.5 0.27/0.14	2500	3300	2.117	HM-215249/215210
76.200 3.0000	139.992 5.5115	36.512 1.4375	36.098 1.4212	28.575 1.1250	168300	252000	3.5/3.3 0.14/0.13	2200	3100	2.450	575/572
	139.700 5.5000	36.512 1.4375	36.098 1.4212	28.575 1.1250	168300	252000	3.5/3.3 0.14/0.13	2200	3100	2.400	575/572X
	127.000 5.0000	30.162 1.1875	31.000 1.2205	22.225 0.8750	120000	180000	6.4/3.3 0.25/0.13	2500	3500	1.450	42688/42620
	161.925 6.3750	49.212 1.9375	46.038 1.8125	31.750 1.2500	251900	299000	3.5/3.3 0.14/0.13	1800	2500	4.150	9285/9220

8.7 TAPER ROLLER BEARINGS (INCH SERIES)



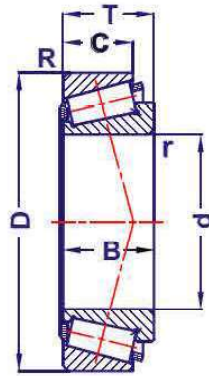
Boundary Dimensions					Basic Load Rating (N)			Limiting Speed (rpm)		Mass (Kg)	Bearing Number
d (mm) inch	D (mm) inch	T (mm) inch	B (mm) inch	C (mm) inch	Dynamic C	Static Co	r/R (mm) inch	Grease	Oil		
82.550 3.2500	125.412 4.9375	25.400 1.0000	25.400 1.0000	19.845 0.7813	100800	167400	3.5/1.5 0.14/0.06	2400	3300	1.100	27687/27620
	139.992 5.5115	36.512 1.4375	36.098 1.4212	28.575 1.1250	168300	252000	3.5/3.3 0.14/0.13	2000	2800	2.200	580/572
	146.050 5.7500	41.275 1.6250	41.275 1.6250	31.750 1.2500	198000	288000	3.5/3.3 0.14/0.13	2000	2800	2.800	663/653
	150.089 5.9090	44.450 1.7500	46.672 1.8375	36.512 1.4375	257400	364500	3.5/3.3 0.14/0.13	2000	2900	3.400	749A/742
85.026 3.3475	150.089 5.9090	44.450 1.7500	46.672 1.8375	36.512 1.4375	257400	364500	3.5/3.3 0.14/0.13	2000	2900	3.300	749/742
85.725 3.3750	168.275 6.6250	53.975 2.1250	56.363 2.2190	41.275 1.6250	300000	420000	3.5/3.3 0.14/0.13	2000	2600	5.33	841/832
88.900 3.5000	152.400 6.0000	39.688 1.5625	39.688 1.5625	30.162 1.1875	205100	320300	6.4/3.3 0.25/0.13	1800	2700	2.850	HM518445/518110
	161.925 6.3750	53.975 2.1250	55.100 2.1693	42.862 1.6875	297000	459000	3.5/3.3 0.14/0.13	1800	2700	4.800	6580/6535
89.974 3.5423	146.975 5.7864	40.000 1.5748	40.000 1.5748	32.500 1.2795	188800	309800	7.0/3.5 0.27/0.14	2000	2900	2.500	HM218248/218210
92.075 3.6250	152.400 6.0000	39.688 1.5625	36.322 1.4300	30.162 1.1875	174600	274500	6.4/3.3 0.25/0.13	1800	2700	2.650	598A/592A
	150.000 5.9055	35.992 1.4170	36.322 1.4300	27.000 1.0630	174600	274500	6.4/3.0 0.25/0.12	1800	2700	2.700	598A/593X
	168.275 6.6250	41.275 1.6250	41.275 1.6250	30.162 1.1875	209700	328500	3.5/3.3 0.14/0.13	1700	2600	3.790	681/672
95.250 3.7500	168.275 6.6250	41.275 1.6250	41.275 1.6250	30.162 1.1875	209700	328500	3.5/3.3 0.14/0.13	1700	2600	3.800	683/672
	152.400 6.0000	39.688 1.5625	36.322 1.4300	30.162 1.1875	174600	274500	3.5/3.3 0.14/0.13	1800	2700	2.550	594/592A

8.7 TAPER ROLLER BEARINGS (INCH SERIES)



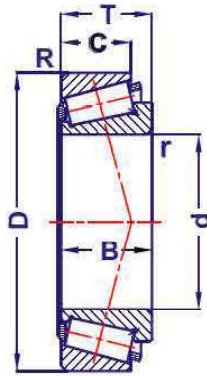
Boundary Dimensions					Basic Load Rating (N)			Limiting Speed (rpm)		Mass (Kg)	Bearing Number
d (mm) inch	D (mm) inch	T (mm) inch	B (mm) inch	C (mm) inch	Dynamic C	Static Co	r/R (mm) inch	Grease	Oil		
98.425 3.8750	184.150 7.2500	63.500 2.5000	63.50 2.5000	52.388 2.0625	410000	550000	6.4/3.3 0.25/0.13	1900	2600	7.270	HH421246C/421210
101.600 4.0000	157.162 6.1875	36.512 1.4375	36.116 1.4219	26.195 1.0313	180900	319500	3.5/3.3 0.14/0.13	1700	2600	2.450	52400/52618
	190.500 7.5000	57.150 2.2500	57.531 2.2650	46.038 1.8125	400000	600000	8.0/3.3 0.31/0.13	1600	2300	7.150	HH221449/221410
107.950 4.2500	158.750 6.2500	23.020 0.9063	21.438 0.8440	15.875 0.6250	81700	146400	3.5/3.3 0.14/0.13	1700	2600	1.400	37425/37625
	165.100 6.5000	36.512 1.4375	36.512 1.4375	26.988 1.0625	188000	320000	3.5/3.3 0.14/0.13	1700	2600	2.700	56425/56650
109.538 4.3125	158.750 6.2500	23.020 0.9063	21.438 0.8440	15.875 0.6250	81700	146400	3.5/3.3 0.14/0.13	1700	2600	1.33	37431A/37625
114.300 4.5000	177.800 7.0000	41.275 1.6250	41.275 1.6250	30.162 1.1875	225900	373500	3.5/3.3 0.14/0.13	1700	2400	3.600	64450/64700
	212.725 8.3750	66.675 2.6250	66.675 2.6250	53.975 2.1250	460800	688500	7.0/3.3 0.25/0.13	1600	2200	10.00	938/932
	212.725 8.3750	66.675 2.6250	66.675 2.6250	53.975 2.1250	550000	775000	7.0/3.3 0.25/0.13	1500	2100	10.20	HH224346/224310
	228.600 9.0000	53.975 2.1250	49.428 1.9460	38.100 1.5000	421700	618170	3.5/3.3 0.14/0.13	1400	1800	9.590	HM926740/926710
117.475 4.6250	180.975 7.1250	34.925 1.3750	31.750 1.2500	25.400 1.0000	164700	252000	3.5/3.3 0.14/0.13	1700	2400	2.800	68462/68712
133.350 5.2500	196.850 7.7500	46.038 1.8125	46.038 1.8125	38.100 1.5000	287100	526500	3.5/3.3 0.14/0.13	1500	2000	4.700	67390/67322

8.7 TAPER ROLLER BEARINGS (INCH SERIES)



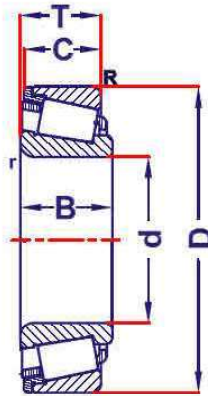
Boundary Dimensions					Basic Load Rating (N)			Limiting Speed (rpm)		Mass (Kg)	Bearing Number
d (mm) inch	D (mm) inch	T (mm) inch	B (mm) inch	C (mm) inch	Dynamic C	Static C ₀	r/R (mm) inch	Grease	Oil		
152.400 6.0000	254.000 10.0000	66.675 2.6250	66.675 2.6250	47.625 1.8750	524700	882000	7.0/3.3 0.25/0.13	1200	1700	12.500	99600/99100
203.200 8.0000	282.575 11.1250	46.038 1.8125	46.038 1.8125	36.512 1.3438	350000	800000	3.5/3.3 0.14/0.13	900	1400	8.950	67983/67920

8.7 TAPER ROLLER BEARINGS (SPECIAL)



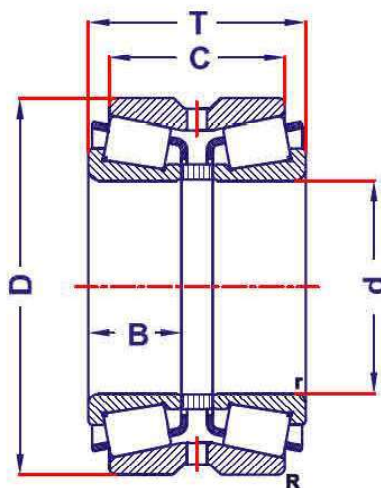
Boundary Dimensions					Basic Load Rating (N)			Limiting Speed (rpm)		Mass (Kg)	Bearing Number
d (mm)	D (mm)	T (mm)	B (mm)	C (mm)	Dynamic C	Static Co	r/R (mm)	Grease	Oil		
21.5	47	15.25	14	12	24800	25200	1.0/0.6	7200	9900	0.120	10Q30204
	47	15.25	14	12	24800	25200	1.0/0.6	7200	9900	0.120	440809A/Q
22	41	14.50	14.50	11.50	25350	28800	0.8/0.8	7200	9900	0.112	JL22349/10
23	52	15	14.25	12.75	20400	21900	3.0/1.5	7500	10000	0.150	639175
26	52	15	14.25	12.75	20400	21900	3.0/1.5	7500	10000	0.140	639174
28	52	16	18.40	12	33200	39800	2.5/1.5	5400	7200	0.130	285216
21	62	18.25	17	13	34200	36000	1.5/1.5	5400	7200	0.280	PLC64
38	63	17.00	17	13.5	37500	51000	spec./1.3	5000	7000	0.190	JL-69349/10
47	100	43.80	43.25	37.25	144000	162000	2.0/spec	2900	3900	1.950	7909AA
55	110	42.25	40	33	154800	190800	2.5/2.0	2900	3900	1.800	32310(55bore)
68	125	40.970	54	32	209600	302300	2.5/2.2	1800	2700	2.40	581079A
68.2	125	47.950	61.25	32	209600	302300	Spl./2.2	1800	2700	2.65	581079C
93.8	148	43.30	67.50	29.5	229300	350500	3.3/2.3	1700	2400	2.794	800792A
94	148	43.30	67.50	29.5	229300	350500	Spl./2.3	1700	2400	2.695	800792C

8.7 TAPER ROLLER BEARINGS (SPECIAL)



Boundary Dimensions					Basic Load Rating (N)			Limiting Speed (rpm)		Mass (Kg)	Bearing Number
d (mm)	D (mm)	T (mm)	B (mm)	C (mm)	Dynamic C	Static Co	r/R (mm)	Grease	Oil		
39.688	73.025	19.395	20.098	18.50	54900	65000	2.3/1.3	5000	6500	0.350	U399/U360L
44.987	79.975	24.00	26.00	22.00	69000	82300	2.3/1.3	3900	5100	0.480	U497/U460L

