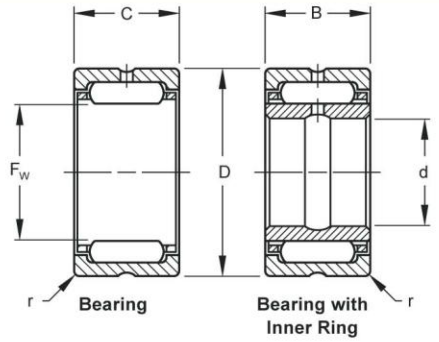
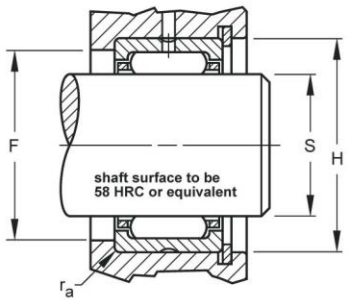
HJ Type



DIMENSIONS AND LOAD RATINGS

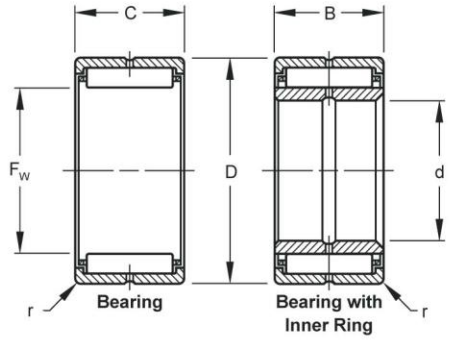
Fw Bore (nom.)		D Outside Diameter (nom.)		C/B Width (nom.)		Bearing Designation	Load Ratings Basic Dynamic C_r ISO 281	Load Ratings Basic Static C_o ISO 76	Limiting Speed	r_a* Housing Fillet (max.)		Used with Inner Ring Designation †	F Housing Shoulder Diameter ±1/64	F Housing Shoulder Diameter ±0.4
inch	mm	inch	mm	inch	mm		lbf	lbf	rpm	inch	mm		inch	mm
0.6250	15,875	1.1250	28,575	0.750	19,05	**HJ-101812**	3 980	4 150	30 000	0.025	0,6	**IR-061012**	15/16	23,8
0.7500	19,050	1.2500	31,750	0.750	19,05	**HJ-122012**	4 250	4 680	25 000	0.04	1,0	**IR-081212**	1 1/16	27,0
0.7500	19,050	1.2500	31,750	1.000	25,40	**HJ-122016**	5 830	7 020	25 000	0.04	1,0	**IR-081216**	1 1/16	27,0
0.8750	22,225	1.3750	34,925	0.750	19,05	**HJ-142212**	4 750	5 600	21 000	0.04	1,0	**IR-101412** **IR-111412**	1 3/16	30,2
0.8750	22,225	1.3750	34,925	1.000	25,40	**HJ-142216**	6 500	8 400	21 000	0.04	1,0	**IR-101416**	1 3/16	30,2
1.0000	25,400	1.5000	38,100	0.750	19,05	**HJ-162412**	5 200	6 520	18 000	0.04	1,0	**IR-121612**	1 5/16	33,3
1.0000	25,400	1.5000	38,100	1.000	25,40	**HJ-162416**	7 120	9 780	18 000	0.04	1,0	**IR-121616** **IR-131616**	1 5/16	33,3
1.1250	28,575	1.6250	41,275	1.000	25,40	**HJ-182616**	7 700	11 200	16 000	0.04	1,0	**IR-141816** **IR-151816**	1 7/16	36,5
1.1250	28,575	1.6250	41,275	1.250	31,75	**HJ-182620**	9 650	14 900	16 000	0.04	1,0	**IR-141820** **IR-151820**	1 7/16	36,5
1.2500	31,750	1.7500	44,450	1.000	25,40	**HJ-202816**	7 920	11 900	14 000	0.04	1,0	**IR-162016**	1 9/16	39,7
1.2500	31,750	1.7500	44,450	1.250	31,75	**HJ-202820**	9 930	16 000	14 000	0.04	1,0	**IR-162020**	1 9/16	39,7
1.3750	34,925	1.8750	47,625	1.000	25,40	**HJ-223016**	8 430	13 300	13 000	0.04	1,0	**IR-182216**	1 11/16	42,9
1.3750	34,925	1.8750	47,625	1.250	31,75	**HJ-223020**	10 600	17 800	13 000	0.04	1,0	**IR-182220**	1 11/16	42,9
1.5000	38,100	2.0625	52,388	1.000	25,40	**HJ-243316**	9 930	14 800	12 000	0.06	1,5	**IR-202416**	1 7/8	47,6
1.5000	38,100	2.0625	52,388	1.250	31,75	**HJ-243320**	12 500	20 000	12 000	0.06	1,5	**IR-192420** **IR-202420**	1 7/8	47,6
1.6250	41,275	2.1875	55,562	1.000	25,40	**HJ-263516**	10 200	15 700	11 000	0.06	1,5	**IR-212616**	2	50,8
1.6250	41,275	2.1875	55,562	1.250	31,75	**HJ-263520**	12 800	21 100	11 000	0.06	1,5	**IR-212620** **IR-222620**	2	50,8
1.7500	44,450	2.3125	58,738	1.000	25,40	**HJ-283716**	10 500	16 600	9 900	0.06	1,5	**IR-232816** **IR-242816**	2 1/8	54,0
1.7500	44,450	2.3125	58,738	1.250	31,75	**HJ-283720**	13 200	22 300	9 900	0.06	1,5	**IR-222820** **IR-232820** **IR-242820**	2 1/8	54,0
1.8750	47,625	2.4375	61,912	1.250	31,75	**HJ-303920**	13 900	24 500	9 200	0.06	1,5	**IR-253020**	2 1/4	57,2
2.0000	50,800	2.5625	65,088	1.000	25,40	**HJ-324116**	11 300	19 100	8 600	0.06	1,5	**IR-273216**	2 3/8	60,3
2.0000	50,800	2.5625	65,088	1.250	31,75	**HJ-324120**	14 200	25 700	8 600	0.06	1,5	**IR-243220** **IR-253220** **IR-263220** **IR-273220**	2 3/8	60,3
2.2500	57,150	3.0000	76,200	1.500	38,10	**HJ-364824**	19 900	36 200	7 600	0.06	1,5	**IR-283624**	2 11/16	68,3
2.2500	57,150	3.0000	76,200	1.750	44,45	**HJ-364828**	23 100	43 700	7 600	0.06	1,5	**IR-283628**	2 11/16	68,3
2.5000	63,500	3.2500	82,550	1.500	38,10	**HJ-405224**	21 500	41 300	6 800	0.08	2,0	**IR-314024** **IR-324024**	2 15/16	74,6
2.5000	63,500	3.2500	82,550	1.750	44,45	**HJ-405228**	24 900	49 900	6 800	0.08	2,0	**IR-314028** **IR-324028**	2 15/16	74,6
2.7500	69,850	3.5000	88,900	1.000	25,40	**HJ-445616**	14 700	26 100	6 200	0.08	2,0	—	3 3/16	81,0
2.7500	69,850	3.5000	88,900	1.500	38,10	**HJ-445624**	22 300	44 800	6 200	0.08	2,0	**IR-364424**	3 3/16	81,0
2.7500	69,850	3.5000	88,900	1.750	44,45	**HJ-445628**	25 900	54 100	6 200	0.08	2,0	**IR-354428** **IR-364428**	3 3/16	81,0



BEARING MOUNTING DIMENSIONS

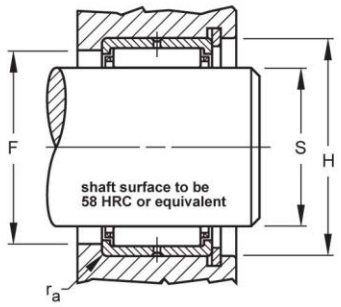
Mounting Dimensions, Clearance Fit									Mounting Dimensions, Tight Transition Fit							
Inch Mounting				Metric Mounting (mm)					Inch Mounting				Metric Mounting (mm)			
S Shaft Raceway Diameter		H Housing Bore Diameter		S Shaft Raceway Diameter		H Housing Bore Diameter		Bearing Designation	S Shaft Raceway Diameter		H Housing Bore Diameter		S Shaft Raceway Diameter		H Housing Bore Diameter	
max.	min.	min.	max.	max.	min.	min.	max.		max.	min.	min.	max.	max.	min.	min.	max.
0.6250	0.6246	1.1250	1.1258	15,875	15,865	28,575	28,595	**HJ-101812**	0.6244	0.6240	1.1239	1.1247	15,860	15,850	28,547	28,567
0.7500	0.7495	1.2500	1.2510	19,050	19,037	31,750	31,775	**HJ-122012**	0.7492	0.7487	1.2487	1.2497	19,030	19,017	31,717	31,742
0.7500	0.7495	1.2500	1.2510	19,050	19,037	31,750	31,775	**HJ-122016**	0.7492	0.7487	1.2487	1.2497	19,030	19,017	31,717	31,742
0.8750	0.8745	1.3750	1.3760	22,225	22,212	34,925	34,950	**HJ-142212**	0.8742	0.8737	1.3737	1.3747	22,205	22,192	34,892	34,917
0.8750	0.8745	1.3750	1.3760	22,225	22,212	34,925	34,950	**HJ-142216**	0.8742	0.8737	1.3737	1.3747	22,205	22,192	34,892	34,917
1.0000	0.9995	1.5000	1.5010	25,400	25,387	38,100	38,125	**HJ-162412**	0.9992	0.9987	1.4987	1.4997	25,380	25,367	38,067	38,092
1.0000	0.9995	1.5000	1.5010	25,400	25,387	38,100	38,125	**HJ-162416**	0.9992	0.9987	1.4987	1.4997	25,380	25,367	38,067	38,092
1.1250	1.1245	1.6250	1.6260	28,575	28,562	41,275	41,300	**HJ-182616**	1.1242	1.1237	1.6237	1.6247	28,555	28,542	41,242	41,267
1.1250	1.1245	1.6250	1.6260	28,575	28,562	41,275	41,300	**HJ-182620**	1.1242	1.1237	1.6237	1.6247	28,555	28,542	41,242	41,267
1.2500	1.2494	1.7500	1.7510	31,750	31,735	44,450	44,475	**HJ-202816**	1.2490	1.2484	1.7487	1.7497	31,725	31,710	44,417	44,442
1.2500	1.2494	1.7500	1.7510	31,750	31,735	44,450	44,475	**HJ-202820**	1.2490	1.2484	1.7487	1.7497	31,725	31,710	44,417	44,442
1.3750	1.3744	1.8750	1.8760	34,925	34,910	47,625	47,650	**HJ-223016**	1.3740	1.3734	1.8737	1.8747	34,900	34,885	47,592	47,617
1.3750	1.3744	1.8750	1.8760	34,925	34,910	47,625	47,650	**HJ-223020**	1.3740	1.3734	1.8737	1.8747	34,900	34,885	47,592	47,617
1.5000	1.4994	2.0625	2.0637	38,100	38,085	52,388	52,418	**HJ-243316**	1.4990	1.4984	2.0610	2.0622	38,075	38,060	52,349	52,379
1.5000	1.4994	2.0625	2.0637	38,100	38,085	52,388	52,418	**HJ-243320**	1.4990	1.4984	2.0610	2.0622	38,075	38,060	52,349	52,379
1.6250	1.6244	2.1875	2.1887	41,275	41,260	55,562	55,592	**HJ-263516**	1.6240	1.6234	2.1860	2.1872	41,250	41,235	55,524	55,554
1.6250	1.6244	2.1875	2.1887	41,275	41,260	55,562	55,592	**HJ-263520**	1.6240	1.6234	2.1860	2.1872	41,250	41,235	55,524	55,554
1.7500	1.7494	2.3125	2.3137	44,450	44,435	58,738	58,768	**HJ-283716**	1.7490	1.7484	2.3110	2.3122	44,425	44,410	58,699	58,729
1.7500	1.7494	2.3125	2.3137	44,450	44,435	58,738	58,768	**HJ-283720**	1.7490	1.7484	2.3110	2.3122	44,425	44,410	58,699	58,729
1.8750	1.8744	2.4375	2.4387	47,625	47,610	61,912	61,942	**HJ-303920**	1.8740	1.8734	2.4360	2.4372	47,600	47,585	61,874	61,904
2.0000	1.9993	2.5625	2.5637	50,800	50,782	65,088	65,118	**HJ-324116**	1.9988	1.9981	2.5610	2.5622	50,770	50,752	65,049	65,079
2.0000	1.9993	2.5625	2.5637	50,800	50,782	65,088	65,118	**HJ-324120**	1.9988	1.9981	2.5610	2.5622	50,770	50,752	65,049	65,079
2.2500	2.2493	3.0000	3.0012	57,150	57,132	76,200	76,230	**HJ-364824**	2.2488	2.2481	2.9985	2.9997	57,120	57,102	76,162	76,192
2.2500	2.2493	3.0000	3.0012	57,150	57,132	76,200	76,230	**HJ-364828**	2.2488	2.2481	2.9985	2.9997	57,120	57,102	76,162	76,192
2.5000	2.4993	3.2500	3.2514	63,500	63,482	82,550	82,586	**HJ-405224**	2.4988	2.4981	3.2481	3.2495	63,470	63,452	82,502	82,538
2.5000	2.4993	3.2500	3.2514	63,500	63,482	82,550	82,586	**HJ-405228**	2.4988	2.4981	3.2481	3.2495	63,470	63,452	82,502	82,538
2.7500	2.7493	3.5000	3.5014	69,850	69,832	88,900	88,936	**HJ-445616**	2.7488	2.7481	3.4981	3.4995	69,820	69,802	88,852	88,888
2.7500	2.7493	3.5000	3.5014	69,850	69,832	88,900	88,936	**HJ-445624**	2.7488	2.7481	3.4981	3.4995	69,820	69,802	88,852	88,888
2.7500	2.7493	3.5000	3.5014	69,850	69,832	88,900	88,936	**HJ-445628**	2.7488	2.7481	3.4981	3.4995	69,820	69,802	88,852	88,888

