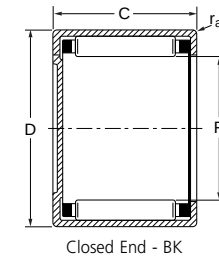
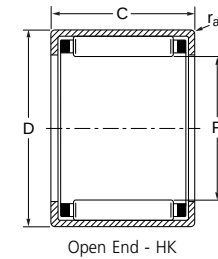
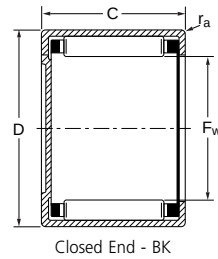
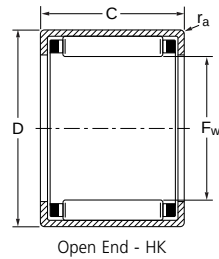




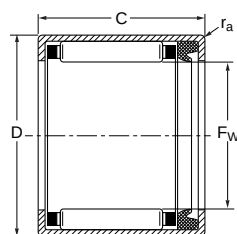
Needle Roller Bearings



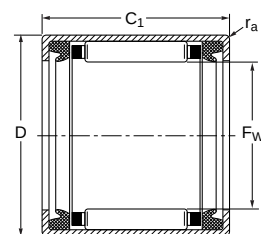
Basic Dimensions			Chamfer Dimension	Basic Load Ratings		Limiting Speed	Designation	Mass	Designation	Mass
F _w mm	D mm	C -0.3	r _a max	Dynamic C kN	Static C ₀ kN	r/min	Open end	Open end g	Closed end	Closed end g
4	8	8	0.3	1.691	1.245	36900	HK 0408	2.0	BK 0408	2.1
5	9	9	0.4	2.280	1.891	34200	HK 0509	2.0	BK 0509	2.1
6	10	8	0.4	1.929	1.568	31500	HK 0608	2.1	-	-
6	10	9	0.4	2.708	2.470	31500	HK 0609	2.5	BK 0609	2.6
7	11	9	0.4	2.945	2.803	27900	HK 0709	2.6	BK 0709	2.9
8	12	8	0.4	2.613	2.470	25200	HK 0808	2.7	BK 0808	3.0
8	12	10	0.4	3.610	3.753	25200	HK 0810	3.0	BK 0810	3.4
9	13	8	0.4	3.373	3.563	22500	HK 0908	3.0	-	-
9	13	10	0.4	4.038	4.418	22500	HK 0910	4.0	BK 0910	4.3
9	13	12	0.4	5.035	5.985	22500	HK 0912	4.6	BK 0912	4.9
10	14	10	0.4	4.180	4.845	20700	HK 1010	4.1	BK 1010	4.3
10	14	12	0.4	5.225	6.460	20700	HK 1012	4.8	BK 1012	5.0
10	14	15	0.4	6.460	8.360	20700	HK 1015	6.0	BK 1015	6.2
12	16	10	0.4	4.703	5.890	18000	HK 1210	4.6	BK 1210	5.2
12	18	12	0.8	6.175	6.935	17100	HK 1212	9.0	BK 1212	10.0
13	19	12	0.8	6.460	7.505	16200	HK 1312	10.0	BK 1312	11.0
14	20	12	0.8	6.745	8.075	14400	HK 1412	10.5	BK 1412	12.0
15	21	12	0.8	7.505	8.930	14400	HK 1512	11.0	BK 1512	13.0
15	21	16	0.8	9.975	13.680	14400	HK 1516	15.0	BK 1516	17.0
15	21	22	0.8	12.730	18.525	14400	HK 1522	20.0	-	-
16	22	12	0.8	7.220	9.215	13500	HK 1612	12.0	BK 1612	14.0
16	22	16	0.8	10.355	14.535	13500	HK 1616	16.0	BK 1616	18.0
16	22	22	0.8	12.445	18.430	13500	HK 1622	22.0	BK 1622	24.0
17	23	12	0.8	7.505	9.785	12600	HK 1712	12.0	-	-
18	24	12	0.8	7.695	10.355	11700	HK 1812	13.0	BK 1812	15.0
18	24	16	0.8	11.020	16.435	11700	HK 1816	18.0	BK 1816	20.0
20	26	10	0.8	6.080	7.790	10800	HK 2010	12.0	-	-
20	26	12	0.8	8.170	11.495	10800	HK 2012	14.0	-	-
20	26	16	0.8	12.065	19.095	10800	HK 2016	19.0	BK 2016	22.0
20	26	20	0.8	14.915	24.700	10800	HK 2020	24.0	BK 2020	27.0
20	26	30	0.8	20.710	38.000	10800	HK 2030	35.0	-	-
22	28	10	0.8	7.125	9.975	9900	HK 2210	13.0	-	-

Basic Dimensions			Chamfer Dimension	Basic Load Ratings		Limiting Speed	Designation	Mass	Designation	Mass
F _w mm	D mm	C -0.3	r _a max	Dynamic C kN	Static C ₀ kN	r/min	Open End	Open End g	Closed End	Closed End g
22	28	12	0.8	8.645	12.730	9900	HK 2212	15.0	BK 2212	18.0
22	28	16	0.8	12.730	20.995	9900	HK 2216	21.0	BK 2216	24.0
22	28	20	0.8	15.675	27.550	9900	HK 2220	26.0	-	-
25	32	12	0.8	10.450	14.440	9000	HK 2512	20.0	-	-
25	32	16	0.8	14.820	22.800	9000	HK 2516	27.0	-	-
25	32	20	0.8	18.905	31.350	9000	HK 2520	33.0	BK 2520	38.0
25	32	26	0.8	24.225	42.750	9000	HK 2526	44.0	BK 2526	48.0
25	32	38	0.8	32.300	62.700	9000	HK 2538	64.0	BK 2538	68.0
28	35	16	0.8	15.580	25.175	8100	HK 2816	29.0	-	-
28	35	20	0.8	19.855	34.200	8100	HK 2820	36.0	-	-
30	37	12	0.8	11.495	17.290	7650	HK 3012	23.0	BK 3012	28.0
30	37	16	0.8	16.340	27.550	7650	HK 3016	31.0	BK 3016	38.0
30	37	20	0.8	20.900	37.525	7650	HK 3020	39.0	BK 3020	47.0
30	37	26	0.8	26.600	51.300	7650	HK 3026	51.0	BK 3026	58.0
30	37	38	0.8	35.625	75.050	7650	HK 3038	76.0	BK 3038	84.0
35	42	12	0.8	12.445	20.235	6750	HK 3512	27.0	-	-
35	42	16	0.8	17.765	31.825	6750	HK 3516	36.0	-	-
35	42	20	0.8	22.610	43.700	6750	HK 3520	44.0	BK 3520	53.0
40	47	12	0.8	13.300	23.085	5850	HK 4012	30.0	-	-
40	47	16	0.8	19.000	36.575	5850	HK 4016	39.0	-	-
40	47	20	0.8	24.225	49.400	5850	HK 4020	54.0	BK 4020	62.0
45	52	12	0.8	14.155	26.125	5400	HK 4512	33.0	-	-
45	52	16	0.8	20.235	40.850	5400	HK 4516	46.0	-	-
45	52	20	0.8	25.650	56.050	5400	HK 4520	56.0	BK 4520	72.0
50	58	20	0.8	29.450	59.850	4500	HK 5020	70.0	-	-
50	58	25	0.8	36.575	79.800	4500	HK 5025	90.0	-	-
55	63	20	0.8	29.925	63.650	4230	HK 5520	74.0	-	-
55	63	28	0.8	41.800	97.850	4230	HK 5528	105.0	-	-
60	68	12	0.8	16.530	30.400	3960	HK 6012	49.0	-	-
60	68	20	0.8	31.825	71.250	3960	HK 6020	81.0	-	-
60	68	32	0.8	50.350	128.250	3960	HK 6032	136.0	-	-

Drawn Cup Needle Roller Bearings, Open End with Seals

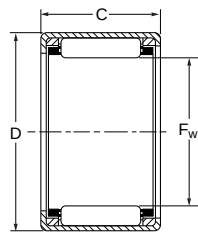


Open end with 1 side seal
- HK..RS

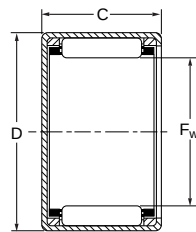


Open end with 2 side seals
- HK..2RS

Basic Dimensions				Chamfer Dimension	Basic Load Ratings		Limiting Speed	Designation	Mass	Designation	Mass
F_w mm	D mm	C -0.3	C_1 -0.3	r_s max	Dynamic C kN	Static C_0 kN	Grease r/min	Open end with 1 side seals	Open end with 1 side seals g	Open end with 2 side seals	Open end with 2 side seals g
8	12	10	12	0.4	2.750	2.600	20000	HK 0810 RS	3.0	HK 0812.2RS	3.3
10	14	12	14	0.4	4.400	5.100	17000	HK 1012 RS	4.2	HK 1014.2RS	4.6
12	18	14	16	0.8	6.500	7.300	14000	HK 1214 RS	10.0	HK 1216.2RS	11.0
14	20	14	16	0.8	7.100	8.500	12000	HK 1414 RS	12.0	HK 1416.2RS	13.0
15	21	14	16	0.8	7.800	9.800	11000	HK 1514 RS	12.0	HK 1516.2RS	15.0
15	21	18	20	0.8	10.500	14.400	11000	HK 1518 RS	16.0	HK 1520.2RS	18.0
16	22	14	16	0.8	7.600	9.700	11000	HK 1614 RS	13.0	HK 1616.2RS	14.0
16	22	-	20	0.8	10.900	15.300	11000	-	-	HK 1620.2RS	18.0
18	24	14	16	0.8	8.100	10.900	9500	HK 1814 RS	14.0	HK 1816.2RS	15.0
20	26	-	16	0.8	8.600	12.100	8500	-	-	HK 2016.2RS	18.0
20	26	18	20	0.8	12.700	20.100	8500	HK 2018 RS	21.0	HK 2020.2RS	23.0
22	28	14	16	0.8	9.100	13.400	8000	HK 2214 RS	16.0	HK 2216.2RS	18.0
22	28	18	20	0.8	13.400	22.100	8000	HK 2218 RS	24.0	HK 2220.2RS	26.0
25	32	-	16	0.8	11.000	15.200	7000	-	-	HK 2516.2RS	27.0
25	32	18	20	0.8	15.600	24.000	7000	HK 2518 RS	29.0	HK 2520.2RS	31.0
25	32	-	24	0.8	19.900	33.000	7000	-	-	HK 2524.2RS	40.0
25	32	-	30	0.8	25.500	45.000	7000	-	-	HK 2530.2RS	47.0
28	35	18	20	0.8	16.400	26.500	6000	HK 2818 RS	31.0	HK 2820.2RS	34.0
30	37	-	16	0.8	12.100	18.200	6000	-	-	HK 3016.2RS	31.0
30	37	18	20	0.8	17.200	29.000	6000	HK 3018 RS	37.0	HK 3020.2RS	36.0
30	37	-	24	0.8	22.000	39.500	6000	-	-	HK 3024.2RS	44.0
35	42	-	16	0.8	13.100	21.300	5000	-	-	HK 3516.2RS	32.0
35	42	18	20	0.8	18.700	33.500	5000	HK 3518 RS	39.0	HK 3520.2RS	41.0
40	47	-	16	0.8	14.000	24.300	4500	-	-	HK 4016.2RS	37.0
40	47	18	20	0.8	20.000	38.500	4500	HK 4018 RS	45.0	HK 4020.2RS	48.0
45	52	18	20	0.8	21.300	43.000	4000	HK 4518 RS	50.0	HK 4520.2RS	54.0
50	58	22	24	0.8	31.000	63.000	3600	HK 5022 RS	76.0	HK 5024.2RS	81.0



BA..Z



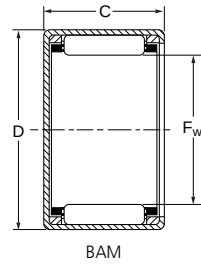
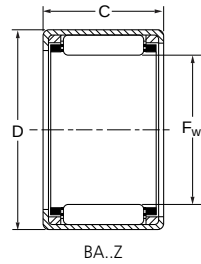
BAM

Basic Dimensions						Basic Load Ratings		Designation	Mass
F _w inch	mm	D inch	mm	C inch	mm	Dynamic C kN	Static C ₀ kN	Open End BA...Z	Closed End g
1/4	6.350	7/16	11.112	1/4	6.35	1.323	0.970	BA 44 Z	2.1
1/4	6.350	7/16	11.112	5/16	7.92	1.323	0.970	BA 45 Z	2.5
1/4	6.350	7/16	11.112	7/16	11.13	2.381	2.117	BA 47 Z	3.5
5/16	7.938	1/2	12.700	5/16	7.92	1.676	1.411	BA 55 Z	3.0
5/16	7.938	1/2	12.700	3/8	9.52	2.381	2.117	BA 56 Z	3.6
5/16	7.938	1/2	12.700	7/16	11.13	2.999	2.911	BA 57 Z	4.3
5/16	7.938	1/2	12.700	9/16	14.27	3.793	3.881	BA 59 Z	5.4
3/8	9.525	9/16	14.288	5/16	7.92	2.029	1.852	BA 65 Z	3.5
3/8	9.525	9/16	14.288	3/8	9.52	2.822	2.734	BA 66 Z	4.2
3/8	9.525	9/16	14.288	1/2	12.70	3.793	4.145	BA 68 Z	5.7
3/8	9.525	9/16	14.288	9/16	14.27	4.410	5.027	BA 69 Z	6.3
3/8	9.525	9/16	14.288	5/8	15.88	5.116	5.998	BA 610 Z	7.0
7/16	11.112	5/8	15.875	3/8	9.52	2.999	3.087	BA 76 Z	4.8
7/16	11.112	5/8	15.875	7/16	11.13	3.704	4.234	BA 77 Z	5.6
7/16	11.112	5/8	15.875	1/2	12.70	3.969	4.586	BA 78 Z	6.4
7/16	11.112	5/8	15.875	5/8	15.88	5.380	6.791	BA 710 Z	7.9
1/2	12.700	11/16	17.462	5/16	7.92	2.205	2.293	BA 85 Z	4.4
1/2	12.700	11/16	17.462	3/8	9.52	3.087	3.440	BA 86 Z	5.3
1/2	12.700	11/16	17.462	7/16	11.13	3.969	4.675	BA 87 Z	6.3
1/2	12.700	11/16	17.462	1/2	12.70	4.234	5.116	BA 88 Z	7.2
1/2	12.700	11/16	17.462	5/8	15.88	5.733	7.497	BA 810 Z	8.9
1/2	12.700	11/16	17.462	3/4	19.05	7.056	9.878	BA 812 Z	10.6
9/16	14.288	3/4	19.050	5/16	7.92	2.470	2.646	BA 95 Z	4.9
9/16	14.288	3/4	19.050	3/8	9.52	3.440	4.057	BA 96 Z	5.9
9/16	14.288	3/4	19.050	7/16	11.13	4.410	5.557	BA 97 Z	6.9
9/16	14.288	3/4	19.050	1/2	12.70	4.675	6.086	BA 98 Z	7.9
9/16	14.288	3/4	19.050	5/8	15.88	6.350	8.908	BA 910 Z	9.9
9/16	14.288	3/4	19.050	3/4	19.05	7.850	11.642	BA 912 Z	11.7
5/8	15.875	13/16	20.638	5/16	7.92	2.558	2.911	BA 105 Z	5.3
5/8	15.875	13/16	20.638	7/16	11.13	4.498	5.998	BA 107 Z	7.6
5/8	15.875	13/16	20.638	1/2	12.70	4.851	6.527	BA 108 Z	8.7
5/8	15.875	13/16	20.638	5/8	15.88	6.615	9.702	BA 1010 Z	10.8

Designation	Mass	Interchange	
Open End BAM	g	Open End SCE	Closed End BCE
BAM 44	2.3	SCE 44	BCE 44
BAM 45	2.7	SCE 45	BCE 45
BAM 47	3.7	SCE 47	BCE 47
BAM 55	3.3	SCE 55	BCE 55
BAM 56	3.9	-	-
BAM 57	4.6	SCE 57	BCE 57
BAM 59	5.7	SCE 59	BCE 59
BAM 65	3.9	SCE 65	BCE 65
BAM 66	4.6	SCE 66	BCE 66
BAM 68	6.1	SCE 68	BCE 68
BAM 69	6.7	SCE 69	BCE 69
BAM 610	7.4	SCE 610	BCE 610
BAM 76	5.3	-	-
BAM 77	6.2	-	-
BAM 78	7.0	SCE 78	BCE 78
BAM 710	8.5	SCE 710	BCE 710
BAM 85	5.2	SCE 85	BCE 85
BAM 86	6.1	SCE 86	BCE 86
BAM 87	7.0	SCE 87	BCE 87
BAM 88	7.9	SCE 88	BCE 88
BAM 810	9.6	SCE 810	BCE 810
BAM 812	11.3	SCE 812	BCE 812
BAM 95	5.8	SCE 95	BCE 95
BAM 96	6.8	SCE 96	BCE 96
BAM 97	7.8	SCE 97	BCE 97
BAM 98	8.9	SCE 98	BCE 98
BAM 910	10.8	SCE 910	BCE 910
BAM 912	12.6	SCE 912	BCE 912
BAM 105	6.5	SCE 105	BCE 105
BAM 107	8.7	SCE 107	BCE 107
BAM 108	9.9	SCE 108	BCE 108
BAM 1010	12.0	SCE 1010	BCE 1010

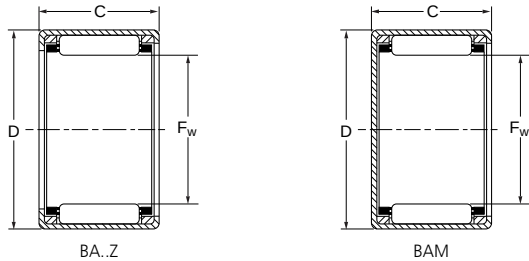
Drawn Cup Needle Roller Bearings - Inch Sizes

Drawn Cup Needle Roller Bearings - Inch Sizes



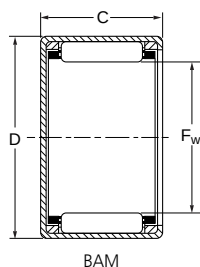
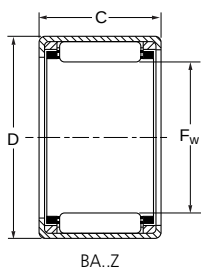
Basic Dimensions						Basic Load Ratings		Designation	Mass
F _w		D		C		Dynamic	Static		
inch	mm	inch	mm	inch	mm	C	C ₀	Open End	Closed End
						kN	kN	BA...Z	g
5/8	15.875	13/16	20.638	3/4	19.05	8.114	12.613	BA 1012 Z	12.9
5/8	15.875	13/16	20.638	7/8	22.22	9.614	15.788	BA 1014 Z	15.1
5/8	15.875	13/16	20.638	1	25.40	11.025	18.787	BA 1016 Z	17.3
11/16	17.462	7/8	22.225	3/8	9.52	4.057	5.380	BA 116 Z	7.0
11/16	17.462	7/8	22.225	1/2	12.70	5.557	7.938	BA 118 Z	9.5
11/16	17.462	7/8	22.225	5/8	15.88	7.409	11.731	BA 1110 Z	11.8
11/16	17.462	7/8	22.225	3/4	19.05	9.173	15.347	BA 1112 Z	14.0
3/4	19.050	1	25.400	3/8	9.52	4.498	5.292	BA 126 Z	10.0
3/4	19.050	1	25.400	1/2	12.70	6.174	7.850	BA 128 Z	13.5
3/4	19.050	1	25.400	5/8	15.88	8.555	11.907	BA 1210 Z	17.0
3/4	19.050	1	25.400	3/4	19.05	10.760	15.876	BA 1212 Z	20.5
3/4	19.050	1	25.400	7/8	22.22	12.789	19.933	BA 1214 Z	23.5
3/4	19.050	1	25.400	1	25.40	14.641	23.814	BA 1216 Z	27.0
13/16	20.638	1 1/16	26.988	3/8	9.52	4.675	5.645	BA 136 Z	10.7
13/16	20.638	1 1/16	26.988	1/2	12.70	6.439	8.467	BA 138 Z	14.5
13/16	20.638	1 1/16	26.988	5/8	15.88	8.908	12.789	BA 1310 Z	18.2
13/16	20.638	1 1/16	26.988	3/4	19.05	11.113	17.111	BA 1312 Z	22.0
13/16	20.638	1 1/16	26.988	7/8	22.22	13.230	21.433	BA 1314 Z	25.0
13/16	20.638	1 1/16	26.988	1	25.40	15.259	25.666	BA 1316 Z	28.5
13/16	20.638	1 1/4	26.988	1 1/4	31.75	19.051	34.310	BA 1320 Z	35.5
7/8	22.225	1 1/8	28.575	3/8	9.52	4.851	6.086	BA 146 Z	11.5
7/8	22.225	1 1/8	28.575	1/2	12.70	6.703	9.085	BA 148 Z	15.6
7/8	22.225	1 1/8	28.575	3/4	19.05	11.554	18.346	BA 1412 Z	23.5
7/8	22.225	1 1/8	28.575	7/8	22.22	13.759	22.932	BA 1414 Z	27.0
7/8	22.225	1 1/8	28.575	1	25.40	15.788	27.430	BA 1416 Z	31.0
7/8	22.225	1 1/8	28.575	1 1/8	28.58	17.816	32.017	BA 1418 Z	34.5
7/8	22.225	1 1/8	28.575	1 3/8	34.92	21.609	41.101	BA 1422 Z	42.5
15/16	23.812	1 3/16	30.162	1/2	12.70	7.232	10.231	BA 158 Z	16.5
15/16	23.812	1 3/16	30.162	5/8	15.88	9.878	15.435	BA 1510 Z	20.5
15/16	23.812	1 3/16	30.162	1	25.40	17.023	30.870	BA 1516 Z	33.0
1	25.400	1 1/4	31.750	3/8	9.52	5.380	7.232	BA 166 Z	13.1
1	25.400	1 1/4	31.750	7/16	11.13	6.968	9.967	BA 167 Z	15.4

