

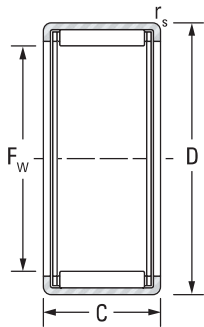


NEEDLE ROLLER BEARINGS

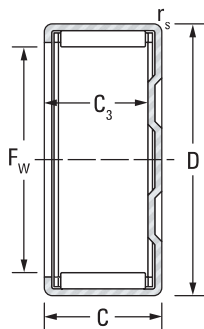
**OPEN ENDS,
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METRIC SERIES

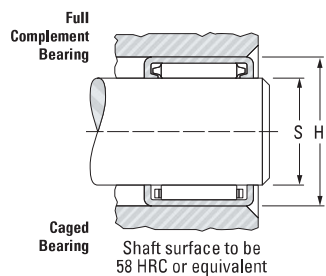
B



HK



BK



See Engineering section
for discussion of shaft
and housing design.

Shaft Dia.	F _w	D	C	C _{3 min}	r _{s min}	Bearing Designation	Load Ratings		Speed Rating		C _g
							Dynamic	Static			
	mm in.	mm in.	mm in.	mm in.	mm in.		mm in.	C	C ₀	Grease	
mm in.	mm in.	mm in.	mm in.	mm in.	mm in.		kN lbf.		min ⁻¹		
3 0.1181	3 0.1181	6.5 0.2559	6 0.236	5.20 0.205	0.30 0.012	BK0306	1.20 270	0.78 175	30000	46000	0.0065
	3 0.1181	6.5 0.2559	6 0.236	—	0.30 0.012	HK0306	1.60 360	1.14 256	30000	46000	0.0065
4 0.1575	4 0.1575	8 0.3150	8 0.315	6.40 0.252	0.40 0.016	BK0408	1.83 411	1.32 297	25000	39000	0.0083
	4 0.1575	8 0.3150	8 0.315	—	0.40 0.016	HK0408	1.88 423	1.38 310	25000	39000	0.0083
5 0.1969	5 0.1969	9 0.3543	9 0.354	7.40 0.291	0.40 0.016	BK0509	2.52 567	2.07 465	23000	36000	0.0100
	5 0.1969	9 0.3543	9 0.354	—	0.40 0.016	HK0509	2.52 567	2.07 465	23000	36000	0.0100
6 0.2362	6 0.2362	10 0.3937	8 0.315	—	0.40 0.016	HK0608	2.34 526	1.95 438	22000	33000	0.0105
	6 0.2362	10 0.3937	9 0.354	7.40 0.291	0.40 0.016	BK0609	3.14 706	2.85 641	22000	33000	0.0116
	6 0.2362	10 0.3937	9 0.354	—	0.40 0.016	HK0609	3.14 706	2.85 641	22000	33000	0.0116
7 0.2756	7 0.2756	11 0.4331	9 0.354	7.40 0.291	0.40 0.016	BK0709	3.24 728	3.10 697	21000	32000	0.0125
	7 0.2756	11 0.4331	9 0.354	—	0.40 0.016	HK0709	3.23 726	3.05 686	21000	32000	0.0125
8 0.3150	8 0.3150	12 0.4724	8 0.315	6.40 0.252	0.40 0.016	BK0808	2.90 652	2.73 614	20000	31000	0.0128
	8 0.3150	12 0.4724	8 0.315	—	0.40 0.016	HK0808	2.90 652	2.73 614	20000	31000	0.0128
	8 0.3150	12 0.4724	10 0.394	8.40 0.331	0.40 0.016	BK0810	3.93 883	4.14 931	20000	31000	0.0184
	8 0.3150	12 0.4724	10 0.394	—	0.40 0.016	HK0810	3.95 888	4.07 915	20000	31000	0.0186
9 0.3543	9 0.3543	13 0.5118	10 0.394	8.40 0.331	0.40 0.016	BK0910	4.57 1030	5.07 1140	19000	30000	0.0206
	9 0.3543	13 0.5118	10 0.394	—	0.40 0.016	HK0910	4.57 1030	5.07 1140	19000	30000	0.0206
	9 0.3543	13 0.5118	12 0.472	10.40 0.409	0.40 0.016	BK0912	5.65 1270	6.65 1490	19000	30000	0.0220
	9 0.3543	13 0.5118	12 0.472	—	0.40 0.016	HK0912	5.65 1270	6.65 1490	19000	30000	0.0220
10 0.3937	10 0.3937	14 0.5512	10 0.394	8.40 0.331	0.40 0.016	BK1010	4.78 1070	5.51 1240	19000	29000	0.0219
	10 0.3937	14 0.5512	10 0.394	—	0.40 0.016	HK1010	4.78 1070	5.51 1240	19000	29000	0.0219
	10 0.3937	14 0.5512	12 0.472	10.40 0.409	0.40 0.016	BK1012	5.90 1330	7.23 1630	19000	29000	0.0239
	10 0.3937	14 0.5512	12 0.472	—	0.40 0.016	HK1012	5.90 1330	7.23 1630	19000	29000	0.0235
	10 0.3937	14 0.5512	15 0.591	13.40 0.528	0.40 0.016	BK1015	7.49 1680	9.81 2210	19000	29000	0.0253