8.8 DOUBLE ROW TAPER ROLLER BEARINGS



Boundary Dimensions					Basic Load Rating (N)			Limiting Speed (rpm)		Mass (Kg)	Bearing Number
d (mm)	D (mm)	T (mm)	B (mm)	C (mm)	Dynamic C	Static C_0	r/R (mm)	Grease	Oil		
25.00	67.00	40.50	17.00	39.25	65130	80919	1.5/1.1	4500	6000	0.686	FC10558V*
50.00	115.00	68.50	28.50	44.50	194600	260600	2.0/1.0	2600	3500	0.960	407232D
50.80	90.00	50.010	22.225	42.070	124100	169600	1.5/0.8	2800	3800	1.100	368/63D
130	230	150	64	120	900000	1770000	4.0/1.0	1200	1500	24.70	97526
	250		60	112							
150	210	80	38	62	280000	408000	2.5/0.6	950	1300	9.320	2097930
	250		60	112							
160	240	115	51	90	498000	705000	3.0/1.0	850	1100	16.50	2097132
	270		66	120							
180	300	164	72	134	778000	1140000	3.0/1.0	700	900	39.90	2097736
	340		82	150							
200	310	152	70	120	748000	1190000	3.0/1.0	670	850	39.00	2097140
	340		82	150							
220	300	110	51	88	505000	815000	3.1/1.0	670	850	21.70	2097944
	340		76	130							
	370		88	150							
240	320	110	51	90	505000	815000	3.0/1.0	600	750	22.20	2097948
	360		76	130							
	400		95	163							
260	360	134	63.5	108	832000	1350000	3.0/1.0	530	670	37.00	2097952
	400		87	146							
	440		106	180							
340	460	160	76	128	1170000	2080000	4.0/1.0	400	500	71.00	2097968

* Rib on outer

8.9 KING-PIN BEARINGS

- ⇒ They take up very high shock loads on the steering king pin.
- ⇒ They consist of two tapered thrust races, rollers, cage (in caged type) and an outer retainer which holds components.
- ⇒ They are of two types.
 - ⇒ Full complements types (without cage)
 - ⇒ Caged type

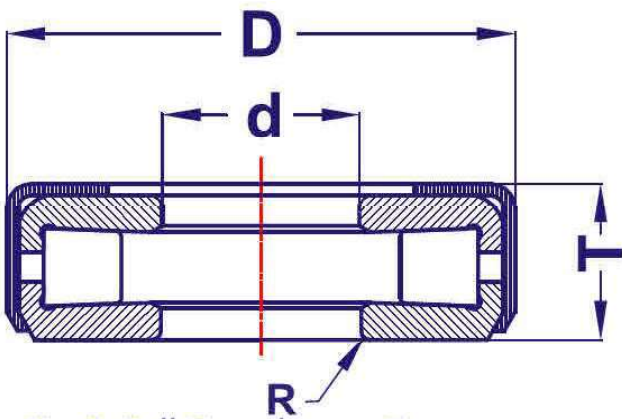


Fig. 1 Full Complement Type

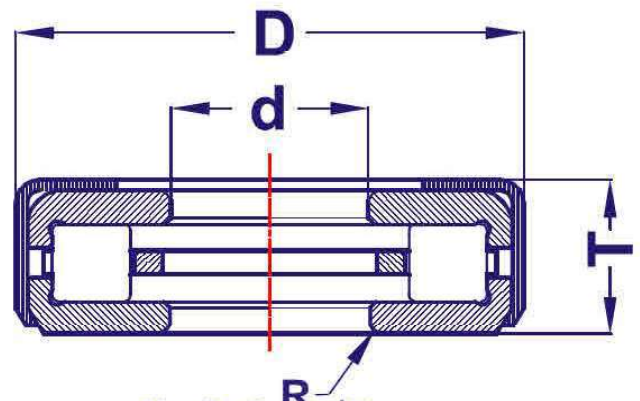


Fig. 2 Caged Type

Pin Dia (mm)	Fig	Boundary Dimensions				Basic Load Rating (N)		Mass (Kg)	Bearing number
		d (mm)	D (mm)	T (mm)	R (max)	Dynamic C	Static Co		
25.654	2	25.654	50.800	15.875	0.8	47000	104900	0.130	T-101
30.416	2	30.416	55.562	15.875	0.8	55800	128400	0.150	T-119
32.004	2	32.004	55.562	15.875	0.8	50900	115700	0.140	T-126
34.290	2	34.290	55.562	15.875	0.8	50900	115700	0.120	T-128
35.179	2	35.179	66.675	19.446	0.8	17600	312800	0.300	T-138
36.754	2	36.754	66.675	19.446	1.5	105900	316700	0.290	T-144
38.354	2	38.354	72.619	21.433	0.8	114700	337300	0.370	T-151
38.608	2	38.608	72.619	21.433	0.8	114700	337300	0.360	T-151.1
38.862	2	38.862	72.619	21.433	0.8	114700	337300	0.350	T-151.2

8.10 CYLINDRICAL ROLLER BEARINGS



Cylindrical Roller Bearings



Type E Cylindrical Roller Bearings



Double Row Cylindrical Roller Bearings

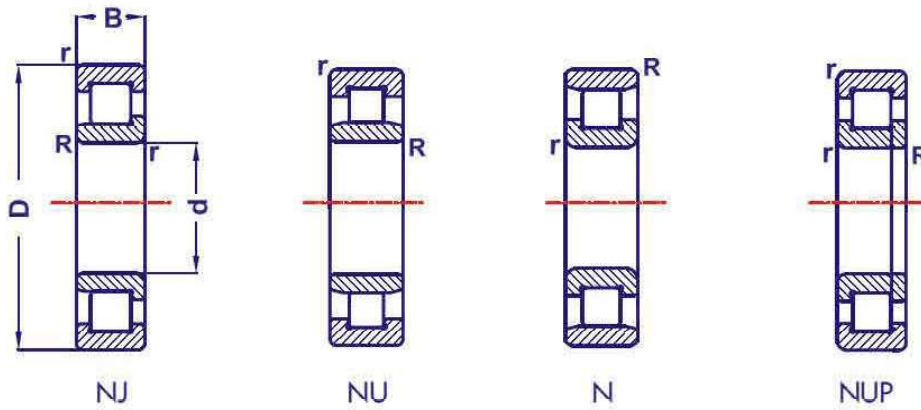
- ⇒ Since the rollers of cylindrical roller bearings make line the contact with the raceways, these bearings can support heavy radial loads and are suitable for high speed operation.
- ⇒ Cylindrical roller bearings come in various configuration as shown in the dimensional table. The rollers are guided by the collars of either the inner or outer ring.
- ⇒ Since NU and N type bearings are not provided with a collar on the inner and outer ring, the inner and outer ring can flow axially relative to the other under an axial load. These bearing are most suitable for use on the free side of the shaft.
- ⇒ Bearing type NJ, NUP and NF having collar ring on the both inner and outer ring and can receive a certain amount of axial load. These bearing types are sometimes used on the fixed side of the shafts.
- ⇒ Since cylindrical roller bearings are separable, they can easily be mounted or dismounted, in cases when interference fits are required.
- ⇒ **TYPE E CYLINDRICAL ROLLER BEARINGS :**

The boundary dimensions of type E cylindrical roller bearings are the same as those of the standard type. The load capacity of type E bearings is increased by enlarging the roller diameter, increased roller length, and by increasing the number of rollers. The bearings are classified by attaching the suffix "E" at end of the basic number.

Allowable misalignment

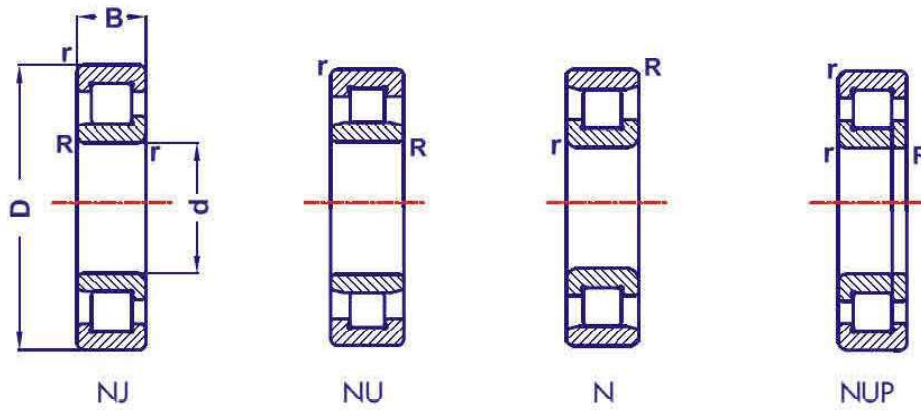
The allowable misalignment for cylindrical roller bearings is approximately 0.001 radian ($0^\circ, 3.5'$) for bearing series 0 and 1 and 0.115 radian ($0^\circ, 1.5'$) for bearing series 2. for double row cylindrical roller bearings. basically no misalignment is permitted.

8.10 CYLINDRICAL ROLLER BEARINGS (METRIC SERIES)



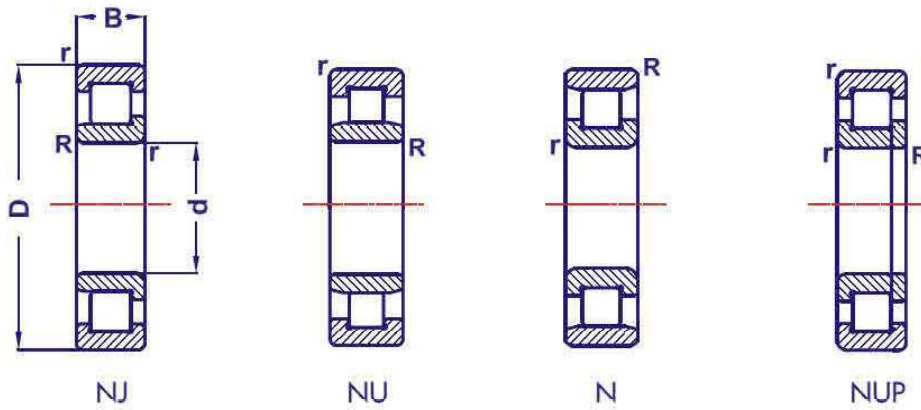
Boundary Dimensions				Basic Load Rating (N)		Limiting Speed (rpm)		Mass (Kg) (Approx)	Bearing Number
d (mm)	D (mm)	B (mm)	r/R (mm) min.	Dynamic C	Static Co	Grease	Oil		
15	35	11	0.6/0.3	10 600	8 700	16 200	19 800	0.047	NU 202
17	40	12	0.6/0.3	14 600	12 100	14 500	17 200	0.070	NJ 203
	40	12	0.6/0.3	14 600	12 100	14 500	17 200	0.068	NU 203
	40	12	0.6/0.3	14 600	12 100	14 500	17 200	0.066	N 203
	40	12	0.6/0.3	14 600	12 100	14 500	17 200	0.073	NUP 203
17	47	14	1.0/0.6	20 900	17 300	12 800	15 500	0.120	NJ 303
	47	14	1.0/0.6	20 900	17 300	12 800	15 500	0.120	NU 303
	47	14	1.0/0.6	20 900	17 300	12 800	15 500	0.120	N 303
	47	14	1.0/0.6	20 900	17 300	12 800	15 500	0.130	NUP 303
17	40	16	0.6/0.3	20 200	18 300	14 500	17 200	0.095	NJ 2203
	40	16	0.6/0.3	20 200	18 300	14 500	17 200	0.092	NU 2203
	40	16	0.6/0.3	20 200	18 300	14 500	17 200	0.097	NUP 2203
20	47	14	1.0/0.6	15 300	12 700	15 000	18 000	0.110	NJ 204
	47	14	1.0/0.6	15 300	12 700	15 000	18 000	0.110	NU 204
	47	14	1.0/0.6	15 300	12 700	15 000	18 000	0.110	N 204
	47	14	1.0/0.6	15 300	12 700	15 000	18 000	0.120	NUP 204
20	52	15	1.1/0.6	22 200	18 100	12 000	16 000	0.150	NJ 304
	52	15	1.1/0.6	22 200	18 100	12 000	16 000	0.150	NU 304
	52	15	1.1/0.6	22 200	18 100	12 000	16 000	0.150	N 304
	52	15	1.1/0.6	22 200	18 100	12 000	16 000	0.160	NUP 304
20	47	18	1.0/0.6	21 200	19 300	14 000	17 000	0.140	NJ 2204
	47	18	1.0/0.6	21 200	19 300	14 000	17 000	0.140	NU 2204
25	52	15	1.0/0.6	17 300	15 900	13 000	15 000	0.140	NJ 205
	52	15	1.0/0.6	17 300	15 900	13 000	15 000	0.130	NU 205
	52	15	1.0/0.6	17 300	15 900	13 000	15 000	0.130	N 205
	52	15	1.0/0.6	17 300	15 900	13 000	15 000	0.140	NUP 205
25	62	17	1.1/1.1	30 100	27 000	11 000	13 000	0.250	NJ 305
	62	17	1.1/1.1	30 100	27 000	11 000	13 000	0.240	NU 305
	62	17	1.1/1.1	30 100	27 000	11 000	13 000	0.240	N 305
	62	17	1.1/1.1	30 100	27 000	11 000	13 000	0.250	NUP 305
25	52	18	1.0/0.6	24 000	23 600	12 000	14 000	0.170	NJ 2205
	52	18	1.0/0.6	24 000	23 600	12 000	14 000	0.160	NU 2205
	52	18	1.0/0.6	24 000	23 600	12 000	14 000	0.170	NUP 2205