Designation	Mass	Interchange	
Open End		Open End	Closed End
BAM	g	SCE	BCE
BAM 1012	14.0	SCE 1012	BCE 1012
BAM 1014	16.2	-	-
BAM 1016	18.4	-	-
BAM 116	8.4	SCE 116	BCE 116
BAM 118	10.8	SCE 118	BCE 118
BAM 1110	13.2	SCE 1110	BCE 1110
BAM 1112	15.4	SCE 1112	BCE 1112
BAM 126	11.7	SCE 126	BCE 126
BAM 128	15.2	SCE 128	BCE 128
BAM 1210	18.6	SCE 1210	BCE 1210
BAM 1212	22.0	SCE 1212	BCE 1212
BAM 1214	25.0	-	-
BAM 1216	28.5	-	-
BAM 136	12.6	SCE 136	BCE 136
BAM 138	16.4	SCE 138	BCE 138
BAM 1310	20.0	-	-
BAM 1312	23.5	SCE 1312	BCE 1312
BAM 1314	27.0	SCE 1314	BCE 1314
BAM 1316	30.5	-	-
BAM 1320	37.5	-	-
BAM 146	13.8	SCE 146	BCE 146
BAM 148	17.8	SCE 148	BCE 148
BAM 1412	26.0	SCE 1412	BCE 1412
BAM 1414	29.5	-	-
BAM 1416	33.5	SCE 1416	BCE 1416
BAM 1418	37.0	-	-
BAM 1422	44.5	-	-
BAM 158	19.0	-	-
BAM 1510	23.0	-	-
BAM 1516	35.5	SCE 1516	BCE 1516
BAM 166	16.0	-	-
BAM 167	18.3	SCE 167	BCE 167



Basic Dimensions						Basic Load Ratings		Designation	Mass
F _w	D		C			Dynamic	Static	Open End BA..Z	Closed End g
	inch	mm	inch	mm		C kN	C ₀ kN		
1	25.400	1 1/4	31.750	1/2	12.70	7.409	10.849	BA 168 Z	17.7
1	25.400	1 1/4	31.750	5/8	15.88	10.231	16.317	BA 1610 Z	22.0
1	25.400	1 1/4	31.750	3/4	19.05	12.789	21.785	BA 1612 Z	26.5
1	25.400	1 1/4	31.750	7/8	22.22	15.259	27.342	BA 1614 Z	31.0
1	25.400	1 1/4	31.750	1	25.40	17.464	32.634	BA 1616 Z	35.5
1	25.400	1 1/4	31.750	1 1/4	31.75	21.874	43.659	BA 1620 Z	44.0
11/16	26.988	1 5/16	33.338	5/8	15.88	10.496	17.199	BA 1710 Z	23.5
11/16	26.988	1 5/16	33.338	1	25.40	17.993	34.398	BA 1716 Z	37.0
1 1/8	28.575	1 3/8	34.925	3/8	9.52	5.733	8.026	BA 186 Z	14.5
1 1/8	28.575	1 3/8	34.925	1/2	12.70	7.762	11.995	BA 188 Z	19.5
1 1/8	28.575	1 3/8	34.925	3/4	19.05	13.495	24.255	BA 1812 Z	29.5
1 1/8	28.575	1 3/8	34.925	1	25.40	18.434	36.250	BA 1816 Z	39.0
1 1/8	28.575	1 3/8	34.925	1 1/4	31.75	23.108	48.422	BA 1820 Z	48.5
1 3/16	30.162	1 1/2	38.100	5/8	15.88	13.495	20.286	BA 1910 Z	32.5
1 3/16	30.162	1 1/2	38.100	1	25.40	23.197	40.748	BA 1916 Z	52.0
1 1/4	31.750	1 1/2	38.100	1/2	12.70	8.203	13.230	BA 208 Z	21.5
1 1/4	31.750	1 1/2	38.100	5/8	15.88	11.290	19.933	BA 2010 Z	27.0
1 1/4	31.750	1 1/2	38.100	3/4	19.05	14.112	26.636	BA 2012 Z	32.5
1 1/4	31.750	1 1/2	38.100	1	25.40	19.316	39.866	BA 2016 Z	43.0
1 1/4	31.750	1 1/2	38.100	1 1/4	31.75	24.255	53.273	BA 2020 Z	53.5
1 5/16	33.338	1 5/8	41.275	1/2	12.70	9.967	14.200	BA 218 Z	28.5
1 5/16	33.338	1 5/8	41.275	5/8	15.88	13.847	21.521	BA 2110 Z	35.5
1 5/16	33.338	1 5/8	41.275	3/4	19.05	17.375	28.841	BA 2112 Z	43.0
1 3/8	34.925	1 5/8	41.275	1/2	12.70	8.820	14.994	BA 228 Z	23.5
1 3/8	34.925	1 5/8	41.275	3/4	19.05	15.170	30.164	BA 2212 Z	35.5
1 3/8	34.925	1 5/8	41.275	1	25.40	20.727	45.158	BA 2216 Z	47.5
1 3/8	34.925	1 5/8	41.275	1 1/4	31.75	26.019	60.329	BA 2220 Z	59.0
1 1/2	38.100	1 7/8	47.625	1/2	12.70	11.642	16.052	BA 248 Z	38.5
1 1/2	38.100	1 7/8	47.625	5/8	15.88	16.052	24.431	BA 2410 Z	48.5
1 1/2	38.100	1 7/8	47.625	3/4	19.05	20.286	32.987	BA 2412 Z	58.5
1 1/2	38.100	1 7/8	47.625	7/8	22.22	23.990	41.013	BA 2414 Z	69.0
1 1/2	38.100	1 7/8	47.625	1	25.40	27.959	49.833	BA 2416 Z	79.0

Designation	Mass	Interchange	
Open End BAM	g	Open End SCE	Closed End BCE
BAM 168	20.5	SCE 168	BCE 168
BAM 1610	25.0	-	-
BAM 1612	29.5	SCE 1612	BCE 1612
BAM 1614	33.5	-	-
BAM 1616	38.0	SCE 1616	BCE 1616
BAM 1620	46.5	-	-
BAM 1710	26.5	-	-
BAM 1716	40.5	-	-
BAM 186	18.1	SCE 186	BCE 186
BAM 188	23.0	SCE 188	BCE 188
BAM 1812	33.0	SCE 1812	BCE 1812
BAM 1816	42.5	SCE 1816	BCE 1816
BAM 1820	52.0	-	-
BAM 1910	37.5	-	-
BAM 1916	57.0	SCE 1916	BCE 1916
BAM 208	26.0	SCE 208	BCE 208
BAM 2010	31.5	SCE 2010	BCE 2010
BAM 2012	37.0	SCE 2012	BCE 2012
BAM 2016	47.5	SCE 2016	BCE 2016
BAM 2020	58.0	SCE 2020	BCE 2020
BAM 218	35.0	-	-
BAM 2110	41.5	SCE 2110	BCE 2110
BAM 2112	49.0	-	-
BAM 228	29.0	SCE 228	BCE 228
BAM 2212	41.0	SCE 2212	BCE 2212
BAM 2216	53.0	SCE 2216	BCE 2216
BAM 2220	64.0	SCE 2220	BCE 2220
BAM 248	47.5	SCE 248	BCE 248
BAM 2410	57.5	SCE 2410	BCE 2410
BAM 2412	67.5	SCE 2412	BCE 2412
BAM 2414	78.0	SCE 2414	BCE 2414
BAM 2416	88.0	SCE 2416	BCE 2416



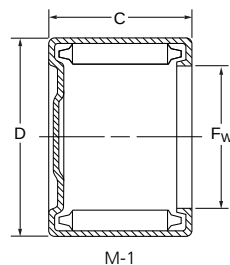
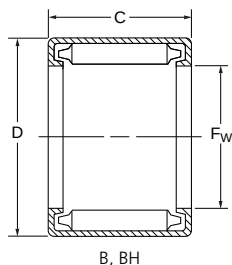
Basic Dimensions						Basic Load Ratings		Designation	Mass
F _w		D		C		Dynamic	Static	Open End	Closed End
inch	mm	inch	mm	inch	mm	C	C ₀	BA...Z	g
						kN	kN		
1 1/2	38.100	1 7/8	47.625	1 1/4	31.75	35.104	66.767	BA 2420 Z	97.5
1 5/8	41.275	2	50.800	1/2	12.70	12.348	17.816	BA 268 Z	41.0
1 5/8	41.275	2	50.800	5/8	15.88	17.023	26.989	BA 2610 Z	52.0
1 5/8	41.275	2	50.800	1	25.40	29.723	55.125	BA 2616 Z	85.0
1 5/8	41.275	2	50.800	1 1/4	31.75	37.220	73.823	BA 2620 Z	105.0
1 3/4	44.45	2 1/8	53.975	3/4	19.05	22.667	40.043	BA 2812 Z	67.5
1 3/4	44.45	2 1/8	53.975	1	25.40	31.223	60.593	BA 2816 Z	91.0
1 3/4	44.45	2 1/8	53.975	1 1/4	31.75	39.249	81.056	BA 2820 Z	112.0
1 3/4	44.45	2 1/8	53.975	1 1/2	38.10	46.746	101.430	BA 2824 Z	136.0
1 7/8	47.625	2 1/4	57.150	1/2	12.70	13.230	20.462	BA 308 Z	47.5
1 7/8	47.625	2 1/4	57.150	5/8	15.88	18.257	31.046	BA 3010 Z	60.0
1 7/8	47.625	2 1/4	57.150	3/4	19.05	23.108	41.895	BA 3012 Z	72.5
1 7/8	47.625	2 1/4	57.150	1	25.40	31.840	63.416	BA 3016 Z	97.5
2	50.800	2 3/8	60.325	1/2	12.70	13.847	22.226	BA 328 Z	50.0
2	50.800	2 3/8	60.325	1	25.40	33.340	68.796	BA 3216 Z	104.0
2	50.800	2 3/8	60.325	1 1/4	31.75	41.895	91.728	BA 3220 Z	128.0
2	50.800	2 3/8	60.325	1 1/2	38.10	49.921	115.542	BA 3224 Z	155.0
2 1/8	53.975	2 1/2	63.500	1/2	12.70	14.465	23.990	BA 348 Z	53.0
2 1/8	53.975	2 1/2	63.500	1	25.40	34.839	74.264	BA 3416 Z	109.0
2 1/8	53.975	2 1/2	63.500	1 1/2	38.10	52.126	124.362	BA 3424 Z	162.0
2 1/4	57.150	2 5/8	66.675	3/4	19.05	25.666	50.891	BA 3612 Z	85.5
2 1/4	57.150	2 5/8	66.675	1	25.40	35.368	76.999	BA 3616 Z	115.0
2 1/4	57.150	2 5/8	66.675	1 1/4	31.75	44.453	103.194	BA 3620 Z	143.0

Designation	Mass	Interchange	
Open End		Open End	Closed End
BAM	g	SCE	BCE
BAM 2420	106.0	SCE 2420	BCE 2420
BAM 268	51.5	-	-
BAM 2610	62.5	SCE 2610	BCE 2610
BAM 2616	95.5	-	-
BAM 2620	115.0	SCE 2620	BCE 2620
BAM 2812	79.5	SCE 2812	BCE 2812
BAM 2816	103.0	SCE 2816	BCE 2816
BAM 2820	125.0	-	-
BAM 2824	148.0	SCE 2824	BCE 2824
BAM 308	61.0	-	-
BAM 3010	74.0	-	-
BAM 3012	86.5	-	-
BAM 3016	112.0	-	-
BAM 328	66.0	SCE 328	BCE 328
BAM 3216	119.0	SCE 3216	BCE 3216
BAM 3220	144.0	SCE 3220	BCE 3220
BAM 3224	170.0	-	-
BAM 348	70.5	-	-
BAM 3416	127.0	SCE 3416	BCE 3416
BAM 3424	180.0	-	-
BAM 3612	105.0	SCE 3612	BCE 3612
BAM 3616	135.0	SCE 3616	BCE 3616
BAM 3620	163.0	-	-

Drawn Cup Needle Roller Bearings, Full Complement - Inch Sizes



Drawn Cup Needle Roller Bearings, Full Complement - Inch Sizes



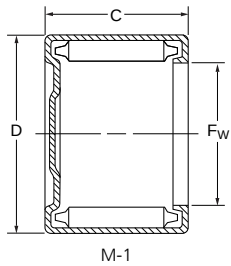
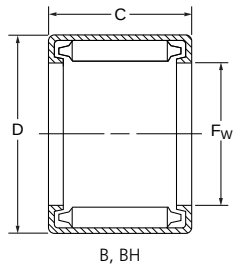
Basic Dimensions						Basic Load Ratings		Limiting Speed	
F _w inch	mm	D inch	mm	C inch	mm	Dynamic C kN	Static C ₀ kN	Grease	Oil
1/8	3.1750	1/4	6.3500	1/4	6.3500	1.554	1.466	7290	11700
5/32	3.9700	9/32	7.1425	1/4	6.3500	1.790	1.814	6300	9900
5/32	3.9700	9/32	7.1425	5/16	7.9248	2.327	2.539	6300	9900
3/16	4.7625	11/32	8.7325	1/4	6.3500	1.994	1.922	6300	9900
3/16	4.7625	11/32	8.7325	3/8	9.5250	3.388	3.797	6300	9900
1/4	6.3500	7/16	11.1125	1/4	6.3500	2.463	2.367	5850	9000
1/4	6.3500	7/16	11.1125	5/16	7.9248	3.200	3.308	5850	9000
1/4	6.3500	7/16	11.1125	3/8	9.5250	4.085	4.526	5850	9000
1/4	6.3500	7/16	11.1125	7/16	11.1252	4.966	5.807	5850	9000
5/16	7.9375	1/2	12.7000	5/16	7.9248	3.677	4.125	4860	7470
5/16	7.9375	1/2	12.7000	3/8	9.5250	4.726	5.727	4860	7470
5/16	7.9375	1/2	12.7000	7/16	11.1252	5.687	7.249	4860	7470
5/16	7.9375	1/2	12.7000	9/16	14.2748	7.529	10.413	4860	7470
5/16	7.9375	1/2	12.7000	7/16	11.1252	6.328	6.608	6750	10800
5/16	7.9375	1/2	12.7000	9/16	14.2748	8.531	9.692	6750	10800
3/8	9.5250	9/16	14.2875	5/16	7.9248	4.085	4.966	4140	6390
3/8	9.5250	9/16	14.2875	3/8	9.5250	5.247	6.809	4140	6390
3/8	9.5250	9/16	14.2875	7/16	11.1252	6.328	8.731	4140	6390
3/8	9.5250	9/16	14.2875	1/2	12.7000	7.369	10.613	4140	6390
3/8	9.5250	9/16	14.2875	9/16	14.2748	8.411	12.536	4140	6390
3/8	9.5250	9/16	14.2875	5/8	15.8750	9.372	14.378	4140	6390
3/8	9.5250	9/16	14.2875	1/2	12.7000	8.411	9.852	5850	9000
7/16	11.1125	5/8	15.8750	3/8	9.5250	5.727	7.970	3690	5670
7/16	11.1125	5/8	15.8750	7/16	11.1252	6.929	10.173	3690	5670
7/16	11.1125	5/8	15.8750	1/2	12.7000	8.090	12.416	3690	5670
7/16	11.1125	5/8	15.8750	5/8	15.8750	10.213	16.821	3690	5670
7/16	11.1125	5/8	15.8750	1/2	12.7000	9.292	11.494	5130	7920
1/2	12.7000	11/16	17.4625	5/16	7.9248	4.806	6.608	3240	5040
1/2	12.7000	11/16	17.4625	3/8	9.5250	6.168	9.131	3240	5040
1/2	12.7000	11/16	17.4625	7/16	11.1252	7.489	11.695	3240	5040
1/2	12.7000	11/16	17.4625	1/2	12.7000	8.691	14.138	3240	5040
1/2	12.7000	11/16	17.4625	5/8	15.8750	11.014	19.184	3240	5040

Mass Approx.		Interchange	
Open Ends g	Closed Ends g	Open Ends	Closed Ends
0.91	-	B 24	-
0.91	-	B 2.1/2 4	-
1.36	-	B 2.1/2 5	-
1.36	1.82	B 34	M 341
2.27	2.72	B 35	M 361
2.27	2.72	B 44	M 441
3.18	3.63	B 45	M 451
3.63	-	B 46	-
4.09	4.99	B 47	M 471
3.63	4.09	B 55	M 551
4.54	-	B 56	-
4.99	5.90	B 57	M 571
6.36	-	B 59	-
7.26	8.17	BH 57	MH 571
9.08	-	BH 59	-
4.09	4.54	B 65	M 651
4.99	5.45	B 66	M 661
5.90	-	B 67	-
6.81	7.72	B 68	M 681
7.26	-	B 69	-
8.17	9.53	B 610	M 6101
9.53	-	BH 68	-
5.45	-	B 76	-
6.81	-	B 77	-
7.72	8.63	B 78	M 781
9.53	-	B 710	-
10.44	-	BH 78	-
5.45	6.36	B 85	M 851
6.36	7.26	B 86	M 861
7.26	8.17	B 87	M 871
8.63	9.53	B 88	M 881
10.44	11.80	B 810	M 8101

Drawn Cup Needle Roller Bearings,
Full Complement - Inch Sizes



Drawn Cup Needle Roller Bearings,
Full Complement - Inch Sizes



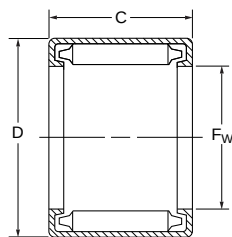
Basic Dimensions						Basic Load Ratings		Limiting Speed	
F _w		D		C		Dynamic	Static	Grease	Oil
inch	mm	inch	mm	inch	mm	C	C ₀		
						kN	kN		
1/2	12.7000	11/16	17.4625	3/4	19.0500	13.217	24.270	3240	5040
1/2	12.7000	11/16	17.4625	7/16	11.1252	8.531	10.613	4590	7110
1/2	12.7000	11/16	17.4625	1/2	12.7000	10.053	13.136	4590	7110
1/2	12.7000	11/16	17.4625	5/8	15.8750	12.936	18.183	4590	7110
1/2	12.7000	11/16	17.4625	3/4	19.0500	15.660	23.189	4590	7110
9/16	14.2875	3/4	19.0500	5/16	7.9248	5.166	7.489	2970	4500
9/16	14.2875	3/4	19.0500	3/8	9.5250	6.608	10.293	2970	4500
9/16	14.2875	3/4	19.0500	7/16	11.1252	7.970	13.136	2970	4500
9/16	14.2875	3/4	19.0500	1/2	12.7000	9.292	15.980	2970	4500
9/16	14.2875	3/4	19.0500	5/8	15.8750	11.775	21.627	2970	4500
9/16	14.2875	3/4	19.0500	3/4	19.0500	14.098	27.314	2970	4500
9/16	14.2875	13/16	20.6375	1/2	12.7000	10.773	14.819	4140	6390
9/16	14.2875	13/16	20.6375	5/8	15.8750	13.857	20.466	4140	6390
9/16	14.2875	13/16	20.6375	3/4	19.0500	16.781	26.113	4140	6390
5/8	15.8750	13/16	20.6375	5/16	7.9248	5.447	8.330	2700	4050
5/8	15.8750	13/16	20.6375	7/16	11.1252	8.451	14.618	2700	4050
5/8	15.8750	13/16	20.6375	1/2	12.7000	9.812	17.742	2700	4050
5/8	15.8750	13/16	20.6375	5/8	15.8750	12.456	24.030	2700	4050
5/8	15.8750	13/16	20.6375	3/4	19.0500	14.899	30.318	2700	4050
5/8	15.8750	7/8	22.2123	1/2	12.7000	11.454	16.461	3780	5850
5/8	15.8750	7/8	22.2123	5/8	15.8750	14.738	22.748	3780	5850
5/8	15.8750	7/8	22.2123	3/4	19.0500	17.822	29.036	3780	5850
5/8	15.8750	7/8	22.2123	1	25.4000	23.589	41.652	3780	5850
11/16	17.4625	7/8	22.2123	3/8	9.5250	7.369	12.576	2430	3780
11/16	17.4625	7/8	22.2123	1/2	12.7000	10.333	19.544	2430	3780
11/16	17.4625	7/8	22.2123	5/8	15.8750	13.096	26.473	2430	3780
11/16	17.4625	7/8	22.2123	3/4	19.0500	15.700	33.402	2430	3780
11/16	17.4625	15/16	23.8125	7/16	11.1252	10.253	14.618	3510	5400
11/16	17.4625	15/16	23.8125	5/8	15.8750	15.579	25.031	3510	5400
11/16	17.4625	15/16	23.8125	3/4	19.0500	18.824	31.960	3510	5400
3/4	19.0500	1	25.4000	3/8	9.5250	8.731	12.215	3240	5040
3/4	19.0500	1	25.4000	1/2	12.7000	12.696	19.785	3240	5040