HJ Type



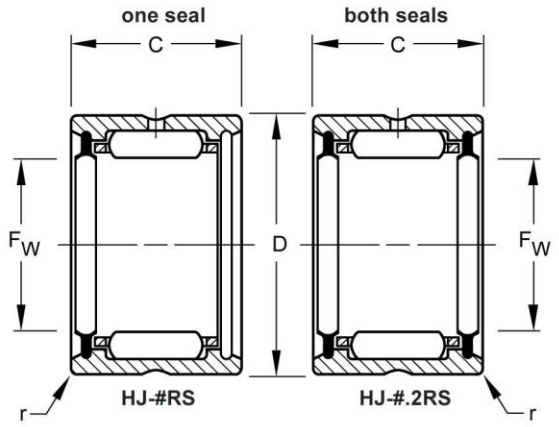
DIMENSIONS AND LOAD RATINGS

Fw Bore (nom.)		D Outside Diameter (nom.)		C/B Width (nom.)		Bearing Designation	Load Ratings Basic Dynamic C_r ISO 281	Load Ratings Basic Static C_o ISO 76	Limiting Speed	r_a* Housing Fillet (max.)		Used with Inner Ring Designation †	F Housing Shoulder Diameter ±1/64	±0.4
inch	mm	inch	mm	inch	mm		lbf	lbf	rpm	inch	mm		inch	mm
3.0000	76,200	3.7500	95,250	1.500	38,10	**HJ-486024**	23 800	49 900	5 600	0.08	2,0	**IR-404824**	3 7/16	87,3
3.0000	76,200	3.7500	95,250	1.750	44,45	**HJ-486028**	27 500	60 300	5 600	0.08	2,0	**IR-384828** **IR-404828**	3 7/16	87,3
3.2500	82,550	4.2500	107,950	1.750	44,45	**HJ-526828**	36 000	67 400	5 300	0.08	2,0	**IR-445228**	3 7/8	98,4
3.2500	82,550	4.2500	107,950	2.000	50,80	**HJ-526832**	40 800	79 300	5 300	0.08	2,0	**IR-445232**	3 7/8	98,4
3.5000	88,900	4.5000	114,300	2.000	50,80	**HJ-567232**	41 500	83 000	4 900	0.08	2,0	**IR-475632** **IR-485632**	4 1/8	104,8
3.7500	95,250	4.7500	120,650	2.000	50,80	**HJ-607632**	44 200	91 000	4 540	0.10	2,5	**IR-506032** **IR-526032**	4 3/8	111,1
4.0000	101,600	5.0000	127,000	2.000	50,80	**HJ-648032**	46 000	98 000	4 230	0.10	2,5	**IR-526432** **IR-546432** **IR-566432**	4 5/8	117,5
4.2500	107,950	5.2500	133,350	2.000	50,80	**HJ-688432**	46 500	102 000	3 970	0.10	2,5	**IR-566832** **IR-606832**	4 7/8	123,8
4.5000	114,300	6.0000	152,400	2.250	57,15	**HJ-729636**	64 400	116 000	3 850	0.10	2,5	**IR-607236**	5 7/16	138,1
4.5000	114,300	6.0000	152,400	2.500	63,50	**HJ-729640**	71 700	134 000	3 850	0.10	2,5	**IR-607240**	5 7/16	138,1
5.0000	127,000	6.5000	165,100	2.000	50,80	**HJ-8010432**	61 200	113 000	3 430	0.10	2,5	—	5 15/16	150,8
5.0000	127,000	6.5000	165,100	2.250	57,15	**HJ-8010436**	69 400	133 000	3 430	0.10	2,5	**IR-648036** **IR-688036**	5 15/16	150,8
5.0000	127,000	6.5000	165,100	2.500	63,50	**HJ-8010440**	77 300	152 000	3 430	0.10	2,5	**IR-648040**	5 15/16	150,8
5.5000	139,700	7.0000	177,800	2.500	63,50	**HJ-8811240**	78 600	160 000	3 120	0.10	2,5	**IR-728840**	6 7/16	163,5
5.5000	139,700	7.0000	177,800	3.000	76,20	**HJ-8811248**	93 300	199 000	3 120	0.10	2,5	**IR-728848**	6 7/16	163,5
5.7500	146,050	7.2500	184,150	3.000	76,20	**HJ-9211648**	94 800	207 000	2 960	0.12	3,0	**IR-769248**	6 11/16	169,9
6.0000	152,400	7.5000	190,500	2.500	63,50	**HJ-9612040**	83 000	178 000	2 830	0.12	3,0	**IR-809640**	6 15/16	176,2
6.0000	152,400	7.5000	190,500	3.000	76,20	**HJ-9612048**	99 300	224 000	2 830	0.12	3,0	**IR-809648**	6 15/16	176,2
6.5000	165,100	8.0000	203,200	2.500	63,50	**HJ-10412840**	86 000	191 000	2 600	0.12	3,0	**IR-8810440**	7 7/16	188,9
6.5000	165,100	8.0000	203,200	3.000	76,20	**HJ-10412848**	102 000	237 000	2 600	0.12	3,0	**IR-8810448**	7 7/16	188,9
7.2500	184,150	9.1250	231,775	3.000	76,20	**HJ-11614648**	118 300	253 000	2 340	0.12	3,0	**IR-9611648**	8 1/2	215,9
7.7500	196,850	9.6250	244,475	3.000	76,20	**HJ-12415448**	123 000	271 000	2 180	0.12	3,0	**IR-10412448**	9	228,6
8.2500	209,550	10.1250	257,175	3.000	76,20	**HJ-13216248**	127 000	290 000	2 040	0.12	3,0	**IR-11213248**	9 1/2	241,3
8.7500	222,250	10.6250	269,875	3.000	76,20	**HJ-14017048**	130 000	308 000	1 920	0.16	4,0	**IR-12014048**	10	254,0
9.2500	234,950	11.1250	282,575	3.000	76,20	**HJ-14817848**	136 000	326 000	1 810	0.16	4,0	**IR-12814848**	10 1/2	266,7



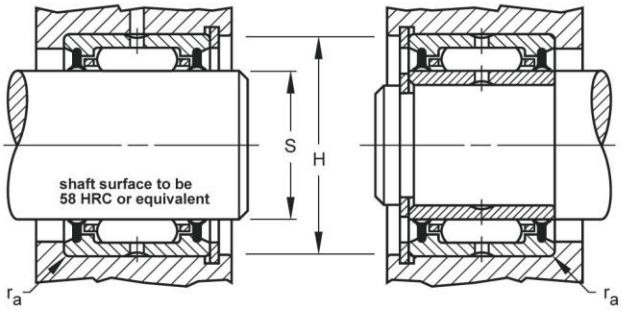
BEARING MOUNTING DIMENSIONS

Mounting Dimensions, Clearance Fit									Mounting Dimensions, Tight Transition Fit							
Inch Mounting				Metric Mounting (mm)					Inch Mounting				Metric Mounting (mm)			
S Shaft Raceway Diameter		H Housing Bore Diameter		S Shaft Raceway Diameter		H Housing Bore Diameter		Bearing Designation	S Shaft Raceway Diameter		H Housing Bore Diameter		S Shaft Raceway Diameter		H Housing Bore Diameter	
max.	min.	min.	max.	max.	min.	min.	max.		max.	min.	min.	max.	max.	min.	min.	max.
3.0000	2.9993	3.7500	3.7514	76,200	76,182	95,250	95,286	**HJ-486024**	2.9988	2.9981	3.7481	3.7495	76,170	76,152	95,202	95,238
3.0000	2.9993	3.7500	3.7514	76,200	76,182	95,250	95,286	**HJ-486028**	2.9988	2.9981	3.7481	3.7495	76,170	76,152	95,202	95,238
3.2500	3.2491	4.2500	4.2514	82,550	82,527	107,950	107,986	**HJ-526828**	3.2486	3.2477	4.2481	4.2495	82,514	82,491	107,902	107,938
3.2500	3.2491	4.2500	4.2514	82,550	82,527	107,950	107,986	**HJ-526832**	3.2486	3.2477	4.2481	4.2495	82,514	82,491	107,902	107,938
3.5000	3.4991	4.5000	4.5014	88,900	88,877	114,300	114,336	**HJ-567232**	3.4986	3.4977	4.4981	4.4995	88,864	88,841	114,252	114,288
3.7500	3.7491	4.7500	4.7516	95,250	95,227	120,650	120,691	**HJ-607632**	3.7487	3.7477	4.7478	4.7494	95,214	95,191	120,594	120,635
4.0000	3.9991	5.0000	5.0016	101,600	101,577	127,000	127,041	**HJ-648032**	3.9986	3.9977	4.9978	4.9994	101,564	101,541	126,944	126,985
4.2500	4.2491	5.2500	5.2516	107,950	107,927	133,350	133,391	**HJ-688432**	4.2486	4.2477	5.2478	5.2494	107,914	107,891	133,294	133,335
4.5000	4.4991	6.0000	6.0016	114,300	114,277	152,400	152,441	**HJ-729636**	4.4986	4.4977	5.9978	5.9994	114,264	114,241	152,344	152,385
4.5000	4.4991	6.0000	6.0016	114,300	114,277	152,400	152,441	**HJ-729640**	4.4986	4.4977	5.9978	5.9994	114,264	114,241	152,344	152,385
5.0000	4.9990	6.5000	6.5016	127,000	126,975	165,100	165,141	**HJ-8010432**	4.9984	4.9974	6.4978	6.4994	126,959	126,934	165,044	165,085
5.0000	4.9990	6.5000	6.5016	127,000	126,975	165,100	165,141	**HJ-8010436**	4.9984	4.9974	6.4978	6.4994	126,959	126,934	165,044	165,085
5.0000	4.9990	6.5000	6.5016	127,000	126,975	165,100	165,141	**HJ-8010440**	4.9984	4.9974	6.4978	6.4994	126,959	126,934	165,044	165,085
5.5000	5.4990	7.0000	7.0016	139,700	139,675	177,800	177,841	**HJ-8811240**	5.4984	5.4974	6.9978	6.9994	139,659	139,634	177,744	177,785
5.5000	5.4990	7.0000	7.0016	139,700	139,675	177,800	177,841	**HJ-8811248**	5.4984	5.4974	6.9978	6.9994	139,659	139,634	177,744	177,785
5.7500	5.7490	7.2500	7.2518	146,050	146,025	184,150	184,196	**HJ-9211648**	5.7484	5.7474	7.2476	7.2494	146,009	145,984	184,089	184,135
6.0000	5.9990	7.5000	7.5018	152,400	152,375	190,500	190,546	**HJ-9612040**	5.9984	5.9974	7.4976	7.4994	152,359	152,334	190,439	190,485
6.0000	5.9990	7.5000	7.5018	152,400	152,375	190,500	190,546	**HJ-9612048**	5.9984	5.9974	7.4976	7.4994	152,359	152,334	190,439	190,485
6.5000	6.4990	8.0000	8.0018	165,100	165,075	203,200	203,246	**HJ-10412840**	6.4984	6.4974	7.9976	7.9994	165,059	165,034	203,139	203,185
6.5000	6.4990	8.0000	8.0018	165,100	165,075	203,200	203,246	**HJ-10412848**	6.4984	6.4974	7.9976	7.9994	165,059	165,034	203,139	203,185
7.2500	7.2488	9.1250	9.1268	184,150	184,120	231,775	231,821	**HJ-11614648**	7.2480	7.2468	9.1226	9.1244	184,099	184,069	231,714	231,760
7.7500	7.7488	9.6250	9.6268	196,850	196,820	244,475	244,521	**HJ-12415448**	7.7480	7.7468	9.6226	9.6244	196,799	196,769	244,414	244,460
8.2500	8.2488	10.1250	10.1270	209,550	209,520	257,175	257,226	**HJ-13216248**	8.2480	8.2468	10.1224	10.1244	209,499	209,469	257,109	257,160
8.7500	8.7488	10.6250	10.6270	222,250	222,220	269,875	269,926	**HJ-14017048**	8.7480	8.7468	10.6224	10.6244	222,199	222,169	269,809	269,860
9.2500	9.2488	11.1250	11.1270	234,950	234,920	282,575	282,626	**HJ-14817848**	9.2480	9.2468	11.1224	11.1244	234,899	234,869	282,509	282,560



DIMENSIONS AND LOAD RATINGS

F_w Bore (nom.)		D Outside Diameter (nom.)		C Width (nom.)		Bearing * Designation	Load Ratings Basic Dynamic C_r ISO 281	Load Ratings Basic Static C_o ISO 76	§ Limiting Speed	r_a* Housing Fillet (max.)		† Used with Inner Ring Designation
inch	mm	inch	mm	inch	mm	(with both seals)	lbf	lbf	rpm	inch	mm	
0.6250	15,875	1.1250	28,570	1.000	25,40	**HJ-101816.2RS**	3 980	4 150	6 100	0.025	0,6	—
0.7500	19,050	1.2500	31,750	1.000	25,40	**HJ-122016.2RS**	4 250	4 680	5 100	0.04	1,0	**IR-081216**
0.8750	22,225	1.3750	34,925	1.000	25,40	**HJ-142216.2RS**	4 750	5 600	4 400	0.04	1,0	**IR-101416**
1.0000	25,400	1.5000	38,100	1.000	25,40	**HJ-162416.2RS**	5 200	6 520	3 800	0.04	1,0	**IR-121616** **IR-131616**
1.1250	28,575	1.6250	41,275	1.250	31,75	**HJ-182620.2RS**	7 700	11 200	3 400	0.04	1,0	**IR-141820** **IR-151820**
1.2500	31,750	1.7500	44,450	1.250	31,75	**HJ-202820.2RS**	7 920	11 900	3 100	0.04	1,0	**IR-162020**
1.3750	34,925	1.8750	47,625	1.250	31,75	**HJ-223020.2RS**	8 430	13 300	2 800	0.04	1,0	**IR-182220**
1.5000	38,100	2.0625	52,388	1.250	31,75	**HJ-243320.2RS**	9 930	14 800	2 500	0.06	1,5	**IR-192420** **IR-202420**
1.6250	41,275	2.1875	55,562	1.250	31,75	**HJ-263520.2RS**	10 200	15 700	2 400	0.06	1,5	**IR-212620** **IR-222620**
1.7500	44,450	2.3125	58,738	1.250	31,75	**HJ-283720.2RS**	10 500	16 600	2 200	0.06	1,5	**IR-222820** **IR-232820** **IR-242820**
2.0000	50,800	2.5625	65,088	1.250	31,75	**HJ-324120.2RS**	11 300	19 100	1 900	0.06	1,5	**IR-243220** **IR-253220** **IR-263220** **IR-273220**
2.2500	57,150	3.0000	76,200	1.750	44,45	**HJ-364828.2RS**	19 900	36 200	1 700	0.06	1,5	**IR-283628**
2.5000	63,500	3.2500	82,550	1.750	44,45	**HJ-405228.2RS**	21 500	41 300	1 500	0.08	2,0	**IR-314028** **IR-324028**
2.7500	69,850	3.5000	88,900	1.750	44,45	**HJ-445628.2RS**	22 300	44 800	1 400	0.08	2,0	**IR-354428** **IR-364428**
3.0000	76,200	3.7500	95,250	1.750	44,45	**HJ-486028.2RS**	23 800	49 900	1 300	0.08	2,0	**IR-384828** **IR-404828**