8.10 CYLINDRICAL ROLLER BEARINGS (METRIC SERIES)



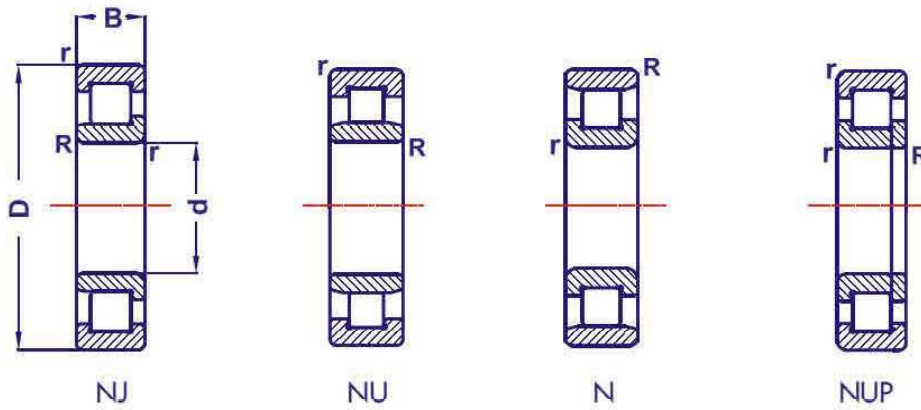
Boundary Dimensions				Basic Load Rating (N)		Limiting Speed (rpm)		Mass (Kg) (Approx)	Bearing Number
d (mm)	D (mm)	B (mm)	r/R (mm) min.	Dynamic C	Static Co	Grease	Oil		
30	62	16	1.0/0.6	23 500	22 000	11 000	13 000	0.210	NJ 206
	62	16	1.0/0.6	23 500	22 000	11 000	13 000	0.200	NU 206
	62	16	1.0/0.6	23 500	22 000	11 000	13 000	0.200	N 206
	62	16	1.0/0.6	23 500	22 000	11 000	13 000	0.220	NUP 206
	72	19	1.1/1.1	37 500	34 000	8 700	11 000	0.370	NJ 306
	72	19	1.1/1.1	37 500	34 000	8 700	11 000	0.360	NU 306
	72	19	1.1/1.1	37 500	34 000	8 700	11 000	0.360	N 306
	72	19	1.1/1.1	37 500	34 000	8 700	11 000	0.380	NUP 306
	62	20	1.0/0.6	34 000	35 000	9 800	12 000	0.270	NJ 2206
	62	20	1.0/0.6	34 000	35 000	9 800	12 000	0.260	NU 2206
	62	20	1.0/0.6	34 000	35 000	9 800	12 000	0.270	NUP 2206
	35	72	17	1.1/0.6	34 300	33 200	9 500	11 000	0.310
72		17	1.1/0.6	34 300	33 200	9 500	11 000	0.300	NU 207
72		17	1.1/0.6	34 300	33 200	9 500	11 000	0.300	N 207
72		17	1.1/0.6	34 300	33 200	9 500	11 000	0.310	NUP 207
80		21	1.5/1.1	48 700	46 000	7 900	10 000	0.490	NJ 307
80		21	1.5/1.1	48 700	46 000	7 900	10 000	0.480	NU 307
80		21	1.5/1.1	48 700	46 000	7 900	10 000	0.480	N 307
80		21	1.5/1.1	48 700	46 000	7 900	10 000	0.510	NUP 307
72		23	1.1/0.6	50 500	53 500	8 500	10 000	0.410	NJ 2207
72		23	1.1/0.6	50 500	53 500	8 500	10 000	0.400	NU 2207
72		23	1.1/0.6	50 500	53 500	8 500	10 000	0.420	NUP 2207
40		80	18	1.1/1.1	42 800	42 000	8 300	10 000	0.380
	80	18	1.1/1.1	42 800	42 000	8 300	10 000	0.370	NU 208
	80	18	1.1/1.1	42 800	42 000	8 300	10 000	0.370	N 208
	80	18	1.1/1.1	42 800	42 000	8 300	10 000	0.400	NUP 208
	90	23	1.5/1.5	57 700	56 300	7 000	9 000	0.670	NJ 308
	90	23	1.5/1.5	57 700	56 300	7 000	9 000	0.650	NU 308
	90	23	1.5/1.5	57 700	56 300	7 000	9 000	0.640	N 308
	90	23	1.5/1.5	57 700	56 300	7 000	9 000	0.680	NUP 308
	80	23	1.1/1.1	56 800	60 700	7 500	9 000	0.500	NJ 2208
	80	23	1.1/1.1	56 800	60 700	7 500	9 000	0.490	NU 2208
	80	23	1.1/1.1	56 800	60 700	7 500	9 000	0.510	NUP 2208

8.10 CYLINDRICAL ROLLER BEARINGS (METRIC SERIES)



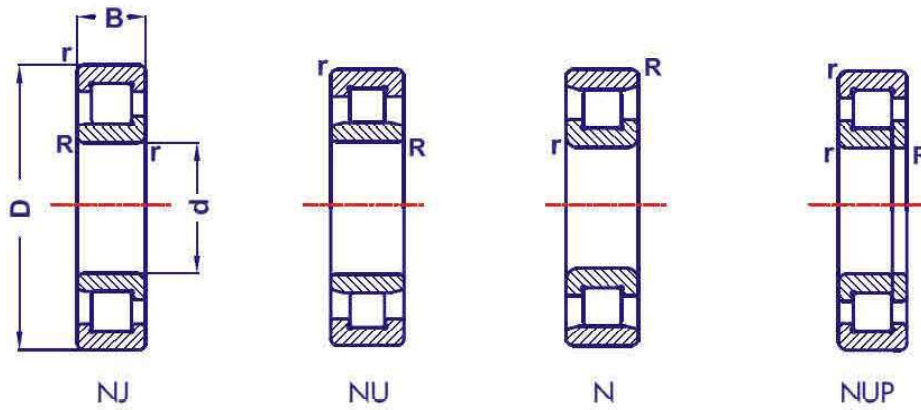
Boundary Dimensions				Basic Load Rating (N)		Limiting Speed (rpm)		Mass (Kg) (Approx)	Bearing Number
d (mm)	D (mm)	B (mm)	r/R (mm) min.	Dynamic C	Static Co	Grease	Oil		
45	85	19	1.1/1.1	45 000	46 000	7 700	9 200	0.440	NJ 209
	85	19	1.1/1.1	45 000	46 000	7 700	9 200	0.430	NU 209
	85	19	1.1/1.1	45 000	46 000	7 700	9 200	0.430	N 209
	85	19	1.1/1.1	45 000	46 000	7 700	9 200	0.450	NUP 209
	85	19	1.1/1.1	45 000	46 000	7 700	9 200	0.450	NF 209
	100	25	1.5/1.5	78 100	76 600	6 500	8 000	0.920	NJ 309
	100	25	1.5/1.5	78 100	76 600	6 500	8 000	0.900	NU 309
	100	25	1.5/1.5	78 100	76 600	6 500	8 000	0.880	N 309
	100	25	1.5/1.5	78 100	76 600	6 500	8 000	0.950	NUP 309
	100	25	1.5/1.5	85 100	86 600	6 000	7 500	0.950	NUP 309E
50	85	23	1.1/1.1	60 600	68 200	6 900	8 200	0.540	NJ 2209
	85	23	1.1/1.1	60 600	68 200	6 900	8 200	0.520	NU 2209
	85	23	1.1/1.1	60 600	68 200	6 900	8 200	0.550	NUP 2209
	90	20	1.1/1.1	49 700	53 600	7 100	8 500	0.490	NJ 210
	90	20	1.1/1.1	49 700	53 600	7 100	8 500	0.480	NU 210
	90	20	1.1/1.1	49 700	53 600	7 100	8 500	0.480	N 210
55	90	20	1.1/1.1	49 700	53 600	7 100	8 500	0.510	NUP 210
	110	27	2.0/2.0	85 500	85 000	5 600	7 200	1.150	NJ 310
	110	27	2.0/2.0	85 500	85 000	5 600	7 200	1.150	NU 310
	110	27	2.0/2.0	85 500	85 000	5 600	7 200	1.150	N 310
	110	27	2.0/2.0	85 500	85 000	5 600	7 200	1.200	NUP 310
	110	27	2.0/2.0	104 500	106 400	5 600	7 000	1.200	NUP 310E
	90	23	1.1/1.1	66 400	76 800	6 200	7 500	0.580	NJ 2210
	90	23	1.1/1.1	66 400	76 800	6 200	7 500	0.560	NU 2210
	90	23	1.1/1.1	66 400	76 800	6 200	7 500	0.590	NUP 2210
	90	23	1.1/1.1	66 400	76 800	6 200	7 500	0.590	NUP 2210
55	100	21	1.5/1.1	60 000	65 700	6 400	7 700	0.670	NJ 211
	100	21	1.5/1.1	60 000	65 700	6 400	7 700	0.660	NU 211
	100	21	1.5/1.1	60 000	65 700	6 400	7 700	0.660	N 211
	100	21	1.5/1.1	60 000	65 700	6 400	7 700	0.690	NUP 211
	100	21	1.5/1.1	60 000	65 700	6 400	7 700	0.690	NF 211
	100	21	1.5/1.1	60 000	65 700	6 400	7 700	0.690	NF 211