Mass Approx.		Interchange	
Open Ends	Closed Ends	Open Ends	Closed Ends
g	g		
12.71	14.07	B 812	M 8121
10.44	-	BH 87	-
11.80	-	BH 88	-
14.98	-	BH 810	-
17.71	19.98	BH 812	MH 8121
5.90	6.36	B 95	M 951
6.81	8.17	B 96	M 961
8.17	9.53	B 97	M 971
9.08	10.44	B 98	M 981
11.80	13.17	B 910	M 9101
14.07	15.44	B 912	M 9121
13.17	-	BH 98	-
16.34	-	BH 910	-
19.52	-	BH 912	-
6.36	7.26	B 105	M 1051
9.08	9.99	B 107	M 1071
9.99	10.44	B 108	M 1081
12.71	14.53	B 1010	M 10101
15.44	17.25	B 1012	M 10121
14.07	15.89	BH 108	MH 1081
17.71	-	BH 1010	-
21.34	-	BH 1012	-
28.15	-	BH 1016	-
8.17	9.08	B 116	M 1161
10.90	12.26	B 118	M 1181
13.62	15.44	B 1110	M 11101
16.34	18.61	B 1112	M 11121
13.62	-	BH 117	-
19.07	21.34	BH1110	MH 11101
23.15	-	BH 1112	-
12.26	14.07	B 126	M 1261
16.34	18.61	B 128	M 1281

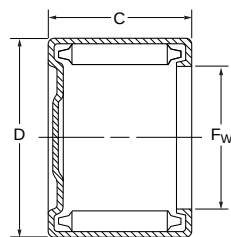
Drawn Cup Needle Roller Bearings, Full Complement - Inch Sizes



Drawn Cup Needle Roller Bearings, Full Complement - Inch Sizes



B, BH



M-1

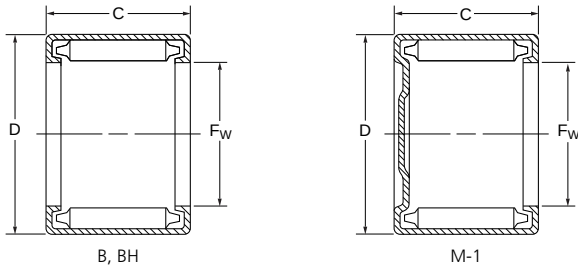
Basic Dimensions						Basic Load Ratings		Limiting Speed	
F _w		D		C		Dynamic	Static	Grease	Oil
inch	mm	inch	mm	inch	mm	C	C ₀		
						kN	kN		
3/4	19.0500	1	25.4000	5/8	15.8750	16.340	27.314	3240	5040
3/4	19.0500	1	25.4000	3/4	19.0500	19.745	34.884	3240	5040
13/16	20.6375	1 1/16	26.9875	3/8	9.5250	9.131	13.217	3060	4680
13/16	20.6375	1 1/16	26.9875	1/2	12.7000	13.257	21.427	3060	4680
13/16	20.6375	1 1/16	26.9875	7/8	22.2250	24.070	46.058	3060	4680
13/16	20.6375	1 1/16	26.9875	1	25.4000	27.314	54.068	3060	4680
13/16	20.6426	1 1/8	28.5750	1/2	12.7000	13.377	18.743	3690	5670
13/16	20.6375	1 1/8	28.5750	5/8	15.8750	17.742	26.914	3690	5670
13/16	20.6375	1 1/8	28.5750	3/4	19.0500	21.787	35.084	3690	5670
7/8	22.2250	1 1/8	28.5750	3/8	9.5250	9.492	14.258	2790	4320
7/8	22.2250	1 1/8	28.5750	1/2	12.7000	13.817	23.069	2790	4320
7/8	22.2250	1 1/8	28.5750	3/4	19.0500	21.507	40.851	2790	4320
7/8	22.2250	1 1/8	28.5750	1	25.4000	28.436	58.473	2790	4320
7/8	22.2250	1 1/8	28.5750	1 1/8	28.5750	31.720	67.284	2790	4320
7/8	22.2250	1 3/16	30.1625	5/8	15.8750	18.303	28.996	3420	5292
7/8	22.2250	1 3/16	30.1625	3/4	19.0500	22.508	37.807	3420	5292
7/8	22.2250	1 3/16	30.1625	1	25.4000	30.318	55.269	3420	5292
15/16	23.8125	1 3/16	30.1625	1/2	12.7000	14.338	24.751	2700	4050
15/16	23.8125	1 3/16	30.1625	1	25.4000	29.517	62.478	2700	4050
1	25.4000	1 1/4	31.7500	3/8	9.5250	10.213	16.300	2520	3870
1	25.4000	1 1/4	31.7500	7/16	11.1252	12.576	21.307	2520	3870
1	25.4000	1 1/4	31.7500	1/2	12.7000	14.859	26.393	2520	3870
1	25.4000	1 1/4	31.7500	5/8	15.8750	19.104	36.486	2520	3870
1	25.4000	1 1/4	31.7500	3/4	19.0500	23.109	46.458	2520	3870
1	25.4000	1 1/4	31.7500	1	25.4000	30.558	66.884	2520	3870
1	25.4000	1 5/16	33.3375	1/2	12.7000	14.979	23.069	3060	4680
1	25.4000	1 5/16	33.3375	5/8	15.8750	19.825	33.161	3060	4680
1	25.4000	1 5/16	33.3375	3/4	19.0500	24.390	43.254	3060	4680
1	25.4000	1 5/16	33.3375	7/8	22.2250	28.716	53.267	3060	4680
1	25.4000	1 5/16	33.3375	1	25.4000	32.841	63.279	3060	4680
1	25.4000	1 5/16	33.3375	1 1/4	31.7500	40.851	83.705	3060	4680
1	25.4000	1 5/16	33.3375	1 1/2	38.1000	48.060	103.730	3060	4680

Mass Approx.		Interchange	
Open Ends	Closed Ends	Open Ends	Closed Ends
g	g		
20.43	23.61	B 1210	M 12101
24.52	28.15	B 1212	M 12121
13.17	-	B 136	-
17.71	19.98	B 138	M 1381
30.87	34.96	B 1314	M 13141
35.41	39.95	B 1316	M 13161
22.70	25.88	BH 138	MH 1381
28.60	30.87	BH 1310	MH 13101
34.50	39.04	BH 1312	MH 13121
14.07	15.89	B 146	M 1461
19.07	21.79	B 148	M 1481
28.15	31.78	B 1412	M 14121
37.68	42.68	B 1416	M 14161
42.68	48.58	B 1418	-
30.42	30.42	BH 1410	MH 14101
36.32	41.31	BH 1412	MH 14121
48.58	-	BH 1416	-
19.98	-	B 158	-
39.95	45.40	B 1516	M 15161
15.89	-	B 166	-
18.61	20.88	B 167	M 1671
21.34	24.06	B 168	M 1681
26.33	29.96	B 1610	M 16101
31.78	36.32	B 1612	M 16121
42.68	48.12	B 1616	M 16161
27.24	30.87	BH 168	MH 1681
34.05	-	BH 1610	-
40.86	46.31	BH 1612	MH 16121
47.67	-	BH 1614	-
54.48	61.74	BH 1616	MH 16161
68.10	-	BH 1620	-
81.72	108.96	BH 1624	MH 16241

Drawn Cup Needle Roller Bearings,
Full Complement - Inch Sizes



Drawn Cup Needle Roller Bearings,
Full Complement - Inch Sizes



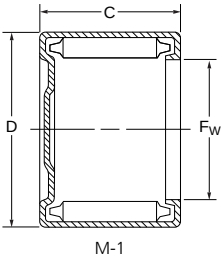
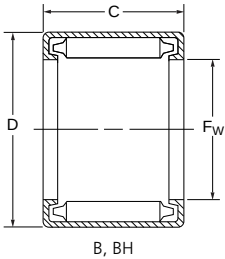
Basic Dimensions						Basic Load Ratings		Limiting Speed	
F _w		D		C		Dynamic	Static	Grease	Oil
inch	mm	inch	mm	inch	mm	C	C ₀		
						kN	kN		
1 1/16	26.9875	1 5/16	33.3375	5/8	15.8750	19.745	38.768	2340	3600
1 1/8	28.5750	1 3/8	34.9250	3/8	9.5250	10.894	18.343	2250	3420
1 1/8	28.5750	1 3/8	34.9250	1/2	12.7000	15.820	29.717	2250	3420
1 1/8	28.5750	1 3/8	34.9250	5/8	15.8750	20.345	41.252	2250	3420
1 1/8	28.5750	1 3/8	34.9250	3/4	19.0500	24.591	52.466	2250	3420
1 1/8	28.5750	1 3/8	34.9250	1	25.4000	32.561	75.294	2250	3420
1 1/8	28.5750	1 1/2	38.1000	3/4	19.0500	28.395	47.660	3240	5040
1 1/8	28.5750	1 1/2	38.1000	1	25.4000	38.288	70.088	3240	5040
1 1/8	28.5750	1 1/2	38.1000	1 1/4	31.7500	47.660	92.916	3240	5040
1 3/16	30.1625	1 1/2	38.1000	5/8	15.8750	21.707	39.409	2610	3960
1 3/16	30.1625	1 1/2	38.1000	1	25.4000	35.965	75.294	2610	3960
1 1/4	31.7500	1 1/2	38.1000	1/2	12.7000	16.701	33.001	2070	3150
1 1/4	31.7500	1 1/2	38.1000	5/8	15.8750	21.507	45.657	2070	3150
1 1/4	31.7500	1 1/2	38.1000	3/4	19.0500	25.992	58.073	2070	3150
1 1/4	31.7500	1 1/2	38.1000	1	25.4000	34.403	83.304	2070	3150
1 1/4	31.7500	1 1/2	38.1000	1 1/4	31.7500	42.453	108.936	2070	3150
1 1/4	31.7500	1 5/8	41.2750	1/2	12.7000	17.702	27.034	2970	4500
1 1/4	31.7500	1 5/8	41.2750	3/4	19.0500	29.797	52.866	2970	4500
1 1/4	31.7500	1 5/8	41.2750	1	25.4000	40.451	78.098	2970	4500
1 1/4	31.7500	1 5/8	41.2750	1 1/4	31.7500	50.463	103.329	2970	4500
1 5/16	33.3375	1 5/8	41.2750	1/2	12.7000	17.342	30.318	2340	3690
1 5/16	33.3375	1 5/8	41.2750	5/8	15.8750	22.989	43.655	2340	3690
1 5/16	33.3375	1 5/8	41.2750	1 1/4	31.7500	47.259	110.138	2340	3690
1 3/8	34.9250	1 5/8	41.2750	1/2	12.7000	17.582	36.325	1890	2880
1 3/8	34.9250	1 5/8	41.2750	3/4	19.0500	27.354	64.080	1890	2880
1 3/8	34.9250	1 5/8	41.2750	1	25.4000	36.165	91.715	1890	2880
1 3/8	34.9250	1 5/8	41.2750	1 1/4	31.7500	44.456	119.750	1890	2880
1 3/8	34.9250	1 3/4	44.4500	1/2	12.7000	19.104	30.198	2700	4230
1 3/8	34.9250	1 3/4	44.4500	5/8	15.8750	25.672	44.055	2700	4230
1 3/8	34.9250	1 3/4	44.4500	3/4	19.0500	31.760	58.073	2700	4230
1 3/8	34.9250	1 3/4	44.4500	1	25.4000	42.854	85.307	2700	4230
1 3/8	34.9250	1 3/4	44.4500	1 1/4	31.7500	53.667	113.342	2700	4230

Mass Approx.		Interchange	
Open Ends	Closed Ends	Open Ends	Closed Ends
g	g		
28.15	31.78	B 1710	M 17101
17.71	19.98	B 186	M 1861
23.61	26.79	B 188	M 1881
29.51	-	B 1810	-
35.41	39.95	B 1812	M 18121
47.22	53.57	B 1816	M 18161
55.84	62.65	BH 1812	MH 18121
74.46	84.44	BH 1816	MH 18161
93.07	105.33	BH 1820	MH 18201
30.87	-	B 1910	M 19101
63.56	-	B 1916	-
25.88	29.51	B 208	M 2081
32.23	36.32	B 2010	M 20101
39.04	44.95	B 2012	M 20121
51.76	59.02	B 2016	M 20161
64.92	73.55	B 2020	M 20201
40.86	46.31	BH 208	MH 2081
61.29	69.46	BH 2012	MH 20121
81.27	92.16	BH 2016	MH 20161
101.70	115.32	BH 2020	MH 20201
34.50	39.04	B 218	M 2181
43.13	49.03	B 2110	M 21101
86.71	-	B 2120	-
28.15	31.78	B 228	M 2281
42.68	48.58	B 2212	M 22121
56.75	64.47	B 2216	M 22161
70.82	80.36	B 2220	M 22201
44.49	-	BH 228	-
55.39	-	BH 2210	-
66.28	74.91	BH 2212	MH 22121
88.53	100.33	BH 2216	MH 22161
110.78	125.30	BH 2220	-

Drawn Cup Needle Roller Bearings,
Full Complement - Inch Sizes

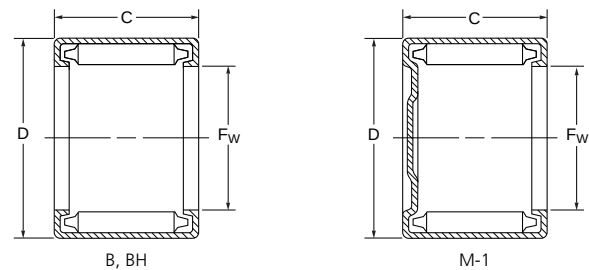


Drawn Cup Needle Roller Bearings,
Full Complement - Inch Sizes



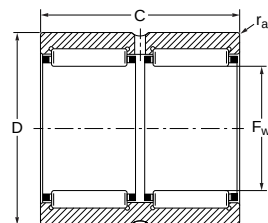
Basic Dimensions						Basic Load Ratings		Limiting Speed	
F _w		D		C		Dynamic	Static	Grease	Oil
inch	mm	inch	mm	inch	mm	C	C ₀		
						kN	kN		
1 1/2	38.1000	1 7/8	47.6250	1/2	12.7000	20.105	33.402	2520	3870
1 1/2	38.1000	1 7/8	47.6250	5/8	15.8750	26.874	48.461	2520	3870
1 1/2	38.1000	1 7/8	47.6250	3/4	19.0500	33.201	63.680	2520	3870
1 1/2	38.1000	1 7/8	47.6250	7/8	22.2250	39.169	78.899	2520	3870
1 1/2	38.1000	1 7/8	47.6250	1	25.4000	44.856	93.317	2520	3870
1 1/2	38.1000	1 7/8	47.6250	1 1/4	31.7500	55.670	124.155	2520	3870
1 5/8	41.2750	2	50.8000	1/2	12.7000	20.506	35.324	2340	3510
1 5/8	41.2750	2	50.8000	5/8	15.8750	27.594	51.665	2340	3510
1 5/8	41.2750	2	50.8000	1	25.4000	46.458	100.926	2340	3510
1 5/8	41.2750	2	50.8000	1 1/4	31.7500	57.672	133.767	2340	3510
1 3/4	44.4500	2 1/8	53.9750	3/4	19.0500	35.364	73.292	2160	3330
1 3/4	44.4500	2 1/8	53.9750	1	25.4000	48.060	108.536	2160	3330
1 3/4	44.4500	2 1/8	53.9750	1 1/4	31.7500	59.675	144.180	2160	3330
1 3/4	44.4500	2 1/8	53.9750	1 1/2	38.1000	70.889	179.424	2160	3330
1 7/8	47.6250	2 1/4	57.1500	1/2	12.7000	22.628	41.652	2070	3150
1 7/8	47.6250	2 1/4	57.1500	3/4	19.0500	37.367	79.700	2070	3150
1 7/8	47.6250	2 1/4	57.1500	1	25.4000	50.463	116.946	2070	3150
2	50.8000	2 3/8	60.3250	1/2	12.7000	22.869	43.254	1890	2970
2	50.8000	2 3/8	60.3250	1	25.4000	51.665	124.155	1890	2970
2	50.8000	2 3/8	60.3250	1 1/4	31.7500	64.481	164.606	1890	2970
2	50.8000	2 3/8	60.3250	1 1/2	38.1000	76.496	205.056	1890	2970
2	50.8000	2 3/8	60.3250	1 3/4	44.4500	87.710	245.507	1890	2970
2 1/16	52.3875	2 17/32	64.2925	3/4	19.0500	41.652	78.098	2340	3690
2 1/16	52.3875	2 17/32	64.2925	3/4	19.0500	57.672	119.750	2340	3690
2 1/16	52.3875	2 17/32	64.2925	1 1/2	38.1000	87.309	203.054	2340	3690
2 1/8	53.9750	2 1/2	63.5000	1/2	12.7000	23.509	46.058	1800	2790
2 1/8	53.9750	2 1/2	63.5000	1	25.4000	53.267	132.165	1800	2790
2 1/8	53.9750	2 1/2	63.5000	1 1/4	31.7500	66.083	175.019	1800	2790
2 1/8	53.9750	2 1/2	63.5000	1 1/2	38.1000	78.498	217.872	1800	2790
2 1/4	57.1500	2 5/8	66.6750	3/4	19.0500	42.854	94.919	1800	2700
2 1/4	57.1500	2 5/8	66.6750	1 1/4	31.7500	69.687	185.832	1800	2700
2 1/4	57.1500	2 5/8	66.6750	1 1/2	38.1000	82.904	231.089	1800	2700

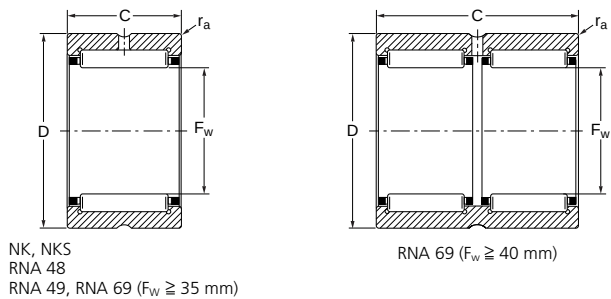
Mass Approx.		Interchange	
Open Ends	Closed Ends	Open Ends	Closed Ends
g	g		
47.67	54.03	B 248	M 2481
59.93	68.10	B 2410	M 24101
71.73	81.27	B 2412	M 24121
83.54	94.89	B 2414	M 24141
95.79	108.51	B 2416	M 24161
119.40	135.29	B 2420	M 24201
51.30	-	B 268	-
64.01	72.64	B 2610	M 26101
102.60	-	B 2616	-
128.03	145.28	B 2620	M 26201
82.17	93.07	B 2812	M 28121
109.87	124.40	B 2816	M 28161
137.11	-	B 2820	-
164.80	186.59	B 2824	M 26241
58.57	66.28	B 308	M 3081
87.62	-	B 3012	-
117.13	132.57	B 3016	M 30161
61.74	69.92	B 328	M 3281
123.94	140.29	B 3216	M 32161
154.81	175.24	B 3220	M 32201
186.14	211.11	B 3224	M 32241
217.01	245.61	B 3228	M 32281
122.13	-	BH 3312	-
162.53	184.32	BH 3316	MH 33161
243.80	276.49	BH 3324	MH 33241
65.38	-	B 348	-
138.02	156.63	B 3416	M 34161
163.89	-	B 3420	-
196.58	222.91	B 3424	M 34241
103.51	117.13	B 3612	M 36121
172.52	-	B 3620	-
207.02	234.72	B 3624	M 36241