Wt.	S (h5)		H (N6)		Inspection			C _g	Mounting Inner Ring (pg B-67 to B-76)	Shaft Dia.
	Recommended Mounting Dimension				Ring Gage	Plug Gage				
	Max.	Min.	Max.	Min.		Go	No Go			
kg lbs.	mm in.	mm in.	mm in.	mm in.						mm in.
0.001 0.002	3 0.1181	2.996 0.118	6.493 0.2556	6.484 0.2553	6.484 0.2553	3.006 0.1183	3.026 0.1191			3 0.1181
0.001 0.002	3 0.1181	2.996 0.118	6.493 0.2556	6.484 0.2553	6.484 0.2553	3.006 0.1183	3.026 0.1191			3 0.1181
0.002 0.004	4 0.1575	3.995 0.1573	7.993 0.3147	7.984 0.3143	7.984 0.3143	4.010 0.1579	4.030 0.1587			4 0.1575
0.002 0.004	4 0.1575	3.995 0.1573	7.993 0.3147	7.984 0.3143	7.984 0.3143	4.010 0.1579	4.030 0.1587			4 0.1575
0.002 0.004	5 0.1969	4.995 0.1967	8.993 0.3541	8.984 0.3537	8.984 0.3537	5.010 0.1972	5.030 0.1980			5 0.1969
0.002 0.004	5 0.1969	4.995 0.1967	8.993 0.3541	8.984 0.3537	8.984 0.3537	5.010 0.1972	5.030 0.1980			
0.002 0.004	6 0.2362	5.995 0.236	9.993 0.3934	9.984 0.3931	9.984 0.3931	6.010 0.2366	6.030 0.2374			6 0.2362
0.003 0.007	6 0.2362	5.995 0.236	9.993 0.3934	9.984 0.3931	9.984 0.3931	6.010 0.2366	6.030 0.2374			
0.002 0.004	6 0.2362	5.995 0.236	9.993 0.3934	9.984 0.3931	9.984 0.3931	6.010 0.2366	6.030 0.2374			
0.003 0.007	7 0.2756	6.994 0.2754	10.991 0.4327	10.980 0.4323	10.980 0.4323	7.013 0.2761	7.033 0.2769			7 0.2756
0.003 0.007	7 0.2756	6.994 0.2754	10.991 0.4327	10.980 0.4323	10.980 0.4323	7.013 0.2761	7.033 0.2769			
0.003 0.007	8 0.315	7.994 0.3147	11.991 0.4721	11.980 0.4717	11.980 0.4717	8.013 0.3155	8.033 0.3163			8 0.315
0.003 0.007	8 0.315	7.994 0.3147	11.991 0.4721	11.980 0.4717	11.980 0.4717	8.013 0.3155	8.033 0.3163			
0.004 0.009	8 0.315	7.994 0.3147	11.991 0.4721	11.980 0.4717	11.980 0.4717	8.013 0.3155	8.033 0.3163	0.0241	JR5x8x12	
0.004 0.009	8 0.315	7.994 0.3147	11.991 0.4721	11.980 0.4717	11.980 0.4717	8.013 0.3155	8.033 0.3163	0.0244	JR5x8x12	
0.004 0.009	9 0.3543	8.994 0.3541	12.991 0.5115	12.980 0.5110	12.980 0.5110	9.013 0.3548	9.033 0.3556	0.0270	JR6x9x12	9 0.3543
0.004 0.009	9 0.3543	8.994 0.3541	12.991 0.5115	12.980 0.5110	12.980 0.5110	9.013 0.3548	9.033 0.3556	0.0270	JR6x9x12	
0.005 0.011	9 0.3543	8.994 0.3541	12.991 0.5115	12.980 0.5110	12.980 0.5110	9.013 0.3548	9.033 0.3556	0.0289	JR6x9x12	
0.005 0.011	9 0.3543	8.994 0.3541	12.991 0.5115	12.980 0.5110	12.980 0.5110	9.013 0.3548	9.033 0.3556	0.0289	JR6x9x12	
0.004 0.009	10 0.3937	9.994 0.3935	13.991 0.5508	13.980 0.5504	13.980 0.5504	10.013 0.3942	10.033 0.3950	0.0287	JR7x10x10.5	10 0.3937
0.004 0.009	10 0.3937	9.994 0.3935	13.991 0.5508	13.980 0.5504	13.980 0.5504	10.013 0.3942	10.033 0.3950	0.0287	JR7x10x10.5	
0.006 0.013	10 0.3937	9.994 0.3935	13.991 0.5508	13.980 0.5504	13.980 0.5504	10.013 0.3942	10.033 0.3950	0.0314	JR7x10x12	
0.005 0.011	10 0.3937	9.994 0.3935	13.991 0.5508	13.980 0.5504	13.980 0.5504	10.013 0.3942	10.033 0.3950	0.0308	JR7x10x12	
0.006 0.013	10 0.3937	9.994 0.3935	13.991 0.5508	13.980 0.5504	13.980 0.5504	10.013 0.3942	10.033 0.3950	0.0332	JR7x10x16	

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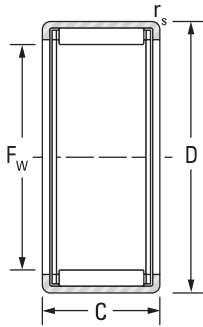


NEEDLE ROLLER BEARINGS

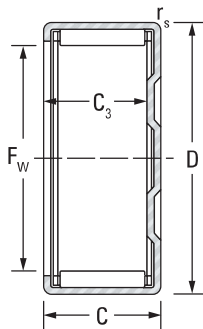
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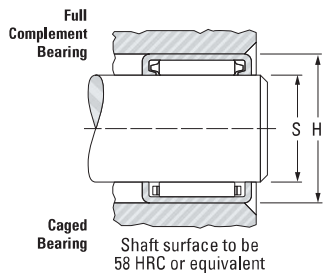
METRIC SERIES