8.10 CYLINDRICAL ROLLER BEARINGS (METRIC SERIES)



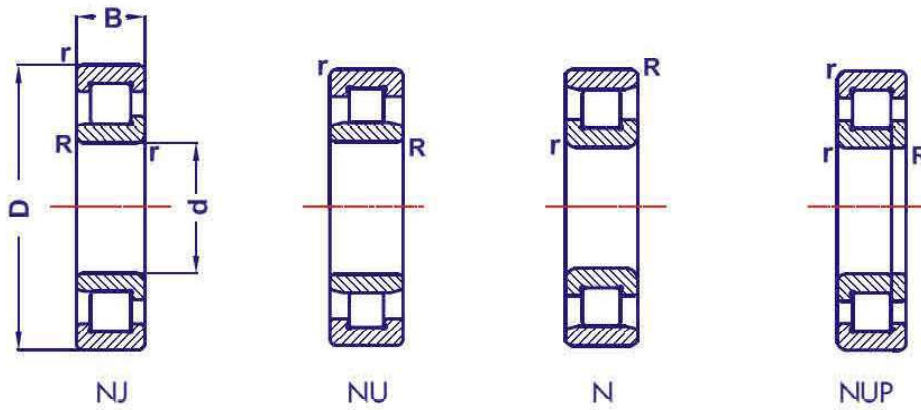
Boundary Dimensions				Basic Load Rating (N)		Limiting Speed (rpm)		Mass (Kg) (Approx)	Bearing Number	
d (mm)	D (mm)	B (mm)	r/R (mm) min.	Dynamic C	Static Co	Grease	Oil			
55	120	29	2.0/2.0	109 300	109 500	5 100	6 500	1.500	NJ 311	
	120	29	2.0/2.0	109 300	109 500	5 100	6 500	1.450	NU 311	
	120	29	2.0/2.0	109 300	109 500	5 100	6 500	1.450	N 311	
	120	29	2.0/2.0	109 300	109 500	5 100	6 500	1.550	NUP 311	
	120	29	2.0/2.0	131 100	135 800	5 000	6 300	1.550	NUP311E	
	100	25	1.5/1.1	78 000	91 500	5 800	6 800	0.810	NJ 2211	
	100	25	1.5/1.1	78 000	91 500	5 800	6 800	0.790	NU 2211	
	100	25	1.5/1.1	78 000	91 500	5 800	6 800	0.820	NUP 2211	
	60	110	22	1.5/1.5	70 500	76 700	5 800	7 000	0.830	NJ 212
		110	22	1.5/1.5	70 500	76 700	5 800	7 000	0.810	NU 212
		110	22	1.5/1.5	95 000	102 000	5 500	6 500	0.810	NU 212E
		110	22	1.5/1.5	70 500	76 700	5 800	7 000	0.810	N 212
		110	22	1.5/1.5	70 500	76 700	5 800	7 000	0.860	NUP 212
		130	31	2.1/2.1	122 300	124 000	4 700	6 000	1.900	NJ 312
		130	31	2.1/2.1	122 300	124 000	4 700	6 000	1.800	NU 312
130		31	2.1/2.1	122 300	124 000	4 700	6 000	1.800	N 312	
130		31	2.1/2.1	122 300	124 000	4 700	6 000	1.950	NUP 312	
110		28	1.5/1.5	98 800	120 000	5 200	6 100	1.100	NJ 2212	
110		28	1.5/1.5	98 800	120 000	5 200	6 100	1.100	NU 2212	
110		28	1.5/1.5	98 800	120 000	5 200	6 100	1.150	NUP 2212	
65		120	23	1.5/1.5	90 100	93 300	5 400	6 400	1.050	NJ 213
		120	23	1.5/1.5	90 100	93 300	5 400	6 400	1.050	NU 213
		120	23	1.5/1.5	90 100	93 300	5 400	6 400	1.050	N 213
	120	23	1.5/1.5	90 100	93 300	5 400	6 400	1.100	NUP 213	
	120	23	1.5/1.5	102 700	112 800	5 000	6 000	1.100	NUP213E	
	140	33	2.1/2.1	132 500	136 600	4 300	5 500	2.300	NJ 313	
	140	33	2.1/2.1	132 500	136 600	4 300	5 500	2.250	NU 313	
	140	33	2.1/2.1	132 500	136 600	4 300	5 500	2.250	N 313	
	140	33	2.1/2.1	132 500	136 600	4 300	5 500	2.350	NUP 313	
	120	31	1.5/1.5	117 900	146 000	4 800	5 800	1.450	NJ 2213	
	120	31	1.5/1.5	117 900	146 000	4 800	5 800	1.400	NU 2213	
	120	31	1.5/1.5	117 900	146 000	4 800	5 800	1.500	NUP 2213	

8.10 CYLINDRICAL ROLLER BEARINGS (METRIC SERIES)



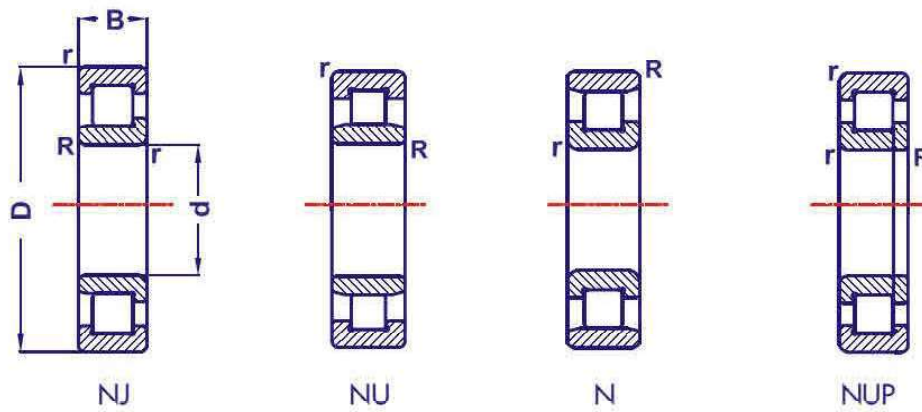
Boundary Dimensions				Basic Load Rating (N)		Limiting Speed (rpm)		Mass (Kg) (Approx)	Bearing Number	
d (mm)	D (mm)	B (mm)	r/R (mm) min.	Dynamic C	Static Co	Grease	Oil			
70	125	24	1.5/1.5	85 900	98 500	5 000	6 000	1.150	NJ 214	
	125	24	1.5/1.5	85 900	98 500	5 000	6 000	1.150	NU 214	
	125	24	1.5/1.5	85 900	98 500	5 000	6 000	1.150	N 214	
	125	24	1.5/1.5	85 900	98 500	5 000	6 000	1.200	NUP 214	
	150	35	2.1/2.1	155 200	164 800	4 000	5 000	2.800	NJ 314	
	150	35	2.1/2.1	155 200	164 800	4 000	5 000	2.750	NU 314	
	150	35	2.1/2.1	155 200	164 800	4 000	5 000	2.750	N 314	
	150	35	2.1/2.1	155 200	164 800	4 000	5 000	2.850	NUP 314	
	125	31	1.5/1.5	122 900	156 100	4 600	5 200	1.550	NJ 2214	
	125	31	1.5/1.5	122 900	156 100	4 600	5 200	1.500	NU 2214	
	125	31	1.5/1.5	122 900	156 100	4 600	5 200	1.550	NUP 2214	
	75	130	25	1.5/1.5	98 000	115 500	4 600	5 300	1.300	NJ 215
130		25	1.5/1.5	98 000	115 500	4 600	5 300	1.250	NU 215	
130		25	1.5/1.5	98 000	115 500	4 600	5 300	1.250	N 215	
130		25	1.5/1.5	98 000	115 500	4 600	5 300	1.300	NUP 215	
160		37	2.1/2.1	187 700	200 200	3 800	4 500	3.350	NJ 315	
160		37	2.1/2.1	187 700	200 200	3 800	4 500	3.300	NU 315	
160		37	2.1/2.1	187 700	200 200	3 800	4 500	3.300	N 315	
160		37	2.1/2.1	187 700	200 200	3 800	4 500	3.450	NUP 315	
130		31	1.5/1.5	134 800	170 800	4 300	5 000	1.600	NJ 2215	
130		31	1.5/1.5	134 800	170 800	4 300	5 000	1.600	NU 2215	
130		31	1.5/1.5	134 800	170 800	4 300	5 000	1.650	NUP 2215	
80		140	26	2.0/2.0	107 300	127 100	4 200	5 100	1.550	NJ 216
	140	26	2.0/2.0	107 300	127 100	4 200	5 100	1.500	NU 216	
	140	26	2.0/2.0	107 300	127 100	4 200	5 100	1.500	N 216	
	170	39	2.1/2.1	198 000	220 500	3 500	4 200	4.000	NJ 316	
	170	39	2.1/2.1	198 000	220 500	3 500	4 200	3.900	NU 316	
	170	39	2.1/2.1	198 000	220 500	3 500	4 200	3.900	N 316	
	140	33	2.0/2.0	150 000	195 000	4 000	4 600	1.930	NJ 2216	
	140	33	2.0/2.0	150 000	195 000	4 000	4 600	1.930	NU 2216	
	140	33	2.0/2.0	150 000	195 000	4 000	4 600	1.930	NUP 2216	
	85	150	28	2.0/2.0	123 200	146 000	4 100	4 800	1.950	NJ 217
		150	28	2.0/2.0	123 200	146 000	4 100	4 800	1.900	NU 217
		150	28	2.0/2.0	123 200	146 000	4 100	4 800	1.950	N 217

8.10 CYLINDRICAL ROLLER BEARINGS (METRIC SERIES)



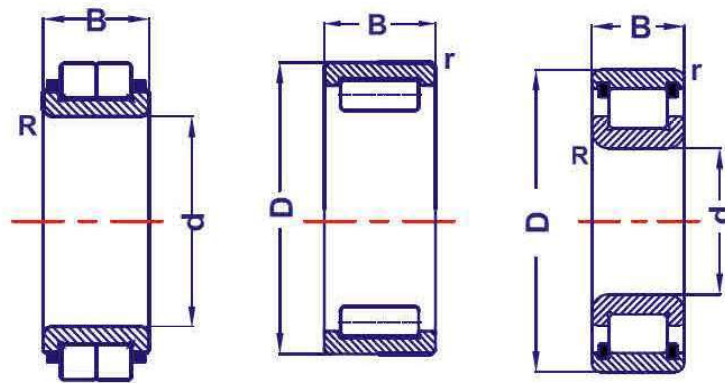
Boundary Dimensions				Basic Load Rating (N)		Limiting Speed (rpm)		Mass (Kg) (Approx)	Bearing Number
d (mm)	D (mm)	B (mm)	r/R (mm) min.	Dynamic C	Static Co	Grease	Oil		
85	180	41	3.0/3.0	222 400	244 700	3 300	4 200	4.800	NJ 317
	180	41	3.0/3.0	222 400	244 700	3 300	4 200	4.700	NU 317
	180	41	3.0/3.0	222 400	244 700	3 300	4 200	4.700	N 317
90	160	30	2.0/2.0	149 500	175 000	3 900	4 600	2.400	NJ 218
	160	30	2.0/2.0	149 500	175 000	3 900	4 600	2.350	NU 218
	160	30	2.0/2.0	149 500	175 000	3 900	4 600	2.400	N 218
90	190	43	3.0/3.0	237 100	362 000	3 300	4 000	5.550	NJ 318
	190	43	3.0/3.0	237 100	362 000	3 300	4 000	5.450	NU 318
	190	43	3.0/3.0	237 100	362 000	3 300	4 000	5.400	N 318
90	160	40	2.0/2.0	204 000	260 000	3 600	4 200	3.100	NJ 2218
	160	40	2.0/2.0	204 000	260 000	3 600	4 200	3.100	NU 2218
	160	40	2.0/2.0	204 000	260 000	3 600	4 200	3.100	NUP2218
95	170	32	2.1/2.1	160 500	190 000	3 600	4 300	2.750	NJ 219
	170	32	2.1/2.1	160 500	190 000	3 600	4 300	2.750	NU 219
	200	45	3.0/3.0	270 800	305 500	3 000	3 600	6.450	NJ 319
95	200	45	3.0/3.0	270 800	305 500	3 000	3 600	6.250	NU 319
	200	45	3.0/3.0	270 800	305 500	3 000	3 600	6.250	N 319
	200	67	3.0/3.0	390 800	491 200	2 800	3 300	9.550	NJ2319
100	180	34	2.1/2.1	180 000	207 000	3 400	4 100	3.330	NJ 220
	180	34	2.1/2.1	180 000	207 000	3 400	4 100	3.330	NU 220
	215	47	3.0/3.0	312 300	362 000	2 800	3 400	7.800	NJ 320
100	215	47	3.0/3.0	312 300	362 000	2 800	3 400	7.600	NU 320
	215	47	3.0/3.0	312 300	362 000	2 800	3 400	7.600	N 320
	225	49	3.0/3.0	354 000	410 000	2 600	3 000	8.650	N 321
110	200	38	2.1/2.1	220 200	230 200	3 000	3 500	4.600	NJ 222
	200	38	2.1/2.1	220 200	230 200	3 000	3 500	4.600	NU 222
	200	38	2.1/2.1	220 200	230 200	3 000	3 500	4.600	N 222
110	240	50	3.0/3.0	397 800	459 000	2 400	2 700	10.500	N 322
	240	50	3.0/3.0	397 800	459 000	2 400	2 700	10.500	NJ 322
	240	50	3.0/3.0	397 800	459 000	2 400	2 700	10.500	NU 322
	240	50	3.0/3.0	397 800	459 000	2 400	2 700	11.000	NUP 322