Basic Dimensions						Basic Load Ratings		Limiting Speed	
F _w		D		C		Dynamic	Static	Grease	Oil
inch	mm	inch	mm	inch	mm	C	C ₀		
						kN	kN		
2 5/8	66.6750	3	76.2000	1	25.4000	60.075	163.805	1530	2250
2 3/4	69.8500	3 1/8	79.3750	5/8	15.8750	36.886	88.110	1440	2250
2 3/4	69.8500	3 1/8	79.3750	1	25.4000	62.078	171.414	1440	2250
2 3/4	69.8500	3 1/8	79.3750	1 1/4	31.7500	76.896	227.084	1440	2250
3 1/2	88.9000	4	101.6000	3/4	19.0500	58.473	134.969	1620	2430
5 1/2	139.7000	6	152.4000	3/4	19.0500	69.287	208.260	900	1440

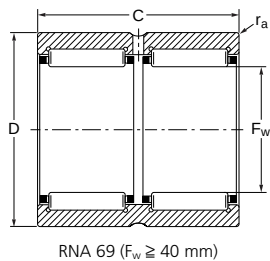
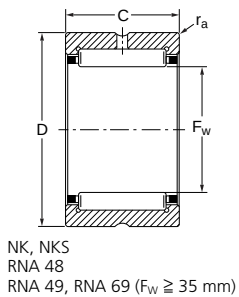
Mass Approx.		Interchange	
Open Ends	Closed Ends	Open Ends	Closed Ends
g	g		
159.35	180.69	B 4216	M 42161
103.97	-	B 4410	-
166.16	-	B 4416	-
207.93	235.63	B 4420	M 44201
212.47	-	B 5612	-
325.52	-	B 8812	-

RNA 69 ($F_w \geq 40$ mm)[illegible]



Basic Dimensions				Basic Load Ratings		Limiting Speed	Mass	
F _w mm	D mm	C mm	r _a max	Dynamic C kN	Static C ₀ kN	r/min	g	NK
20	28	23	0.30	17.30	25.50	18000	39.7	-
20	32	20	0.30	23.00	25.00	17100	48.7	-
21	29	16	0.30	13.50	18.70	18000	28.1	NK 21/16
21	29	20	0.30	17.10	25.50	18000	35.2	NK 21/20
22	30	16	0.30	14.00	19.90	17100	30.0	NK 22/16
22	30	20	0.30	17.70	27.00	17100	37.0	NK 22/20
22	30	13	0.30	11.00	14.60	18900	22.2	-
22	30	23	0.30	18.60	29.00	17100	42.4	-
22	35	20	0.60	24.50	28.00	15300	61.5	-
24	32	16	0.30	15.00	22.30	16200	31.9	NK 24/16
24	32	20	0.30	19.00	30.50	16200	40.0	NK 24/20
24	37	20	0.60	26.00	31.00	14400	65.5	-
25	33	16	0.30	14.90	22.40	15300	32.6	NK 25/16
25	33	20	0.30	18.80	30.50	15300	42.0	NK 25/20
25	37	17	0.30	21.00	25.50	15300	52.3	-
25	37	30	0.30	36.00	51.00	14400	100.0	-
25	38	20	0.60	27.50	33.50	14400	68.1	-
26	34	16	0.30	15.30	23.60	14400	34.0	NK 26/16
26	34	20	0.30	19.40	32.00	14400	42.0	NK 26/20
28	37	20	0.30	22.00	34.00	13500	52.2	NK 28/20
28	37	30	0.30	33.00	57.00	13500	82.0	NK 28/30
28	39	17	0.30	22.80	29.50	14400	50.2	-
28	39	30	0.30	37.50	55.00	13500	98.0	-
28	42	20	0.60	28.50	36.50	12600	83.6	-
29	38	20	0.30	21.90	34.00	13500	53.7	NK 29/20
29	38	30	0.30	32.50	57.00	13500	84.3	NK 29/30
30	40	20	0.30	22.60	36.00	12600	65.0	NK 30/20
30	40	30	0.30	33.50	60.00	12600	97.9	NK 30/30
30	42	17	0.30	23.60	31.50	13500	61.0	-
30	42	30	0.30	39.00	59.00	12600	112.0	-
30	45	22	0.60	32.00	40.00	11700	104.0	-
32	42	20	0.30	23.10	37.50	11700	68.0	NK 32/20

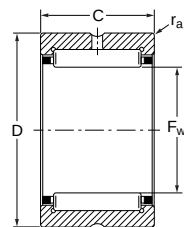
Designation			
NKS	RNA 48	RNA 49	RNA 69
-	-	-	RNA 6902
NKS 20	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	RNA 4903	-
-	-	-	RNA 6903
NKS 22	-	-	-
-	-	-	-
-	-	-	-
NKS 24	-	-	-
-	-	-	-
-	-	-	-
-	-	RNA 4904	-
-	-	-	RNA 6904
NKS 25	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	RNA 49/22	-
-	-	-	RNA 69/22
NKS 28	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	RNA 4905	-
-	-	-	RNA 6905
NKS 30	-	-	-
-	-	-	-



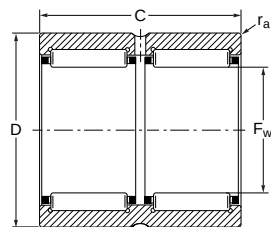
Basic Dimensions				Basic Load Ratings		Limiting Speed	Mass	
F_w mm	D mm	C mm	r_a max	Dynamic C kN	Static C_0 kN	r/min	g	NK
32	42	30	0.30	34.50	63.00	11700	102.0	NK 32/30
32	45	17	0.30	24.40	33.50	11700	73.2	-
32	45	30	0.30	40.50	63.00	11700	135.0	-
32	47	22	0.60	33.50	43.50	10800	110.0	-
35	45	20	0.30	24.30	41.50	10800	73.8	NK 35/20
35	45	30	0.30	36.50	69.00	10800	112.0	NK 35/30
35	47	17	0.30	25.00	35.50	11700	69.4	-
35	47	30	0.30	43.50	71.00	10800	126.0	-
35	50	22	0.60	35.00	47.00	10800	118.0	-
37	47	20	0.30	24.90	43.50	10800	77.0	NK 37/20
37	47	30	0.30	37.00	73.00	10800	113.0	NK 37/30
37	52	22	0.60	36.50	50.00	9900	123.0	-
38	48	20	0.30	25.50	45.00	9900	79.4	NK 38/20
38	48	30	0.30	38.00	76.00	9900	116.0	NK 38/30
40	50	20	0.30	26.00	47.00	9900	82.7	NK 40/20
40	50	30	0.30	39.00	79.00	9900	125.0	NK 40/30
40	52	20	0.60	30.50	47.50	10800	89.1	-
40	52	36	0.60	47.00	82.00	9900	162.0	-
40	55	22	0.60	38.00	54.00	9000	129.0	-
42	52	20	0.30	26.50	49.00	9000	85.8	NK 42/20
42	52	30	0.30	39.50	82.00	9000	130.0	NK 42/30
42	55	20	0.60	31.50	50.00	9900	107.0	-
42	55	36	0.60	48.00	86.00	9000	193.0	-
43	53	20	0.30	27.00	51.00	9000	86.0	NK 43/20
43	53	30	0.30	40.50	85.00	9000	133.0	NK 43/30
43	58	22	0.60	39.00	57.00	8550	139.0	-
45	55	20	0.30	27.50	53.00	9000	91.5	NK 45/20
45	55	30	0.30	41.00	88.00	9000	139.0	NK 45/30
45	60	22	0.60	40.50	60.00	8550	145.0	-
47	57	20	0.30	28.50	56.00	8550	94.5	NK 47/20
47	57	30	0.30	43.00	94.00	8550	142.0	NK 47/30
48	62	22	0.60	43.00	67.00	8550	140.0	-

Designation			
NKS	RNA 48	RNA 49	RNA 69
-	-	-	-
-	-	RNA 49/28	-
-	-	-	RNA 69/28
NKS 32	-	-	-
-	-	-	-
-	-	-	-
-	-	RNA 4906	-
-	-	-	RNA 6906
NKS 35	-	-	-
-	-	-	-
-	-	-	-
NKS 37	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	RNA 49/32	-
-	-	-	RNA 69/32
NKS 40	-	-	-
-	-	-	-
-	-	-	-
-	-	RNA 4907	-
-	-	-	RNA 6907
-	-	-	-
-	-	-	-
NKS 43	-	-	-
-	-	-	-
-	-	-	-
NKS 45	-	-	-
-	-	-	-
-	-	-	-
-	-	RNA 4908	-

Needle Roller Bearings, without Inner Ring



NK, NKS
RNA 48
RNA 49, RNA 69 ($F_w \geq 35$ mm)



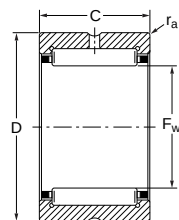
RNA 69 ($F_w \geq 40$ mm)

Basic Dimensions				Basic Load Ratings		Limiting Speed	Mass	
F_w mm	D mm	C mm	r_a max	Dynamic C kN	Static C ₀ kN	r/min	g	NK
48	62	40	0.60	66.00	116.00	8100	256.0	-
50	62	25	0.60	38.00	74.00	8100	158.0	NK 50/25
50	62	35	0.60	50.00	106.00	8100	221.0	NK 50/35
50	65	22	1.00	42.50	67.00	7650	157.0	-
52	68	22	0.60	45.00	73.00	7650	182.0	-
52	68	40	0.60	69.00	127.00	7200	338.0	-
55	68	25	0.60	40.00	82.00	7200	180.0	NK 55/25
55	68	35	0.60	53.00	118.00	7200	250.0	NK 55/35
55	72	22	1.00	45.00	74.00	6750	221.0	-
58	72	22	0.60	47.00	80.00	7200	163.0	-
58	72	40	0.60	73.00	139.00	6750	310.0	-
60	72	25	0.60	42.00	90.00	6750	185.0	NK 60/25
60	72	35	0.60	56.00	130.00	6750	258.0	NK 60/35
60	80	28	1.10	63.00	98.00	6300	335.0	-
63	80	25	1.00	58.00	100.00	6750	255.0	-
63	80	45	1.00	90.00	176.00	6300	470.0	-
65	78	25	0.60	44.00	98.00	6300	221.0	NK 65/25
65	78	35	0.60	59.00	142.00	6300	310.0	NK 65/35
65	85	28	1.10	67.00	108.00	5850	356.0	-
68	82	25	0.60	43.50	89.00	5850	241.0	NK 68/25
68	82	35	0.60	62.00	139.00	5850	338.0	NK 68/35
68	85	25	1.00	60.00	108.00	6300	275.0	-
68	85	45	1.00	94.00	191.00	5850	488.0	-
70	85	25	0.60	44.50	92.00	5850	260.0	NK 70/25
70	85	35	0.60	63.00	144.00	5850	370.0	NK 70/35
70	90	28	1.10	68.00	113.00	5400	380.0	-
72	90	25	1.00	61.00	112.00	5850	312.0	-
72	90	45	1.00	95.00	198.00	5400	580.0	-
73	90	25	1.00	53.00	100.00	5400	302.0	NK 73/25
73	90	35	1.00	75.00	156.00	5400	428.0	NK 73/35
75	92	25	1.00	54.00	104.00	5400	315.0	NK 75/25
75	92	35	1.00	77.00	162.00	5400	445.0	NK 75/35

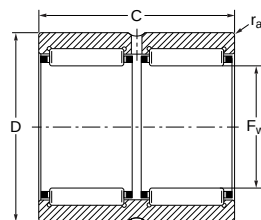
Needle Roller Bearings, without Inner Ring

Designation			
NKS	RNA 48	RNA 49	RNA 69
-	-	-	RNA 6908
-	-	-	-
-	-	-	-
NKS 50	-	-	-
-	-	RNA 4909	-
-	-	-	RNA 6909
-	-	-	-
-	-	-	-
NKS 55	-	-	-
-	-	RNA 4910	-
-	-	-	RNA 6910
-	-	-	-
-	-	-	-
NKS 60	-	-	-
-	-	RNA 4911	-
-	-	-	RNA 6911
-	-	-	-
-	-	-	-
NKS 65	-	-	-
-	-	-	-
-	-	-	-
-	-	RNA 4912	-
-	-	-	RNA 6912
-	-	-	-
-	-	-	-
NKS 70	-	-	-
-	-	RNA 4913	-
-	-	-	RNA 6913
-	-	-	-
-	-	-	-
-	-	-	-

Needle Roller Bearings, without Inner Ring



NK, NKS
RNA 48
RNA 49, RNA 69 ($F_w \geq 35$ mm)

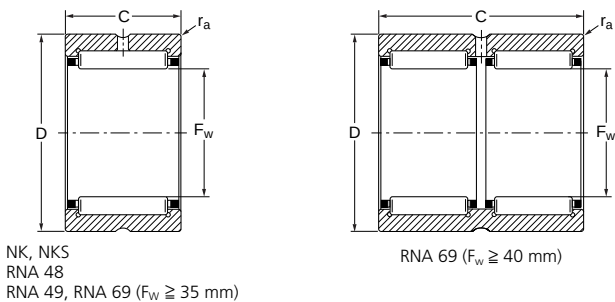


RNA 69 ($F_w \geq 40$ mm)

Basic Dimensions				Basic Load Ratings		Limiting Speed	Mass	
F_w mm	D mm	C mm	r_a max	Dynamic C kN	Static C_0 kN	r/min	g	NK
75	95	28	1.10	71.00	123.00	5400	402.0	-
80	95	25	1.00	56.00	119.00	4950	301.0	NK 80/25
80	95	35	1.00	78.00	184.00	4950	425.0	NK 80/35
80	100	30	1.00	84.00	156.00	5400	460.0	-
80	100	54	1.00	128.00	265.00	4950	857.0	-
85	105	25	1.00	69.00	123.00	4500	425.0	NK 85/25
85	105	35	1.00	98.00	193.00	4500	600.0	NK 85/35
85	105	30	1.00	86.00	162.00	4950	489.0	-
85	105	54	1.00	130.00	275.00	4500	935.0	-
90	110	25	1.00	72.00	132.00	4410	450.0	NK 90/25
90	110	35	1.00	103.00	208.00	4410	630.0	NK 90/35
90	110	30	1.00	89.00	174.00	4500	516.0	-
90	110	54	1.00	135.00	300.00	4410	987.0	-
95	115	26	1.00	73.00	137.00	4230	490.0	NK 95/26
95	115	36	1.00	107.00	223.00	4230	680.0	NK 95/36
100	120	26	1.00	76.00	146.00	4050	515.0	NK 100/26
100	120	36	1.00	111.00	237.00	4050	715.0	NK 100/36
100	120	35	1.10	111.00	237.00	4320	657.0	-
100	120	63	1.10	166.00	400.00	4050	1200.0	-
105	125	26	1.00	78.00	155.00	3870	540.0	NK 105/26
105	125	36	1.00	114.00	250.00	3870	713.0	NK 105/36
105	125	35	1.10	114.00	250.00	4140	745.0	-
105	125	63	1.10	172.00	425.00	3870	1330.0	-
110	130	30	1.10	98.00	210.00	3690	650.0	NK 110/30
110	130	40	1.10	127.00	290.00	3690	830.0	NK 110/40
110	130	35	1.10	116.00	260.00	3960	719.0	-
110	130	63	1.10	174.00	440.00	3690	1460.0	-
115	140	40	1.10	128.00	270.00	3690	1150.0	-
120	140	30	1.00	94.00	216.00	3420	670.0	-
125	150	40	1.10	132.00	290.00	3420	1240.0	-
130	150	30	1.00	99.00	239.00	3150	730.0	-
135	165	45	1.10	181.00	390.00	3060	1860.0	-

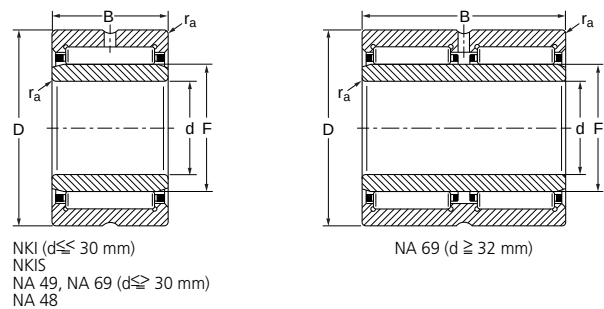
Needle Roller Bearings, without Inner Ring

Designation			
NKS	RNA 48	RNA 49	RNA 69
NKS 75	-	-	-
-	-	-	-
-	-	-	-
-	-	RNA 4914	-
-	-	-	RNA 6914
-	-	-	-
-	-	-	-
-	-	RNA 4915	-
-	-	-	RNA 6915
-	-	-	-
-	-	-	-
-	-	RNA 4916	-
-	-	-	RNA 6916
-	-	-	-
-	-	-	-
-	-	RNA 4917	-
-	-	-	RNA 6917
-	-	-	-
-	-	-	-
-	-	RNA 4918	-
-	-	-	RNA 6918
-	-	-	-
-	-	-	-
-	-	RNA 4919	-
-	-	-	RNA 6919
-	-	RNA 4920	-
-	RNA 4822	-	-
-	-	RNA 4922	-
-	RNA 4824	-	-
-	-	RNA 4924	-



Basic Dimensions				Basic Load Ratings		Limiting Speed	Mass	
F _w mm	D mm	C mm	r _a max	Dynamic C kN	Static C ₀ kN	r/min	g	NK
145	165	35	1.10	118.00	310.00	2880	990.0	-
150	180	50	1.50	203.00	470.00	2880	2210.0	-
155	175	35	1.10	120.00	325.00	2700	1050.0	-
160	190	50	1.50	209.00	500.00	2700	2350.0	-
165	190	40	1.10	152.00	400.00	2520	1600.0	-
175	200	40	1.10	160.00	435.00	2340	1700.0	-
185	215	45	1.10	185.00	510.00	2250	2540.0	-
195	225	45	1.10	194.00	550.00	2070	2680.0	-
210	240	50	1.50	227.00	690.00	1980	3210.0	-
220	250	50	1.50	230.00	720.00	1890	3350.0	-
240	270	50	1.50	243.00	790.00	1710	3620.0	-
265	300	60	2.00	355.00	1080.00	1530	5400.0	-
285	320	60	2.00	370.00	1160.00	1440	5800.0	-
305	350	69	2.00	450.00	1300.00	1350	9300.0	-
330	380	80	2.10	620.00	1770.00	1260	12700.0	-
350	400	80	2.10	630.00	1850.00	1170	13400.0	-
370	420	80	2.10	640.00	1940.00	1080	14000.0	-
390	440	80	2.10	660.00	2020.00	1080	14800.0	-
415	480	100	2.10	1000.00	2900.00	990	26000.0	-

Designation			
NKS	RNA 48	RNA 49	RNA 69
-	RNA 4826	-	-
-	-	RNA 4926	-
-	RNA 4828	-	-
-	-	RNA 4928	-
-	RNA 4830	-	-
-	RNA 4832	-	-
-	RNA 4834	-	-
-	RNA 4836	-	-
-	RNA 4838	-	-
-	RNA 4840	-	-
-	RNA 4844	-	-
-	RNA 4848	-	-
-	RNA 4852	-	-
-	RNA 4856	-	-
-	RNA 4860	-	-
-	RNA 4864	-	-
-	RNA 4868	-	-
-	RNA 4872	-	-
-	RNA 4876	-	-