HK



BK



Shaft Dia.	F _w	D	C	C ₃ min	r _s min	Bearing Designation	Load Ratings		Speed Rating		C ₉
							Dynamic	Static			
							C	C ₀	Grease	Oil	
mm in.	mm in.	mm in.	mm in.	mm in.	mm in.		kN lbf.		min ⁻¹		
	10 0.3937	14 0.5512	15 0.591	—	0.40 0.016	HK1015	7.49 1680	9.81 2210	19000	29000	0.0253
12 0.4724	12 0.4724	16 0.6299	10 0.394	8.40 0.331	0.4 0.016	BK1210	4.96 1120	6.08 1370	18000	28000	0.0243
	12 0.4724	16 0.6299	10 0.394	—	0.4 0.016	HK1210	4.96 1120	6.08 1370	18000	28000	0.0243
	12 0.4724	18 0.7087	12 0.472	9.30 0.366	1 0.039	BK1212	6.61 1490	7.29 1640	14000	22000	0.0245
	12 0.4724	18 0.7087	12 0.472	—	1 0.039	HK1212	6.61 1490	7.29 1640	14000	22000	0.0245
13 0.5118	13 0.5118	19 0.7480	12 0.472	9.30 0.366	1 0.039	BK1312	6.92 1560	7.89 1770	14000	22000	0.0258
	13 0.5118	19 0.7480	12 0.472	—	1 0.039	HK1312	6.92 1560	7.89 1770	14000	22000	0.0258
14 0.5512	14 0.5512	20 0.7874	12 0.472	9.30 0.366	1 0.039	BK1412	7.21 1620	8.50 1910	14000	21000	0.0271
	14 0.5512	20 0.7874	12 0.472	—	1 0.039	HK1412	7.21 1620	8.50 1910	14000	21000	0.0271
15 0.5906	15 0.5906	21 0.8268	12 0.472	9.30 0.366	1 0.039	BK1512	7.16 1610	8.57 1930	14000	21000	0.0284
	15 0.5906	21 0.8268	12 0.472	—	1 0.039	HK1512	7.49 1680	9.11 2050	14000	21000	0.0284
	15 0.5906	21 0.8268	16 0.630	13.30 0.524	1 0.039	BK1516	10.70 2410	14.4 3240	14000	21000	0.0318
	15 0.5906	21 0.8268	16 0.630	—	1 0.039	HK1516	10.70 2410	14.4 3240	14000	21000	0.0318
	15 0.5906	21 0.8268	22 0.866	19.30 0.760	1 0.039	BK1522	13.50 3030	19.4 4360	14000	21000	0.0288
	15 0.5906	21 0.8268	22 0.866	—	1 0.039	HK1522	13.50 3030	19.4 4360	14000	21000	0.0288
16 0.6299	16 0.6299	22 0.8661	12 0.472	9.30 0.366	1 0.039	BK1612	7.76 1740	9.72 2190	14000	21000	0.0297
	16 0.6299	22 0.8661	12 0.472	—	1 0.039	HK1612	7.76 1740	9.72 2190	14000	21000	0.0297
	16 0.6299	22 0.8661	16 0.630	13.30 0.524	1 0.039	BK1616	11.1 2500	15.3 3440	14000	21000	0.0332
	16 0.6299	22 0.8661	16 0.630	—	1 0.039	HK1616	11.1 2500	15.3 3440	14000	21000	0.0332
	16 0.6299	22 0.8661	22 0.866	19.30 0.760	1 0.039	BK1622	13.4 3010	19.5 4380	14000	21000	0.0297
	16 0.6299	22 0.8661	22 0.866	—	1 0.039	HK1622	13.40 3010	19.5 4380	14000	21000	0.0297
17 0.6693	17 0.6693	23 0.9055	12 0.472	9.30 0.366	1 0.039	BK1712	8.12 1830	10.4 2340	13000	20000	0.0236
	17 0.6693	23 0.9055	12 0.472	—	1 0.039	HK1712	8.12 1830	10.4 2340	13000	20000	0.0236
18 0.7087	18 0.7087	24 0.9449	12 0.472	9.30 0.366	1 0.039	BK1812	8.41 1890	11.11 2500	12000	18000	0.0246

See Engineering section
for discussion of shaft
and housing design.