8.10 CYLINDRICAL ROLLER BEARINGS (METRIC SERIES)



Boundary Dimensions				Basic Load Rating (N)		Limiting Speed (rpm)		Mass (Kg)	Bearing Number
d (mm)	D (mm)	B (mm)	r/R (mm) min.	Dynamic C	Static Co	Grease	Oil		
120	260	55	3.0/3.0	458 100	527 000	2 000	2 600	13.500	NJ 324
	260	55	3.0/3.0	458 100	527 000	2 000	2 600	13.500	NU 324
	260	55	3.0/3.0	458 100	527 000	2 000	2 600	13.000	N 324
	260	55	3.0/3.0	458 100	527 000	2 000	2 600	14.000	NUP 324
130	280	58	4.0/4.0	532 900	637 500	2 000	2 400	19.000	NJ 326
	280	58	4.0/4.0	532 900	637 500	2 000	2 400	18.500	NU 326
	280	58	4.0/4.0	532 900	637 500	2 000	2 400	18.500	N 326
	280	58	4.0/4.0	532 900	637 500	2 000	2 400	19.500	NUP 326
140	300	62	4.0/4.0	579 700	705 500	1 800	2 200	23.000	NJ 328
	300	62	4.0/4.0	579 700	705 500	1 800	2 200	22.500	NU 328
	300	62	4.0/4.0	579 700	705 500	1 800	2 200	23.500	NUP 328
150	270	45	3.0/3.0	370 100	480 000	2 000	2 600	10.500	NJ 230

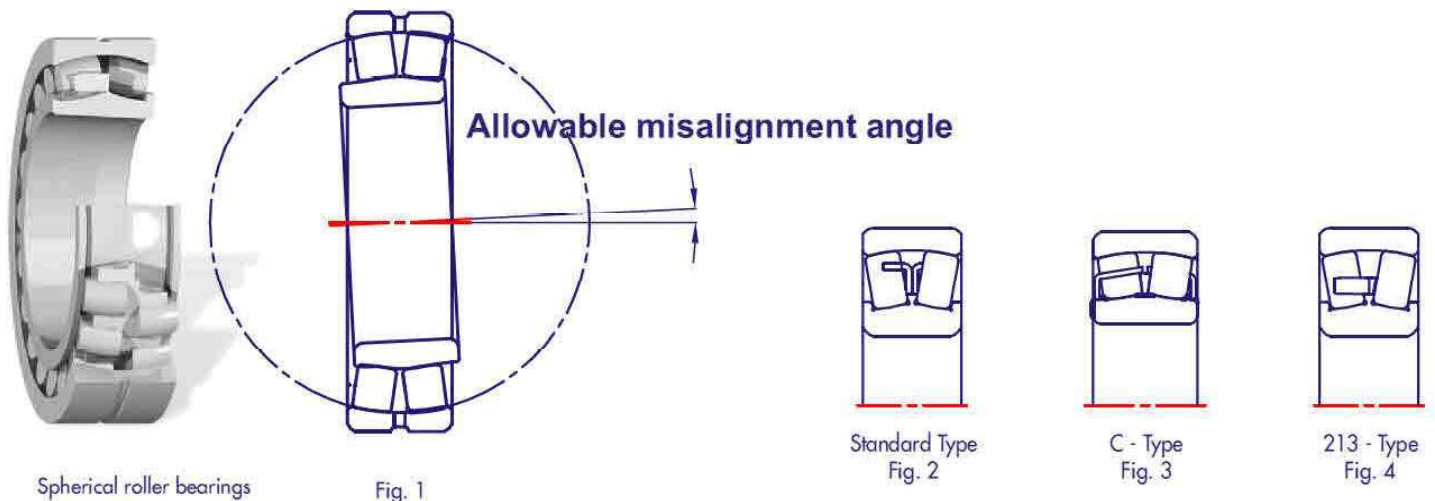
8.10 CYLINDRICAL ROLLER BEARINGS (SPECIAL)



Boundary Dimensions				Basic Load Rating (N)		Limiting Speed (rpm)	Mass (Kg)	Bearing Number
d (mm)	D (mm)	B (mm)	r/R (mm) min.	Dynamic C	Static Co	Oil		
25.4	-	28.575	1.8/-	54 500	34 100	-	0.260	LO 64
28.575	71.438	20.638	2.4/2.4	40 900	25 300	10 000	0.420	CFM 9
31.75	79.375	22.225	2.4/2.4	48 650	30 000	9 000	0.567	CFM 10
24	50	19	2.5/2.5	28 900	22 500	13 000	0.169	JC 8008
30	62	19.05	0.7/3.2	41 200	36 800	12 000	0.275	JC 8002
50	80	15	0.6/0.6	38 000	25 400	12 000	0.262	JC 8003
80	150	28	2.8/1.5	150 000	173 600	5 000	2.360	566616*
35	90	23	2.5/1.5	95 200	103 900	6 000		HY 83008
45	100	36	2.5/2.0	98 200	95 900	6 000	1.360	805262^
-	90	23	- / 1.5	69 000	65 300	-	0.580	403635^
-	50	17	0.12/0.5	27 500	19 100	-	0.120	JC 8009^
40	-	32	3.0 /-	96 600	135 900	-	0.320	F 49285
30	-	26.11	1.5 /-	75 500	83 200	-	0.320	512533M
-	70.620	26.965	-/1.0	57 600	77 300	-	0.303	RNU 0727
30	62	24	2.5/2.0	45 600	48 800	12 000	0.323	RNU 0619

* Rib on Outer
^ With Snapping

8.11 SPHERICAL ROLLER BEARINGS



Spherical roller bearings consist of an outer ring having a continuous spherical raceway centered within and two rows of barrel-shaped rollers operating in separate raceway grounds ground into the inner ring with a center rib to guide the roller (refer to fig.. 1.) This type of bearing has a self aligning nature, so, it can be used in cases where misalignment between the inner and outer ring occur from shaft mounting errors of shaft deflections.

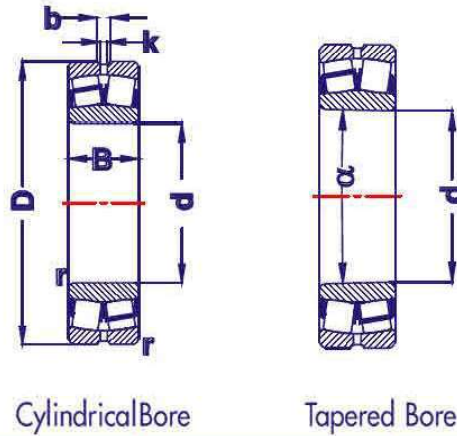
The allowable misalignment for these bearings, being varied due to the dimensional series and loading conditions, is about 0.0009 radian (0.5') for ordinary loads. For light loads, this angle can be up to 0.035 radians (2')

These bearings have a large capacity for radial loads, axial loads in either direction, and combinations of these loads, They are also suited for applications where vibration and/ or impact forces are encountered

The design of spherical roller bearing are standardized so that the center roller guide rib comes standard with the inner ring as one united inner ring (please refer to fig. 2). Smaller bearings (Bore diameter of 50mm or less) of bearing series 222,213 and 223 come in the design shown in Fig. 3. This design uses a separable guide ring between the two rows of roller and is specified by attaching the suffix "C" at the end of the basic number. For the bearing of series 213 (bore diameter of 55mm or more) the guide ring between the rollers is located on the raceway of the outer ring (please refer to Fig. 4.0)

There are other types of bearings having cylindrical or taper bore diameters. Bearings with tapered bore diameters are specified by attaching th suffix "K" at the end of the basic number. The taper is generally 1/12, however, a taper of 1/30 is made for bearings of series 240 and 241 which are specified by attaching the suffix "K-30" at the end of the basic number. In most cases, bearings with tapered bore diameters are mounted on the shaft by means of an adapter or withdrawal sleeve. When the outer diameter of spherical roller bearings is 320mm or more, an oil hole and oil groove provided in the outer ring to supply lubricant.

8.11 SPHERICAL ROLLER BEARINGS (METRIC SERIES)

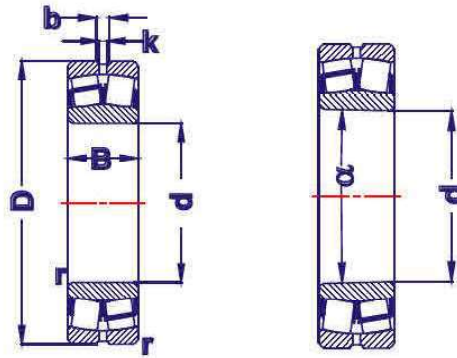


Cylindrical Bore

Tapered Bore

Boundary Dimensions					Basic Load Rating (N)		Limiting Speed (rpm)		Mass (Kg)	Bearing Number	
d (mm)	D (mm)	B (mm)	r (mm)	b/k (mm)	Dynamic C	Static Co	Grease	Oil			
25	52	18	1.0	5.5/3.0	32200	32200	8000	10000	0.180	22205CW33	22205CKW33
30	62	20	1.0	5.5/3.0	44000	46800	6700	8500	0.280	22206CW33	22206CKW33
	72	19	1.1	5.5/3.0	49600	54900	4500	6000	0.380	21306CW33	21306CKW33
35	72	23	1.1	5.5/3.0	60500	66000	5600	7100	0.430	22207CW33	22207CKW33
	80	21	1.5	5.5/3.0	59000	64800	4000	5300	0.510	21307CW33	21307CKW33
40	80	23	1.1	5.5/3.0	66200	73300	5000	6300	0.520	22208CW33	22208CKW33
	90	23	1.5	5.5/3.0	74500	88200	3600	4500	0.710	21308CW33	21308CKW33
	90	33	1.5	5.5/3.0	103500	109800	4000	5000	1.000	22308CW33	22308CKW33
45	85	23	1.1	5.5/3.0	69300	79200	4500	6000	0.560	22209CW33	22209CKW33
	100	25	1.5	5.5/3.0	90900	102600	3200	4000	0.950	21309CW33	21309CKW33
	100	36	1.5	5.5/3.0	124200	144000	3500	4500	1.350	22309CW33	22309CKW33
50	90	23	1.1	5.5/3.0	76000	90000	4300	5300	0.600	22210CW33	22210CKW33
	110	27	2.0	5.5/3.0	108000	126000	2800	3800	1.200	21310CW33	21310CKW33
	110	40	2.0	5.5/3.0	158400	180000	3000	4000	1.850	22310CW33	22310CKW33
55	100	25	1.5	5.5/3.0	89500	106200	3800	5000	0.820	22211CW33	22211CKW33
	120	29	2.0	5.5/3.0	124200	146700	2600	3400	1.600	21311CW33	21311CKW33
	120	43	2.0	5.5/3.0	179100	208800	2800	3800	2.350	22311CW33	22311CKW33
60	110	28	1.5	5.5/3.0	109800	131400	3600	4500	1.100	22212CW33	22212CKW33
	130	31	2.1	5.5/3.0	144900	180000	2400	3200	1.950	21312CW33	21312CKW33
	130	46	2.1	5.5/3.0	211500	252000	2700	3400	2.950	22312CW33	22312CKW33
65	120	31	1.5	5.5/3.0	133200	164700	3200	4000	1.450	22213CW33	22213CKW33
	140	33	2.1	5.5/3.0	165600	216000	2200	3000	2.450	21313CW33	21313CKW33
	140	48	2.1	8.3/4.5	227300	270000	2300	3000	3.550	22313CW33	22313CKW33
70	125	31	1.5	5.5/3.0	133200	167400	3000	3800	1.550	22214CW33	22214CKW33
	150	35	2.1	5.5/3.0	186300	234000	2000	2800	3.000	21314CW33	21314CKW33
	150	51	2.1	8.3/4.5	279900	342000	2000	2800	4.300	22314CW33	22314CKW33
75	130	31	1.5	5.5/3.0	142200	187200	3000	3800	1.650	22215CW33	22215CKW33
	160	37	2.1	5.5/3.0	211500	270000	1900	2600	3.550	21315CW33	21315CKW33
	160	55	2.1	8.3/4.5	310500	387000	2000	2800	5.250	22315CW33	22315CKW33
80	140	33	2.0	5.5/3.0	158400	205200	2800	3400	2.050	22216CW33	22216CKW33
	170	39	2.1	5.5/3.0	232200	301500	1800	2400	4.200	21316CW33	21316CKW33
	170	58	2.1	8.3/4.5	336600	409500	1800	2600	6.200	22316CW33	22316CKW33