Bearing | Bearing with Inner Ring

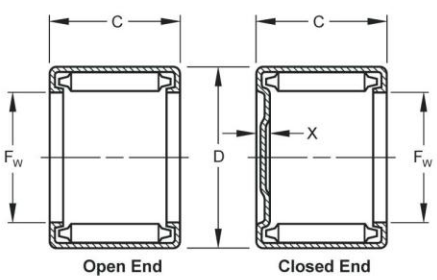
BEARING MOUNTING DIMENSIONS

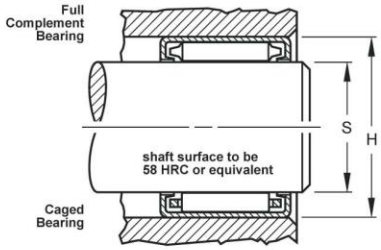
Mounting Dimensions, Clearance Fit									Mounting Dimensions, Tight Transition Fit							
Inch Mounting				Metric Mounting (mm)					Inch Mounting				Metric Mounting (mm)			
S Shaft Raceway Diameter		H Housing Bore Diameter		S Shaft Raceway Diameter		H Housing Bore Diameter		Bearing Designation	S Shaft Raceway Diameter		H Housing Bore Diameter		S Shaft Raceway Diameter		H Housing Bore Diameter	
max.	min.	min.	max.	max.	min.	min.	max.		max.	min.	min.	max.	max.	min.	min.	max.
0.6250	0.6246	1.1250	1.1258	15,875	15,865	28,575	28,595	**-101816**	0.6244	0.6240	1.1239	1.1247	15,860	15,850	28,547	28,567
0.7500	0.7495	1.2500	1.2510	19,050	19,037	31,750	31,775	**-122016**	0.7492	0.7487	1.2487	1.2497	19,030	19,017	31,717	31,742
0.8750	0.8745	1.3750	1.3760	22,225	22,212	34,925	34,950	**-142216**	0.8742	0.8737	1.3737	1.3747	22,205	22,192	34,892	34,917
1.0000	0.9995	1.5000	1.5010	25,400	25,387	38,100	38,125	**-162416**	0.9992	0.9987	1.4987	1.4997	25,380	25,367	38,067	38,092
1.1250	1.1245	1.6250	1.6260	28,575	28,562	41,275	41,300	**-182620**	1.1242	1.1237	1.6237	1.6247	28,555	28,542	41,242	41,267
1.2500	1.2494	1.7500	1.7510	31,750	31,735	44,450	44,475	**-202820**	1.2490	1.2484	1.7487	1.7497	31,725	31,710	44,417	44,442
1.3750	1.3744	1.8750	1.8760	34,925	34,910	47,625	47,650	**-223020**	1.3740	1.3734	1.8737	1.8747	34,900	34,885	47,592	47,617
1.5000	1.4994	2.0625	2.0637	38,100	38,085	52,388	52,418	**-243320**	1.4990	1.4984	2.0610	2.0622	38,075	38,060	52,349	52,379
1.6250	1.6244	2.1875	2.1887	41,275	41,260	55,562	55,592	**-263520**	1.6240	1.6234	2.1860	2.1872	41,250	41,235	55,524	55,554
1.7500	1.7494	2.3125	2.3137	44,450	44,435	58,738	58,768	**-283720**	1.7490	1.7484	2.3110	2.3122	44,425	44,410	58,699	58,729
2.0000	1.9993	2.5625	2.5637	50,800	50,782	65,088	65,118	**-324120**	1.9988	1.9981	2.5610	2.5622	50,770	50,752	65,049	65,079
2.2500	2.2493	3.0000	3.0012	57,150	57,132	76,200	76,230	**-364828**	2.2488	2.2481	2.9985	2.9997	57,120	57,102	76,162	76,192
2.5000	2.4993	3.2500	3.2514	63,500	63,482	82,550	82,586	**-405228**	2.4988	2.4981	3.2481	3.2495	63,470	63,452	82,502	82,538
2.7500	2.7493	3.5000	3.5014	69,850	69,832	88,900	88,936	**-445628**	2.7488	2.7481	3.4981	3.4995	69,820	69,802	88,852	88,888
3.0000	2.9993	3.7500	3.7514	76,200	76,182	95,250	95,286	**-486028**	2.9988	2.9981	3.7481	3.7495	76,170	76,152	95,202	95,238

Full Complement Bearings

Check for availability.

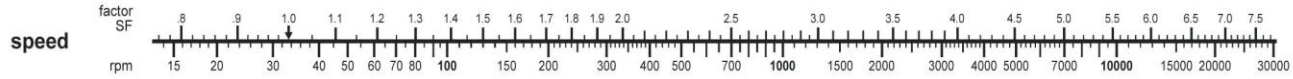
Inch-metric conversions given are for the convenience of the user. The controlling dimensions are in inches for nominal inch bearings and in millimeters for nominal metric bearings.





BEARING DIMENSIONS						MECHANICALLY RETAINED ROLLERS							BEARING MOUNTING			
F_w Bore		D Outside Diameter		C Width		Bearing Designation		Load Ratings			Limiting Speed Full Complement Bearings	X End Thickness		Inch Mounting			
								Basic Dynamic C_r	Basic Static C_o	Working Load				S Shaft Raceway Diameter		H Housing Bore	
(nom.)		(nom.)		+0.000 -0.010	+0,00 -0,25	open end	closed end	ISO 281	ISO 76	(max.)		(max.)		inches		inches	
inch	mm	inch	mm	inch	mm			lbf	lbf	lbf	rpm	inch	mm	max.	min.	min.	max.
0.118	3	0.256	6,50	0.236	6	—	—	—	—	—	—	—	—	0.1181	0.1178	0.2552	0.2557
⅛	3,18	¼	6,35	0.188	4,78	—	—	—	—	—	—	—	—	0.1250	0.1247	0.2500	0.2505
⅛	3,18	¼	6,35	0.250	6,35	B-24	—	374	349	229	13 000	—	—	0.1250	0.1247	0.2500	0.2505
5/32	3,97	9/32	7,14	0.188	4,78	—	—	—	—	—	—	—	—	0.1563	0.1560	0.2812	0.2817
5/32	3,97	9/32	7,14	0.250	6,35	B-2 ½ 4	—	439	437	274	11 000	—	—	0.1563	0.1560	0.2812	0.2817
5/32	3,97	9/32	7,14	0.312	7,92	B-2 ½ 5	—	578	622	389	11 000	—	—	0.1563	0.1560	0.2812	0.2817
.16	4	.31	8	0.315	8	—	—	—	—	—	—	—	—	0.1575	0.1572	0.3142	0.3148
3/16	4,76	11/32	8,73	0.250	6,35	B-34	M-341	477	453	284	11 000	0.07	1,80	0.1875	0.1872	0.3432	0.3437
3/16	4,76	11/32	8,73	0.375	9,52	B-36	—	828	922	577	11 000	—	—	0.1875	0.1872	0.3432	0.3437
0.20	5	0.35	9	0.354	9	—	—	—	—	—	—	—	—	0.1969	0.1966	0.3536	0.3542
—	—	—	—	0.315	8	—	—	—	—	—	—	—	—	0.2362	0.2359	0.3930	0.3936
0.24	6	0.39	10	0.354	9	—	—	—	—	—	—	—	—	0.2362	0.2359	0.3930	0.3936
¼	6,35	7/16	11,11	0.250	6,35	B-44	M-441	566	531	326	10 000	0.08	2,0	0.2500	0.2495	0.4370	0.4380
¼	6,35	7/16	11,11	0.312	7,92	B-45	M-451	768	786	483	10 000	0.08	2,0	0.2500	0.2495	0.4370	0.4380
¼	6,35	7/16	11,11	0.438	11,13	B-47	M-471	1 210	1 410	868	10 000	0.08	2,0	0.2500	0.2495	0.4370	0.4380
0.28	7	0.43	11	0.354	9	—	—	—	—	—	—	—	—	0.2756	0.2752	0.4322	0.4329
5/16	7,94	½	12,70	0.312	7,92	B-55	M-551	883	985	580	8 300	0.08	2,0	0.3125	0.3120	0.4995	0.5005
5/16	7,94	½	12,70	0.375	9,52	B-56	—	1 140	1 370	806	8 300	—	—	0.3125	0.3120	0.4995	0.5005
5/16	7,94	½	12,70	0.438	11,13	B-57	M-571	1 390	1 770	1 040	8 300	0.08	2,0	0.3125	0.3120	0.4995	0.5005
5/16	7,94	½	12,70	0.562	14,27	B-59	—	1 850	2 550	1 500	8 300	—	—	0.3125	0.3120	0.4995	0.5005
5/16	7,94	9/16	14,29	0.438	11,13	BH-57	—	1 530	1 590	1 010	11 000	—	—	0.3125	0.3120	0.5620	0.5630
5/16	7,94	9/16	14,29	0.562	14,27	BH-59	—	2 080	2 340	1 510	11 000	—	—	0.3125	0.3120	0.5620	0.5630
0.31	8	0.47	12	0.315	8	—	—	—	—	—	—	—	—	0.3150	0.3146	0.4715	0.4722
0.31	8	0.47	12	0.394	10	—	—	—	—	—	—	—	—	0.3150	0.3146	0.4715	0.4722
0.35	9	0.51	13	0.394	10	—	—	—	—	—	—	—	—	0.3543	0.3539	0.5109	0.5116
0.35	9	0.51	13	0.472	12	—	—	—	—	—	—	—	—	0.3543	0.3539	0.5109	0.5116
⅜	9,52	9/16	14,29	0.312	7,92	B-65	M-651	984	1 180	676	7 100	0.08	2,0	0.3750	0.3745	0.5620	0.5630
⅜	9,52	9/16	14,29	0.375	9,52	B-66	M-661	1 280	1 650	944	7 100	0.08	2,0	0.3750	0.3745	0.5620	0.5630
⅜	9,52	9/16	14,29	0.438	11,13	B-67	—	1 550	2 120	1 220	7 100	—	—	0.3750	0.3745	0.5620	0.5630
⅜	9,52	9/16	14,29	0.500	12,70	B-68	M-681	1 810	2 590	1 480	7 100	0.08	2,0	0.3750	0.3745	0.5620	0.5630
⅜	9,52	9/16	14,29	0.562	14,27	B-69	—	2 070	3 070	1 750	7 100	—	—	0.3750	0.3745	0.5620	0.5630
⅜	9,52	9/16	14,29	0.625	15,88	B-610	M-6101	2 310	3 530	2 020	7 100	0.08	2,0	0.3750	0.3745	0.5620	0.5630
⅜	9,52	⅝	15,88	0.500	12,70	BH-68	—	2 050	2 380	1 460	9 400	—	—	0.3750	0.3745	0.6245	0.6255
0.39	10	0.55	14	0.394	10	—	—	—	—	—	—	—	—	0.3937	0.3933	0.5503	0.5510
0.39	10	0.55	14	0.472	12	—	—	—	—	—	—	—	—	0.3937	0.3933	0.5503	0.5510
0.39	10	0.55	14	0.591	15	—	—	—	—	—	—	—	—	0.3937	0.3933	0.5503	0.5510

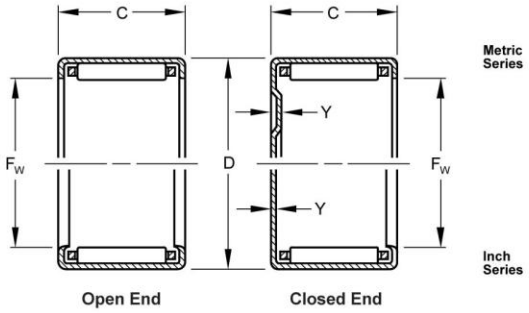
Load Ratings are based on a minimum raceway hardness of 58 HRC or equivalent.
Load ratings are given in pounds-force: 1 lbf = 0.454kgf = 4.448N
Required Basic Dynamic Load Rating (C_r) = Applied Load • SF • LF • HF (see page E75).



Caged Bearings

Check for availability.

Inch - metric conversions given are for the convenience of the user. The controlling dimensions are in inches for nominal inch bearings and in millimeters for nominal metric bearings.