Wt.	S (h5)		H (N6)		Inspection			C _g	Mounting Inner Ring (pg B-67 to B-76)	Shaft Dia.
	Recommended Mounting Dimension				Ring Gage	Plug Gage				
	Max.	Min.	Max.	Min.		Go	No Go			
kg lbs.	mm in.	mm in.	mm in.	mm in.						mm in.
0.006 0.013	10 0.3937	9.994 0.3935	13.991 0.5508	13.980 0.5504	13.980 0.5504	10.013 0.3942	10.033 0.3950	0.0332	JR7x10x16	
0.006 0.013	12 0.4724	11.992 0.4721	15.991 0.6296	15.980 0.6291	15.980 0.6291	12.016 0.4731	12.036 0.4739	0.0319	JR8x12x10.5	12 0.4724
0.006 0.013	12 0.4724	11.992 0.4721	15.991 0.6296	15.980 0.6291	15.980 0.6291	12.016 0.4731	12.036 0.4739	0.0319	JR8x12x10.5	
0.012 0.026	12 0.4724	11.992 0.4721	17.991 0.7083	17.980 0.7079	17.980 0.7079	12.016 0.4731	12.036 0.4739	0.0321	JR8x12x12.5	
0.01 0.022	12 0.4724	11.992 0.4721	17.991 0.7083	17.980 0.7079	17.980 0.7079	12.016 0.4731	12.036 0.4739	0.0321	JR8x12x12.5	12 0.4724
0.012 0.026	13 0.5118	12.992 0.5115	18.989 0.7476	18.976 0.7471	18.976 0.7471	13.016 0.5124	13.036 0.5132	0.0338	JR10x13x12.5	13 0.5118
0.01 0.022	13 0.5118	12.992 0.5115	18.989 0.7476	18.976 0.7471	18.976 0.7471	13.016 0.5124	13.036 0.5132	0.0338	JR10x13x12.5	
0.014 0.031	14 0.5512	13.992 0.5509	19.989 0.7870	19.976 0.7865	19.976 0.7865	14.016 0.5518	14.036 0.5526	0.0356	JR10x14x12	14 0.5512
0.011 0.024	14 0.5512	13.992 0.5509	19.989 0.7870	19.976 0.7865	19.976 0.7865	14.016 0.5518	14.036 0.5526	0.0356	JR10x14x12	
0.015 0.033	15 0.5906	14.992 0.5902	20.989 0.8263	20.976 0.8258	20.976 0.8258	15.016 0.5912	15.036 0.5920	0.0373	JR12x15x12.5	15 0.5906
0.012 0.026	15 0.5906	14.992 0.5902	20.989 0.8263	20.976 0.8258	20.976 0.8258	15.016 0.5912	15.036 0.5920	0.0373	JR12x15x12.5	
0.019 0.042	15 0.5906	14.992 0.5902	20.989 0.8263	20.976 0.8258	20.976 0.8258	15.016 0.5912	15.036 0.5920	0.0417	JR12x15x16.5	
0.018 0.040	15 0.5906	14.992 0.5902	20.989 0.8263	20.976 0.8258	20.976 0.8258	15.016 0.5912	15.036 0.5920	0.0417	JR12x15x16.5	
0.022 0.049	15 0.5906	14.992 0.5902	20.989 0.8263	20.976 0.8258	20.976 0.8258	15.016 0.5912	15.036 0.5920	0.0378	JR12x15x22.5	
0.024 0.053	15 0.5906	14.992 0.5902	20.989 0.8263	20.976 0.8258	20.976 0.8258	15.016 0.5912	15.036 0.5920	0.0378	JR12x15x22.5	
0.016 0.035	16 0.6299	15.992 0.6296	21.989 0.8657	21.976 0.8652	21.976 0.8652	16.016 0.6306	16.036 0.6313	0.0390	JR12x16x12	16 0.6299
0.012 0.026	16 0.6299	15.992 0.6296	21.989 0.8657	21.976 0.8652	21.976 0.8652	16.016 0.6306	16.036 0.6313	0.0390	JR12x16x12	
0.02 0.044	16 0.6299	15.992 0.6296	21.989 0.8657	21.976 0.8652	21.976 0.8652	16.016 0.6306	16.036 0.6313	0.0436	JR12x16x16	
0.016 0.035	16 0.6299	15.992 0.6296	21.989 0.8657	21.976 0.8652	21.976 0.8652	16.016 0.6306	16.036 0.6313	0.0436	JR12x16x16	
0.028 0.062	16 0.6299	15.992 0.6296	21.989 0.8657	21.976 0.8652	21.976 0.8652	16.016 0.6306	16.036 0.6313	0.0390	JR12x16x22	
0.022 0.049	16 0.6299	15.992 0.6296	21.989 0.8657	21.976 0.8652	21.976 0.8652	16.016 0.6306	16.036 0.6313	0.0390	JR12x16x22	
0.018 0.040	17 0.6693	16.992 0.6690	22.989 0.9051	22.976 0.9046	22.976 0.9046	17.016 0.6699	17.036 0.6707			17 0.6693
0.013 0.029	17 0.6693	16.992 0.6690	22.989 0.9051	22.976 0.9046	22.976 0.9046	17.016 0.6699	17.036 0.6707			
0.017 0.037	18 0.7087	17.992 0.7083	23.989 0.9444	23.976 0.9439	23.976 0.9439	18.016 0.7093	18.036 0.7101			18 0.7087

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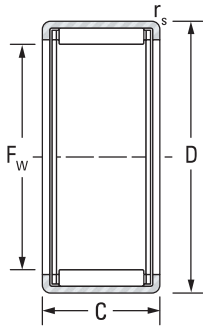


NEEDLE ROLLER BEARINGS

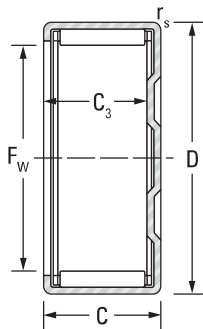
OPEN ENDS, CLOSED ONE END

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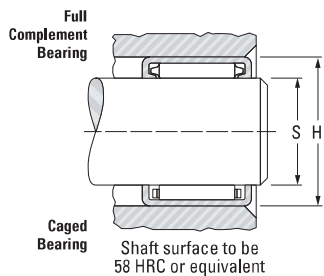
METRIC SERIES