8.11 SPHERICAL ROLLER BEARINGS (METRIC SERIES)

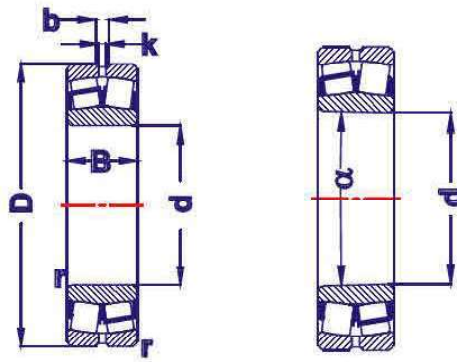


Cylindrical Bore

Tapered Bore

Boundary Dimensions					Basic Load Rating (N)		Limiting Speed (rpm)		Mass (Kg)	Bearing Number	
d (mm)	D (mm)	B (mm)	r (mm)	b/k (mm)	Dynamic C	Static Co	Grease	Oil			
85	150	36	2.0	5.5/3.0	189000	243000	2600	3200	2.55	22217CW33	22217CKW33
	180	41	3.0	5.5/3.0	263000	337000	1700	2200	5.00	21317CW33	21317CKW33
	180	60	3.0	8.3/4.5	378000	468000	1700	2400	7.25	22317CW33	22317CKW33
90	160	40	2.0	5.5/3.0	227000	306000	2400	3000	3.40	22218CW33	22218CKW33
	160	52.4	2.0	5.5/3.0	279000	396000	1800	2400	4.60	23218CW33	23218CKW33
	190	43	3.0	5.5/3.0	290000	382000	1600	2200	5.80	21318CW33	21318CKW33
	190	64	3.0	11.1/6.0	429000	549000	1600	2200	8.60	22318CW33	22318CKW33
95	170	43	2.1	8.3/4.5	253000	337000	2200	2800	4.00	22219CW33	22219CKW33
	200	67	3.0	11.1/6.0	466000	603000	1600	2200	10.00	22319CW33	22319CKW33
100	165	52	2.0	5.5/3.0	289000	441000	1700	2200	4.40	23120CW33	23120CKW33
	180	46	2.1	8.3/4.5	280000	373000	2200	2600	4.85	22220CW33	22220CKW33
	180	60.3	2.1	8.3/4.5	372000	540000	1600	2200	6.70	23220CW33	23220CKW33
	215	73	3.0	11.1/6.0	549000	720000	1500	2000	13.00	22320CW33	22320CKW33
110	170	45	2.0	5.5/3.0	240000	396000	2000	2400	3.75	23022CW33	23022CKW33
	180	56	2.0	8.3/4.5	336000	526000	1600	2000	5.55	23122CW33	23122CKW33
	200	53	2.1	8.3/4.5	367000	504000	1900	2400	7.00	22222CW33	22222CKW33
	200	69.8	2.1	8.3/4.5	466000	688000	1500	1900	9.70	23222CW33	23222CKW33
	240	80	3.0	13.9/7.5	652000	868000	1700	2200	18.00	22322CW33	22322CKW33
120	180	46	2.0	5.5/3.0	274000	459000	1800	2200	4.20	23024CW33	23024CKW33
	180	60	2.0	5.5/3.0	336000	603000	1500	2000	5.40	24024CW33	24024CK-30W33
	200	62	2.0	8.3/4.5	404100	625000	1400	1800	7.80	23124CW33	23124CKW33
	215	58	2.1	11.1/6.0	419700	603000	1700	2200	8.70	22224CW33	22224CKW33
	215	76	2.1	8.3/4.5	549000	837000	1300	1700	12.00	23224CW33	23224CKW33
	260	86	3.0	13.9/7.5	760500	1000000	1300	1700	22.00	22324CW33	22324CKW33
130	200	52	2.0	8.3/4.5	336000	549000	1700	2000	6.10	23026CW33	23026CKW33
	200	69	2.0	5.5/3.0	429000	733000	1400	1800	7.95	24026CW33	24026CK-30W33
	210	64	2.0	8.3/4.5	440000	702000	1300	1700	8.55	23126CW33	23126CKW33
	230	64	3.0	11.1/6.0	491000	720000	1600	2000	11.00	22226CW33	22226CKW33
	230	80	3.0	8.3/4.5	621000	954000	1200	1600	14.00	23226CW33	23226CKW33
	280	93	4.0	16.7/9.0	900000	1150000	1200	1600	26.80	22326MBW33	22326KMBW33
	280	93	4.0	16.7/9.0	831300	1095600	1040	1360	28.50	22326CW33	22326CKW33
	280	93	4.0	16.7/9.0	830000	1250000	1300	1700	29.10	-----	73727
140	210	53	2.0	8.3/4.5	357000	612000	1600	1900	6.55	23028CW33	23028CKW33
	210	69	2.0	5.5/3.0	445000	810000	1300	1700	8.45	24028CW33	24028CK-30W33
	225	68	2.1	8.3/4.5	491000	810000	1200	1600	10.50	23128CW33	23128CKW33
	250	68	3.0	11.1/6.0	549000	810000	1400	1700	14.00	22228CW33	22228CKW33
	250	88	3.0	11.1/6.0	719000	1125000	1100	1500	18.50	23228CW33	23228CKW33
	300	102	4.0	16.7/9.0	1000000	1200000	1000	1400	33.80	22328MBW33	22328KMBW33
	300	102	4.0	16.7/9.0	960500	1294800	800	1200	34.50	22328CW33	22328CKW33

8.11 SPHERICAL ROLLER BEARINGS (METRIC SERIES)

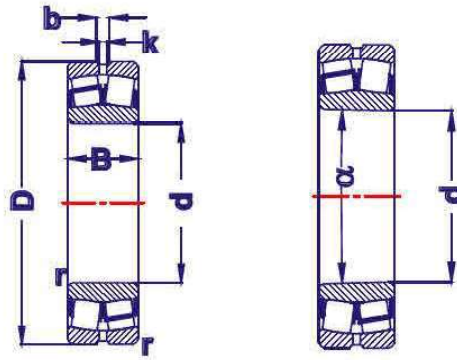


Cylindrical Bore

Tapered Bore

Boundary Dimensions					Basic Load Rating (N)		Limiting Speed (rpm)		Mass (Kg)	Bearing Number	
d (mm)	D (mm)	B (mm)	r (mm)	b/k (mm)	Dynamic C	Static Co	Grease	Oil			
150	225	56	2.1	8.3/4.5	393000	675000	1400	1800	7.95	23030CW33	23030CKW33
	225	75	2.1	5.5/3.0	507000	936000	1200	1500	10.50	24030CW33	24030CK-30W33
	250	80	2.1	11.1/6.0	652000	1080000	1100	1400	16.00	23130CW33	23130CKW33
	270	73	3.0	13.9/7.5	662000	972000	1300	1600	18.00	22230CW33	22230CKW33
	270	96	3.0	11.1/6.0	810000	1200000	1000	1300	23.50	23230MBW33	23230KMBW33
	320	108	4.0	16.7/9.0	1050000	1500000	1000	1200	41.80	22330MBW33	22330KMBK33
	320	108	4.0	16.7/9.0	1080000	1460000	800	1120	41.50	22330CW33	22330CKW33
160	240	60	2.1	11.1/6.0	455000	792000	1300	1700	9.70	23032CW33	23032CKW33
	240	80	2.1	8.3/4.5	590000	1080000	1100	1400	13.00	24032CW33	24032CK-30W33
	270	86	2.1	13.9/7.5	760000	1133000	1000	1300	20.50	23132CW33	23132CKW33
	290	80	3.0	13.9/7.5	780000	1150000	950	1300	22.50	22232MBW33	22232KMBW33
	290	80	3.0	13.9/7.5	733000	1070000	1200	1600	22.50	22232CW33	22232CKW33
	290	104	3.0	13.9/7.5	900000	1400000	900	1200	29.10	23232MBW33	23232KMBW33
	340	114	4.0	16.7/9.0	1180000	1650000	900	1150	50.00	22332MBW33	22332KMBW33
	340	114	4.0	16.7/9.0	1173000	1626000	760	1040	50.00	22332CW33	22332CKW33
170	260	67	2.1	11.1/6.0	558000	954000	1200	1600	13.00	23034CKW33	23034CKW33
	260	90	2.1	8.3/4.5	680000	1210000	800	1120	17.50	24034CW33	24034CK-30W33
	260	90	2.1	8.3/4.5	700000	1250000	900	1300	17.50	24034MBW33	24034KMB-30W33
	280	88	2.1	13.9/7.5	750000	1270000	900	1200	21.50	23134MBW33	23134KMBW33
	280	88	2.1	13.9/7.5	762000	1240000	960	1280	21.50	23134CW33	23134CKW33
	310	86	4.0	16.7/9.0	890000	1300000	900	1300	28.00	22234MBW33	22234KMBW33
	310	86	4.0	16.7/9.0	831000	1211000	1040	1360	28.50	22234CW33	22234CKW33
	310	110	4.0	13.9/7.5	1000000	1650000	800	1200	35.80	23234MBW33	23234KMBW33
	360	120	4.0	16.7/9.0	1300000	1800000	800	1100	58.50	22334MBW33	22334KMBW33
	360	120	4.0	16.7/9.0	1310000	1792000	760	1040	58.50	22334CW33	22334CKW33
	180	280	74	2.1	13.9/7.5	652000	1125000	1100	1400	16.50	23036CW33
280		100	2.1	8.3/4.5	796000	1430000	760	1040	23.00	24036CW33	24036CK-30W33
280		100	2.1	8.3/4.5	800000	1600000	900	1200	23.00	24036MBW33	24036KMB-30W33
250		52	2.0	5.5/3.0	366000	690000	1360	1760	8.20	23936CW33	23936CKW33
300		96	3.0	13.9/7.5	850000	1450000	850	1200	24.20	23136MBW33	23136MBKW33
300		96	3.0	13.9/7.5	892000	1490000	880	1200	27.50	23136CW33	23136CKW33
320		86	4.0	16.7/9.0	880000	1420000	850	1200	29.30	22236MBW33	22236KMBW33
320		86	4.0	16.7/9.0	860000	1326000	1040	1360	29.50	22236CW33	22236CKW33
320		112	4.0	13.9/7.5	1000000	1800000	800	1100	37.80	23236MBW33	23236KMBW33
380		126	4.0	22.3/12.0	1500000	2200000	800	1050	69.00	22336MBW33	22336KMBW33
380		126	4.0	22.3/12.0	1470000	2033000	720	960	69.00	22336CW33	22336CKW33
190		290	75	2.1	13.9/7.5	677000	1200000	900	1300	17.50	23038CW33
	290	100	2.1	8.3/4.5	83100	1490000	760	1040	24.00	24038CW33	24038CK-30W33
	290	100	2.1	8.3/4.5	800000	1600000	850	1200	24.00	24038MBW33	24038KMB-30W33