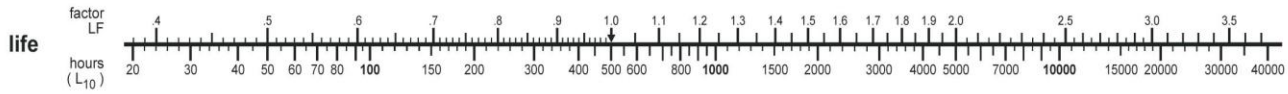


BEARING MOUNTING				CAGE RETAINED ROLLERS							
Metric Mounting						Load Ratings					
S Shaft Raceway Diameter		H Housing Bore		Bearing Designation		Basic Dynamic Cr	Basic Static Co	Working Load	Limiting Speed Caged Bearings	Y End Thickness	
millimeters		millimeters		open end	closed end	ISO 281	ISO 76	(max.)		(max.)	
max.	min.	min.	max.			lbf	lbf	lbf	rpm	inch	mm
3,000	2,992	6,481	6,496	HK-0306	—	327	257	86	13 000	—	—
3,175	3,167	6,350	6,363	JP-23-F	—	149	105	69	75 000	—	—
3,175	3,167	6,350	6,363	—	—	—	—	—	—	—	—
3,970	3,962	7,142	7,155	JP-2 ½ 3-F	—	152	110	69	75 000	—	—
3,970	3,962	7,142	7,155	—	—	—	—	—	—	—	—
3,970	3,962	7,142	7,155	—	—	—	—	—	—	—	—
4,000	3,992	7,981	7,996	HK-0408	—	384	310	103	75 000	—	—
4,762	4,754	8,717	8,730	—	—	—	—	—	—	—	—
4,762	4,754	8,717	8,730	J-36	MJ-361	352	336	202	75 000	0.04	1.0
5,000	4,992	8,981	8,996	HK-0509	—	515	466	155	74 000	—	—
6,000	5,992	9,981	9,996	HK-0608	—	479	438	146	60 000	—	—
6,000	5,992	9,981	9,996	HK-0609	BK-0609	679	641	214	60 000	0.06	1.6
—	—	—	—	—	—	—	—	—	—	—	—
6,350	6,337	11,100	11,125	J-45	MJ-451	397	331	203	57 000	0.04	1,0
6,350	6,337	11,100	11,125	J-47	MJ-471	648	617	379	57 000	0.04	1,0
7,000	6,991	10,977	10,995	HK-0709	—	660	686	229	50 000	—	—
7,938	7,925	12,687	12,712	J-55	—	431	383	226	44 000	—	—
7,938	7,925	12,687	12,712	—	—	—	—	—	—	—	—
7,938	7,925	12,687	12,712	J-57	MJ-571	767	805	474	44 000	0.04	1,0
7,938	7,925	12,687	12,712	—	—	—	—	—	—	—	—
7,938	7,925	14,275	14,300	JH-57	MJH-571	954	849	543	47 000	0.04	1,0
7,938	7,925	14,275	14,300	—	—	—	—	—	—	—	—
8,000	7,991	11,977	11,995	HK-0808	BK-0808	593	615	205	43 000	0.06	1,6
8,000	7,991	11,977	11,995	HK-0810	BK-0810	808	915	305	43 000	0.06	1,6
9,000	8,991	12,977	12,995	HK-0910	—	936	1 140	380	38 000	—	—
9,000	8,991	12,977	12,995	HK-0912	BK-0912	1 164	1 500	500	38 000	0.06	1,6
9,525	9,512	14,275	14,300	J-65	MJ-651	491	474	271	36 000	0.04	1,0
—	—	—	—	—	—	—	—	—	—	—	—
9,525	9,512	14,275	14,300	—	—	—	—	—	—	—	—
9,525	9,512	14,275	14,300	J-68	—	1 030	1 240	707	36 000	—	—
9,525	9,512	14,275	14,300	—	—	—	—	—	—	—	—
9,525	9,512	14,275	14,300	—	—	—	—	—	—	—	—
9,525	9,512	15,862	15,887	JH-68	—	1 350	1 370	843	38 000	—	—
10,000	9,991	13,977	13,995	HK-1010	—	982	1 240	413	34 000	—	—
10,000	9,991	13,977	13,995	HK-1012	—	1 210	1 630	543	34 000	—	—
10,000	9,991	13,977	13,995	HK-1015	—	1 530	2 210	737	34 000	—	—

Mounting dimensions are based on the inner ring rotating and the outer ring being stationary relative to the load. The housing should be of high strength material. See pages E77-78 for discussion of shaft and housing design.

Drawn cup bearings of nominal inch and metric dimensions with one closed end, which are not tabulated, may be made available upon request.

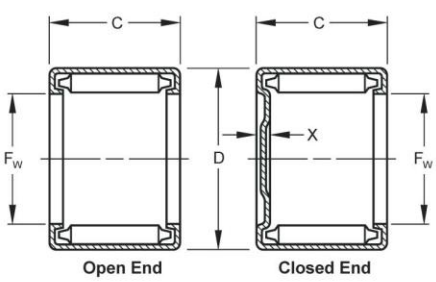
Caged drawn cup bearings of nominal inch and metric dimensions, with an engineered polymer cage, may be made available upon request.

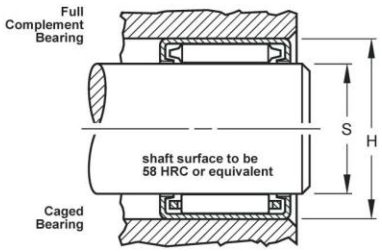


Full Complement Bearings

Check for availability.

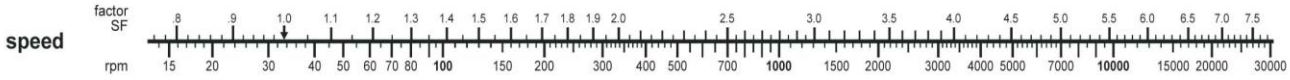
Inch-metric conversions given are for the convenience of the user. The controlling dimensions are in inches for nominal inch bearings and in millimeters for nominal metric bearings.





BEARING DIMENSIONS						MECHANICALLY RETAINED ROLLERS							BEARING MOUNTING			
								Load Ratings					Inch Mounting			
F_w Bore		D Outside Diameter		C Width		Bearing Designation		Basic Dynamic C_r	Basic Static C_o	Working Load	Limiting Speed Full Complement Bearings	X End Thickness		S Shaft Raceway Diameter		H Housing Bore	
(nom.)		(nom.)		+0.000 -0.010	+0,00 -0,25	open end	closed end	ISO 281	ISO 76	(max.)		(max.)		inches		inches	
inch	mm	inch	mm	inch	mm			lbf	lbf	lbf	rpm	inch	mm	max.	min.	min.	max.
7/16	11,11	5/8	15,88	0.375	9,52	B-76	—	1 390	1 930	1 080	6 300	—	—	0.4375	0.4370	0.6245	0.6255
7/16	11,11	5/8	15,88	0.438	11,13	B-77	—	1 700	2 480	1 390	6 300	—	—	0.4375	0.4370	0.6245	0.6255
7/16	11,11	5/8	15,88	0.500	12,70	B-78	M-781	1 980	3 030	1 690	6 300	0.08	2,0	0.4375	0.4370	0.6245	0.6255
7/16	11,11	5/8	15,88	0.625	15,88	B-710	—	2 520	4 130	2 310	6 300	—	—	0.4375	0.4370	0.6245	0.6255
7/16	11,11	11/16	17,46	0.500	12,70	BH-78	—	2 260	2 780	1 660	8 300	—	—	0.4375	0.4370	0.6870	0.6880
0.47	12	0.63	16	0.394	10	—	—	—	—	—	—	—	—	0.4724	0.4720	0.6290	0.6297
0.47	12	0.71	18	0.472	12	—	—	—	—	—	—	—	—	0.4724	0.4720	0.7078	0.7085
1/2	12,70	11/16	17,46	0.312	7,92	B-85	—	1 160	1 580	870	5 500	—	—	0.5000	0.4995	0.6870	0.6880
1/2	12,70	11/16	17,46	0.375	9,52	B-86	M-861	1 500	2 200	1 210	5 500	0.08	2,0	0.5000	0.4995	0.6870	0.6880
1/2	12,70	11/16	17,46	0.438	11,13	B-87	M-871	1 830	2 840	1 560	5 500	0.08	2,0	0.5000	0.4995	0.6870	0.6880
1/2	12,70	11/16	17,46	0.500	12,70	B-88	M-881	2 130	3 460	1 910	5 500	0.08	2,0	0.5000	0.4995	0.6870	0.6880
1/2	12,70	11/16	17,46	0.625	15,88	B-810	M-8101	2 720	4 720	2 600	5 500	0.08	2,0	0.5000	0.4995	0.6870	0.6880
1/2	12,70	11/16	17,46	0.750	19,05	B-812	M-8121	3 260	5 980	3 290	5 500	0.08	2,0	0.5000	0.4995	0.6870	0.6880
1/2	12,70	3/4	19,05	0.438	11,13	BH-87	—	2 060	2 550	1 490	7 500	—	—	0.5000	0.4995	0.7495	0.7505
1/2	12,70	3/4	19,05	0.500	12,70	BH-88	—	2 450	3 180	1 850	7 500	—	—	0.5000	0.4995	0.7495	0.7505
1/2	12,70	3/4	19,05	0.625	15,88	BH-810	—	3 180	4 440	2 590	7 500	—	—	0.5000	0.4995	0.7495	0.7505
1/2	12,70	3/4	19,05	0.750	19,05	BH-812	—	3 850	5 690	3 290	7 500	—	—	0.5000	0.4995	0.7495	0.7505
0.51	13	0.75	19	0.472	12	—	—	—	—	—	—	—	—	0.5118	0.5114	0.7469	0.7477
0.55	14	0.79	20	0.472	12	—	—	—	—	—	—	—	—	0.5512	0.5508	0.7863	0.7871
9/16	14,29	3/4	19,05	0.312	7,92	B-95	M-951	1 240	1 780	966	5 000	0.08	2,0	0.5625	0.5620	0.7495	0.7505
9/16	14,29	3/4	19,05	0.375	9,52	B-96	—	1 600	2 480	1 350	5 000	—	—	0.5625	0.5620	0.7495	0.7505
9/16	14,29	3/4	19,05	0.438	11,13	B-97	—	1 950	3 190	1 740	5 000	—	—	0.5625	0.5620	0.7495	0.7505
9/16	14,29	3/4	19,05	0.500	12,70	B-98	—	2 280	3 900	2 120	5 000	—	—	0.5625	0.5620	0.7495	0.7505
9/16	14,29	3/4	19,05	0.625	15,88	B-910	—	2 900	5 310	2 890	5 000	—	—	0.5625	0.5620	0.7495	0.7505
9/16	14,29	3/4	19,05	0.750	19,05	B-912	M-9121	3 480	6 730	3 660	5 000	0.08	2,0	0.5625	0.5620	0.7495	0.7505
9/16	14,29	13/16	20,64	0.500	12,70	BH-98	—	2 630	3 580	2 050	6 800	—	—	0.5625	0.5620	0.8120	0.8130
9/16	14,29	13/16	20,64	0.625	15,88	BH-910	—	3 400	5 000	2 860	6 800	—	—	0.5625	0.5620	0.8120	0.8130
9/16	14,29	13/16	20,64	0.750	19,05	BH-912	—	4 130	6 410	3 670	6 800	—	—	0.5625	0.5620	0.8120	0.8130
0.59	15	0.83	21	0.472	12	—	—	—	—	—	—	—	—	0.5906	0.5902	0.8257	0.8265
0.59	15	0.83	21	0.630	16	—	—	—	—	—	—	—	—	0.5906	0.5902	0.8257	0.8265
5/8	15,88	13/16	20,64	0.312	7,92	B-105	—	1 310	1 980	1 060	4 500	—	—	0.6250	0.6245	0.8120	0.8130
5/8	15,88	13/16	20,64	0.438	11,13	B-107	M-1071	2 070	3 550	1 910	4 500	0.08	2,0	0.6250	0.6245	0.8120	0.8130
5/8	15,88	13/16	20,64	0.500	12,70	B-108	M-1081	2 410	4 330	2 330	4 500	0.08	2,0	0.6250	0.6245	0.8120	0.8130
5/8	15,88	13/16	20,64	0.625	15,88	B-1010	—	3 070	5 900	3 180	4 500	—	—	0.6250	0.6245	0.8120	0.8130
5/8	15,88	13/16	20,64	0.750	19,05	B-1012	M-10121	3 690	7 480	4 020	4 500	0.08	2,0	0.6250	0.6245	0.8120	0.8130

Load ratings are based on a minimum raceway hardness of 58 HRC or equivalent.
Load ratings are given in pounds-force: 1 lbf = 0.454kgf = 4.448N
Required Basic Dynamic Load Rating (C_r) = Applied Load • SF • LF • HF (see page E75).



Caged Bearings

Check for availability.

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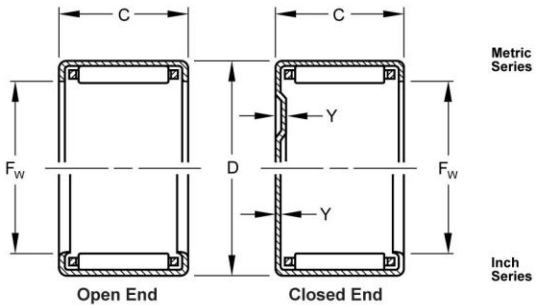
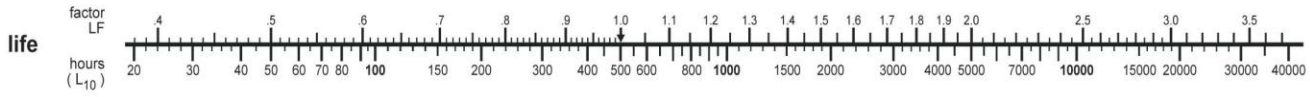


BEARING MOUNTING				CAGE RETAINED ROLLERS							
Metric Mounting						Load Ratings					
S Shaft Raceway Diameter		H Housing Bore		Bearing Designation		Basic Dynamic C_r	Basic Static C_o	Working Load	Limiting Speed Caged Bearings	Y End Thickness	
millimeters		millimeters		open end	closed end	ISO 281	ISO 76	(max.)		(max.)	
max.	min.	min.	max.			lbf	lbf	lbf	rpm	inch	mm
11,112	11,099	15,862	15,887	—	—	—	—	—	—	—	—
11,112	11,099	15,862	15,887	—	—	—	—	—	—	—	—
11,112	11,099	15,862	15,887	J-78	MJ-781	1 210	1 580	883	30 000	0.04	1,0
11,112	11,099	15,862	15,887	—	—	—	—	—	—	—	—
11,112	11,099	17,450	17,475	JH-78	—	1 450	1 510	928	38 000	—	—
12,000	11,989	15,977	15,995	HK-1210	BK-1210	1110	1 370	460	28 000	0.06	1,6
12,000	11,989	17,977	17,995	HK-1212	BK-1212	1 350	1 640	547	28 000	0.11	2,7
12,700	12,687	17,450	17,475	J-85	MJ-851	621	697	384	26 000	0.04	1,0
12,700	12,687	17,450	17,475	J-86	MJ-861	906	1130	598	26 000	0.04	1,0
12,700	12,687	17,450	17,475	—	—	—	—	—	—	—	—
12,700	12,687	17,450	17,475	J-88	MJ-881	1 250	1 710	942	26 000	0.04	1,0
12,700	12,687	17,450	17,475	—	—	—	—	—	—	—	—
12,700	12,687	17,450	17,475	J-812	—	2 060	3 240	1 790	26 000	—	—
12,700	12,687	19,037	19,062	JH-87	—	1 310	1 400	816	27 000	—	—
12,700	12,687	19,037	19,062	JH-88	MJH-881	1 590	1 800	1 050	27 000	0.04	1,0
12,700	12,687	19,037	19,062	—	—	—	—	—	—	—	—
12,700	12,687	19,037	19,062	JH-812	—	2 530	3 250	1 900	27 000	—	—
13,000	12,989	18,972	18,993	HK-1312	BK-1312	1 410	1 770	590	26 000	0.11	2,7
14,000	13,989	19,972	19,993	HK-1412	—	1 470	1 910	640	24 000	—	—
14,288	14,275	19,037	19,062	—	—	—	—	—	—	—	—
14,288	14,275	19,037	19,062	—	—	—	—	—	—	—	—
14,288	14,275	19,037	19,062	J-97	—	1 040	1 400	758	23 000	—	—
14,288	14,275	19,037	19,062	J-98	—	1 230	1 730	942	23 000	—	—
14,288	14,275	19,037	19,062	J-910	—	1 630	2 490	1 350	23 000	—	—
14,288	14,275	19,037	19,062	—	—	—	—	—	—	—	—
14,288	14,275	20,625	20,650	—	—	—	—	—	—	—	—
14,288	14,275	20,625	20,650	—	—	—	—	—	—	—	—
14,288	14,275	20,625	20,650	—	—	—	—	—	—	—	—
15,000	14,989	20,972	20,993	HK-1512	BK-1512	1 530	2 050	680	22 000	0.11	2,7
15,000	14,989	20,972	20,993	HK-1516	BK-1516	2 180	3 230	1 080	22 000	0.11	2,7
15,875	15,862	20,625	20,650	—	—	—	—	—	—	—	—
15,875	15,862	20,625	20,650	—	—	—	—	—	—	—	—
15,875	15,862	20,625	20,650	J-108	—	1 330	1 970	1 060	21 000	—	—
15,875	15,862	20,625	20,650	J-1010	MJ-10101	1 760	2 830	1 520	21 000	0.04	1,0
15,875	15,862	20,625	20,650	J-1012	MJ-10121	2 540	4 570	2 460	21 000	0.04	1,0

Mounting dimensions are based on the inner ring rotating and the outer ring being stationary relative to the load. The housing should be of high strength material. See pages E77-78 for discussion of shaft and housing design.