HK



BK



Shaft Dia.	F _w	D	C	C _{3 min}	r _{s min}	Bearing Designation	Load Ratings		Speed Rating		C _g
							Dynamic	Static			
	mm in.	mm in.	mm in.	-0.3, -0.012				C	C ₀	Grease	
mm in.	mm in.	mm in.	mm in.	mm in.	mm in.		kN lbf.		min ⁻¹		
18 0.7087	18 0.7087	24 0.9449	12 0.472	—	1 0.039	HK1812	8.41 1890	11.11 2500	12000	18000	0.0246
	18 0.7087	24 0.9449	16 0.630	13.30 0.524	1 0.039	BK1816	11.6 2610	16.8 3780	12000	18000	0.0357
	18 0.7087	24 0.9449	16 0.630	—	1 0.039	HK1816	11.6 2610	16.8 3780	12000	18000	0.0357
20 0.7874	20 0.7874	26 1.0236	12 0.472	9.3 0.366	1 0.039	BK2012	8.97 2020	12.5 2810	11000	16000	0.0347
	20 0.7874	26 1.0236	12 0.472	—	1 0.039	HK2012	8.97 2020	12.5 2810	11000	16000	0.0347
	20 0.7874	26 1.0236	16 0.630	13.3 0.524	1 0.039	BK2016	12.40 2790	18.90 4250	11000	16000	0.0385
20 0.7874	20 0.7874	26 1.0236	16 0.630	—	1 0.039	HK2016	12.40 2790	18.90 4250	11000	16000	0.0385
	20 0.7874	26 1.0236	20 0.787	17.3 0.681	1 0.039	BK2020	15.50 3480	25.30 5690	11000	16000	0.0414
	20 0.7874	26 1.0236	20 0.787	—	1 0.039	HK2020	15.90 3570	26.20 5890	11000	16000	0.0414
	20 0.7874	26 1.0236	30 1.181	27.3 1.075	1 0.039	BK2030	21.20 4770	37.80 8500	11000	16000	0.0385
	20 0.7874	26 1.0236	30 1.181	—	1 0.039	HK2030	21.20 4770	37.80 8500	11000	16000	0.0385
22 0.8661	22 0.8661	28 1.1024	12 0.472	9.3 0.366	1 0.039	BK2212	9.81 2210	14.50 3260	9600	15000	0.0375
	22 0.8661	28 1.1024	12 0.472	—	1 0.039	HK2212	9.81 2210	14.50 3260	9600	15000	0.0382
	22 0.8661	28 1.1024	16 0.630	13.3 0.524	1 0.039	BK2216	13.10 2940	20.90 4700	9600	15000	0.0412
	22 0.8661	28 1.1024	16 0.630	—	1 0.039	HK2216	13.10 2940	20.90 4700	9600	15000	0.0412
	22 0.8661	28 1.1024	20 0.787	17.3 0.681	1 0.039	BK2220	15.30 3440	25.50 5730	9600	15000	0.0432
	22 0.8661	28 1.1024	20 0.787	—	1 0.039	HK2220	15.30 3440	25.50 5730	9600	15000	0.0432
25 0.9843	25 0.9843	32 1.2598	12 0.472	9.30 0.366	1 0.039	BK2512	10.90 2450	14.70 3300	8500	13000	0.0295
	25 0.9843	32 1.2598	12 0.472	—	1 0.039	HK2512	10.90 2450	14.70 3300	8500	13000	0.0295
	25 0.9843	32 1.2598	16 0.630	13.3 0.524	1 0.039	BK2516	15.60 3510	23.50 5280	8500	13000	0.0434
	25 0.9843	32 1.2598	16 0.630	—	1 0.039	HK2516	15.60 3510	23.50 5280	8500	13000	0.0434
	25 0.9843	32 1.2598	20 0.787	17.3 0.681	1 0.039	BK2520	20.60 4630	33.40 7510	8500	13000	0.0474
	25 0.9843	32 1.2598	20 0.787	—	1 0.039	HK2520	20.60 4630	33.40 7510	8500	13000	0.0474
	25 0.9843	32 1.2598	26 1.024	23.3 0.917	1 0.039	BK2526	25.70 5780	44.40 9980	8500	13000	0.0508

See Engineering section
for discussion of shaft
and housing design.

Wt.	S (h5)		H (N6)		Inspection			C _g	Mounting Inner Ring (pg B-67 to B-76)	Shaft Dia.
	Recommended Mounting Dimension				Ring Gage	Plug Gage				
	Max.	Min.	Max.	Min.		Go	No Go			
kg lbs.	mm in.	mm in.	mm in.	mm in.						mm in.
0.015 0.033	18 0.7087	17.992 0.7083	23.989 0.9444	23.976 0.9439	23.976 0.9439	18.016 0.7093	18.036 0.7101			18 0.7087
0.022 0.049	18 0.7087	17.992 0.7083	23.989 0.9444	23.976 0.9439	23.976 0.9439	18.016 0.7093	18.036 0.7101	0.0468	JR15x18x16.5	
0.018 0.040	18 0.7087	17.992 0.7083	23.989 0.9444	23.976 0.9439	23.976 0.9439	18.016 0.7093	18.036 0.7101	0.0468	JR15x18x16.5	
0.017 0.037	20 0.7874	19.991 0.7870	25.989 1.0232	25.976 1.0227	25.976 1.0227	20.020 0.7882	20.043 0.7891	0.0455	JR15x20x12	20 0.7874
0.015 0.033	20 0.7874	19.991 0.7870	25.989 1.0232	25.976 1.0227	25.976 1.0227	20.020 0.7882	20.043 0.7891	0.0455	JR15x20x12	
0.024 0.053	20 0.7874	19.991 0.7870	25.989 1.0232	25.976 1.0227	25.976 1.0227	20.020 0.7882	20.043 0.7891	0.0505	JR17x20x16.5	
0.022 0.049	20 0.7874	19.991 0.7870	25.989 1.0232	25.976 1.0227	25.976 1.0227	20.020 0.7882	20.043 0.7891	0.0505	JR17x20x16.5	20 0.7874
0.027 0.060	20 0.7874	19.991 0.7870	25.989 1.0232	25.976 1.0227	25.976 1.0227	20.020 0.7882	20.043 0.7891	0.0543	JR17x20x20.5	
0.025 0.055	20 0.7874	19.991 0.7870	25.989 1.0232	25.976 1.0227	25.976 1.0227	20.020 0.7882	20.043 0.7891	0.0543	JR17x20x20.5	
0.043 0.095	20 0.7874	19.991 0.7870	25.989 1.0232	25.976 1.0227	25.976 1.0227	20.020 0.7882	20.043 0.7891	0.0505	JR17x20x30.5	
0.041 0.090	20 0.7874	19.991 0.7870	25.989 1.0232	25.976 1.0227	25.976 1.0227	20.020 0.7882	20.043 0.7891	0.0505	JR17x20x30.5	
0.02 0.044	22 0.8661	21.991 0.8658	27.989 1.1019	27.976 1.1014	27.976 1.1014	22.020 0.8669	22.043 0.8678	0.0492	JR17x22x13	22 0.8661
0.015 0.033	22 0.8661	21.991 0.8658	27.989 1.1019	27.976 1.1014	27.976 1.1014	22.020 0.8669	22.043 0.8678	0.0501	JR17x22x13	
0.027 0.060	22 0.8661	21.991 0.8658	27.989 1.1019	27.976 1.1014	27.976 1.1014	22.020 0.8669	22.043 0.8678	0.0541	JR17x22x16	
0.022 0.049	22 0.8661	21.991 0.8658	27.989 1.1019	27.976 1.1014	27.976 1.1014	22.020 0.8669	22.043 0.8678	0.0541	JR17x22x16	
0.028 0.062	22 0.8661	21.991 0.8658	27.989 1.1019	27.976 1.1014	27.976 1.1014	22.020 0.8669	22.043 0.8678	0.0567	JR17x22x23	
0.026 0.057	22 0.8661	21.991 0.8658	27.989 1.1019	27.976 1.1014	27.976 1.1014	22.020 0.8669	22.043 0.8678	0.0567	JR17x22x23	
0.025 0.055	25 0.9843	24.991 0.9839	31.988 1.2594	31.972 1.2587	31.972 1.2587	25.020 0.9850	25.043 0.9859			25 0.9843
0.021 0.046	25 0.9843	24.991 0.9839	31.988 1.2594	31.972 1.2587	31.972 1.2587	25.020 0.985	25.043 0.9859			
0.031 0.068	25 0.9843	24.991 0.9839	31.988 1.2594	31.972 1.2587	31.972 1.2587	25.020 0.9850	25.043 0.9859	0.0569	JR20x25x17	
0.028 0.062	25 0.9843	24.991 0.9839	31.988 1.2594	31.972 1.2587	31.972 1.2587	25.020 0.9850	25.043 0.9859	0.0569	JR20x25x17	
0.043 0.095	25 0.9843	24.991 0.9839	31.988 1.2594	31.972 1.2587	31.972 1.2587	25.020 0.9850	25.043 0.9859	0.0622	JR20x25x20.5	
0.040 0.088	25 0.9843	24.991 0.9839	31.988 1.2594	31.972 1.2587	31.972 1.2587	25.020 0.9850	25.043 0.9859	0.0622	JR20x25x20.5	
0.051 0.112	25 0.9843	24.991 0.9839	31.988 1.2594	31.972 1.2587	31.972 1.2587	25.020 0.9850	25.043 0.9859	0.0666	JR20x25x26.5	