8.1.1 SPHERICAL ROLLER BEARINGS (METRIC SERIES)

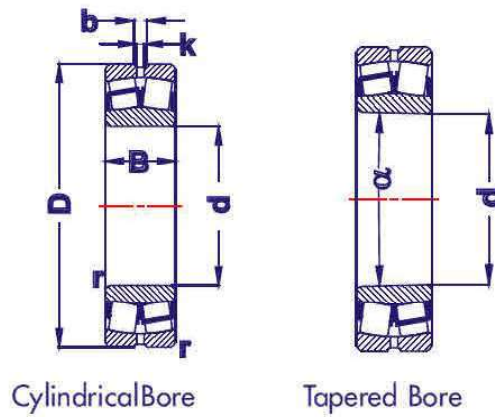


Cylindrical Bore

Tapered Bore

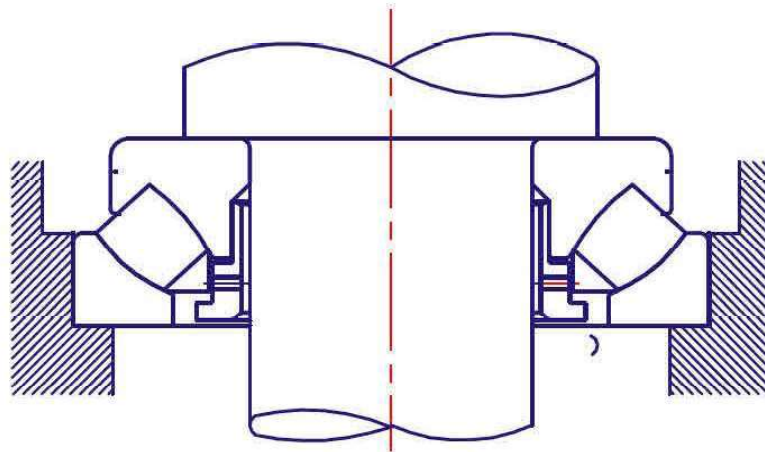
Boundary Dimensions					Basic Load Rating (N)		Limiting Speed (rpm)		Mass (Kg)	Bearing Number	
d (mm)	D (mm)	B (mm)	r (mm)	b/k (mm)	Dynamic C	Static Co	Grease	Oil			
190	320	104	3.0	13.9/7.5	1000000	1650000	800	1100	34.50	23138MBW33	23138KMBW33
	320	104	3.0	13.9/7.5	1020000	1720000	800	1120	34.50	23138CW33	23138CKW33
	260	52	2.0	5.5/3.0	352000	660000	1360	1760	8.40	23938CW33	23938CKW33
	340	92	4.0	16.7/9.0	980000	1680000	800	1100	36.70	22238MBW33	22238KMBW33
	340	92	4.0	16.7/9.0	943000	1400000	960	1280	36.50	22238CW33	22238CKW33
	340	120	4.0	16.7/9.0	1200000	2000000	750	1000	47.60	23238MBW33	23238KMBW33
	400	132	5.0	22.3/12.0	1550000	2450000	750	950	80.00	22338MBW33	22338KMBW33
	400	132	5.0	22.3/12.0	1590000	2200000	680	880	80.00	22338CW33	22338CKW33
200	310	82	2.1	13.9/7.5	800000	1400000	900	1300	22.70	23040MBW33	23040KMBW33
	310	109	2.1	11.1/6.0	960000	1760000	720	960	30.50	24040CW33	24040CK-30W33
	310	109	2.1	11.1/6.0	1000000	1900000	800	1100	30.50	24040MBW33	24040KMB-30W33
	340	112	3.0	16.7/9.0	1200000	2000000	750	1000	42.50	23140MBW33	23140KMBW33
	340	112	3.0	16.7/9.0	1173000	1958000	750	1040	42.50	23140CW33	23140CKW33
	280	60	2.1	8.3/4.5	464000	860000	1260	1600	11.50	23940CW33	23940CKW33
	360	98	4.0	16.7/9.0	1150000	1800000	800	1100	43.50	22240MBW33	22240KMBW33
	360	98	4.0	16.7/9.0	1080000	1600000	900	1245	43.50	22240CW33	22240CKW33
	360	128	4.0	16.7/9.0	1450000	2450000	700	1000	57.20	23240MBW33	23240KMBW33
	420	138	5.0	22.3/12.0	1850000	2650000	700	900	92.50	22340MBW33	22340KMBW33
	420	138	5.0	22.3/12.0	1717000	2460000	680	880	92.50	22340CW33	22340CKW33
	220	340	90	3.0	13.9/7.5	880000	1700000	800	1100	30.50	23044MBW33
340		90	3.0	13.9/7.5	892000	1540000	880	1200	30.50	23044CW33	23044CKW33
340		118	3.0	11.1/6.0	1180000	2300000	700	1000	39.50	24044MBW33	24044KMB-30W33
340		118	3.0	11.1/6.0	1156000	2150000	680	880	39.50	24044CW33	24044CK-30W33
300		60	2.1	8.3/4.5	464000	896000	1200	1520	13.00	23944CW33	23944CKW33
370		120	4.0	16.7/9.0	1343000	2282000	720	960	53.00	23144CW33	23144CKW33
400		108	4.0	16.7/9.0	1292000	1960000	760	1040	60.50	22244CW33	22244CKW33
240		360	92	3.0	13.9/7.5	1000000	1880000	750	1000	33.50	23048MBW33
	360	92	3.0	13.9/7.5	960000	1726000	800	1120	33.50	23048CW33	23048CKW33
	360	118	3.0	11.1/6.0	1250000	2500000	650	900	43.00	24048MBW33	24048KMB-30W33
	400	128	4.0	16.7/9.0	1521000	2650000	680	880	65.50	23148CW33	23148CKW33
	440	120	4.0	22.3/12.0	1620000	2490000	720	960	83.00	22248CW33	22248CKW33
	260	400	104	4.0	16.7/9.0	1200000	2300000	700	900	48.50	23052MBW33
400		104	4.0	16.7/9.0	1190000	2116000	720	960	48.50	23052CW33	23052CKW33
440		144	4.0	16.7/9.0	1887000	3237000	640	800	90.50	23152CW33	23152CKW33
480		130	5.0	22.3/12.0	1955000	2946000	680	880	110.00	22252CW33	22252CKW33
280		420	106	4.0	16.7/9.0	1300000	2500000	600	900	52.50	23056MBW33
	420	106	4.0	16.7/9.0	1292000	2360000	680	880	52.50	23056CW33	23056CKW33
	460	146	5.0	16.7/9.0	1955000	3520000	600	760	97.00	23156CW33	23156CKW33

8.11 SPHERICAL ROLLER BEARINGS (METRIC SERIES)



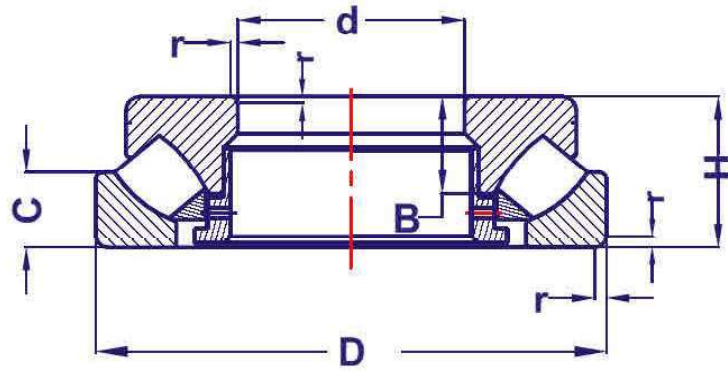
Boundary Dimensions					Basic Load Rating (N)		Limiting Speed (rpm)		Mass (Kg)	Bearing Number	
d (mm)	D (mm)	B (mm)	r (mm)	b/k (mm)	Dynamic C	Static Co	Grease	Oil			
300	460	118	4.0	16.7/9.0	1650000	3100000	600	850	71.50	23060MBW33	23060KMBW33
	460	118	4.0	16.7/9.0	1564000	2860000	640	800	71.50	23060CW33	23060CKW33
	500	160	5.0	16.7/9.0	2390000	4230000	536	680	125.00	23160CW33	23160VKW33
320	480	121	4.0	16.7/9.0	1750000	3450000	500	750	78.00	23064MBW33	23064KMBW33
	480	121	4.0	16.7/9.0	1666000	3150000	640	800	78.00	23064CW33	23064CKW33
	540	176	5.0	22.3/12.0	2788000	4980000	504	640	165.00	23164CW33	23164CKW33
340	520	133	5.0	22.3/12.0	2000000	3800000	500	700	104.00	23068MBW33	23068KMBW33
	520	133	5.0	22.3/12.0	1997000	3770000	560	720	105.00	23068CW33	23068CKW33
	580	190	5.0	22.3/12.0	3128000	5640000	480	600	210.00	23168CW33	23168CKW33
360	540	134	5.0	22.3/12.0	2030000	3980000	536	680	110.00	23072CW33	23072CKW33
400	590	142	6.0	-----	2400000	5200000	500	600	145.00	3880	-----

8.12 SPHERICAL ROLLER THRUST BEARINGS



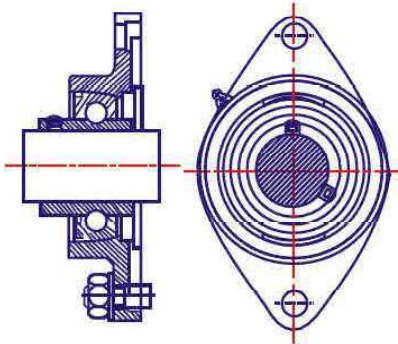
- ⇒ These bearings have a spherical raceway in the housing washer and barrel shaped Rollers obliquely arranged around it.
- ⇒ Since the raceway in the housing washer is spherical, these bearings are self-aligning.
- ⇒ They can accommodate heavy axial loads and moderate radial loads. When an axial load is applied the radial load must be less than 55% of the axial load. They are suitable for relatively high speeds.
- ⇒ For proper lubrication of roll heads inner ring rib, sliding surfaces between cage and guide sleeves etc, oil lubrication is advised even at low speed. When using greases as lubricant, It is necessary to ensure that the roll heads/rib contacts are adequately supplied with grease
- ⇒ The bearings have pressed steel cage (no cage suffix) or machined brass cage. The cage hold together the roller set and the shaft washer.

8.12 SPHERICAL ROLLER THRUST BEARINGS (METRIC SERIES)

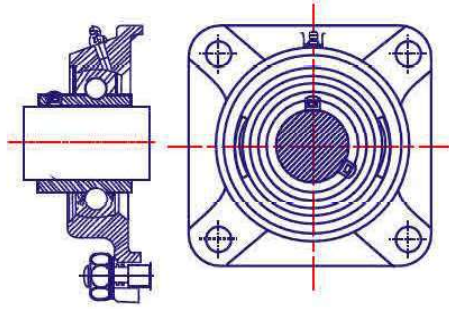


Boundary Dimensions				Basic Load Rating (N)		r (mm) min.	Limiting Speed (rpm)		Mass (Kg)	Bearing Number
d (mm)	D (mm)	H (mm)	C/B (mm)	Dynamic C	Static Co		Grease	Oil		
60	130	42	21.0/27.0	293300	777800	1.5	1600	2200	2.60	29412M
65	140	45	22.0/29.5	337500	918000	2.0	1500	2100	3.30	29413M
70	150	48	23.8/31.0	381700	1062500	2.0	1400	1900	4.00	29414M
75	160	51	24.5/33.5	440300	1215500	2.0	1400	1900	4.70	29415M
80	170	54	26.5/35.0	488800	1385500	2.1	1300	1700	5.90	29416M
85	150	39	20.0/24.5	280000	900000	1.5	1400	1900	2.80	29317M
	180	58	28.0/37.0	538100	1530000	2.1	1100	1600	7.00	29417M
90	155	39	19.5/24.5	293500	920000	1.5	1400	1900	3.00	29318M
	190	60	28.5/39.0	596700	1700000	2.1	1100	1600	8.10	29418M
100	170	42	20.5/26.2	346800	1090000	1.5	1300	1700	3.80	29320M
	210	67	32.0/43.0	733600	2125000	3.0	1000	1400	11.10	29420M
110	190	48	24.8/30.3	454800	1470500	2.0	1100	1600	5.50	29322M
	230	73	34.7/47.0	858500	2550000	3.0	800	1200	14.60	29422M
120	210	54	27.0/34.0	557600	1800000	2.1	1000	1400	7.60	29324M
	250	78	36.5/50.5	994500	2932500	4.0	800	1100	18.10	29424M
130	225	58	30.1/36.7	640100	2125000	2.1	900	1300	9.40	29326M
	270	85	40.9/54.0	1173000	2442500	4.0	750	1100	22.80	29426M
140	240	60	30.0/38.5	718300	2422500	2.1	850	1200	11.00	29328M
	280	85	41.0/54.0	1190000	3655000	4.0	750	1100	24.60	29428M
150	250	60	28.0/38.0	733600	2422500	2.1	850	1100	11.50	29330M
	300	90	43.4/58	1400000	4600000	4.0	700	1000	29.80	29430M
160	270	67	33.0/42.0	858500	2932500	3.0	800	1100	15.40	29332M
	320	95	45.5/60.5	1500000	5000000	5.0	750	900	36.10	29432M