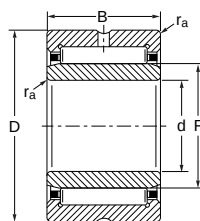


Basic Dimensions					Basic Load Ratings		Limiting Speed	Mass	
d	F	D	B	ra	Dynamic	Static			NKI
mm	mm	mm	mm	max	C	C0	r/min	g	
5	8	15	12	0.30	3.95	4.10	28800	11.5	NKI 5/12
5	8	15	16	0.30	5.10	5.80	28800	15.3	NKI 5/16
6	9	16	12	0.30	4.50	5.00	27000	13.5	NKI 6/12
6	9	16	16	0.30	5.90	7.10	27000	17.4	NKI 6/16
7	10	17	12	0.30	4.75	5.50	26100	13.7	NKI 7/12
7	10	17	16	0.30	6.20	7.80	26100	18.2	NKI 7/16
9	12	19	12	0.30	6.40	7.10	24300	16.6	NKI 9/12
9	12	19	16	0.30	9.00	11.00	24300	21.9	NKI 9/16
10	14	22	16	0.30	10.10	11.50	22500	29.4	NKI 10/16
10	14	22	20	0.30	12.80	15.60	22500	37.1	NKI 10/20
10	14	22	13	0.30	8.50	9.20	22500	23	-
12	16	24	16	0.30	11.30	13.90	21600	33.3	NKI 12/16
12	16	24	20	0.30	14.40	18.80	21600	41.9	NKI 12/20
12	16	24	13	0.30	9.40	10.90	21600	26	-
12	16	24	22	0.30	16.00	21.60	21600	46	-
15	19	27	16	0.30	13.00	17.40	19800	38.8	NKI 15/16
15	19	27	20	0.30	16.50	23.60	19800	48.7	NKI 15/20
15	20	28	13	0.30	10.60	13.60	19800	34	-
15	20	28	23	0.30	17.30	25.50	19800	63.6	-
15	22	35	20	0.60	24.50	28.00	18000	92	-
17	21	29	16	0.30	13.50	18.70	18900	42.4	NKI 17/16
17	21	29	20	0.30	17.10	25.50	18900	53.4	NKI 17/20
17	22	30	13	0.30	11.00	14.60	18900	37	-
17	22	30	23	0.30	18.60	29.00	18900	72	-
17	24	37	20	0.60	26.00	31.00	16200	98	-
20	24	32	16	0.30	15.00	22.30	17100	49	NKI 20/16
20	24	32	20	0.30	19.00	30.50	17100	61	NKI 20/20
20	25	37	17	0.30	21.00	25.50	15300	75.2	-
20	25	37	30	0.30	36.00	51.00	15300	141	-
20	28	42	20	0.60	28.50	36.50	14400	129	-
22	26	34	16	0.30	15.30	23.60	16200	52	NKI 22/16
22	26	34	20	0.30	19.40	32.00	16200	65.4	NKI 22/20

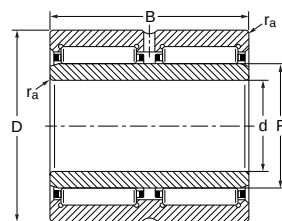
Designation			
NKIS	NA 48	NA 49	NA 69
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	NA 4900	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	NA 4901	-
-	-	-	NA 6901
-	-	-	-
-	-	-	-
-	-	NA 4902	-
-	-	-	NA 6902
NKIS 15	-	-	-
-	-	-	-
-	-	-	-
-	-	NA 4903	-
-	-	-	NA 6903
NKIS 17	-	-	-
-	-	-	-
-	-	-	-
-	-	NA 4904	-
-	-	-	NA 6904
NKIS 20	-	-	-
-	-	-	-
-	-	-	-

Needle Roller Bearings, with Inner Ring

Needle Roller Bearings, with Inner Ring



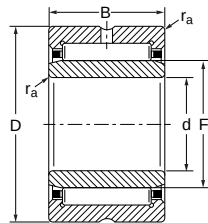
NKI ($d \leq 30$ mm)
NKIS
NA 49, NA 69 ($d \geq 30$ mm)
NA 48



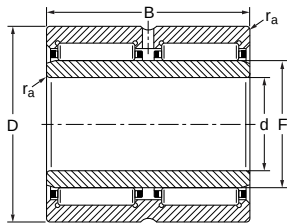
NA 69 ($d \geq 32$ mm)

Basic Dimensions					Basic Load Ratings		Limiting Speed	Mass	
d mm	F mm	D mm	B mm	r _a max	C kN	C ₀ kN	r/min	g	NKI
22	28	39	17	0.30	22.80	29.50	14400	80	-
22	28	39	30	0.30	37.50	55.00	14400	150	-
25	29	38	20	0.30	21.90	34.00	14400	79.4	NKI 25/20
25	29	38	30	0.30	32.50	57.00	14400	124	NKI 25/30
25	30	42	17	0.30	23.60	31.50	13500	88	-
25	30	42	30	0.30	39.00	59.00	13500	161	-
25	32	47	22	0.60	33.50	43.50	12600	162	-
28	32	42	20	0.30	23.10	37.50	12600	96.5	NKI 28/20
28	32	42	30	0.30	34.50	63.00	12600	146	NKI 28/30
28	32	45	17	0.30	24.40	33.50	11700	97.7	-
28	32	45	30	0.30	40.50	63.00	11700	182	-
30	35	45	20	0.30	24.30	41.50	11700	112	NKI 30/20
30	35	45	30	0.30	36.50	69.00	11700	170	NKI 30/30
30	35	47	17	0.30	25.00	35.50	11700	101	-
30	35	47	30	0.30	43.50	71.00	11700	192	-
30	37	52	22	0.60	36.50	50.00	10800	184	-
32	37	47	20	0.30	24.90	43.50	10800	118	NKI 32/20
32	37	47	30	0.30	37.00	73.00	10800	180	NKI 32/30
32	40	52	20	0.60	30.50	47.50	10800	158	-
32	40	52	36	0.60	47.00	82.00	10800	288	-
35	40	50	20	0.30	26.00	47.00	10800	127	NKI 35/20
35	40	50	30	0.30	39.00	79.00	10800	193	NKI 35/30
35	42	55	20	0.60	31.50	50.00	9900	170	-
35	42	55	36	0.60	48.00	86.00	9900	310	-
35	43	58	22	0.60	39.00	57.00	9900	220	-
38	43	53	20	0.30	27.00	51.00	9900	136	NKI 38/20
38	43	53	30	0.30	40.50	85.00	9900	207	NKI 38/30
40	45	55	20	0.30	27.50	53.00	9000	142	NKI 40/20
40	45	55	30	0.30	41.00	88.00	9000	216	NKI 40/30
40	48	62	22	0.60	43.00	67.00	8550	230	-
40	48	62	40	0.60	66.00	116.00	8550	430	-
40	50	65	22	1.00	42.50	67.00	8550	281	-

Designation			
NKIS	NA 48	NA 49	NA 69
-	-	NA 49/22	-
-	-	-	NA 69/22
-	-	-	-
-	-	-	-
-	-	NA 4905	-
-	-	-	NA 6905
NKIS 25	-	-	-
-	-	-	-
-	-	-	-
-	-	NA 49/28	-
-	-	-	NA 69/28
-	-	-	-
-	-	-	-
-	-	NA 4906	-
-	-	-	NA 6906
NKIS 30	-	-	-
-	-	-	-
-	-	-	-
-	-	NA 49/32	-
-	-	-	NA 69/32
-	-	-	-
-	-	-	-
-	-	NA 4907	-
-	-	-	NA 6907
NKIS 35	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	NA 4908	-
-	-	-	NA 6908
NKIS 40	-	-	-



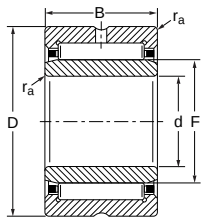
NKI ($d \leq 30$ mm)
NKIS
NA 49, NA 69 ($d \geq 30$ mm)
NA 48



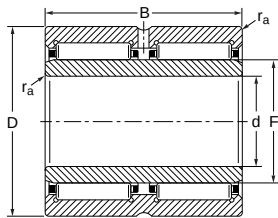
NA 69 ($d \geq 32$ mm)

Basic Dimensions					Basic Load Ratings		Limiting Speed	Mass	
d	F	D	B	ra	Dynamic	Static			NKI
mm	mm	mm	mm	max	C	C0	r/min	g	
					kN	kN			
42	47	57	20	0.30	28.50	56.00	9000	148	NKI 42/20
42	47	57	30	0.30	43.00	94.00	9000	222	NKI 42/30
45	50	62	25	0.60	38.00	74.00	8100	229	NKI 45/25
45	50	62	35	0.60	50.00	105.00	8100	322	NKI 45/35
45	52	68	22	0.60	45.00	73.00	7650	271	-
45	52	68	40	0.60	69.00	127.00	7650	495	-
45	55	72	22	1.00	45.00	74.00	7650	336	-
50	55	68	25	0.60	40.00	82.00	7650	270	NKI 50/25
50	55	68	35	0.60	53.00	118.00	7650	379	NKI 50/35
50	58	72	22	0.60	47.00	80.00	7200	274	-
50	58	72	40	0.60	73.00	139.00	7200	515	-
50	60	80	28	1.10	63.00	98.00	6750	518	-
55	60	72	25	0.60	42.00	90.00	6750	272	NKI 55/25
55	60	72	35	0.60	56.00	130.00	6750	379	NKI 55/35
55	63	80	25	1.00	58.00	100.00	6750	393	-
55	63	80	45	1.00	90.00	176.00	6750	780	-
55	65	85	28	1.10	67.00	108.00	6300	558	-
60	68	82	25	0.60	43.50	89.00	6300	394	NKI 60/25
60	68	82	35	0.60	62.00	139.00	6300	553	NKI 60/35
60	68	85	25	1.00	60.00	108.00	6300	426	-
60	68	85	45	1.00	94.00	191.00	6300	808	-
60	70	90	28	1.10	68.00	113.00	5850	560	-
65	73	90	25	1.00	53.00	100.00	5850	467	NKI 65/25
65	73	90	35	1.00	75.00	156.00	5850	659	NKI 65/35
65	72	90	25	1.00	61.00	112.00	5850	456	-
65	72	90	45	1.00	95.00	198.00	5850	833	-
65	75	95	28	1.10	71.00	123.00	5400	641	-
70	80	95	25	1.00	56.00	119.00	5400	521	NKI 70/25
70	80	95	35	1.00	78.00	184.00	5400	737	NKI 70/35
70	80	100	30	1.00	84.00	156.00	5400	728	-
70	80	100	54	1.00	128.00	265.00	5400	1340	-
75	85	105	25	1.00	69.00	123.00	4950	641	NKI 75/25

Designation			
NKIS	NA 48	NA 49	NA 69
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	NA 4909	-
-	-	-	NA 6909
NKIS 45	-	-	-
-	-	-	-
-	-	-	-
-	-	NA 4910	-
-	-	-	NA 6910
NKIS 50	-	-	-
-	-	-	-
-	-	-	-
-	-	NA 4911	-
-	-	-	NA 6911
NKIS 55	-	-	-
-	-	-	-
-	-	-	-
-	-	NA 4912	-
-	-	-	NA 6912
NKIS 60	-	-	-
-	-	-	-
-	-	-	-
-	-	NA 4913	-
-	-	-	NA 6913
NKIS 65	-	-	-
-	-	-	-
-	-	-	-
-	-	NA 4914	-
-	-	-	NA 6914
-	-	-	-



NKI ($d \leq 30$ mm)
NKIS
NA 49, NA 69 ($d \leq 30$ mm)
NA 48



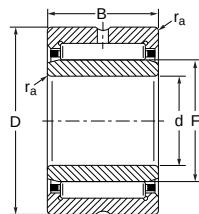
NA 69 ($d \geq 32$ mm)

Basic Dimensions					Basic Load Ratings		Limiting Speed	Mass	
d	F	D	B	r _s	Dynamic	Static			NKI
mm	mm	mm	mm	max	C	C ₀	r/min	g	
					kN	kN			
75	85	105	35	1.00	98.00	193.00	4950	908	NKI 75/35
75	85	105	30	1.00	86.00	162.00	4950	775	-
75	85	105	54	1.00	130.00	275.00	4950	1450	-
80	90	110	25	1.00	72.00	132.00	4500	677	NKI 80/25
80	90	110	35	1.00	103.00	208.00	4500	959	NKI 80/35
80	90	110	30	1.00	89.00	174.00	4500	878	-
80	90	110	54	1.00	135.00	300.00	4500	1522	-
85	95	115	26	1.00	73.00	137.00	4410	743	NKI 85/26
85	95	115	36	1.00	107.00	223.00	4410	1040	NKI 85/36
85	100	120	35	1.10	111.00	237.00	4320	1250	-
85	100	120	63	1.10	166.00	400.00	4320	2200	-
90	100	120	26	1.00	76.00	146.00	4230	778	NKI 90/26
90	100	120	36	1.00	111.00	237.00	4230	1090	NKI 90/36
90	105	125	35	1.10	114.00	250.00	4140	1312	-
90	105	125	63	1.10	172.00	425.00	4140	2310	-
95	105	125	26	1.00	78.00	155.00	4050	816	NKI 95/26
95	105	125	36	1.00	114.00	250.00	4050	1145	NKI 95/36
95	110	130	35	1.10	116.00	260.00	3960	1371	-
95	110	130	63	1.10	174.00	440.00	3960	2500	-
100	110	130	30	1.10	98.00	210.00	3870	990	NKI 100/30
100	110	130	40	1.10	127.00	290.00	3870	1330	NKI 100/40
100	115	140	40	1.10	128.00	270.00	3690	1900	-
110	125	150	40	1.10	132.00	290.00	3420	2070	-
110	120	140	30	1.00	94.00	216.00	3510	1080	-
120	135	165	45	1.10	181.00	390.00	3060	2860	-
120	130	150	30	1.00	68.00	113.00	3240	1170	-
130	145	165	35	1.10	118.00	310.00	2970	1810	-
130	150	180	50	1.50	203.00	470.00	2880	3900	-
140	155	175	35	1.10	120.00	325.00	2790	1920	-
140	160	190	50	1.50	209.00	500.00	2700	4150	-
150	165	190	40	1.10	152.00	400.00	2610	2720	-
160	175	200	40	1.10	160.00	435.00	2430	2890	-

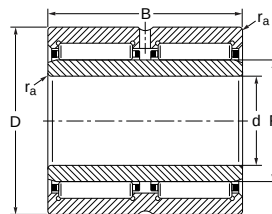
Designation			
NKIS	NA 48	NA 49	NA 69
-	-	-	-
-	-	NA 4915	-
-	-	-	NA 6915
-	-	-	-
-	-	-	-
-	-	NA 4916	-
-	-	-	NA 6916
-	-	-	-
-	-	-	-
-	-	NA 4917	-
-	-	-	NA 6917
-	-	-	-
-	-	NA 4918	-
-	-	-	NA 6918
-	-	-	-
-	-	-	-
-	-	NA 4919	-
-	-	-	NA 6919
-	-	-	-
-	-	-	-
-	-	NA 4920	-
-	-	NA 4922	-
-	NA 4822	-	-
-	-	NA 4924	-
-	NA 4824	-	-
-	NA 4826	-	-
-	-	NA 4926	-
-	NA 4828	-	-
-	-	NA 4928	-
-	NA 4830	-	-
-	NA 4832	-	-

Needle Roller Bearings, with Inner Ring

Needle Roller Bearings, with Inner Ring



NKL ($d \leq 30$ mm)
NKL5
NA 49, NA 69 ($d \leq 30$ mm)
NA 48



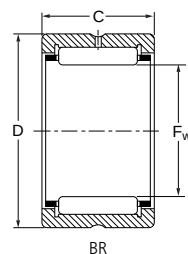
NA 69 ($d \geq 32$ mm)

Basic Dimensions					Basic Load Ratings		Limiting Speed	Mass	
d	F	D	B	r _a	Dynamic	Static			NKL
mm	mm	mm	mm	max	C	C ₀	r/min	g	
					kN	kN			
170	185	215	45	1.10	185.00	510.00	2250	3960	-
180	195	225	45	1.10	194.00	550.00	2160	4200	-
190	210	240	50	1.50	227.00	690.00	2070	5610	-
200	220	250	50	1.50	230.00	720.00	1980	5840	-
220	240	270	50	1.50	243.00	790.00	1800	6380	-
240	265	300	60	2.00	355.00	1080.00	1620	10000	-
260	285	320	60	2.00	370.00	1160.00	1530	10600	-
280	305	350	69	2.00	450.00	1300.00	1440	15300	-
300	330	380	80	2.10	620.00	1770.00	1260	21800	-
320	350	400	80	2.10	630.00	1850.00	1260	23000	-
340	370	420	80	2.10	640.00	1940.00	1170	24200	-
360	390	440	80	2.10	660.00	2020.00	1080	25600	-
380	415	480	100	2.10	1000.00	2900.00	990	42600	-

Designation			
NKL5	NA 48	NA 49	NA 69
-	NA 4834	-	-
-	NA 4836	-	-
-	NA 4838	-	-
-	NA 4840	-	-
-	NA 4844	-	-
-	NA 4848	-	-
-	NA 4852	-	-
-	NA 4856	-	-
-	NA 4860	-	-
-	NA 4864	-	-
-	NA 4868	-	-
-	NA 4872	-	-
-	NA 4876	-	-

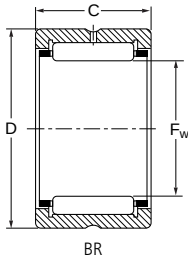
Needle Roller Bearings, without Inner Ring - Inch Sizes

Needle Roller Bearings, without Inner Ring - Inch Sizes



Basic Dimensions						Basic Load Ratings		Mass	Designation
F _w inch	mm	D		C		Dynamic	Static	g	Sealed Type BR
		inch	mm	inch	mm	kN	kN		
5/8	15.875	1 1/8	28.575	3/4	19.050	17.023	17.728	49.0	BR 101812
3/4	19.050	1 1/4	31.750	3/4	19.050	19.580	21.962	56.0	BR 122012
3/4	19.050	1 1/4	31.750	1	25.400	24.784	29.812	75.0	BR 122016
7/8	22.225	1 3/8	34.925	3/4	19.050	20.639	24.431	63.0	BR 142212
7/8	22.225	1 3/8	34.925	1	25.400	26.195	33.163	84.5	BR 142216
1	25.400	1 1/2	38.100	3/4	19.050	22.756	28.665	69.0	BR 162412
1	25.400	1 1/2	38.100	1	25.400	28.930	38.984	92.5	BR 162416
1 1/8	28.575	1 5/8	41.275	1	25.400	31.399	44.894	102.0	BR 182616
1 1/8	28.575	1 5/8	41.275	1 1/4	31.750	38.896	59.006	128.0	BR 182620
1 1/4	31.750	1 3/4	44.450	1	25.400	32.369	48.069	110.0	BR 202816
1 1/4	31.750	1 3/4	44.450	1 1/4	31.750	40.131	63.328	138.0	BR 202820
1 3/8	34.925	1 7/8	47.625	1	25.400	34.663	53.978	119.0	BR 223016
1 3/8	34.925	1 7/8	47.625	1 1/4	31.750	42.953	71.089	149.0	BR 223020
1 1/2	38.100	2 1/16	52.388	1	25.400	39.337	60.152	149.0	BR 243316
1 1/2	38.100	2 1/16	52.388	1 1/4	31.750	48.775	79.204	187.0	BR 243320
1 5/8	41.275	2 3/16	55.562	1	25.400	40.307	63.769	158.0	BR 263516
1 5/8	41.275	2 3/16	55.562	1 1/4	31.750	50.009	84.055	199.0	BR 263520
1 3/4	44.450	2 5/16	58.738	1	25.400	42.777	70.384	170.0	BR 283716
1 3/4	44.450	2 5/16	58.738	1 1/4	31.750	53.008	92.610	215.0	BR 283720
1 3/4	44.450	2 3/8	60.325	1 1/4	31.750	53.008	92.610	250.0	BR 283820
1 7/8	47.625	2 7/16	61.912	1 1/4	31.750	54.067	97.020	225.0	BR 303920
2	50.800	2 9/16	65.088	1	25.400	45.864	80.350	190.0	BR 324116
2	50.800	2 9/16	65.088	1 1/4	31.750	56.801	105.840	240.0	BR 324120

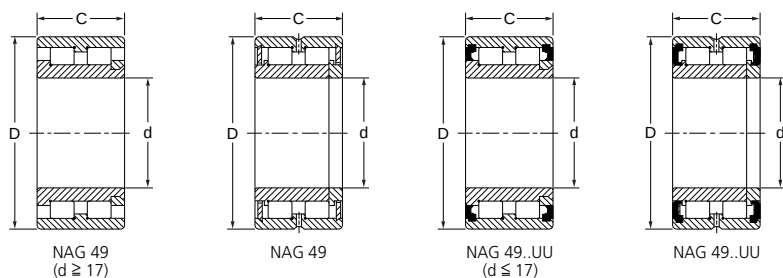
Designation		
HJ	MR	NCS
HJ-101812	MR-10-N	NCS 1012
HJ-122012	MR-12-N	NCS 1212
HJ-122016	MR-12	NCS 1216
HJ-142212	MR-14-N	NCS 1412
HJ-142216	MR-14	NCS 1416
HJ-162412	MR-16-N	NCS 1612
HJ-162416	MR-16	NCS 1616
HJ-182616	MR-18-N	NCS 1816
HJ-182620	MR-18	NCS 1820
HJ-202816	MR-20-N	NCS 2016
HJ-202820	MR-20	NCS 2020
HJ-223016	MR-22-N	NCS 2216
HJ-223020	MR-22	NCS 2220
HJ-243316	MR-24-N	NCS 2416
HJ-243320	MR-24	NCS 2420
HJ-263516	MR-26-N	NCS 2616
HJ-263520	MR-26	NCS 2620
HJ-283716	MR-28-N	NCS 2816
HJ-283720	MR-28-N	NCS 2820
-	-	-
HJ-303920	MR-30	NCS 3020
HJ-324116	MR-32-N	NCS 3216
HJ-324120	MR-32	NCS 3220