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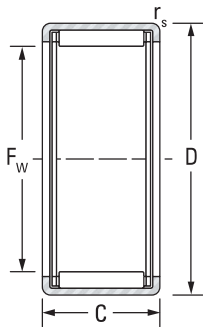


NEEDLE ROLLER BEARINGS

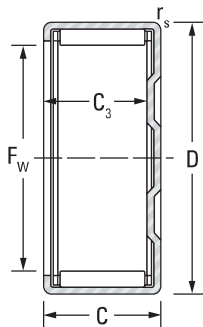
OPEN ENDS, CLOSED ONE END

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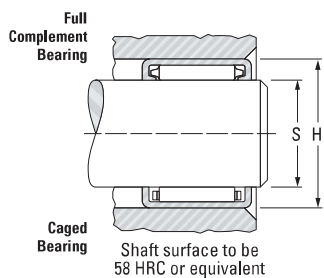
METRIC SERIES



HK



BK



Shaft Dia.	F _w	D	C	C _{3 min}	r _{s min}	Bearing Designation	Load Ratings		Speed Rating		C _g
							Dynamic	Static			
				-0.3, -0.012				C	C ₀	Grease	
mm in.	mm in.	mm in.	mm in.	mm in.	mm in.		kN lbf.		min ⁻¹		
	25 0.9843	32 1.2598	26 1.024	—	1 0.039	HK2526	25.70 5780	44.40 9980	8500	13000	0.0508
	25 0.9843	32 1.2598	38 1.496	35.3 1.390	1 0.039	BK2538	35.30 7940	66.90 15000	8500	13000	0.0474
	25 0.9843	32 1.2598	38 1.496	—	1 0.039	HK2538	35.30 7940	66.90 15000	8500	13000	0.0474
28 1.1024	28 1.1024	35 1.3780	16 0.630	13.30 0.524	1 0.039	BK2816	15.9 3570	24.9 5600	7500	12000	0.0462
	28 1.1024	35 1.3780	16 0.630	—	1 0.039	HK2816	15.9 3570	24.9 5600	7500	12000	0.0462
	28 1.1024	35 1.3780	20 0.787	17.3 0.681	1 0.039	BK2820	20.9 4700	35.3 7940	7500	12000	0.0504
	28 1.1024	35 1.3780	20 0.787	—	1 0.039	HK2820	20.9 4700	35.3 7940	7500	12000	0.0504
30 1.1811	30 1.1811	37 1.4567	12 0.472	9.3 0.366	1 0.039	BK3012	11.6 2610	16.8 3780	7000	11000	0.0330
	30 1.1811	37 1.4567	12 0.472	—	1 0.039	HK3012	12.0 2700	17.7 3980	7000	11000	0.0330
	30 1.1811	37 1.4567	16 0.630	13.30 0.524	1 0.039	BK3016	16.8 3780	27.3 6140	7000	11000	0.0488
	30 1.1811	37 1.4567	16 0.630	—	1 0.039	HK3016	16.8 3780	27.3 6140	7000	11000	0.0488
	30 1.1811	37 1.4567	20 0.787	17.3 0.681	1 0.039	BK3020	22.4 5040	39.6 8900	7000	11000	0.0537
	30 1.1811	37 1.4567	20 0.787	—	1 0.039	HK3020	22.4 5040	39.6 8900	7000	11000	0.0537
	30 1.1811	37 1.4567	26 1.024	23.3 0.917	1 0.039	BK3026	27.4 6160	51.2 11500	7000	11000	0.0570
	30 1.1811	37 1.4567	26 1.024	—	1 0.039	HK3026	27.4 6160	51.2 11500	7000	11000	0.0571
	30 1.1811	37 1.4567	38 1.496	35.3 1.390	1 0.039	BK3038	38.4 8630	79.2 17800	7000	11000	0.0535
	30 1.1811	37 1.4567	38 1.496	—	1 0.039	HK3038	38.4 8630	79.2 17800	7000	11000	0.0535
35 1.3780	35 1.3780	42 1.6535	12 0.472	—	1 0.039	HK3512	13.0 2920	20.6 4630	5900	9100	0.0365
	35 1.3780	42 1.6535	16 0.630	—	1 0.039	HK3516	17.4 3910	29.9 6720	5900	9100	0.0534
	35 1.3780	42 1.6535	20 0.787	17.3 0.681	1 0.039	BK3520	24.5 5510	46.8 10520	5900	9100	0.0597
	35 1.3780	42 1.6535	20 0.787	—	1 0.039	HK3520	24.5 5510	46.8 10500	5900	9100	0.0597
40 1.5748	40 1.5748	47 1.8504	12 0.472	—	1 0.039	HK4012	14.7 3300	25.3 5690	5200	7900	0.0402
	40 1.5748	47 1.8504	16 0.630	—	1 0.039	HK4016	18.9 4250	34.8 7820	5200	7900	0.0589
	40 1.5748	47 1.8504	20 0.787	17.3 0.681	1 0.039	BK4020	25.1 5640	50.4 11300	5200	7900	0.0646