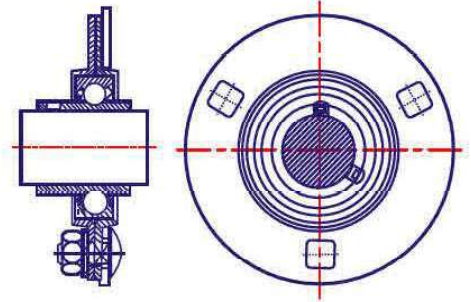
8.13 U C TYPE BALL BEARINGS UNITS



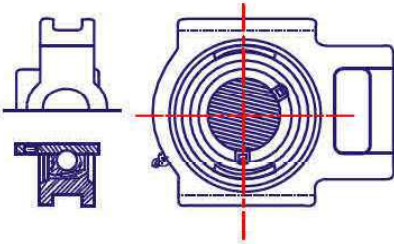
Flanged Units with cast housing (UCFL)



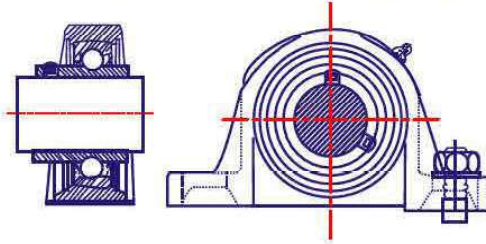
Flanged Unit with cast housing (UCF)



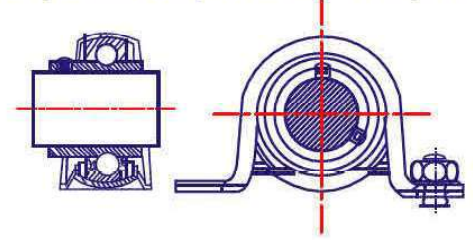
Flanged Units with pressed steel housing (SBPF)



Take-up Unit with cast housing (UCT)



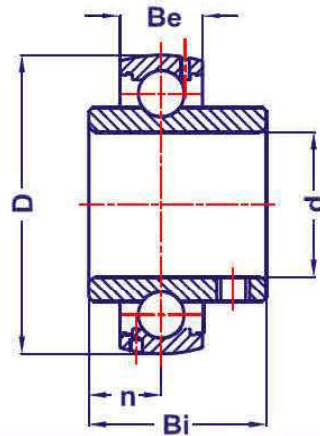
Plummer block unit with cast housing (UCP)



Plummer block unit with pressed steel housing (SBPP)

- ⇒ These bearings are fitted into the different shape of pressed steel or grey cast iron housings, i.e. Plummer blocks or flanged type - cast housing are suitable for heavier loads than pressed steel housing.
- ⇒ These bearings are deep groove ball bearings with an extended inner ring and spherical outer ring.
- ⇒ These bearings are fastened on the shaft by means of two threaded grub screws, other alternative designs for tightening also available like eccentric self locking collars, adapter sleeve etc. or interference fit on shaft
- ⇒ They are used in agricultural machinery, conveyor systems, construction machinery etc where simplicity of design and assembly is required. They are used for supporting the shaft with generally loose fit tolerance. Further, large clearance helps compensate for misalignments & shaft deflections.
- ⇒ These bearings require no maintenance and normally greased with lithium soap base grease.
- ⇒ These bearings can take static misalignments of up to $\pm 5^\circ$ out of the center position.
- ⇒ The speeds with rough shafts & loose fits are kept low. With tighter fits and more accurately machined shafts relatively higher speeds can be taken

8.13 U C TYPE BALL BEARINGS UNITS



Bore Dia. d		Boundary Dimensions				Basic Load Rating (N)		Mass (Kg)	Bearing Number
(Inch)	(mm)	D (mm)	Bi (mm)	Be (mm)	n (mm)	Dynamic C	Static Co		
-	20	47	31.00	16	12.7	12000	6500	0.160	UC-204
-	25	52	34.00	17	14.5	12600	7100	0.200	UC205
1	-	-	-	-	-	-	-	0.200	UC205-16
-	30	62	38.10	19	15.9	17600	10200	0.320	UC206
1 1/4	-	-	-	-	-	-	-	0.340	UC206-18
-	35	72	42.90	20	17.5	23200	13900	0.480	UC207
1 1/4	-	-	-	-	-	-	-	0.540	UC207-20
-	40	80	49.20	21	19.0	26200	16000	0.650	UC208
1 1/2	-	-	-	-	-	-	-	0.680	UC208-24
-	45	85	49.20	22	19.0	29500	18300	0.680	UC209
1 3/4	-	-	-	-	-	-	-	0.700	UC209-28
-	50	90	51.60	24	19.0	31600	21000	0.820	UC210
1 3/4	-	-	-	-	-	-	-	0.870	UC210-30
-	55	100	55.60	25	22.2	39100	26500	1.110	UC211
2	-	-	-	-	-	-	-	1.260	UC211-32
-	60	110	65.10	27	25.4	46900	32600	1.540	UC212
2 1/4	-	-	-	-	-	-	-	1.670	UC212-36
-	65	120	65.10	28	25.4	50000	38000	1.860	UC213
-	70	125	74.60	30	30.2	60000	42000	2.05	UC214
-	75	130	77.80	32	33.3	65000	46000	2.21	UC215

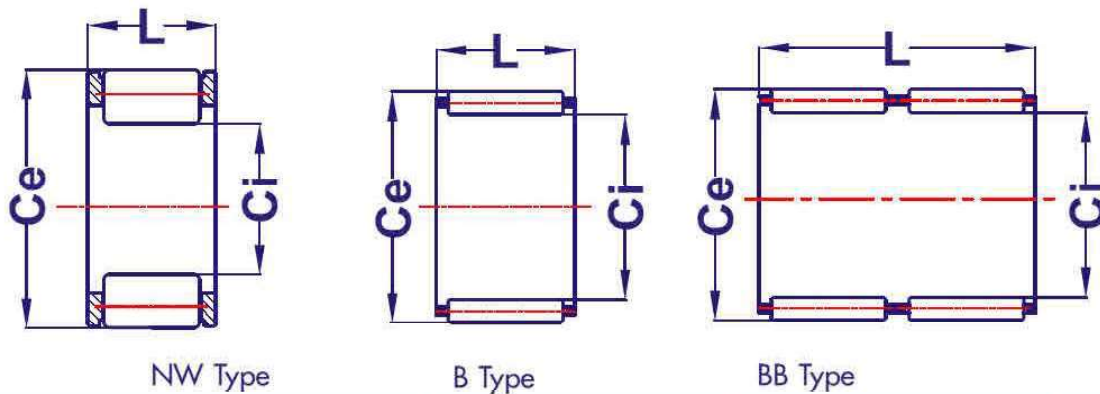
UCFL, UGF, SBPF, UCT, UCP & SBPP ALSO AVAILABLE

8.14 NEEDLE CAGES



- ⇒ They are inexpensive & easy to install - fitted by hand without the use of tools.
- ⇒ They increase rigidity of shaft when used.
- ⇒ They ensures long life without excessive wear and with high load rating.
- ⇒ At higher operating temperatures, oil change intervals should be observed.
- ⇒ Double cage have two row of needles, side by side in one unit.
- ⇒ Cages may be of steel, polyamide, brass or aluminium bronze.
- ⇒ For obtaining optimum performance.
 - ⇒ Shaft & housing hardness should be Rc 58 to Rc 64.
 - ⇒ Shaft & housing finish should be Ra 0.35 μ m /0.40 μ m.
 - ⇒ Shaft & housing tolerance should be h5, g5 / G6, H5.

8.14 NEEDLE CAGES



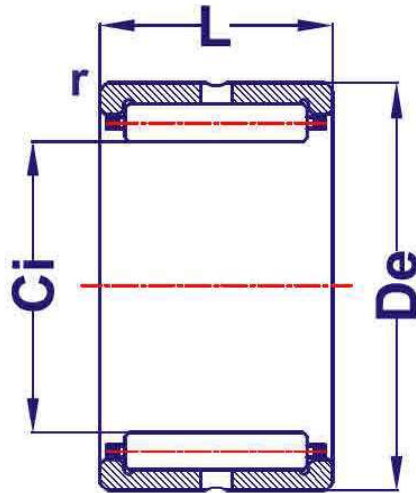
NW Type

B Type

BB Type

Boundary Dimensions				Basic Load Rating (N)		Limiting Speed	Mass (Kg)	Bearing Number
Shaft Dia (mm)	Ci (mm)	Ce (mm)	L (mm)	Dynamic C	Static Co	Oil		
58.57	58.57	66.57	30.00	56 500	115 700	6600	0.108	9810
25.40	25.40	33.32	25.40	33 300	51 500	15 200	0.042	162116
20.00	20.00	28.00	20.20	-	-	-	0.026	202820.2
25.00	25.00	35.00	30.00	46 000	59 600	16 000	0.072	NW-7025
26.00	26.00	40.00	26.00	47 200	51 000	15 300	0.095	NW-264026
28.00	28.00	44.00	24.00	48 000	49 000	14 000	0.118	NW-284424
28.00	28.00	48.00	23.80	59 900	58 400	14 000	0.155	NW-7050
30.00	30.00	42.00	30.00	51 000	63 400	13 000	0.104	NW-230
18.00	18.00	24.00	20.00	10 000	14 000	20 000	0.019	B-182420
28.00	28.00	33.00	13.00	13 700	20 400	14 200	0.014	B-283313
35.00	35.00	40.00	13.00	14 200	23 000	11 400	0.018	B-354013
40.00	40.00	45.00	17.00	22 600	43 700	10 000	0.026	B-404517
42.00	42.00	47.00	27.00	34 100	75 400	9 500	0.046	B-424727
42.00	42.00	46.00	51.40	36 000	95 000	9 500	0.070	BB-50347
42.00	42.00	46.00	51.40	36 200	95 700	9 500	0.070	BB-50347
50.00	50.00	55.00	30.00	40 600	100 300	8 000	0.063	BB-505530
56.00	56.00	61.00	40.20	47 400	126 900	7 200	0.101	BB-566140.2
62.10	62.10	68.10	42.30	59 000	153 400	6 400	0.131	BB-80006
63.66	63.66	71.66	38.80	74 600	170 500	6 200	0.150	BB-80005

8.14 BEARINGS WITH CAGE-GUIDED NEEDLES WITHOUT INNER RING



Boundary Dimensions					Basic Load Rating (N)		Limiting Speed Oil	Mass (Kg)	Bearing Number
Shaft Dia (mm)	C_i (mm)	D_e (mm)	L (mm)	r (mm)	Dynamic C	Static C_o			
20	20	28	16	0.35	15100	20900	20000	0.028	NB-202816
30	30	40	20	0.35	25000	42300	13000	0.065	NB-304020
32	32	42	20	0.35	26600	44400	12500	0.068	NB-324220
32	32	42	30	0.35	39900	74800	12500	0.103	NB-324230