Drawn cup bearings of nominal inch and metric dimensions with one closed end, which are not tabulated, may be made available upon request.

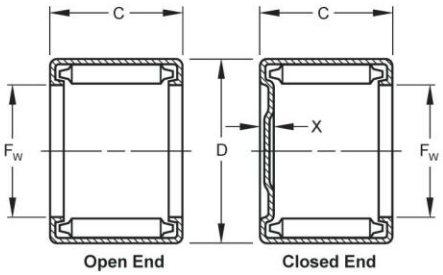
Caged drawn cup bearings of nominal inch and metric dimensions, with an engineered polymer cage, may be made available upon request.

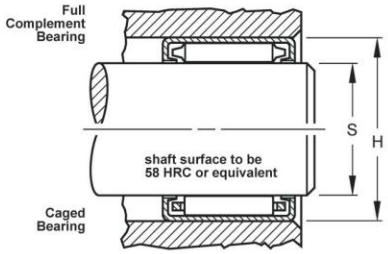


Full Complement Bearings

Check for availability.

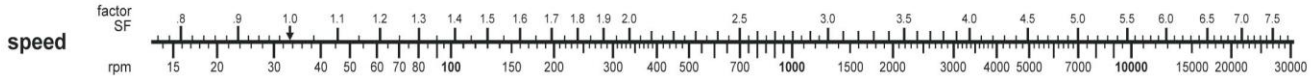
Inch-metric conversions given are for the convenience of the user. The controlling dimensions are in inches for nominal inch bearings and in millimeters for nominal metric bearings.





BEARING DIMENSIONS						MECHANICALLY RETAINED ROLLERS								BEARING MOUNTING			
								Load Ratings						Inch Mounting			
F_w Bore		D Outside Diameter		C Width		Bearing Designation		Basic Dynamic C_r	Basic Static C_o	Working Load	Limiting Speed Full Comple-ment Bearings	X End Thickness		S Shaft Raceway Diameter		H Housing Bore	
(nom.)		(nom.)		+0.000 -0.010	+0,00 -0,25	open end	closed end	ISO 281	ISO 76	(max.)		(max.)		inches		inches	
inch	mm	inch	mm	inch	mm			lbf	lbf	lbf	rpm	inch	mm	max.	min.	min.	max.
5/8	15,88	7/8	22,22	0.500	12,70	BH-108	MH-1081	2 790	3 980	2 240	6 200	0.09	2,3	0.6250	0.6245	0.8745	0.8755
5/8	15,88	7/8	22,22	0.625	15,88	BH-1010	—	3 620	5 530	3 130	6 200	—	—	0.6250	0.6245	0.8745	0.8755
5/8	15,88	7/8	22,22	0.750	19,05	BH-1012	—	4 390	7 130	4 010	6 200	—	—	0.6250	0.6245	0.8745	0.8755
5/8	15,88	7/8	22,22	1.000	25,40	BH-1016	—	5 830	10 300	5 780	6 200	—	—	0.6250	0.6245	0.8745	0.8755
0.63	16	0.87	22	0.472	12	—	—	—	—	—	—	—	—	0.6299	0.6295	0.8650	0.8658
0.63	16	0.87	22	0.630	16	—	—	—	—	—	—	—	—	0.6299	0.6295	0.8650	0.8658
0.67	17	0.91	23	0.472	12	—	—	—	—	—	—	—	—	0.6693	0.6689	0.9044	0.9052
11/16	17,46	7/8	22,22	0.375	9,52	B-116	—	1 790	3 030	1 620	4 200	—	—	0.6875	0.6870	0.8745	0.8755
11/16	17,46	7/8	22,22	0.500	12,70	B-118	—	2 540	4 770	2 540	4 200	—	—	0.6875	0.6870	0.8745	0.8755
11/16	17,46	7/8	22,22	0.625	15,88	B-1110	M-11101	3 230	6 500	3 460	4 200	0.08	2,0	0.6875	0.6870	0.8745	0.8755
11/16	17,46	7/8	22,22	0.750	19,05	B-1112	M-11121	3 880	8 230	4 390	4 200	0.08	2,0	0.6875	0.6870	0.8745	0.8755
11/16	17,46	15/16	23,81	0.438	11,13	BH-117	—	2 480	3 510	1 950	5 700	—	—	0.6875	0.6870	0.9370	0.9380
11/16	17,46	15/16	23,81	0.625	15,88	BH-1110	MH-11101	3 820	6 110	3 400	5 700	0.09	2,3	0.6875	0.6870	0.9370	0.9380
11/16	17,46	15/16	23,81	0.750	19,05	BH-1112	—	4 640	7 840	4 360	5 700	—	—	0.6875	0.6870	0.9370	0.9380
0.71	18	0.94	24	0.472	12	—	—	—	—	—	—	—	—	0.7087	0.7083	0.9438	0.9446
0.71	18	0.94	24	0.630	16	—	—	—	—	—	—	—	—	0.7087	0.7083	0.9438	0.9446
3/4	19,05	1	25,40	0.375	9,52	B-126	—	2 100	2 900	1 600	5 500	—	—	0.7500	0.7495	0.9995	1.0005
3/4	19,05	1	25,40	0.500	12,70	B-128	M-1281	3 100	4 790	2 630	5 500	0.09	2,3	0.7500	0.7495	0.9995	1.0005
3/4	19,05	1	25,40	0.625	15,88	B-1210	M-12101	4 010	6670	3 670	5 500	0.09	2,3	0.7500	0.7495	0.9995	1.0005
3/4	19,05	1	25,40	0.750	19,05	B-1212	M-12121	4 870	8 560	4 710	5 500	0.09	2,3	0.7500	0.7495	0.9995	1.0005
0.79	20	1.02	26	0.472	12	—	—	—	—	—	—	—	—	0.7874	0.7869	1.0225	1.0233
0.79	20	1.02	26	0.630	16	—	—	—	—	—	—	—	—	0.7874	0.7869	1.0225	1.0233
0.79	20	1.02	26	0.787	20	—	—	—	—	—	—	—	—	0.7874	0.7869	1.0225	1.0233
13/16	20,64	1 1/16	26,99	0.375	9,52	B-136	—	2 190	3 140	1 710	5 200	—	—	0.8125	0.8120	1.0620	1.0630
13/16	20,64	1 1/16	26,99	0.500	12,70	B-138	M-1381	3 240	5 190	2 830	5 200	0.09	2,3	0.8125	0.8120	1.0620	1.0630
13/16	20,64	1 1/16	26,99	0.875	22,22	B-1314	—	5 940	11 300	6 180	5 200	—	—	0.8125	0.8120	1.0620	1.0630
13/16	20,64	1 1/16	26,99	1.000	25,40	B-1316	M-13161	6 760	13 400	7 290	5 200	0.09	2,3	0.8125	0.8120	1.0620	1.0630
13/16	20,64	1 1/8	28,58	0.625	15,88	BH-1310	—	4 320	6 510	3 640	6 200	—	—	0.8125	0.8120	1.1245	1.1255
13/16	20,64	1 1/8	28,58	0.750	19,05	BH-1312	—	5 340	8 550	4 790	6 200	—	—	0.8125	0.8120	1.1245	1.1255
0.87	22	1.1	28	0.472	12	—	—	—	—	—	—	—	—	0.8661	0.8656	1.1013	1.1021
0.87	22	1.1	28	0.630	16	—	—	—	—	—	—	—	—	0.8661	0.8656	1.1013	1.1021
0.87	22	1.1	28	0.787	20	—	—	—	—	—	—	—	—	0.8661	0.8656	1.1013	1.1021

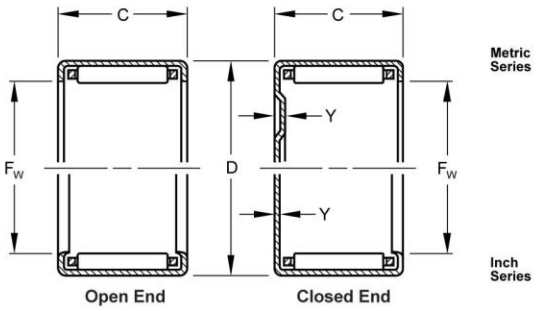
Load Ratings are based on a minimum raceway hardness of 58 HRC or equivalent.
Load ratings are given in pounds-force: 1 lbf = 0.454kgf = 4.448N
Required Basic Dynamic Load Rating (Cr) = Applied Load • SF • LF • HF (see page E75).



Caged Bearings

Check for availability.

Inch-metric conversions given are for the convenience of the user. The controlling dimensions are in inches for nominal inch bearings and in millimeters for nominal metric bearings.

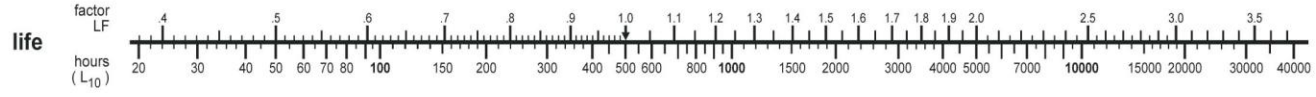


BEARING MOUNTING				CAGE RETAINED ROLLERS							
Metric Mounting						Load Ratings					
S Shaft Raceway Diameter		H Housing Bore		Bearing Designation		Basic Dynamic C_r	Basic Static C_o	Working Load	Limiting Speed Caged Bearings	Y End Thickness	
millimeters		millimeters		open end	closed end	ISO 281	ISO 76	(max.)		(max.)	
max.	min.	min.	max.			lbf	lbf	lbf	rpm	inch	mm
15,875	15,862	22,212	22,237	—	—	—	—	—	—	—	—
15,875	15,862	22,212	22,237	JH-1010	—	2 370	3 180	1 790	21 000	—	—
15,875	15,862	22,212	22,237	—	—	—	—	—	—	—	—
15,875	15,862	22,212	22,237	JH-1016	—	4 050	6 330	3 560	21 000	—	—
16,000	15,989	21,972	21,993	HK-1612	—	1 590	2 180	730	21 000	—	—
16,000	15,989	21,972	21,993	HK-1616	—	2 260	3 450	1 150	21 000	—	—
17,000	16,989	22,972	22,993	HK-1712	—	1 660	2 350	780	20 000	—	—
17,462	17,449	22,212	22,237	—	—	—	—	—	—	—	—
17,462	17,449	22,212	22,237	—	—	—	—	—	—	—	—
17,462	17,449	22,212	22,237	—	—	—	—	—	—	—	—
17,462	17,449	22,212	22,237	J-1112	—	2 500	4 610	2 460	19 000	—	—
17,462	17,449	23,800	23,825	—	—	—	—	—	—	—	—
17,462	17,449	23,800	23,825	JH-1110	—	2 470	3 430	1 910	19 000	—	—
17,462	17,449	23,800	23,825	JH-1112	—	3 300	5 000	2 780	19 000	—	—
18,000	17,989	23,972	23,993	HK-1812	—	1 720	2 500	830	18 000	—	—
18,000	17,989	23,972	23,993	HK-1816	—	2 620	4 290	1 430	18 000	—	—
19,050	19,037	25,387	25,412	J-126	—	1 340	1 600	879	18 000	—	—
19,050	19,037	25,387	25,412	J-128	—	2 040	2 760	1 520	18 000	—	—
19,050	19,037	25,387	25,412	J-1210	MJ-12101	2 560	3 690	2 030	18 000	0.04	1,0
19,050	19,037	25,387	25,412	J-1212	MJ-12121	3 180	4 880	2 680	18 000	0.04	1,0
20,000	19,987	25,972	25,993	HK-2012	—	1 830	2 810	940	16 000	—	—
20,000	19,987	25,972	25,993	HK-2016	—	2 530	4 240	1 410	16 000	—	—
20,000	19,987	25,972	25,993	HK-2020	—	3 170	5 680	1 890	16 000	—	—
20,638	20,625	26,975	27,000	—	—	—	—	—	—	—	—
20,638	20,625	26,975	27,000	—	—	—	—	—	—	—	—
20,638	20,625	26,975	27,000	—	—	—	—	—	—	—	—
20,638	20,625	26,975	27,000	—	—	—	—	—	—	—	—
20,638	20,625	28,562	28,587	—	—	—	—	—	—	—	—
20,638	20,625	28,562	28,587	JH-1312	—	3 810	5 460	3 060	16 000	—	—
22,000	21,987	27,972	27,993	HK-2212	—	2 010	3 250	1 080	15 000	—	—
22,000	21,987	27,972	27,993	HK-2216	—	2 680	4 710	1 570	15 000	—	—
22,000	21,987	27,972	22,993	HK-2220	—	3 130	5 730	1 910	15 000	—	—

Mounting dimensions are based on the inner ring rotating and the outer ring being stationary relative to the load. The housing should be of high strength material. See pages E77-78 for discussion of shaft and housing design.