See Engineering section
for discussion of shaft
and housing design.

Wt.	S (h5)		H (N6)		Inspection			C _g	Mounting Inner Ring (pg B-67 to B-76)	Shaft Dia.
	Recommended Mounting Dimension				Ring Gage	Plug Gage				
	Max.	Min.	Max.	Min.		Go	No Go			
kg lbs.	mm in.	mm in.	mm in.	mm in.						mm in.
0.046 0.101	25 0.9843	24.991 0.9839	31.988 1.2594	31.972 1.2587	31.972 1.2587	25.020 0.985	25.043 0.9859	0.0666	JR20x25x26.5	
0.077 0.170	25 0.9843	24.991 0.9839	31.988 1.2594	31.972 1.2587	31.972 1.2587	25.020 0.985	25.043 0.9859	0.0622	JR20x25x38.5	
0.068 0.150	25 0.9843	24.991 0.9839	31.988 1.2594	31.972 1.2587	31.972 1.2587	25.020 0.985	25.043 0.9859	0.0622	JR20x25x38.5	
0.038 0.084	28 1.1024	27.991 1.1020	34.988 1.3775	34.972 1.3769	34.972 1.3769	28.020 1.1031	28.043 1.1041	0.0606	JR22x28x17	28 1.1024
0.032 0.071	28 1.1024	27.991 1.1020	34.988 1.3775	34.972 1.3769	34.972 1.3769	28.020 1.1031	28.043 1.1041	0.0606	JR22x28x17	
0.047 0.104	28 1.1024	27.991 1.1020	34.988 1.3775	34.972 1.3769	34.972 1.3769	28.020 1.1031	28.043 1.1041	0.0661	JR22x28x20.5	
0.040 0.088	28 1.1024	27.991 1.1020	34.988 1.3775	34.972 1.3769	34.972 1.3769	28.020 1.1031	28.043 1.1041	0.0661	JR22x28x20.5	
0.031 0.068	30 1.1811	29.991 1.1807	36.988 1.4562	36.972 1.4556	36.972 1.4556	30.020 1.1819	30.043 1.1828			30 1.1811
0.024 0.053	30 1.1811	29.991 1.1807	36.988 1.4562	36.972 1.4556	36.972 1.4556	30.020 1.1819	30.043 1.1828			
0.041 0.090	30 1.1811	29.991 1.1807	36.988 1.4562	36.972 1.4556	36.972 1.4556	30.020 1.1819	30.043 1.1828	0.0640	JR25x30x17	
0.032 0.071	30 1.1811	29.991 1.1807	36.988 1.4562	36.972 1.4556	36.972 1.4556	30.020 1.1819	30.043 1.1828	0.0640	JR25x30x17	
0.053 0.117	30 1.1811	29.991 1.1807	36.988 1.4562	36.972 1.4556	36.972 1.4556	30.020 1.1819	30.043 1.1828	0.0705	JR25x30x20.5	
0.042 0.093	30 1.1811	29.991 1.1807	36.988 1.4562	36.972 1.4556	36.972 1.4556	30.020 1.1819	30.043 1.1828	0.0705	JR25x30x20.5	
0.067 0.148	30 1.1811	29.991 1.1807	36.988 1.4562	36.972 1.4556	36.972 1.4556	30.020 1.1819	30.043 1.1828	0.0748	JR25x30x26.5	
0.054 0.119	30 1.1811	29.991 1.1807	36.988 1.4562	36.972 1.4556	36.972 1.4556	30.020 1.1819	30.043 1.1828	0.0749	JR25x30x26.5	
0.093 0.205	30 1.1811	29.991 1.1807	36.988 1.4562	36.972 1.4556	36.972 1.4556	30.020 1.1819	30.043 1.1828	0.0702	JR25x30x38.5	
0.075 0.165	30 1.1811	29.991 1.1807	36.988 1.4562	36.972 1.4556	36.972 1.4556	30.020 1.1819	30.043 1.1828	0.0702	JR25x30x38.5	
0.028 0.062	35 1.3780	34.989 1.3775	41.988 1.6531	41.972 1.6524	41.972 1.6524	35.025 1.3789	35.052 1.3800			35 1.3780
0.037 0.082	35 1.3780	34.989 1.3775	41.988 1.6531	41.972 1.6524	41.972 1.6524	35.025 1.3789	35.052 1.3800	0.0701	JR30x35x17	
0.065 0.143	35 1.3780	34.989 1.3775	41.988 1.6531	41.972 1.6524	41.972 1.6524	35.025 1.3789	35.052 1.3800	0.0783	JR30x35x20.5	
0.049 0.108	35 1.3780	34.989 1.3775	41.988 1.6531	41.972 1.6524	41.972 1.6524	35.025 1.3789	35.052 1.3800	0.0783	JR30x35x20.5	
0.033 0.073	40 1.5748	39.989 1.5744	46.988 1.8499	46.972 1.8493	46.972 1.8493	40.025 1.5758	40.052 1.5769			40 1.5748
0.042 0.093	40 1.5748	39.989 1.5744	46.988 1.8499	46.972 1.8493	46.972 1.8493	40.025 1.5758	40.052 1.5769	0.0773	JR35x40x17	
0.070 0.154	40 1.5748	39.989 1.5744	46.988 1.8499	46.972 1.8493	46.972 1.8493	40.025 1.5758	40.052 1.5769	0.0848	JR35x40x20.5	