Basic Dimensions						Basic Load Ratings		Mass	Designation
F _w	D		C			Dynamic	Static		Sealed Type BR
	inch	mm	inch	mm		kN	kN		
2 1/4	57.150	3	76.200	1 1/2	38.100	81.144	142.002	435.0	BR 364824
2 1/4	57.150	3	76.200	1 3/4	44.450	94.374	171.990	510.0	BR 364828
2 1/2	63.500	3 1/4	82.550	1 1/2	38.100	85.025	156.114	475.0	BR 405224
2 1/2	63.500	3 1/4	82.550	1 3/4	44.450	98.784	188.748	555.0	BR 405228
2 3/4	69.850	3 1/2	88.900	1 1/2	38.100	89.082	170.226	510.0	BR 445624
2 3/4	69.850	3 1/2	88.900	1 3/4	44.450	103.194	205.506	600.0	BR 445628
3	76.200	3 3/4	95.250	1 1/2	38.100	94.374	190.512	555.0	BR 486024
3	76.200	3 3/4	95.250	1 3/4	44.450	109.368	230.202	650.0	BR 486028
3 1/4	82.550	4 1/4	107.950	1 3/4	44.450	127.008	232.848	990.0	BR 526828
3 1/4	82.550	4 1/4	107.950	2	50.800	138.474	260.190	1140.0	BR 526832
3 1/2	88.900	4 1/2	114.300	2	50.800	145.530	283.122	1220.0	BR 567232
3 3/4	95.250	4 3/4	120.650	2	50.800	151.704	307.818	1290.0	BR 607632
4	101.600	5	127.000	2	50.800	158.760	330.750	1370.0	BR 648032

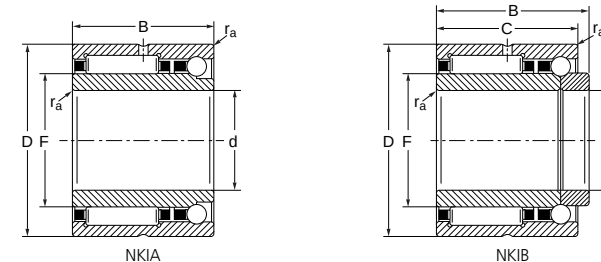
Designation		
HJ	MR	NCS
HJ-364824	MR-36-N	NCS 3624
HJ-364828	MR-36	-
HJ-405224	MR-40-N	NCS 4024
HJ-405228	MR-40	-
HJ-445624	MR-44-N	NCS 4424
HJ-445628	MR-44	-
HJ-486024	MR-48-N	NCS 4824
HJ-486028	MR-48	-
HJ-526828	MR-52	NCS 5228
HJ-526832	-	NCS 5232
HJ-567232	MR-56	NCS 5632
HJ-607632	MR-60	-
HJ-648032	MR-64	-

Needle Roller Bearings, with Inner Ring, Full Complement



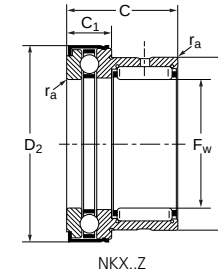
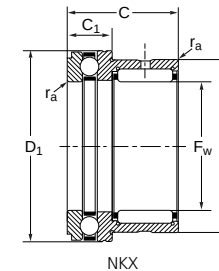
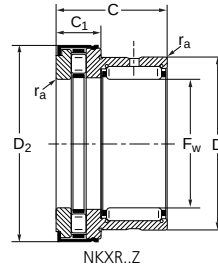
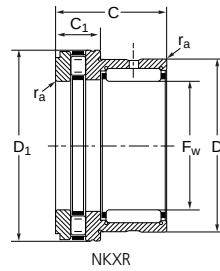
Basic Dimensions			Basic Load Ratings		Designation	Mass	Designation	Mass
d mm	D mm	B mm	Dynamic C kN	Static C ₀ kN	Open Type NAG 49	Open g	Sealed Type NAG 49..U	Sealed g
10	22	13	10.672	12.701	NAG 4900	25.5	NAG 4900 UU	25.5
12	24	13	11.466	14.200	NAG 4901	28.5	NAG 4901 UU	28.5
15	28	13	13.054	17.905	NAG 4902	38.0	NAG 4902 UU	38.0
17	30	13	13.671	19.404	NAG 4903	41.0	NAG 4903 UU	41.0
20	37	17	17.816	23.020	NAG 4904	76.5	NAG 4904 UU	76.5
25	42	17	19.933	28.312	NAG 4905	89.5	NAG 4905 UU	89.5
30	47	17	21.521	32.546	NAG 4906	103.0	NAG 4906 UU	103.0
35	55	20	32.281	52.479	NAG 4907	172.0	NAG 4907 UU	172.0
40	62	22	38.896	59.447	NAG 4908	225.0	NAG 4908 UU	225.0
45	68	22	40.925	65.621	NAG 4909	265.0	NAG 4909 UU	265.0
50	72	22	43.042	71.795	NAG 4910	270.0	NAG 4910 UU	270.0
55	80	25	53.978	92.610	NAG 4911	395.0	NAG 4911 UU	395.0
60	85	25	56.272	100.548	NAG 4912	425.0	NAG 4912 UU	425.0
65	90	25	58.653	108.486	NAG 4913	455.0	NAG 4913 UU	455.0
70	100	30	83.173	156.114	NAG 4914	725.0	NAG 4914 UU	725.0
75	105	30	85.642	164.052	NAG 4915	775.0	NAG 4915 UU	775.0
80	110	30	89.082	176.400	NAG 4916	815.0	NAG 4916 UU	815.0
85	120	35	116.424	219.618	NAG 4917	1190.0	NAG 4917 UU	1190.0
90	125	35	119.952	231.084	NAG 4918	1250.0	NAG 4918 UU	1250.0
95	130	35	122.598	243.432	NAG 4919	1300.0	NAG 4919 UU	1300.0
100	140	40	157.878	315.756	NAG 4920	1850.0	NAG 4920 UU	1850.0
110	150	40	164.052	339.570	NAG 4922	2010.0	NAG 4922 UU	2010.0
120	165	45	207.270	440.118	NAG 4924	2780.0	NAG 4924 UU	2780.0
130	180	50	238.140	505.386	NAG 4926	3750.0	NAG 4926 UU	3750.0
140	190	50	247.842	542.430	NAG 4928	3990.0	NAG 4928 UU	3990.0

Combined Needle Roller Bearings



Basic Dimensions						Basic Load Ratings		Limiting Speed	Designation	Mass
d mm	F mm	D mm	B mm	C mm	r _a max	Dynamic C kN	Static C ₀ kN	r/min		g
12	16	24	16	-	0.3	6.8	7.5	21600	NKIA 5901	40
12	16	24	17.5	16	0.3	6.8	7.5	21600	NKIB 5901	43
15	20	28	18	-	0.3	9.5	12.2	19800	NKIA 5902	50
15	20	28	20	18	0.3	9.5	12.2	19800	NKIB 5902	52
17	22	30	18	-	0.3	9.9	13.1	18900	NKIA 5903	56
17	22	30	20	18	0.3	9.9	13.1	18900	NKIB 5903	58
20	25	37	23	-	0.3	18.9	23.0	15300	NKIA 5904	103
20	25	37	25	23	0.3	18.9	23.0	15300	NKIB 5904	107
22	28	39	23	-	0.3	20.5	26.6	14400	NKIA 59/22	118
22	28	39	25	23	0.3	20.5	26.6	14400	NKIB 59/22	122
25	30	42	23	-	0.3	21.2	28.4	13500	NKIA 5905	130
25	30	42	25	23	0.3	21.2	28.4	13500	NKIB 5905	134
30	35	47	23	-	0.3	22.5	32.0	11700	NKIA 5906	147
30	35	47	25	23	0.3	22.5	32.0	11700	NKIB 5906	151
35	42	55	27	-	0.6	28.4	45.0	9900	NKIA 5907	243
35	42	55	30	27	0.6	28.4	45.0	9900	NKIB 5907	247
40	48	62	30	-	0.6	38.7	60.3	8550	NKIA 5908	315
40	48	62	34	30	0.6	38.7	60.3	8550	NKIB 5908	320
45	52	68	30	-	0.6	40.5	65.7	7650	NKIA 5909	375
45	52	68	34	30	0.6	40.5	65.7	7650	NKIB 5909	380
50	58	72	30	-	0.6	42.3	72.0	7200	NKIA 5910	380
50	58	72	34	30	0.6	42.3	72.0	7200	NKIB 5910	385
55	63	80	34	-	1.0	52.2	90.0	6750	NKIA 5911	550
55	63	80	38	34	1.0	52.2	90.0	6750	NKIB 5911	555
60	68	85	34	-	1.0	54.0	97.2	6300	NKIA 5912	590
60	68	85	38	34	1.0	54.0	97.2	6300	NKIB 5912	595
65	72	90	34	-	1.0	54.9	100.8	5850	NKIA 5913	635
65	72	90	38	34	1.0	54.9	100.8	5850	NKIB 5913	640
70	80	100	40	-	1.0	75.6	140.4	5400	NKIA 5914	980
70	80	100	45	40	1.0	75.6	140.4	5400	NKIB 5914	985

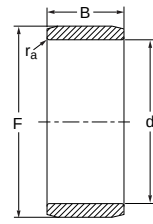
Combined Needle Roller Bearings



Basic Dimensions								Basic Load Ratings		Limiting Speed	Designation	Mass	Basic Load Ratings		Limiting Speed
F _w mm	D mm	D ₁ mm	D ₂ mm	C mm	C ₁ mm	r _a max		Dynamic C kN	Static C ₀ kN	r/min		g	Dynamic C kN	Static C ₀ kN	nG r/min
15	24	28.1	29.2	23	9	0.3		9.63	11.43	11700	NKXR 15	42	10.7	12.7	13000
17	26	30.1	31.2	25	9	0.3		10.71	13.5	10800	NKXR 17	50	11.9	15	12000
20	30	35.1	36.2	30	10	0.3		14.76	21.42	9000	NKXR 20	80	16.4	23.8	10000
25	37	42.1	43.2	30	11	0.6		16.92	27.45	7650	NKXR 25	120	18.8	30.5	8500
30	42	47.1	48.2	30	11	0.6		20.34	32.4	6750	NKXR 30	135	22.6	36	7500
35	47	52.1	53.2	30	12	0.6		21.87	37.35	5850	NKXR 35	157	24.3	41.5	6500
40	52	60.1	61.2	32	13	0.6		23.4	42.3	5400	NKXR 40	204	26	47	6000
45	58	65.2	66.5	32	14	0.6		24.75	47.7	4500	NKXR 45	244	27.5	53	5000
50	62	70.2	71.5	35	14	0.6		34.2	66.6	4320	NKXR 50	268	38	74	4800

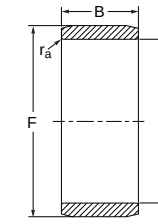
Basic Dimensions								Basic Load Ratings		Limiting Speed	Designation	Mass	Basic Load Ratings		Limiting Speed
F _w mm	D mm	D ₁ mm	D ₂ mm	C mm	C ₁ mm	r _a max		Dynamic C kN	Static C ₀ kN	r/min		g	Dynamic C kN	Static C ₀ kN	nG r/min
12	21	26.1	27.2	23	9	0.3		8.1	9.9	9900	NKX 12	38	9	11	11000
15	24	28.1	29.2	23	9	0.3		9.63	11.43	8550	NKX 15	44	10.7	12.7	9500
17	26	30.1	31.2	25	9	0.3		10.71	13.5	7650	NKX 17	53	11.9	15	8500
20	30	35.1	36.2	30	10	0.3		14.76	21.42	6750	NKX 20	83	16.4	23.8	7500
25	37	42.1	43.2	30	11	0.6		16.92	27.45	5400	NKX 25	125	18.8	30.5	6000
30	42	47.1	48.2	30	11	0.6		20.34	32.4	4500	NKX 30	141	22.6	36	5000
35	47	52.1	53.2	30	12	0.6		21.87	37.35	4140	NKX 35	163	24.3	41.5	4600
40	52	60.1	61.2	32	13	0.6		23.4	42.3	3600	NKX 40	200	26	47	4000
45	58	65.2	66.5	32	14	0.6		24.75	47.7	3240	NKX 45	252	27.5	53	3600
50	62	70.2	71.5	35	14	0.6		34.2	66.6	2970	NKX 50	280	38	74	3300
60	72	85.2	86.5	40	17	1		37.8	81	2520	NKX 60	360	42	90	2800
70	85	95.2	96.5	40	18	1		40.05	82.8	2160	NKX 70	500	44.5	92	2400

Inner Rings



Inner Ring - IR

Basic Dimensions				Mass	Designation
d mm	F mm	B mm	r _a max	g	
5	8	12	0.3	2.8	IR 5 x 8 x 12
5	8	16	0.3	3.7	IR 5 x 8 x 16
6	9	12	0.3	3.0	IR 6 x 9 x 12
6	9	16	0.3	4.3	IR 6 x 9 x 16
6	10	10	0.3	3.7	IR 6 x 10 x 10
6	10	12	0.3	4.6	IR 6 x 10 x 12
7	10	10.5	0.3	3.1	IR 7 x 10 x 10.5
7	10	12	0.3	3.6	IR 7 x 10 x 12
7	10	16	0.3	4.9	IR 7 x 10 x 16
8	12	10	0.3	4.8	IR 8 x 12 x 10
8	12	10.5	0.3	5.0	IR 8 x 12 x 10.5
8	12	12	0.3	5.6	IR 8 x 12 x 12
8	12	12.5	0.3	5.9	IR 8 x 12 x 12.5
9	12	12	0.3	4.4	IR 9 x 12 x 12
9	12	16	0.3	6.0	IR 9 x 12 x 16
10	13	12.5	0.3	5.2	IR 10 x 13 x 12.5
10	14	12	0.3	7.3	IR 10 x 14 x 12
10	14	13	0.3	7.4	IR 10 x 14 x 13
10	14	14	0.3	8.1	IR 10 x 14 x 14
10	14	16	0.3	9.2	IR 10 x 14 x 16
10	14	20	0.3	11.5	IR 10 x 14 x 20
12	15	12	0.3	5.7	IR 12 x 15 x 12
12	15	12.5	0.3	6.1	IR 12 x 15 x 12.5
12	15	16	0.3	7.6	IR 12 x 15 x 16
12	15	16.5	0.3	8.1	IR 12 x 15 x 16.5
12	15	22.5	0.3	10.9	IR 12 x 15 x 22.5
12	16	12	0.3	7.9	IR 12 x 16 x 12
12	16	13	0.3	8.5	IR 12 x 16 x 13
12	16	14	0.3	9.4	IR 12 x 16 x 14
12	16	16	0.3	10.7	IR 12 x 16 x 16
12	16	20	0.3	13.5	IR 12 x 16 x 20
12	16	22	0.3	14.9	IR 12 x 16 x 22

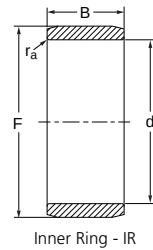


Inner Ring - IR

Basic Dimensions				Mass	Designation
d mm	F mm	B mm	r _a max	g	
14	17	17	0.3	9.5	IR 14 x 17 x 17
15	18	16	0.3	9.4	IR 15 x 18 x 16
15	18	16.5	0.3	9.8	IR 15 x 18 x 16.5
15	19	16	0.3	12.9	IR 15 x 19 x 16
15	19	20	0.3	16.3	IR 15 x 19 x 20
15	20	12	0.3	12.2	IR 15 x 20 x 12
15	20	13	0.3	13.5	IR 15 x 20 x 13
15	20	14	0.3	14.6	IR 15 x 20 x 14
15	20	23	0.3	24.4	IR 15 x 20 x 23
17	20	16	0.3	10.6	IR 17 x 20 x 16
17	20	16.5	0.3	11.1	IR 17 x 20 x 16.5
17	20	20	0.3	13.5	IR 17 x 20 x 20
17	20	20.5	0.3	13.8	IR 17 x 20 x 20.5
17	20	30.5	0.3	20.6	IR 17 x 20 x 30.5
17	21	16	0.3	15.0	IR 17 x 21 x 16
17	21	20	0.3	18.0	IR 17 x 21 x 20
17	22	13	0.3	14.9	IR 17 x 22 x 13
17	22	14	0.3	16.4	IR 17 x 22 x 14
17	22	16	0.3	18.4	IR 17 x 22 x 16
17	22	23	0.3	27.1	IR 17 x 22 x 23
17	24	20	0.6	33.8	IR 17 x 24 x 20
20	24	16	0.3	15.0	IR 20 x 24 x 16
20	24	20	0.3	21.3	IR 20 x 24 x 20
20	25	16	0.3	24.0	IR 20 x 25 x 16
20	25	17	0.3	25.0	IR 20 x 25 x 17
20	25	18	0.3	24.2	IR 20 x 25 x 18
20	25	20	0.3	27.5	IR 20 x 25 x 20
20	25	20.5	0.3	27.4	IR 20 x 25 x 20.5
20	25	26.5	0.3	38.0	IR 20 x 25 x 26.5
20	25	30	0.3	40.4	IR 20 x 25 x 30
20	25	38.5	0.3	52.5	IR 20 x 25 x 38.5
20	28	20	0.6	45.2	IR 20 x 28 x 20

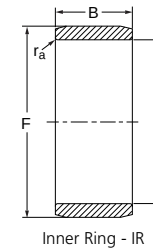
Inner Rings

Inner Rings

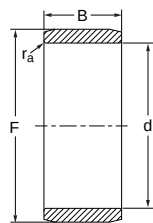


Basic Dimensions				Mass	Designation
d mm	F mm	B mm	r _a max	g	
22	26	16	0.3	18.2	IR 22 x 26 x 16
22	26	20	0.3	23.0	IR 22 x 26 x 20
22	28	17	0.3	29.5	IR 22 x 28 x 17
22	28	20	0.3	35.0	IR 22 x 28 x 20
22	28	20.5	0.3	36.0	IR 22 x 28 x 20.5
22	28	30	0.3	54.4	IR 22 x 28 x 30
25	29	20	0.3	25.9	IR 25 x 29 x 20
25	29	30	0.3	39.3	IR 25 x 29 x 30
25	30	16	0.3	25.7	IR 25 x 30 x 16
25	30	17	0.3	27.4	IR 25 x 30 x 17
25	30	18	0.3	29.8	IR 25 x 30 x 18
25	30	20	0.3	32.8	IR 25 x 30 x 20
25	30	20.5	0.3	33.4	IR 25 x 30 x 20.5
25	30	26.5	0.3	46.0	IR 25 x 30 x 26.5
25	30	30	0.3	53.0	IR 25 x 30 x 30
25	30	32	0.3	56.0	IR 25 x 30 x 32
25	30	38.5	0.3	64.5	IR 25 x 30 x 38.5
25	32	22	0.6	52.5	IR 25 x 32 x 22
28	32	17	0.3	24.5	IR 28 x 32 x 17
28	32	20	0.3	28.5	IR 28 x 32 x 20
28	32	30	0.3	43.5	IR 28 x 32 x 30
30	35	13	0.3	25.0	IR 30 x 35 x 13
30	35	16	0.3	34.0	IR 30 x 35 x 16
30	35	17	0.3	36.0	IR 30 x 35 x 17
30	35	18	0.3	35.1	IR 30 x 35 x 18
30	35	20	0.3	39.0	IR 30 x 35 x 20
30	35	20.5	0.3	39.7	IR 30 x 35 x 20.5
30	35	26	0.3	50.4	IR 30 x 35 x 26
30	35	30	0.3	58.5	IR 30 x 35 x 30
30	37	18	0.6	50.0	IR 30 x 37 x 18
30	37	22	0.6	61.6	IR 30 x 37 x 22
30	38	20	0.6	77.0	IR 30 x 38 x 20