Drawn cup bearings of nominal inch and metric dimensions with one closed end, which are not tabulated, may be made available upon request.

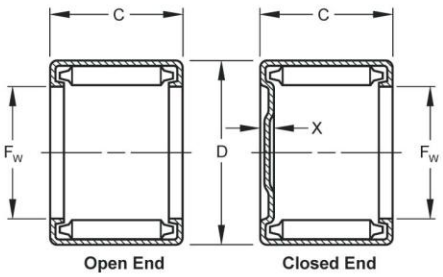
Caged drawn cup bearings of nominal inch and metric dimensions, with engineered polymer cage, may be made available upon request.

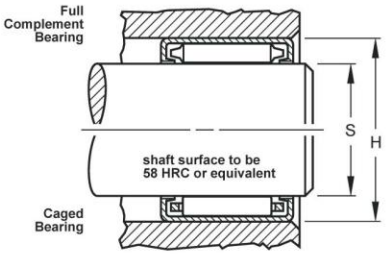


Full Complement Bearings

Check for availability.

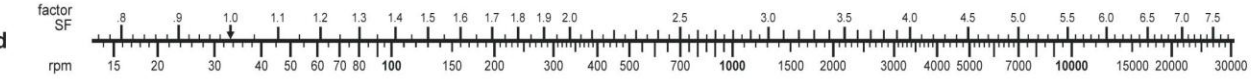
Inch-metric conversions given are for the convenience of the user. The controlling dimensions are in inches for nominal inch bearings and in millimeters for nominal metric bearings.





BEARING DIMENSIONS						MECHANICALLY RETAINED ROLLERS							BEARING MOUNTING			
								Load Ratings					Inch Mounting			
F_w Bore		D Outside Diameter		C Width		Bearing Designation		Basic Dynamic C_r	Basic Static C_o	Working Load	Limiting Speed Full Complement Bearings	X End Thickness	S Shaft Raceway Diameter		H Housing Bore	
(nom.)		(nom.)		+0.000 -0.010	+0,00 -0,25	open end	closed end	ISO 281	ISO 76	(max.)		(max.)	inches		inches	
inch	mm	inch	mm	inch	mm			lbf	lbf	lbf	rpm	inch mm	max.	min.	min.	max.
⅞	22,22	1 ⅛	28,58	0.375	9,52	B-146	—	2 280	3 380	1 830	4 800	— —	0.8750	0.8745	1.1245	1.1255
⅞	22,22	1 ⅛	28,58	0.500	12,70	B-148	—	3 370	5 590	3 030	4 800	— —	0.8750	0.8745	1.1245	1.1255
⅞	22,22	1 ⅛	28,58	0.750	19,05	B-1412	M-14121	5 300	9 990	5 410	4 800	0.09 2,3	0.8750	0.8745	1.1245	1.1255
⅞	22,22	1 ⅛	28,58	1.000	25,40	B-1416	M-14161	7 040	14 400	7 800	4 800	0.09 2,3	0.8750	0.8745	1.1245	1.1255
⅞	22,22	1 ⅛	28,58	1.125	28,58	B-1418	—	7 860	16 600	8 990	4 800	— —	0.8750	0.8745	1.1245	1.1255
⅞	22,22	1 3/16	30,16	0.625	15,88	BH-1410	—	4 470	7 030	3 890	5 880	— —	0.8750	0.8745	1.1870	1.1880
⅞	22,22	1 3/16	30,16	0.750	19,05	BH-1412	—	5 530	9 230	5 110	5 880	— —	0.8750	0.8745	1.1870	1.1880
⅞	22,22	1 3/16	30,16	1.000	25,40	BH-1416	—	7 480	13 600	7 550	5 880	— —	0.8750	0.8745	1.1870	1.1880
15/16	23,81	1 3/16	30,16	0.500	12,70	B-158	—	3 500	5 990	3 220	4 500	— —	0.9375	0.9370	1.1870	1.1880
15/16	23,81	1 3/16	30,16	1.000	25,40	B-1516	M-15161	7 300	15 400	8 300	4 500	0.09 2,3	0.9375	0.9370	1.1870	1.1880
0.98	25	1.26	32	0.472	12	—	—	—	—	—	—	— —	0.9843	0.9838	1.2585	1.2595
0.98	25	1.26	32	0.630	16	—	—	—	—	—	—	— —	0.9843	0.9838	1.2585	1.2595
0.98	25	1.26	32	0.787	20	—	—	—	—	—	—	— —	0.9843	0.9838	1.2585	1.2595
0.98	25	1.26	32	1.024	26	—	—	—	—	—	—	— —	0.9842	0.9837	1.2585	1.2595
1	25,40	1 ¼	31,75	0.375	9,52	B-166	—	2 450	3 870	2 070	4 300	— —	1.0000	0.9995	1.2495	1.2505
1	25,40	1 ¼	31,75	0.438	11,13	B-167	—	3 050	5 120	2 740	4 300	— —	1.0000	0.9995	1.2495	1.2505
1	25,40	1 ¼	31,75	0.500	12,70	B-168	—	3 620	6 390	3 420	4 300	— —	1.0000	0.9995	1.2495	1.2505
1	25,40	1 ¼	31,75	0.625	15,88	B-1610	—	4 690	8 910	4 760	4 300	— —	1.0000	0.9995	1.2495	1.2505
1	25,40	1 ¼	31,75	0.750	19,05	B-1612	M-16121	5 690	11 400	6 110	4 300	0.09 2,3	1.0000	0.9995	1.2495	1.2505
1	25,40	1 ¼	31,75	1.000	25,40	B-1616	M-16161	7 560	16 500	8 800	4 300	0.09 2,3	1.0000	0.9995	1.2495	1.2505
1	25,40	1 5/16	33,34	0.500	12,70	BH-168	MH-1681	3 600	5 500	3 000	5 200	0.11 2,8	1.0000	0.9995	1.3120	1.3130
1	25,40	1 5/16	33,34	0.625	15,88	BH-1610	—	4 830	8 020	4 370	5 200	— —	1.0000	0.9995	1.3120	1.3130
1	25,40	1 5/16	33,34	0.750	19,05	BH-1612	MH-16121	5 970	10 500	5 750	5 200	0.11 2,8	1.0000	0.9995	1.3120	1.3130
1	25,40	1 5/16	33,34	1.000	25,40	BH-1616	MH-16161	8 090	15 600	8 500	5 200	0.11 2,8	1.0000	0.9995	1.3120	1.3130
1	25,40	1 5/16	33,34	1.250	31,75	BH-1620	—	10 100	20 600	11 200	5 200	— —	1.0000	0.9995	1.3120	1.3130
1	25,40	1 5/16	33,34	1.500	38,10	BH-1624	—	11 900	25 600	14 000	5 200	— —	1.0000	0.9995	1.3120	1.3130
1 1/16	26,99	1 5/16	33,34	0.625	15,88	B-1710	—	4 840	9 470	5 030	4 000	— —	1.0625	1.0620	1.3120	1.3130
1.10	28	1.38	35	0.630	16	—	—	—	—	—	—	— —	1.1024	1.1019	1.3767	1.3777
1.10	28	1.38	35	0.787	20	—	—	—	—	—	—	— —	1.1024	1.1019	1.3767	1.3777
1 ⅛	28,58	1 ⅜	34,92	0.375	9,52	B-186	—	2 610	4 350	2 310	3 800	— —	1.1250	1.1245	1.3745	1.3755
1 ⅛	28,58	1 ⅜	34,92	0.500	12,70	B-188	—	3 850	7 190	3 810	3 800	— —	1.1250	1.1245	1.3745	1.3755
1 ⅛	28,58	1 ⅜	34,92	0.750	19,05	B-1812	—	6 060	12 900	6 810	3 800	— —	1.1250	1.1245	1.3745	1.3755
1 ⅛	28,58	1 ⅜	34,92	1.000	25,40	B-1816	M-18161	8 050	18 500	9 810	3 800	0.09 2,3	1.1250	1.1245	1.3745	1.3755
1 ⅛	28,58	1 ½	38,10	0.750	19,05	BH-1812	—	6 920	11 500	6 350	5 500	— —	1.1250	1.1245	1.4995	1.5005
1 ⅛	28,58	1 ½	38,10	1.000	25,40	BH-1816	—	9 420	17 100	9 430	5 500	— —	1.1250	1.1245	1.4995	1.5005
1 ⅛	28,58	1 ½	38,10	1.125	28,58	—	—	—	—	—	—	— —	1.1250	1.1245	1.4995	1.5005
1 ⅛	28,58	1 ½	38,10	1.250	31,75	BH-1820	—	11 800	22 900	12 600	5 500	— —	1.1250	1.1245	1.4995	1.5005

Load Ratings are based on a minimum raceway hardness of 58 HRC or equivalent.
Load ratings are given in pounds-force: 1 lbf = 0.454kgf = 4.448N
Required Basic Dynamic Load Rating (C_r) = Applied Load • SF • LF • HF (see page E75).



Caged Bearings

Check for availability.

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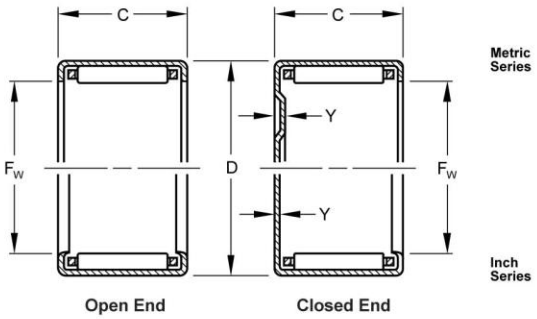
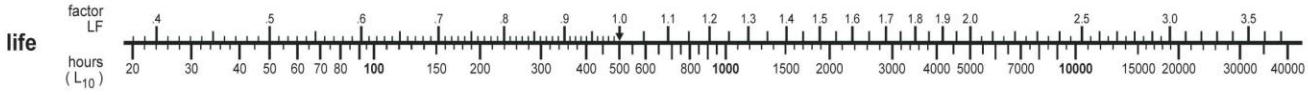


BEARING MOUNTING				CAGE RETAINED ROLLERS							
Metric Mounting						Load Ratings					
S Shaft Raceway Diameter		H Housing Bore		Bearing Designation		Basic Dynamic C_r	Basic Static C_o	Working Load	Limiting Speed Caged Bearings	Y End Thickness	
millimeters		millimeters		open end	closed end	ISO 281	ISO 76	(max.)		(max.)	
max.	min.	min.	max.			lbf	lbf	lbf	rpm	inch	mm
22,225	22,212	28,562	28,587	J-146	—	1 480	1 910	1 030	15 000	—	—
22,225	22,212	28,562	28,587	J-148	—	2 250	3 270	1 770	15 000	—	—
22,225	22,212	28,562	28,587	J-1412	MJ-14121	3 530	5 830	3 160	15 000	0.04	1,0
22,225	22,212	28,562	28,587	J-1416	MJ-14161	4 850	8 780	4 750	15 000	0.04	1,0
22,225	22,212	28,562	28,587	—	—	—	—	—	—	—	—
22,225	22,212	30,150	30,175	—	—	—	—	—	—	—	—
22,225	22,212	30,150	30,175	JH-1412	—	3 710	5 450	3 020	15 000	—	—
22,225	22,212	30,150	30,175	JH-1416	—	5 160	8 330	4 610	15 000	—	—
23,812	23,799	30,150	30,175	—	—	—	—	—	—	—	—
23,812	23,799	30,150	30,175	—	—	—	—	—	—	—	—
25,000	24,987	31,967	31,992	HK-2512	—	2 270	3 410	1 140	13 000	—	—
25,000	24,987	31,967	31,992	HK-2516	—	3 240	5 390	1 800	13 000	—	—
25,000	24,987	31,967	31,992	HK-2520	—	4 250	7 620	2 540	13 000	—	—
25,000	24,987	31,967	31,992	HK-2526	BK-2526	5 280	10 100	3 370	13 000	.11	2,7
25,400	25,387	31,737	31,762	—	—	—	—	—	—	—	—
25,400	25,387	31,737	31,762	—	—	—	—	—	—	—	—
25,400	25,387	31,737	31,762	—	—	—	—	—	—	—	—
25,400	25,387	31,737	31,762	—	—	—	—	—	—	—	—
25,400	25,387	31,737	31,762	J-1612	—	3 720	6 500	3 470	13 000	—	—
25,400	25,387	31,737	31,762	J-1616	—	5 110	9 780	5 230	13 000	—	—
25,400	25,387	33,325	33,350	—	—	—	—	—	—	—	—
25,400	25,387	33,325	33,350	—	—	—	—	—	—	—	—
25,400	25,387	33,325	33,350	JH-1612	MJH-16121	4 190	6 570	3 590	13 000	0.05	1,3
25,400	25,387	33,325	33,350	JH-1616	MJH-16161	5 610	9 570	5 220	13 000	0.05	1,3
25,400	25,387	33,325	33,350	—	—	—	—	—	—	—	—
25,400	25,387	33,325	33,350	—	—	—	—	—	—	—	—
26,988	26,975	33,325	33,350	—	—	—	—	—	—	—	—
28,000	27,987	34,967	34,992	HK-2816	—	3 300	5 690	1 900	12 000	—	—
28,000	27,987	34,967	34,992	HK-2820	—	4 310	8 040	2 680	12 000	—	—
28,575	28,562	34,912	34,937	—	—	—	—	—	—	—	—
28,575	28,562	34,912	34,937	J-188	—	2 460	3 960	2 100	11 000	—	—
28,575	28,562	34,912	34,937	J-1812	—	3 890	7 160	3 790	11 000	—	—
28,575	28,562	34,912	34,937	J-1816	—	5 350	10 800	5 700	11 000	—	—
28,575	28,562	38,087	38,112	JH-1812	—	4 810	7 120	3 920	12 000	—	—
28,575	28,562	38,087	38,112	JH-1816	MJH-18161	6 810	11 100	6 140	12 000	0.05	1,3
28,575	28,562	38,087	38,112	JH-1818	—	7 460	12 500	6 890	12 000	—	—
28,575	28,562	38,087	38,112	—	—	—	—	—	—	—	—

Mounting dimensions are based on the inner ring rotating and the outer ring being stationary relative to the load. The housing should be of high strength material. See pages E77-78 for discussion of shaft and housing design.