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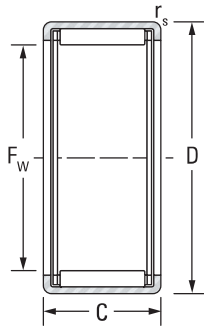


NEEDLE ROLLER BEARINGS

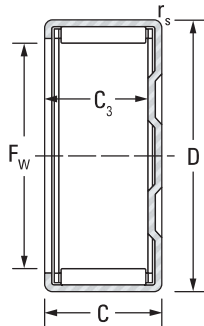
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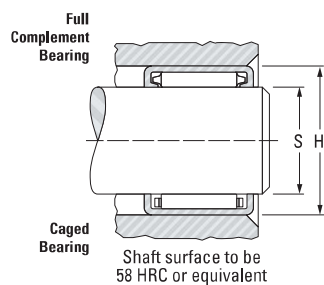
METRIC SERIES



HK



BK



Shaft Dia.	F _w	D	C	C ₃ min	r _s min	Bearing Designation	Load Ratings		Speed Rating		C ₉
							Dynamic C	Static C ₀	Grease	Oil	
mm in.	mm in.	mm in.	mm in.	mm in.	mm in.		kN lbf.		min ⁻¹		
	40 1,5748	47 1,8504	20 0,787	—	1 0,039	HK4020	25.1 5640	50.4 11300	5200	7900	0.0646
45 1,7717	45 1,7717	52 2,0472	12 0,472	—	1 0,039	HK4512	14.1 3170	24.8 5580	4600	7000	0.0435
	45 1,7717	52 2,0472	16 0,630	—	1 0,039	HK4516	19.8 4450	38.5 8660	4600	7000	0.0637
	45 1,7717	52 2,0472	20 0,787	17.3 0,681	1 0,039	BK4520	26.3 5910	55.4 12500	4600	7000	0.0697
	45 1,7717	52 2,0472	20 0,787	—	1 0,039	HK4520	27.2 6110	58.2 13100	4600	7000	0.0697
50 1,9685	50 1,9685	58 2,2835	20 0,787	—	1 0,039	HK5020	30.9 6950	62.2 14000	4100	6300	0.0714
	50 1,9685	58 2,2835	25 0,984	—	1 0,039	HK5025	35.5 7980	74.1 16700	4100	6300	0.0764
60 2,3622	60 2,3622	68 2,6772	12 0,472	—	1 0,039	HK6012	17.2 3870	31.2 7010	3400	5200	0.0523

See Engineering section
for discussion of shaft
and housing design.

Drawn Cup Needle Roller Bearings

Wt.	S (h5)		H (N6)		Inspection			C _g	Mounting Inner Ring (pg B-67 to B-76)	Shaft Dia.
	Recommended Mounting Dimension				Ring Gage	Plug Gage				
	Max.	Min.	Max.	Min.		Go	No Go			
kg lbs.	mm in.	mm in.	mm in.	mm in.						mm in.
0.060 0.132	40 1.5748	39.989 1.5744	46.988 1.8499	46.972 1.8493	46.972 1.8493	40.025 1.5758	40.052 1.5769	0.0848	JR35x40x20.5	
0.036 0.079	45 1.7717	44.989 1.7712	51.986 2.0467	51.967 2.0459	51.967 2.0459	45.025 1.7726	45.052 1.7737			45 1.7717
0.048 0.106	45 1.7717	44.989 1.7712	51.986 2.0467	51.967 2.0459	51.967 2.0459	45.025 1.7726	45.052 1.7737	0.0836	JR40x45x17	
0.079 0.174	45 1.7717	44.989 1.7712	51.986 2.0467	51.967 2.0459	51.967 2.0459	45.025 1.7726	45.052 1.7737	0.0914	JR40x45x20.5	
0.059 0.130	45 1.7717	44.989 1.7712	51.986 2.0467	51.967 2.0459	51.967 2.0459	45.025 1.7726	45.052 1.7737	0.0914	JR40x45x20.5	
0.072 0.159	50 1.9685	49.989 1.9681	57.986 2.2829	57.967 2.2822	57.967 2.2822	50.025 1.9695	50.052 1.9706	0.0937	JR45x50x20	50 1.9685
0.092 0.203	50 1.9685	49.989 1.9681	57.986 2.2829	57.967 2.2822	57.967 2.2822	50.025 1.9695	50.052 1.9706	0.1002	JR45x50x25.5	
0.060 0.132	60 2.3622	59.987 2.3617	67.986 2.6766	67.967 2.6759	67.967 2.6759	60.030 2.3634	60.062 2.3646			60 2.3622

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