Inner Rings

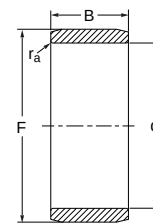


Basic Dimensions				Mass	Designation
d mm	F mm	B mm	r _a max	g	
32	37	20	0.3	42.0	IR 32 x 37 x 20
32	37	30	0.3	62.0	IR 32 x 37 x 30
32	40	20	0.6	68.0	IR 32 x 40 x 20
32	40	36	0.6	124.0	IR 32 x 40 x 36
33	37	13	0.3	21.9	IR 33 x 37 x 13
35	40	17	0.3	37.8	IR 35 x 40 x 17
35	40	20	0.3	44.2	IR 35 x 40 x 20
35	40	20.5	0.3	46.1	IR 35 x 40 x 20.5
35	40	30	0.3	67.1	IR 35 x 40 x 30
35	42	20	0.6	63.9	IR 35 x 42 x 20
35	42	21	0.6	68.0	IR 35 x 42 x 21
35	42	23	0.6	74.7	IR 35 x 42 x 23
35	42	36	0.6	117.0	IR 35 x 42 x 36
35	43	22	0.6	82.0	IR 35 x 43 x 22
38	43	20	0.3	48.1	IR 38 x 43 x 20
38	43	30	0.3	73.6	IR 38 x 43 x 30
40	45	17	0.3	42.5	IR 40 x 45 x 17
40	45	20	0.3	50.8	IR 40 x 45 x 20
40	45	20.5	0.3	51.8	IR 40 x 45 x 20.5
40	45	30	0.3	84.0	IR 40 x 45 x 30
40	48	22	0.6	91.6	IR 40 x 48 x 22
40	48	23	0.6	97.5	IR 40 x 48 x 23
40	48	40	0.6	170.0	IR 40 x 48 x 40
40	50	20	1.0	106.0	IR 40 x 50 x 20
40	50	22	1.0	118.0	IR 40 x 50 x 22
42	47	20	0.3	52.8	IR 42 x 47 x 20
42	47	30	0.3	81.0	IR 42 x 47 x 30
45	50	25	0.3	70.8	IR 45 x 50 x 25
45	50	25.5	0.3	75.1	IR 45 x 50 x 25.5
45	50	35	0.6	101.0	IR 45 x 50 x 35
45	52	22	0.6	89.0	IR 45 x 52 x 22
45	52	23	0.6	93.9	IR 45 x 52 x 23



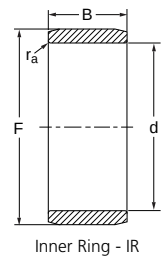
Inner Ring - IR

Basic Dimensions				Mass	Designation
d mm	F mm	B mm	r _a max	g	
45	52	40	0.6	164.0	IR 45 x 52 x 40
45	55	20	1.0	117.0	IR 45 x 55 x 20
45	55	22	1.0	129.0	IR 45 x 55 x 22
50	55	20	0.6	62.5	IR 50 x 55 x 20
50	55	25	0.6	78.0	IR 50 x 55 x 25
50	55	35	0.6	112.0	IR 50 x 55 x 35
50	58	22	0.6	115.0	IR 50 x 58 x 22
50	58	23	0.6	119.0	IR 50 x 58 x 23
50	58	40	0.6	208.0	IR 50 x 58 x 40
50	60	20	1.0	128.0	IR 50 x 60 x 20
50	60	25	1.0	162.0	IR 50 x 60 x 25
50	60	28	1.1	181.0	IR 50 x 60 x 28
55	60	25	0.6	85.5	IR 55 x 60 x 25
55	60	35	0.6	121.0	IR 55 x 60 x 35
55	63	25	1.0	141.0	IR 55 x 63 x 25
55	63	45	1.0	256.0	IR 55 x 63 x 45
55	65	28	1.1	198.0	IR 55 x 65 x 28
60	68	25	1.0	152.0	IR 60 x 68 x 25
60	68	35	0.6	213.0	IR 60 x 68 x 35
60	68	45	1.0	276.0	IR 60 x 68 x 45
60	70	25	1.0	195.0	IR 60 x 70 x 25
60	70	28	1.1	215.0	IR 60 x 70 x 28
65	72	25	1.0	141.0	IR 65 x 72 x 25
65	72	45	1.0	259.0	IR 65 x 72 x 45
65	73	25	1.0	164.0	IR 65 x 73 x 25
65	73	35	1.0	231.0	IR 65 x 73 x 35
65	75	28	1.1	229.0	IR 65 x 75 x 28
70	80	25	1.0	221.0	IR 70 x 80 x 25
70	80	30	1.0	267.0	IR 70 x 80 x 30
70	80	35	1.0	312.0	IR 70 x 80 x 35
70	80	54	1.0	488.0	IR 70 x 80 x 54
75	85	25	1.0	238.0	IR 75 x 85 x 25



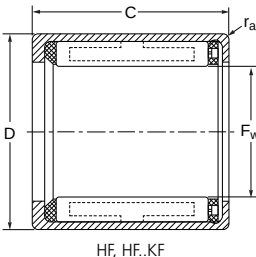
Inner Ring - IR

Basic Dimensions				Mass	Designation
d mm	F mm	B mm	r _a max	g	
75	85	30	1.0	287.0	IR 75 x 85 x 30
75	85	35	1.0	336.0	IR 75 x 85 x 35
75	85	54	1.0	520.0	IR 75 x 85 x 54
80	90	25	1.0	253.0	IR 80 x 90 x 25
80	90	30	1.0	304.0	IR 80 x 90 x 30
80	90	35	1.0	355.0	IR 80 x 90 x 35
80	90	54	1.0	556.0	IR 80 x 90 x 54
85	95	26	1.0	277.0	IR 85 x 95 x 26
85	95	36	1.0	388.0	IR 85 x 95 x 36
85	100	35	1.1	582.0	IR 85 x 100 x 35
85	100	63	1.1	1054.0	IR 85 x 100 x 63
90	100	26	1.0	294.0	IR 90 x 100 x 26
90	100	30	1.0	340.0	IR 90 x 100 x 30
90	100	36	1.0	406.0	IR 90 x 100 x 36
90	105	35	1.1	610.0	IR 90 x 105 x 35
90	105	63	1.1	1110.0	IR 90 x 105 x 63
95	105	26	1.0	313.0	IR 95 x 105 x 26
95	105	36	1.0	431.0	IR 95 x 105 x 36
95	110	35	1.1	657.0	IR 95 x 110 x 35
95	110	63	1.1	1170.0	IR 95 x 110 x 63
100	110	30	1.1	350.0	IR 100 x 110 x 30
100	110	40	1.1	505.0	IR 100 x 110 x 40
100	115	40	1.1	797.0	IR 100 x 115 x 40
110	120	30	1.0	409.0	IR 110 x 120 x 30
110	125	40	1.1	840.0	IR 110 x 125 x 40
120	130	30	1.0	442.0	IR 120 x 130 x 30
120	135	45	1.1	1044.0	IR 120 x 135 x 45
130	145	35	1.1	855.0	IR 130 x 145 x 35
130	150	50	1.5	1690.0	IR 130 x 150 x 50
140	155	35	1.1	917.0	IR 140 x 155 x 35
140	160	50	1.5	1800.0	IR 140 x 160 x 50
150	165	40	1.1	1122	IR 150 x 165 x 40



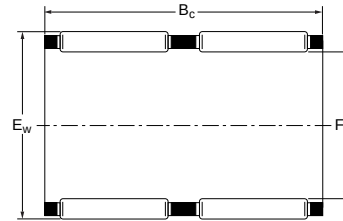
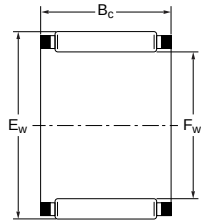
Inner Ring - IR

Basic Dimensions				Mass	Designation
d mm	F mm	B mm	r _s max	g	
160	175	40	1.1	1200	IR 160 x 175 x 40
170	185	45	1.1	1441	IR 170 x 185 x 45
180	195	45	1.1	1510	IR 180 x 195 x 45
190	210	50	1.5	2410	IR 190 x 210 x 50
200	220	50	1.5	2518	IR 200 x 220 x 50
220	240	50	1.5	2753	IR 220 x 240 x 50
240	265	60	2.0	4600	IR 240 x 265 x 60
260	285	60	2.0	4980	IR 260 x 285 x 60
280	305	69	2.0	6100	IR 280 x 305 x 69
300	330	80	2.1	9200	IR 300 x 330 x 80
320	350	80	2.1	9800	IR 320 x 350 x 80
340	370	80	2.1	10200	IR 340 x 370 x 80
360	390	80	2.1	10900	IR 360 x 390 x 80
380	415	100	2.1	16700	IR 380 x 415 x 100

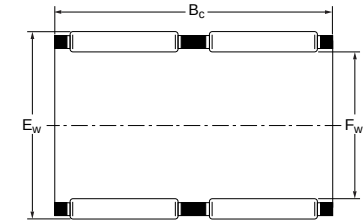
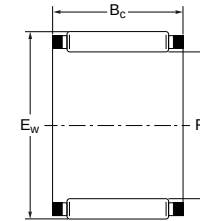


HF, HF..KF

Basic Dimensions			Chamfer Dimension	Limiting Speed	Mass	Designation	
F _w mm	D mm	C mm	r _a max	r/min	g	Plastic Springs	Steel Springs
4	8	6	0.3	32300	1.0	HF 0406 KF	-
4	8	6	0.3	32300	1.0	HF 0406 KFR	-
6	10	12	0.3	21850	3.0	HF 0612 KF	HF 0612
6	10	12	0.3	21850	3.0	HF 0612 KFR	HF 0612 R
8	12	12	0.3	16150	3.5	HF 0812 KF	HF 0812
8	12	12	0.3	16150	3.5	HF 0812 KFR	HF 0812 R
10	14	12	0.3	13300	4.0	HF 1012 KF	HF 1012
12	18	16	0.3	10450	11.0	-	HF 1216
14	20	16	0.3	9025	13.0	-	HF 1416
16	22	16	0.3	8075	14.0	-	HF 1616
18	24	16	0.3	7125	16.0	-	HF 1816
20	26	16	0.3	6650	17.0	-	HF 2016
25	32	20	0.3	5225	30.0	-	HF 2520
30	37	20	0.3	4275	36.0	-	HF 3020
35	42	20	0.3	3705	40.0	-	HF 3520



K..ZW

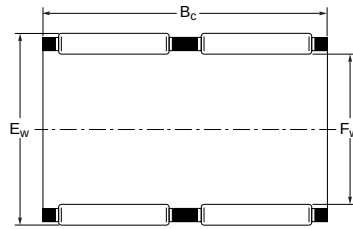
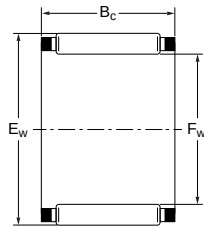


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Basic Dimensions			Basic Load Ratings		Limiting Speed	Mass	Designation
F _w mm	E _w mm	B _c mm	Dynamic kN	Static kN	r/min	g	
3	5	7	1.39	1.16	45000	0.3	KT 3 x 5 x 7
3	5	9	1.54	1.33	45000	0.4	KT 3 x 5 x 9
3	6	7	1.29	0.87	42300	0.4	KT 3 x 6 x 7
4	7	7	1.57	1.14	38700	0.5	KT 4 x 7 x 7
4	7	10	2.10	1.66	38700	0.7	KT 4 x 7 x 10
5	8	8	2.12	1.73	35100	0.7	KT 5 x 8 x 8
5	8	10	2.70	2.39	35100	0.9	KT 5 x 8 x 10
6	9	8	2.34	2.05	33300	0.8	KT 6 x 9 x 8
6	9	10	3.02	2.84	33300	1.1	KT 6 x 9 x 10
6	10	13	3.42	2.79	31500	1.9	KT 6 x 10 x 13
7	9	7	1.56	1.59	31500	0.8	KT 7 x 9 x 7
7	10	8	2.57	2.39	30600	0.9	KT 7 x 10 x 8
7	10	10	3.29	3.24	30600	1.0	KT 7 x 10 x 10
8	11	8	2.79	2.70	28800	1.0	KT 8 x 11 x 8
8	11	10	3.56	3.69	28800	1.2	KT 8 x 11 x 10
8	11	13	4.59	5.22	28800	1.7	KT 8 x 11 x 13
8	12	10	4.50	4.23	28800	2.0	KT 8 x 12 x 10
9	12	10	4.05	4.50	27900	1.5	KT 9 x 12 x 10
9	12	13	5.31	6.39	27900	2.1	KT 9 x 12 x 13
10	13	10	4.28	4.95	26100	1.6	KT 10 x 13 x 10
10	13	13	5.58	7.02	26100	2.3	KT 10 x 13 x 13
10	13	16	6.39	8.37	26100	2.9	KT 10 x 13 x 16
10	14	10	5.22	5.40	26100	2.5	KT 10 x 14 x 10
10	14	13	6.75	7.56	26100	4.6	KT 10 x 14 x 13
10	16	12	7.29	6.48	25200	5.5	KT 10 x 16 x 12
12	15	10	4.41	5.49	24300	2.9	KT 12 x 15 x 10
12	15	13	5.76	7.65	24300	2.3	KT 12 x 15 x 13
12	16	13	7.20	8.46	24300	5.5	KT 12 x 16 x 13
12	17	13	8.64	9.36	23400	4.9	KT 12 x 17 x 13
12	18	12	9.00	8.91	23400	6.0	KT 12 x 18 x 12
14	18	10	6.39	7.65	22500	4.0	KT 14 x 18 x 10
14	18	13	7.38	9.09	22500	6.5	KT 14 x 18 x 13

Basic Dimensions			Basic Load Ratings		Limiting Speed	Mass	Designation
F _w mm	E _w mm	B _c mm	Dynamic kN	Static kN	r/min	g	
14	18	15	8.55	11.07	22500	5.0	KT 14 x 18 x 15
14	18	17	9.72	12.96	22500	8.0	KT 14 x 18 x 17
14	20	12	9.27	9.54	21600	8.5	KT 14 x 20 x 12
15	18	17	7.20	10.89	22500	4.6	KT 15 x 18 x 17
15	19	10	6.75	8.28	21600	5.0	KT 15 x 19 x 10
15	19	13	7.65	9.81	21600	7.0	KT 15 x 19 x 13
15	19	17	10.17	14.04	21600	9.5	KT 15 x 19 x 17
15	20	13	8.91	10.35	21600	7.0	KT 15 x 20 x 13
15	21	15	12.87	14.76	21600	11.0	KT 15 x 21 x 15
15	21	21	17.46	21.87	21600	17.0	KT 15 x 21 x 21
16	20	10	7.02	8.91	21600	5.5	KT 16 x 20 x 10
16	20	13	8.01	10.62	21600	7.5	KT 16 x 20 x 13
16	20	17	10.53	15.12	21600	10.0	KT 16 x 20 x 17
16	22	12	10.35	11.25	20700	10.0	KT 16 x 22 x 12
16	22	16	13.32	15.75	20700	12.0	KT 16 x 22 x 16
16	22	20	16.47	20.52	20700	17.0	KT 16 x 22 x 20
16	24	20	19.26	21.15	19800	22.0	KT 16 x 24 x 20
17	21	10	7.29	9.54	20700	5.5	KT 17 x 21 x 10
17	21	13	9.36	13.14	20700	6.5	KT 17 x 21 x 13
17	21	17	10.98	16.11	20700	9.5	KT 17 x 21 x 17
18	22	10	7.56	10.17	19800	6.0	KT 18 x 22 x 10
18	22	13	8.28	11.43	19800	8.0	KT 18 x 22 x 13
18	22	17	10.89	16.20	19800	11.0	KT 18 x 22 x 17
18	24	12	11.52	13.41	19800	12.0	KT 18 x 24 x 12
18	24	13	11.79	13.77	19800	13.0	KT 18 x 24 x 13
18	24	20	18.18	24.30	19800	18.0	KT 18 x 24 x 20
18	25	22	20.79	26.10	19800	23.0	KT 18 x 25 x 22
19	23	13	8.55	12.15	19800	8.0	KT 19 x 23 x 13
19	23	17	11.25	17.28	19800	11.0	KT 19 x 23 x 17
20	24	10	8.01	11.34	18900	6.5	KT 20 x 24 x 10
20	24	13	8.82	12.87	18900	9.0	KT 20 x 24 x 13
20	24	17	11.61	18.36	18900	12.0	KT 20 x 24 x 17

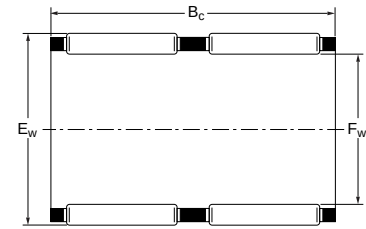
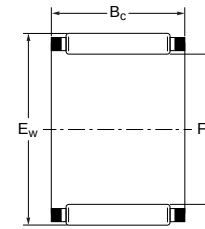
Needle Cage Assemblies



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Basic Dimensions			Basic Load Ratings		Limiting Speed	Mass	Designation
F _w mm	E _w mm	B _c mm	Dynamic kN	Static kN	r/min	g	
20	26	12	11.16	14.58	18900	11.0	KT 20 x 26 x 12
20	26	13	12.96	16.11	18900	12.0	KT 20 x 26 x 13
20	26	17	17.28	23.40	18900	16.0	KT 20 x 26 x 17
20	26	20	18.99	26.10	18900	19.0	KT 20 x 26 x 20
20	28	16	17.82	20.16	18000	20.0	KT 20 x 28 x 16
20	28	20	21.51	25.65	18000	27.0	KT 20 x 28 x 20
20	28	25	27.45	35.10	18000	32.0	KT 20 x 28 x 25
20	30	30	31.95	37.35	18000	49.0	KT 20 x 30 x 30
21	25	13	9.09	13.59	18900	9.0	KT 21 x 25 x 13
22	26	10	8.19	12.06	18000	7.5	KT 22 x 26 x 10
22	26	13	9.36	14.31	18000	9.5	KT 22 x 26 x 13
22	26	17	12.33	20.43	18000	12.0	KT 22 x 26 x 17
22	28	17	17.46	24.30	18000	18.0	KT 22 x 28 x 17
22	29	16	18.00	22.95	17100	16.0	KT 22 x 29 x 16
22	30	15	18.09	21.06	17100	18.0	KT 22 x 30 x 15
22	32	24	30.60	36.00	16200	43.0	KT 22 x 32 x 24
23	35	16	22.05	21.51	15300	29.0	KT 23 x 35 x 16
24	28	10	8.64	13.32	17100	8.5	KT 24 x 28 x 10
24	28	13	9.90	15.84	17100	10.0	KT 24 x 28 x 13
24	28	17	13.05	22.50	17100	13.0	KT 24 x 28 x 17
24	30	17	17.55	24.75	16200	19.0	KT 24 x 30 x 17
24	30	31	24.75	39.15	16200	32.0	KT 24 x 30 x 31 ZW
25	29	10	8.91	13.86	16200	8.5	KT 25 x 29 x 10
25	29	13	10.17	16.56	16200	11.0	KT 25 x 29 x 13
25	29	17	13.41	23.40	16200	14.0	KT 25 x 29 x 17
25	30	17	16.83	27.00	16200	16.0	KT 25 x 30 x 17
25	30	20	19.53	32.85	16200	18.0	KT 25 x 30 x 20
25	30	26	19.26	31.95	16200	19.0	KT 25 x 30 x 26 ZW
25	31	17	17.64	25.65	16200	19.0	KT 25 x 31 x 17
25	31	21	22.23	34.20	16200	20.0	KT 25 x 31 x 21
25	32	16	18.72	24.75	15300	21.0	KT 25 x 32 x 16
25	33	20	25.65	34.20	15300	33.0	KT 25 x 33 x 20

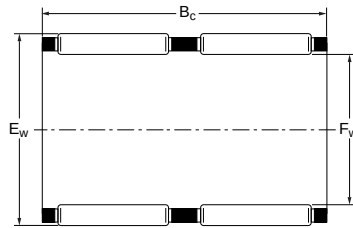
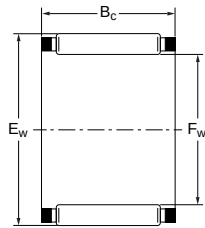
Needle Cage Assemblies