Drawn cup bearings of nominal inch and metric dimensions with one closed end, which are not tabulated, may be made available upon request.

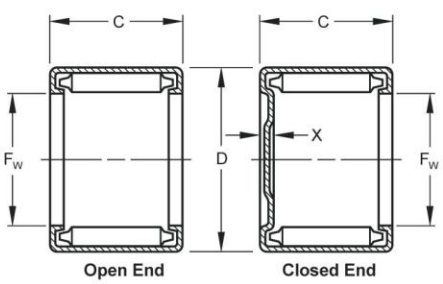
Caged drawn cup bearings of nominal inch and metric dimensions, with engineered polymer cage, may be made available upon request.

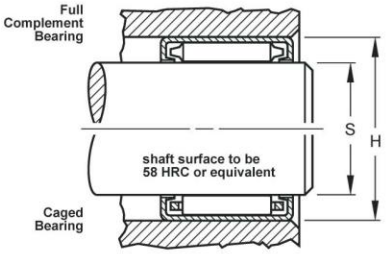


Full Complement Bearings

Check for availability.

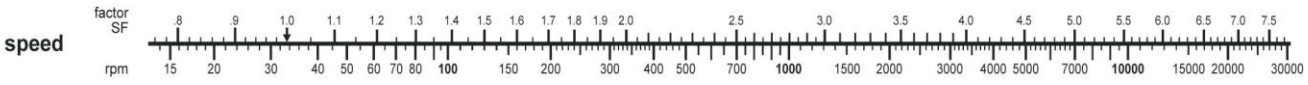
Inch-metric conversions given are for the convenience of the user. The controlling dimensions are in inches for nominal inch bearings and in millimeters for nominal metric bearings.





BEARING DIMENSIONS						MECHANICALLY RETAINED ROLLERS						BEARING MOUNTING			
								Load Ratings						Inch Mounting	
F_w Bore		D Outside Diameter		C Width		Bearing Designation		Basic Dynamic C_r	Basic Static C_o	Working Load	Limiting Speed Full Comple-ment Bearings	X End Thickness		S Shaft Raceway Diameter	H Housing Bore
(nom.)		(nom.)		+0.000 -0.010	+0,00 -0,25	open end	closed end	ISO 281	ISO 76	(max.)		(max.)		inches	inches
inch	mm	inch	mm	inch	mm			lbf	lbf	lbf	rpm	inch	mm	max. min.	min. max.
1.18	30	1.46	37	0.472	12	—	—	—	—	—	—	—	—	1.1811 1.1806	1.4554 1.4564
1.18	30	1.46	37	0.787	20	—	—	—	—	—	—	—	—	1.1811 1.1806	1.4554 1.4564
1.18	30	1.46	37	1.024	26	—	—	—	—	—	—	—	—	1.1811 1.1806	1.4554 1.4564
1 3/16	30,16	1 1/2	38,10	1.000	25,40	B-1916	—	8 860	18 500	9 920	4 400	—	—	1.1875 1.1870	1.4995 1.5005
1 1/4	31,75	1 1/2	38,10	0.500	12,70	B-208	—	4 080	7 990	4 200	3 500	—	—	1.2500 1.2495	1.4995 1.5005
1 1/4	31,75	1 1/2	38,10	0.625	15,88	B-2010	—	5 280	11 100	5 850	3 500	—	—	1.2500 1.2495	1.4995 1.5005
1 1/4	31,75	1 1/2	38,10	0.750	19,05	B-2012	—	6 410	14 300	7 510	3 500	—	—	1.2500 1.2495	1.4995 1.5005
1 1/4	31,75	1 1/2	38,10	1.000	25,40	B-2016	M-20161	8 510	20 600	10 800	3 500	0.09	2,3	1.2500 1.2495	1.4995 1.5005
1 1/4	31,75	1 1/2	38,10	1.250	31,75	B-2020	M-20201	10 500	26 900	14 100	3 500	0.09	2,3	1.2500 1.2495	1.4995 1.5005
1 1/4	31,75	1 5/8	41,28	0.500	12,70	BH-208	—	4 200	6 320	3 440	5 000	—	—	1.2500 1.2495	1.6245 1.6255
1 1/4	31,75	1 5/8	41,28	0.750	19,05	BH-2012	—	7 250	12 700	6 930	5 000	—	—	1.2500 1.2495	1.6245 1.6255
1 1/4	31,75	1 5/8	41,28	1.000	25,40	BH-2016	MH-20161	9 910	19 000	10 400	5 000	0.12	3,0	1.2500 1.2495	1.6245 1.6255
1 1/4	31,75	1 5/8	41,28	1.250	31,75	BH-2020	MH-20201	12 400	25 400	13 800	5 000	0.12	3,0	1.2500 1.2495	1.6245 1.6255
1 5/16	33,34	1 5/8	41,28	0.500	12,70	B-218	—	4 180	7 220	3 840	4 000	—	—	1.3125 1.3120	1.6245 1.6255
1 5/16	33,34	1 5/8	41,28	0.625	15,88	B-2110	—	5 600	10 500	5 600	4 000	—	—	1.3125 1.3120	1.6245 1.6255
1 5/16	33,34	1 5/8	41,28	1.250	31,75	B-2120	—	11 700	27 200	14 500	4 000	—	—	1.3125 1.3120	1.6245 1.6255
1 3/8	34,92	1 5/8	41,28	0.500	12,70	B-228	—	4 280	8 790	4 590	3 200	—	—	1.3750 1.3745	1.6245 1.6255
1 3/8	34,92	1 5/8	41,28	0.750	19,05	B-2212	—	6 730	15 700	8 200	3 200	—	—	1.3750 1.3745	1.6245 1.6255
1 3/8	34,92	1 5/8	41,28	1.000	25,40	B-2216	—	8 950	22 700	11 800	3 200	—	—	1.3750 1.3745	1.6245 1.6255
1 3/8	34,92	1 5/8	41,28	1.250	31,75	B-2220	—	11 000	29 600	15 400	3 200	—	—	1.3750 1.3745	1.6245 1.6255
1 3/8	34,92	1 3/4	44,45	0.625	15,88	BH-2210	—	6 240	10 600	5 740	4 700	—	—	1.3750 1.3745	1.7495 1.7505
1 3/8	34,92	1 3/4	44,45	0.750	19,05	BH-2212	—	7 770	14 100	7 610	4 700	—	—	1.3750 1.3745	1.7495 1.7505
1 3/8	34,92	1 3/4	44,45	1.000	25,40	BH-2216	—	10 600	20 900	11 300	4 700	—	—	1.3750 1.3745	1.7495 1.7505
1 3/8	34,92	1 3/4	44,45	1.250	31,75	BH-2220	—	13 200	28 000	15 100	4 700	—	—	1.3750 1.3745	1.7495 1.7505
1.38	35	1.65	42	0.472	12	—	—	—	—	—	—	—	—	1.3779 1.3774	1.6522 1.6532
1.38	35	1.65	42	0.630	16	—	—	—	—	—	—	—	—	1.3780 1.3774	1.6522 1.6532
1.38	35	1.65	42	0.787	20	—	—	—	—	—	—	—	—	1.3780 1.3774	1.6522 1.6532
1 1/2	38,10	1 7/8	47,62	0.500	12,70	B-248	—	4 780	7 830	4 190	4 300	—	—	1.5000 1.4995	1.8745 1.8755
1 1/2	38,10	1 7/8	47,62	0.625	15,88	B-2410	—	6 500	11 600	6 200	4 300	—	—	1.5000 1.4995	1.8745 1.8755
1 1/2	38,10	1 7/8	47,62	0.750	19,05	B-2412	—	8 090	15 400	8 220	4 300	—	—	1.5000 1.4995	1.8745 1.8755
1 1/2	38,10	1 7/8	47,62	0.875	22,22	B-2414	—	9 590	19 200	10 200	4 300	—	—	1.5000 1.4995	1.8745 1.8755
1 1/2	38,10	1 7/8	47,62	1.000	25,40	B-2416	M-24161	11 000	22 800	12 200	4 300	0.12	3,0	1.5000 1.4995	1.8745 1.8755
1 1/2	38,10	1 7/8	47,62	1.250	31,75	B-2420	M-24201	13 800	30 500	16 300	4 300	0.12	3,0	1.5000 1.4995	1.8745 1.8755
1.57	40	1.85	47	0.472	12	—	—	—	—	—	—	—	—	1.5748 1.5742	1.8491 1.8501
1.57	40	1.85	47	0.630	16	—	—	—	—	—	—	—	—	1.5748 1.5742	1.8491 1.8501
1.57	40	1.85	47	0.787	20	—	—	—	—	—	—	—	—	1.5748 1.5742	1.8491 1.8501

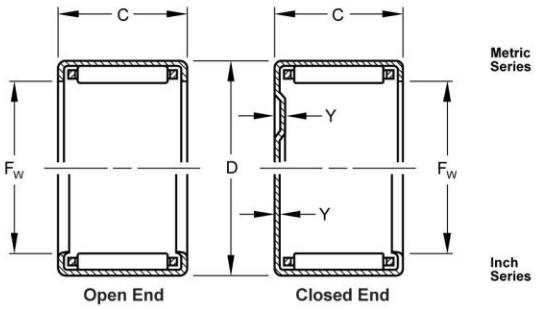
Load Ratings are based on a minimum raceway hardness of 58 HRC or equivalent.
Load ratings are given in pounds-force: 1 lbf = 0.454kgf = 4.448N
Required Basic Dynamic Load Rating (Cr) = Applied Load • SF • LF • HF (see page E75).



Caged Bearings

Check for availability.

Inch-metric conversions given are for the convenience of the user. The controlling dimensions are in inches for nominal inch bearings and in millimeters for nominal metric bearings.

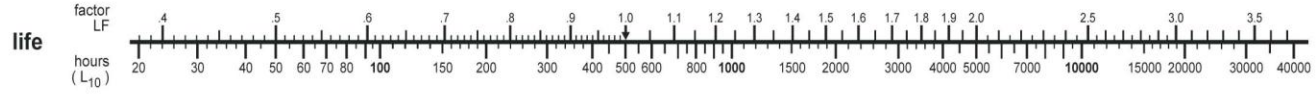


BEARING MOUNTING				CAGE RETAINED ROLLERS							
Metric Mounting						Load Ratings					
S Shaft Raceway Diameter		H Housing Bore		Bearing Designation		Basic Dynamic C_r	Basic Static C_o	Working Load	Limiting Speed Caged Bearings	Y End Thickness	
millimeters		millimeters		open end	closed end	ISO 281	ISO 76	(max.)		(max.)	
max.	min.	min.	max.			lbf	lbf	lbf	rpm	inch	mm
30,000	29,987	36,967	36,992	HK-3012	—	2 500	4 100	1 370	11 000	—	—
30,000	29,987	36,967	36,992	HK-3020	—	4 680	9 140	3 050	11 000	—	—
30,000	29,987	36,967	36,992	HK-3026	—	5 640	11 600	3 870	11 000	—	—
30,162	30,149	38,087	38,112	—	—	—	—	—	—	—	—
31,750	31,737	38,087	38,112	—	—	—	—	—	—	—	—
31,750	31,737	38,087	38,112	—	—	—	—	—	—	—	—
31,750	31,737	38,087	38,112	—	—	—	—	—	—	—	—
31,750	31,737	38,087	38,112	J-2016	MJ-20161	5 900	12 700	6 650	10 000	—	—
31,750	31,737	38,087	38,112	—	—	—	—	—	—	—	—
31,750	31,737	41,262	41,287	—	—	—	—	—	—	—	—
31,750	31,737	41,262	41,287	JH-2012	—	4 960	7 710	4 190	10 000	—	—
31,750	31,737	41,262	41,287	JH-2016	—	6 970	11 900	6 490	10 000	—	—
31,750	31,737	41,262	41,287	JH-2020	—	8 730	15 900	8 660	10 000	—	—
33,338	33,325	41,262	41,287	—	—	—	—	—	—	—	—
33,338	33,325	41,262	41,287	—	—	—	—	—	—	—	—
33,338	33,325	41,262	41,287	—	—	—	—	—	—	—	—
34,925	34,912	41,262	41,287	J-228	—	2 870	5 170	2 700	9 200	—	—
34,925	34,912	41,262	41,287	J-2212	—	4 670	9 690	4 890	9 200	—	—
34,925	34,912	41,262	41,287	—	—	—	—	—	—	—	—
34,925	34,912	41,262	41,287	—	—	—	—	—	—	—	—
34,925	34,912	44,437	44,462	—	—	—	—	—	—	—	—
34,925	34,912	44,437	44,462	JH-2212	—	5 410	8 740	4 720	9 400	—	—
34,925	34,912	44,437	44,462	JH-2216	MJH-22161	7 510	13 300	7 190	9 400	0.05	1.3
34,925	34,912	44,437	44,462	—	—	—	—	—	—	—	—
35,000	34,987	41,967	41,992	HK-3512	—	2 790	4 950	1 650	9 100	—	—
35,000	34,987	41,967	41,992	HK-3516	—	3 600	6 840	2 280	9 100	—	—
35,000	34,987	41,967	41,992	HK-3520	—	5 070	10 700	3 570	9 100	—	—
38,100	38,087	47,612	47,637	—	—	—	—	—	—	—	—
38,100	38,087	47,612	47,637	—	—	—	—	—	—	—	—
38,100	38,087	47,612	47,637	J-2412	—	5 830	9 970	5 330	8 600	—	—
38,100	38,087	47,612	47,637	—	—	—	—	—	—	—	—
38,100	38,087	47,612	47,637	J-2416	—	8 080	15 100	8 100	8 600	—	—
38,100	38,087	47,612	47,637	J-2420	—	10 200	20 300	10 900	8 600	—	—
40,000	39,984	46,967	46,992	HK-4012	—	2 800	5 170	1 720	7 900	—	—
40,000	39,984	46,967	46,992	HK-4016	—	3 910	7 960	2 650	7 900	—	—
40,000	39,984	46,967	46,992	HK-4020	—	5 190	11 500	3 830	7 900	—	—

Mounting dimensions are based on the inner ring rotating and the outer ring being stationary relative to the load. The housing should be of high strength material. See pages E77-E78 for discussion of shaft and housing design.

Drawn cup bearings of nominal inch and metric dimensions with one closed end, which are not tabulated, may be made available upon request.