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Basic Dimensions			Basic Load Ratings		Limiting Speed	Mass	Designation
F _w mm	E _w mm	B _c mm	Dynamic kN	Static kN	r/min	g	
25	33	24	30.60	42.30	15300	39.0	KT 25 x 33 x 24
25	35	30	42.30	55.80	14400	65.0	KT 25 x 35 x 30
26	30	13	10.44	17.28	16200	11.0	KT 26 x 30 x 13
26	30	17	13.68	24.75	16200	15.0	KT 26 x 30 x 17
26	30	22	14.13	25.65	16200	12.0	KT 26 x 30 x 22 ZW
28	33	13	13.77	21.78	14400	13.0	KT 28 x 33 x 13
28	33	17	17.73	30.15	14400	17.0	KT 28 x 33 x 17
28	34	17	19.62	30.15	14400	24.0	KT 28 x 34 x 17
28	35	16	19.35	26.55	14400	24.0	KT 28 x 35 x 16
28	35	18	21.60	30.60	14400	27.0	KT 28 x 35 x 18
28	40	25	40.95	49.50	12600	70.0	KT 28 x 40 x 25
30	34	13	11.07	19.53	13500	14.0	KT 30 x 34 x 13
30	35	13	14.04	22.95	13500	14.0	KT 30 x 35 x 13
30	35	17	17.64	30.60	13500	19.0	KT 30 x 35 x 17
30	35	27	27.45	53.10	13500	30.0	KT 30 x 35 x 27
30	37	16	20.79	30.15	13500	27.0	KT 30 x 37 x 16
30	37	18	23.40	34.65	13500	30.0	KT 30 x 37 x 18
30	40	18	28.80	36.00	12600	48.0	KT 30 x 40 x 18
30	40	30	44.10	62.10	13500	73.0	KT 30 x 40 x 30
32	37	13	13.95	22.95	12600	18.0	KT 32 x 37 x 13
32	37	17	17.91	31.95	12600	19.0	KT 32 x 37 x 17
32	37	27	27.00	54.00	12600	30.0	KT 32 x 37 x 27
32	38	20	23.85	40.50	12600	30.0	KT 32 x 38 x 20
32	39	16	21.42	31.95	12600	37.0	KT 32 x 39 x 16
32	39	18	23.85	36.90	12600	31.0	KT 32 x 39 x 18
32	40	25	33.75	52.20	12600	49.0	KT 32 x 40 x 25
32	40	42	45.00	75.60	12600	77.0	KT 32 x 40 x 42 ZW
32	46	32	59.40	75.60	11700	119.0	KT 32 x 46 x 32
35	40	13	14.58	25.20	11700	19.0	KT 35 x 40 x 13
35	40	17	18.72	34.65	11700	21.0	KT 35 x 40 x 17
35	40	25	26.55	54.00	11700	31.0	KT 35 x 40 x 25
35	40	27	43.65	5.58	11700	39.0	KT 35 x 40 x 27

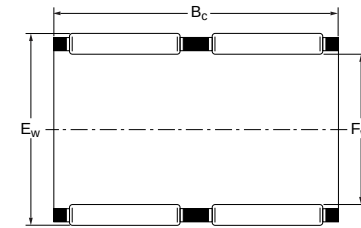
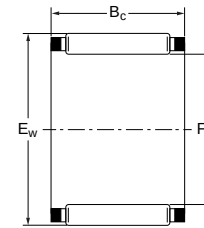
Needle Cage Assemblies



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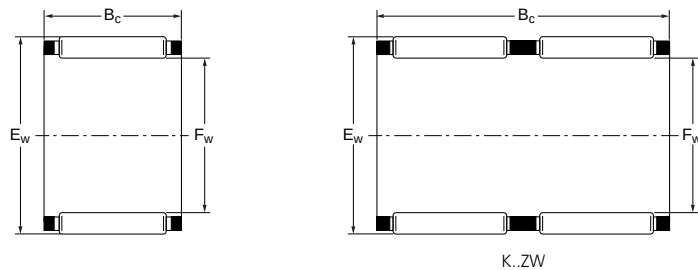
Basic Dimensions			Basic Load Ratings		Limiting Speed	Mass	Designation
F _w mm	E _w mm	B _c mm	Dynamic kN	Static kN	r/min	g	
35	42	16	21.96	33.75	11700	34.0	KT 35 x 42 x 16
35	42	18	24.75	38.70	11700	34.0	KT 35 x 42 x 18
35	42	20	27.00	44.10	11700	37.0	KT 35 x 42 x 20
35	42	30	35.10	61.20	11700	67.0	KT 35 x 42 x 30
35	45	20	33.30	45.00	10800	56.0	KT 35 x 45 x 20
35	45	30	47.70	71.10	10800	80.0	KT 35 x 45 x 30
37	42	17	20.16	38.70	10800	22.0	KT 37 x 42 x 17
38	43	17	18.45	34.65	10800	29.0	KT 38 x 43 x 17
38	43	27	28.35	61.20	10800	43.0	KT 38 x 43 x 27
38	46	20	31.95	51.30	10800	47.0	KT 38 x 46 x 20
38	46	32	49.50	89.10	10800	76.0	KT 38 x 46 x 32
39	44	26	24.75	50.40	10800	45.0	KT 39 x 44 x 26 ZW
40	45	13	15.84	29.25	10800	22.0	KT 40 x 45 x 13
40	45	17	19.26	37.35	10800	31.0	KT 40 x 45 x 17
40	45	27	29.70	65.70	10800	46.0	KT 40 x 45 x 27
40	47	18	26.55	45.00	9900	39.0	KT 40 x 47 x 18
40	47	20	29.25	51.30	9900	42.0	KT 40 x 47 x 20
40	48	20	32.40	53.10	9900	49.0	KT 40 x 48 x 20
42	47	13	16.02	30.15	9900	18.0	KT 42 x 47 x 13
42	47	17	19.53	38.70	9900	32.0	KT 42 x 47 x 17
42	47	30	30.15	68.40	9900	54.0	KT 42 x 47 x 30 ZW
42	50	20	31.50	51.30	9900	53.0	KT 42 x 50 x 20
43	48	17	19.44	38.70	9900	30.0	KT 43 x 48 x 17
43	48	27	30.15	67.50	9900	50.0	KT 43 x 48 x 27
45	50	17	20.25	41.40	9000	34.0	KT 45 x 50 x 17
45	50	27	31.05	72.00	9000	51.0	KT 45 x 50 x 27
45	52	18	28.35	51.30	9000	42.0	KT 45 x 52 x 18
45	53	20	35.10	60.30	9000	55.0	KT 45 x 53 x 20
45	53	21	34.65	60.30	9000	60.0	KT 45 x 53 x 21
45	53	28	46.80	88.20	9000	81.0	KT 45 x 53 x 28
45	59	18	39.60	48.60	8550	72.0	KT 45 x 59 x 18
45	59	32	65.70	92.70	8550	148.0	KT 45 x 59 x 32

Needle Cage Assemblies

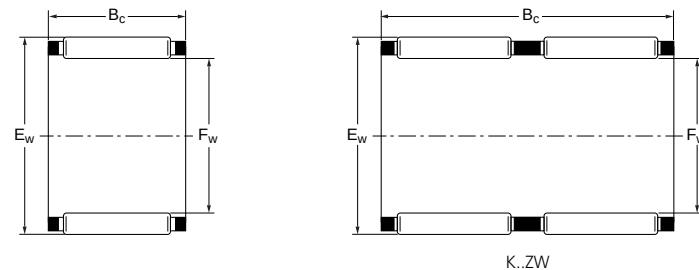


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Basic Dimensions			Basic Load Ratings		Limiting Speed	Mass	Designation
F _w mm	E _w mm	B _c mm	Dynamic kN	Static kN	r/min	g	
47	52	17	20.97	44.10	9000	35.0	KT 47 x 52 x 17
47	52	27	31.50	74.70	9000	51.0	KT 47 x 52 x 27
50	55	13.5	16.38	32.85	8550	30.0	KT 50 x 55 x 13.5
50	55	17	19.89	42.30	8550	35.0	KT 50 x 55 x 17
50	55	20	23.85	54.00	8550	43.0	KT 50 x 55 x 20
50	55	30	35.10	87.30	8550	65.0	KT 50 x 55 x 30
50	57	18	30.15	56.70	8100	47.0	KT 50 x 57 x 18
50	58	20	31.95	55.80	8100	75.0	KT 50 x 58 x 20
50	58	25	39.60	72.90	8100	90.0	KT 50 x 58 x 25
52	57	12	16.20	32.85	8100	24.0	KT 52 x 57 x 12
55	60	20	25.65	59.40	7650	40.0	KT 55 x 60 x 20
55	60	27	34.20	87.30	7650	60.0	KT 55 x 60 x 27
55	60	30	36.90	97.20	7650	71.0	KT 55 x 60 x 30
55	62	18	31.95	63.00	7650	52.0	KT 55 x 62 x 18
55	63	20	36.00	66.60	7650	67.0	KT 55 x 63 x 20
55	63	25	45.90	90.90	7650	80.0	KT 55 x 63 x 25
55	63	32	55.80	117.00	7650	102.0	KT 55 x 63 x 32
58	65	18	31.50	63.00	7200	52.0	KT 58 x 65 x 18
58	65	36	44.10	96.30	7200	127.0	KT 58 x 65 x 36 ZW
60	65	20	26.55	64.80	7200	52.0	KT 60 x 65 x 20
60	65	30	38.25	104.40	7200	77.0	KT 60 x 65 x 30
60	66	33	41.40	100.80	7200	104.0	KT 60 x 66 x 33 ZW
60	66	40	52.20	135.90	7200	116.0	KT 60 x 66 x 40 ZW
60	68	20	39.15	76.50	6750	71.0	KT 60 x 68 x 20
60	68	23	44.55	90.90	6750	94.0	KT 60 x 68 x 23
60	68	25	47.70	99.90	6750	89.0	KT 60 x 68 x 25
60	68	30	40.05	79.20	6750	129.0	KT 60 x 68 x 30 ZW
60	75	42	106.20	179.10	6750	240.0	KT 60 x 75 x 42
62	70	40	59.40	131.40	6750	174.0	KT 62 x 70 x 40 ZW
64	70	16	25.20	54.00	6750	53.0	KT 64 x 70 x 16
65	70	20	27.45	69.30	6750	56.0	KT 65 x 70 x 20
65	70	30	39.60	111.60	6750	83.0	KT 65 x 70 x 30

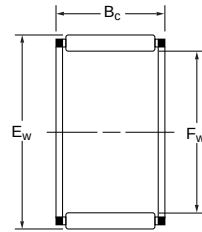


Basic Dimensions			Basic Load Ratings		Limiting Speed	Mass	Designation
F _w mm	E _w mm	B _c mm	Dynamic kN	Static kN	r/min	g	
65	73	23	41.40	84.60	6300	108.0	KT 65 x 73 x 23
65	73	30	51.30	110.70	6300	141.0	KT 65 x 73 x 30
68	74	20	31.95	75.60	6300	71.0	KT 68 x 74 x 20
68	74	30	41.85	106.20	6300	100.0	KT 68 x 74 x 30
68	74	35	43.65	112.50	6300	120.0	KT 68 x 74 x 35 ZW
70	76	20	32.40	77.40	5850	71.0	KT 70 x 76 x 20
70	76	30	46.80	125.10	5850	110.0	KT 70 x 76 x 30
70	78	30	54.00	121.50	5850	148.0	KT 70 x 78 x 30
72	80	20	37.35	76.50	5850	98.0	KT 72 x 80 x 20
73	79	20	33.30	81.00	5850	75.0	KT 73 x 79 x 20
75	81	20	33.75	84.60	5850	79.0	KT 75 x 81 x 20
75	81	30	46.80	128.70	5850	114.0	KT 75 x 81 x 30
75	83	23	45.00	98.10	5400	124.0	KT 75 x 83 x 23
75	83	30	55.80	128.70	5400	147.0	KT 75 x 83 x 30
75	83	35	56.70	132.30	5400	182.0	KT 75 x 83 x 35 ZW
75	83	40	65.70	159.30	5400	211.0	KT 75 x 83 x 40
80	86	20	34.65	88.20	5400	60.0	KT 80 x 86 x 20
80	88	30	63.90	158.40	5400	138.0	KT 80 x 88 x 30
80	88	40	68.40	172.80	5400	227.0	KT 80 x 88 x 40 ZW
80	88	46	79.20	207.90	5400	260.0	KT 80 x 88 x 46 ZW
85	92	20	40.05	97.20	4950	102.0	KT 85 x 92 x 20
90	97	20	40.50	101.70	4500	109.0	KT 90 x 97 x 20
90	98	27	54.90	135.00	4500	150.0	KT 90 x 98 x 27
90	98	30	61.20	154.80	4500	172.0	KT 90 x 98 x 30
95	103	30	62.10	162.00	4410	165.0	KT 95 x 103 x 30
95	103	40	74.70	205.20	4410	266.0	KT 95 x 103 x 40 ZW
100	107	21	43.20	114.30	4230	120.0	KT 100 x 107 x 21
100	108	27	51.30	128.70	4230	185.0	KT 100 x 108 x 27
100	108	30	63.90	169.20	4230	180.0	KT 100 x 108 x 30
105	112	21	42.75	114.30	4050	129.0	KT 105 x 112 x 21
110	117	24	50.40	142.20	3870	172.0	KT 110 x 117 x 24
110	118	30	70.20	197.10	3870	217.0	KT 110 x 118 x 30



Basic Dimensions			Basic Load Ratings		Limiting Speed	Mass	Designation
F _w mm	E _w mm	B _c mm	Dynamic kN	Static kN	r/min	g	
115	123	27	56.70	153.00	3690	200.0	KT 115 x 123 x 27
120	127	24	53.10	156.60	3600	165.0	KT 120 x 127 x 24
125	133	35	77.40	234.00	3420	275.0	KT 125 x 133 x 35
130	137	24	54.90	167.40	3330	170.0	KT 130 x 137 x 24
135	143	35	81.90	261.00	3150	300.0	KT 135 x 143 x 35
145	153	26	66.60	202.50	2970	262.0	KT 145 x 153 x 26
150	160	46	132.30	423.00	2880	570.0	KT 150 x 160 x 46
155	163	26	67.50	212.40	2790	265.0	KT 155 x 163 x 26
160	170	46	136.80	459.00	2700	550.0	KT 160 x 170 x 46
165	173	26	72.90	238.50	2610	320.0	KT 165 x 173 x 26
175	183	32	89.10	315.00	2430	400.0	KT 175 x 183 x 32
185	195	37	115.20	382.50	2340	607.0	KT 185 x 195 x 37
195	205	37	119.70	405.00	2250	620.0	KT 195 x 205 x 37
210	220	42	138.60	504.00	2070	740.0	KT 210 x 220 x 42
220	230	42	142.20	531.00	1980	790.0	KT 220 x 230 x 42
240	250	42	147.60	567.00	1800	850.0	KT 240 x 250 x 42
265	280	50	229.50	774.00	1620	1810.0	KT 265 x 280 x 50

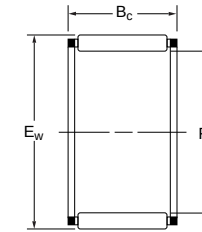
Needle Cage Assemblies - Inch Sizes



WJ and WJC

Basic Dimensions						Basic Load Ratings		Limiting Speed	Mass Approx.	Assembly Designation
d		D		B		Dynamic C	Static C ₀	Oil		
inch	mm	inch	mm	inch	mm	kN	kN	r/min	g	
5/8	15.8750	7/8	22.2250	5/8	15.8750	3510	3990	29000	13.17	WJ 101410
5/8	15.8750	7/8	22.2250	7/8	22.2250	4780	5940	29000	18.16	WJ 101414
3/4	19.0500	1	25.4000	1	25.4000	6020	8370	24000	24.97	WJ 121616
13/16	20.6375	1 1/16	26.9875	7/8	22.2250	5650	7880	22000	20.88	WJ 131714
7/8	22.2250	1 1/8	28.5750	1	25.4000	6570	9770	20000	28.15	WJ 141816
1	25.4000	1 5/16	33.3375	3/4	19.0500	6320	8340	18000	34.96	WJ 162112
1	25.4000	1 5/16	33.3375	1	25.4000	8270	11800	18000	43.13	WJ 162116
1	25.4000	1 5/16	33.3375	1 1/4	31.7500	10000	15100	18000	55.84	WJ 162120
1 1/8	28.5750	1 1/2	38.1000	1	25.4000	9520	13000	16000	40.86	WJ 182416
1 1/8	28.5750	1 1/2	38.1000	1 1/4	31.7500	11700	16800	16000	71.73	WJ 182420
1 1/4	31.7500	1 5/8	41.2750	3/4	19.0500	7520	9830	14000	50.85	WJ 202612
1 1/4	31.7500	1 5/8	41.2750	1	25.4000	9910	14000	14000	60.84	WJ 202616
1 1/4	31.7500	1 5/8	41.2750	1 1/4	31.7500	12100	18200	14000	73.09	WJ 202620
1 1/4	31.7500	1 5/8	41.2750	1 1/2	38.1000	14300	22400	14000	105.78	WJ 202624
1 3/8	34.9250	1 3/4	44.4500	1	25.4000	10300	15100	13000	66.74	WJ 222816
1 3/8	34.9250	1 3/4	44.4500	1 1/4	31.7500	12600	19600	13000	83.08	WJ 222820
1 1/2	38.1000	1 7/8	47.6250	1	25.4000	10600	16100	12000	78.09	WJ 243016
1 1/2	38.1000	1 7/8	47.6250	1 1/4	31.7500	13000	20900	12000	89.89	WJ 243020
1 1/2	38.1000	1 7/8	47.6250	1 1/2	38.1000	15300	25800	12000	119.86	WJ 243024
1 1/2	38.1000	1 7/8	47.6250	1 3/4	44.4500	17400	30500	12000	133.93	WJ 243028
1 3/4	44.4500	2 1/8	53.9750	3/4	19.0500	8870	13400	9900	61.74	WJ 283412
1 3/4	44.4500	2 1/8	53.9750	1	25.4000	11700	19100	9900	83.99	WJ 283416
1 3/4	44.4500	2 1/8	53.9750	1 1/2	38.1000	16800	30600	9900	143.01	WJ 283424
2	50.8000	2 3/8	60.3250	3/4	19.0500	9610	15500	8600	84.90	WJ 323812
2	50.8000	2 3/8	60.3250	1	25.4000	12700	22100	8600	104.87	WJ 323816
2	50.8000	2 3/8	60.3250	1 1/4	31.7500	15500	28700	8600	124.85	WJ 323820
2	50.8000	2 3/8	60.3250	1 1/2	38.1000	18200	35300	8600	143.01	WJ 323824
2 1/16	52.3875	2 7/16	61.9125	1	25.4000	13000	23100	8300	98.97	WJ 333916
2 1/8	53.9750	2 1/2	63.5000	1	25.4000	11800	20700	8000	99.88	WJ 344016
2 1/8	53.9750	2 1/2	63.5000	1 1/2	38.1000	17600	34500	8000	165.71	WJ 344024
2 3/16	55.5625	2 9/16	65.0875	3/4	19.0500	10000	16900	7800	84.90	WJ 354112
2 3/16	55.5625	2 9/16	65.0875	1	25.4000	13000	24100	7800	103.06	WJ 354116

Needle Cage Assemblies - Inch Sizes



WJ and WJC

Basic Dimensions						Basic Load Ratings		Limiting Speed	Mass Approx.	Assembly Designation
d		D		B		Dynamic C	Static C ₀	Oil		
inch	mm	inch	mm	inch	mm	kN	kN	r/min	g	
2 1/4	57.1500	2 5/8	66.6750	1	25.4000	12100	21600	7500	105.78	WJ 364216
2 1/4	57.1500	2 5/8	66.6750	1 1/4	31.7500	15200	28900	7500	132.11	WJ 364220
2 3/8	60.3250	2 3/4	69.8500	1 1/2	38.1000	18300	37600	7100	185.69	WJ 384424
2 1/2	63.5000	2 7/8	73.0250	1	25.4000	12500	23400	6700	136.65	WJ 404616
2 1/2	63.5000	2 7/8	73.0250	1 1/4	31.7500	15700	31400	6700	160.26	WJ 404620
2 1/2	63.5000	2 7/8	73.0250	1 1/2	38.1000	18700	39100	6700	179.78	WJ 404624
2 3/4	69.8500	3 1/8	79.3750	1	25.4000	13000	25300	6100	125.76	WJ 445016
3	76.2000	3 3/8	85.7250	1	25.4000	13400	27100	5600	159.81	WJ 485416
3	76.2000	3 3/8	85.7250	1 1/2	38.1000	19200	43100	5600	212.93	WJ 485424
3 1/4	82.5500	3 5/8	92.0750	1	25.4000	13800	28900	5100	146.64	WJ 525816
3 1/4	82.5500	3 5/8	92.0750	1 1/2	38.1000	19800	46000	5100	220.64	WJ 525824
3 1/2	88.9000	3 7/8	98.4250	1	25.4000	14200	30700	4700	173.88	WJ 566216
3 1/2	88.9000	4	101.6000	1	25.4000	17900	33800	4800	214.74	WJ 566416
3 1/2	88.9000	4	101.6000	1 1/2	38.1000	25600	53400	4800	359.57	WJ 566424
4	101.6000	4 1/2	114.3000	1	25.4000	18800	37450	4200	239.71	WJ 647216
4	101.6000	4 1/2	114.3000	1 1/2	38.1000	26800	59200	4200	369.56	WJ 647224
5	127.0000	6	152.4000	1 1/2	38.1000	47600	82100	3400	1018.78	WJ 809624