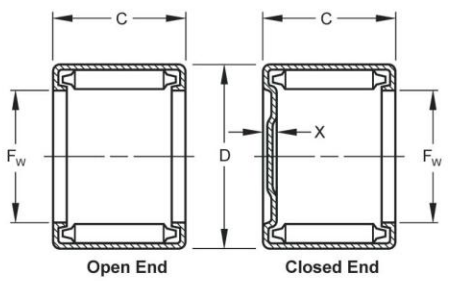
Caged drawn cup bearings of nominal inch and metric dimensions, with engineered polymer cage, may be made available upon request.

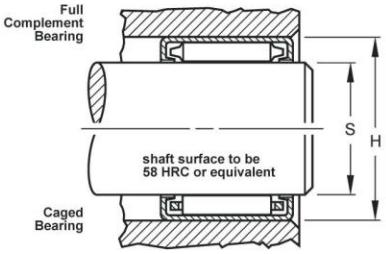


Full Complement Bearings

Check for availability.

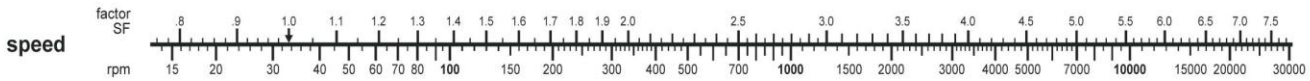
Inch-metric conversions given are for the convenience of the user. The controlling dimensions are in inches for nominal inch bearings and in millimeters for nominal metric bearings.





BEARING DIMENSIONS						MECHANICALLY RETAINED ROLLERS							BEARING MOUNTING			
								Load Ratings					Inch Mounting			
F_w Bore		D Outside Diameter		C Width		Bearing Designation		Basic Dynamic C_r	Basic Static C_o	Working Load	Limiting Speed Full Complement Bearings	X End Thickness	S Shaft Raceway Diameter		H Housing Bore	
(nom.)		(nom.)		+0.000 -0.010	+0,00 -0,25	open end	closed end	ISO 281	ISO 76	(max.)		(max.)	inches		inches	
inch	mm	inch	mm	inch	mm			lbf	lbf	lbf	rpm	inch mm	max.	min.	min.	max.
1 5/8	41,28	2	50,8	0.500	12,70	B-268	—	4 920	8 390	4 450	3 900	— —	1.6250	1.6245	1.9995	2.0005
1 5/8	41,28	2	50,8	0.625	15,88	B-2610	—	6 710	12 500	6 630	3 900	— —	1.6250	1.6245	1.9995	2.0005
1 5/8	41,28	2	50,80	1.000	25,40	B-2616	—	11 400	24 800	13 100	3 900	— —	1.6250	1.6245	1.9995	2.0005
1 5/8	41,28	2	50,80	1.250	31,75	B-2620	—	14 300	33 000	17 500	3 900	— —	1.6250	1.6245	1.9995	2.0005
1 3/4	44,45	2 1/8	53,98	0.750	19,05	B-2812	—	8 660	17 900	9 410	3 700	— —	1.7500	1.7495	2.1245	2.1255
1 3/4	44,45	2 1/8	53,98	1.000	25,40	B-2816	M-28161	11 800	26 700	14 100	3 700	0.12 3,0	1.7500	1.7495	2.1245	2.1255
1 3/4	44,45	2 1/8	53,98	1.250	31,75	B-2820	—	14 800	35 500	18 700	3 700	— —	1.7500	1.7495	2.1245	2.1255
1 3/4	44,45	2 1/8	53,98	1.500	38,10	B-2824	—	17 600	44 300	23 400	3 700	— —	1.7500	1.7495	2.1245	2.1255
1.77	45	2.05	52	0.472	12	—	—	—	—	—	—	— —	1.7717	1.7711	2.0457	2.0469
1.77	45	2.05	52	0.630	16	—	—	—	—	—	—	— —	1.7717	1.7711	2.0457	2.0469
1.77	45	2.05	52	0.787	20	—	—	—	—	—	—	— —	1.7717	1.7711	2.0457	2.0469
1 7/8	47,62	2 1/4	57,15	0.500	12,70	B-308	—	5 380	9 790	5 140	3 500	— —	1.8750	1.8745	2.2495	2.2505
1 7/8	47,62	2 1/4	57,15	0.750	19,05	B-3012	—	9 100	19 200	10 100	3 500	— —	1.8750	1.8745	2.2495	2.2505
1 7/8	47,62	2 1/4	57,15	1.000	25,40	B-3016	—	12 400	28 600	15 000	3 500	— —	1.8750	1.8745	2.2495	2.2505
1.97	50	2.28	58	0.787	20	—	—	—	—	—	—	— —	1.9685	1.9679	2.2819	2.2831
2	50,80	2 3/8	60,32	0.500	12,70	B-328	—	5 490	10 300	5 390	3 300	— —	2.0000	1.9994	2.3745	2.3755
2	50,80	2 3/8	60,32	1.000	25,40	B-3216	M-32161	12 700	30 500	15 900	3 300	0.12 3,0	2.0000	1.9994	2.3745	2.3755
2	50,80	2 3/8	60,32	1.250	31,75	B-3220	—	15 900	40 600	21 200	3 300	— —	2.0000	1.9994	2.3745	2.3755
2	50,80	2 3/8	60,32	1.750	44,45	B-3228	M-32281	21 800	60700	31 700	3 300	0.12 3,0	2.0000	1.9994	2.3745	2.3755
2 1/16	52,39	2 11/32	64,29	0.750	19,05	BH-3312	—	10 100	19 000	10 100	4 000	— —	2.0625	2.0619	2.5307	2.5317
2 1/16	52,39	2 11/32	64,29	1.000	25,40	BH-3316	—	14 200	29 400	15 600	4 000	— —	2.0625	2.0619	2.5307	2.5317
2 1/8	53,98	2 1/2	63,50	0.500	12,70	B-348	—	5 650	11000	5 710	3 100	— —	2.1250	2.1244	2.4995	2.5005
2 1/8	53,98	2 1/2	63,50	1.000	25,40	B-3416	—	13 100	32 400	16 900	3 100	— —	2.1250	2.1244	2.4995	2.5005
2 1/8	53,98	2 1/2	63,50	1.500	38,10	B-3424	—	19 500	53 900	28 000	3 100	— —	2.1250	2.1244	2.4995	2.5005
2.17	55	2.48	63	0.787	20	—	—	—	—	—	—	— —	2.1654	2.1647	2.4788	2.4800
2 1/4	57,15	2 5/8	66,68	0.750	19,05	B-3612	—	10 100	23 100	12 000	3 000	— —	2.2500	2.2494	2.6245	2.6255
2 1/4	57,15	2 5/8	66,68	1.000	25,40	—	—	—	—	—	—	— —	2.2500	2.2494	2.6245	2.6255
2 1/4	57,15	2 5/8	66,68	1.250	31,75	B-3620	—	17 300	45 800	23 800	3 000	— —	2.2500	2.2494	2.6245	2.6255
2 1/4	57,15	2 5/8	66,68	1.500	38,10	B-3624	—	20 500	57 200	29 700	3 000	— —	2.2500	2.2494	2.6245	2.6255
2.36	60	2.68	68	0.472	12	—	—	—	—	—	—	— —	2.3622	2.3618	2.7150	2.7162
2 5/8	66,68	3	76,20	1.000	25,40	B-4216	M-42161	14 800	40 100	20 600	2 500	0.13 3,3	2.6250	2.6244	2.9995	3.0005
2 3/4	69,85	3 1/8	79,38	0.625	15,88	B-4410	—	8 980	21 300	10 900	2 500	— —	2.7500	2.7494	3.1245	3.1255
2 3/4	69,85	3 1/8	79,38	0.750	19,05	—	—	—	—	—	—	— —	2.7500	2.7494	3.1245	3.1255
2 3/4	69,85	3 1/8	79,38	1.000	25,40	B-4416	—	15 300	42 100	21 600	2 500	— —	2.7500	2.7494	3.1245	3.1255
2 3/4	69,85	3 1/8	79,38	1.250	31,75	B-4420	—	19 000	56 000	28 700	2 500	— —	2.7500	2.7494	3.1245	3.1255
3 1/2	88,90	4	101,60	0.750	19,05	B-5612	—	14 300	32 800	16 900	2 700	— —	3.5000	3.4994	3.9995	4.0005
5 1/2	139,7	6	152,40	0.750	19,05	B-8812	—	16 700	49 900	25 100	1 600	— —	5.5000	5.4993	5.9990	6.0010

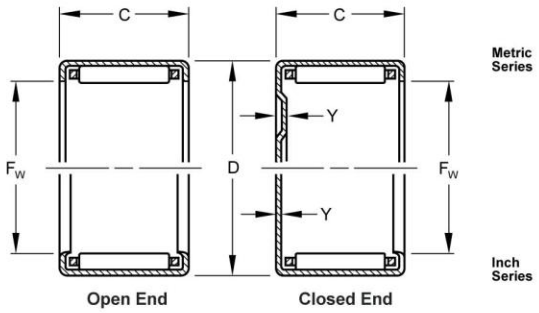
Load Ratings are based on a minimum raceway hardness of 58 HRC or equivalent.
Load ratings are given in pounds-force: 1 lbf = 0.454kgf = 4.448N
Required Basic Dynamic Load Rating (Cr) = Applied Load • SF • LF • HF (see page E75).



Caged Bearings

Check for availability.

Inch-metric conversions given are for the convenience of the user. The controlling dimensions are in inches for nominal inch bearings and in millimeters for nominal metric bearings.

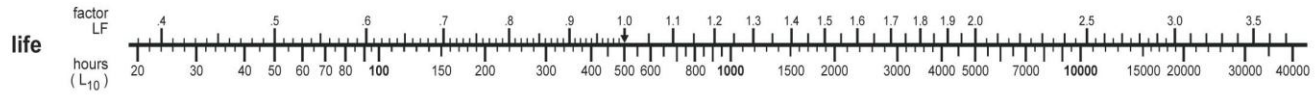


BEARING MOUNTING				CAGE RETAINED ROLLERS							
Metric Mounting						Load Ratings					
S Shaft Raceway Diameter millimeters		H Housing Bore millimeters		Bearing Designation		Basic Dynamic C_r ISO 281	Basic Static C_o ISO 76	Working Load (max.)	Limiting Speed Caged Bearings	Y End Thickness (max.)	
max.	min.	min.	max.	open end	closed end	lbf	lbf	lbf	rpm	inch	mm
41,275	41,262	50,787	50,812	—	—	—	—	—	—	—	—
41,275	41,262	50,787	50,812	J-2610	—	5 390	9 620	4 930	7 900	—	—
41,275	41,262	50,787	50,812	J-2616	—	8 060	15 600	8 280	7 900	—	—
41,275	41,262	50,787	50,812	—	—	—	—	—	—	—	—
44,450	44,437	53,962	53,987	J-2812	—	6 080	11 200	5 890	7 300	—	—
44,450	44,437	53,962	53,987	J-2816	—	8 230	16 500	8 690	7 300	—	—
44,450	44,437	53,962	53,987	—	—	—	—	—	—	—	—
44,450	44,437	53,962	53,987	J-2824	—	12 200	27 500	14 500	7 300	—	—
45,000	44,984	51,961	51,991	HK-4512	—	2 670	5 720	1 910	7 000	—	—
45,000	44,984	51,961	51,991	FJ-4516	—	4 780	10 300	3 430	7 000	—	—
45,000	44,984	51,961	51,991	HK-4520	—	5 430	12 600	4 200	7 000	—	—
47,625	47,612	57,137	57,162	—	—	—	—	—	—	—	—
47,625	47,612	57,137	57,162	—	—	—	—	—	—	—	—
47,625	47,612	57,137	57,162	J-3016	—	8 440	17 200	9 040	6 800	—	—
50,000	49,984	57,961	57,991	FJ-5020	—	6 520	14 100	4 700	6 300	—	—
50,800	50,785	60,312	60,337	—	—	—	—	—	—	—	—
50,800	50,785	60,312	60,337	J-3216	—	8 700	18 400	9 600	6 300	—	—
50,800	50,785	60,312	60,337	—	—	—	—	—	—	—	—
50,800	50,785	60,312	60,337	—	—	—	—	—	—	—	—
52,388	52,373	64,280	64,305	—	—	—	—	—	—	—	—
52,388	52,373	64,280	64,305	—	—	—	—	—	—	—	—
53,975	53,960	63,487	63,512	—	—	—	—	—	—	—	—
53,975	53,960	63,487	63,512	—	—	—	—	—	—	—	—
53,975	53,960	63,487	63,512	—	—	—	—	—	—	—	—
55,000	54,981	62,961	62,991	FJ-5520	—	6 850	15 500	8 040	5 700	—	—
57,150	57,135	66,662	66,687	J-3612	—	7 000	14 200	7 360	5 600	—	—
57,150	57,135	66,662	66,687	J-3616	—	9 490	20 900	10 900	5 600	—	—
57,150	57,135	66,662	66,687	—	—	—	—	—	—	—	—
57,150	57,135	66,662	66,687	—	—	—	—	—	—	—	—
60,000	59,991	68,961	68,991	HK-6012	—	3 680	7 410	2 470	5 200	—	—
66,675	66,660	76,187	76,212	—	—	—	—	—	—	—	—
69,850	69,835	79,362	79,387	—	—	—	—	—	—	—	—
69,850	69,835	79,362	79,387	J-4412	—	7 480	16 000	8 520	4 500	—	—
69,850	69,835	79,362	79,387	—	—	—	—	—	—	—	—
69,850	69,835	79,362	79,387	—	—	—	—	—	—	—	—
88,900	88,885	101,587	101,612	—	—	—	—	—	—	—	—
139,700	139,682	152,375	152,426	—	—	—	—	—	—	—	—

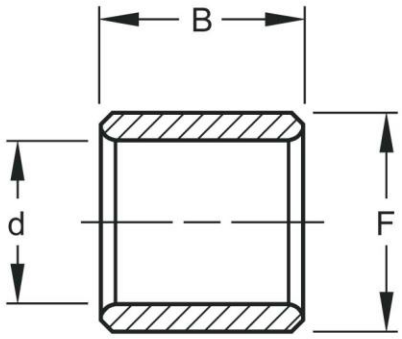
Mounting dimensions are based on the inner ring rotating and the outer ring being stationary relative to the load. The housing should be of high strength material. See pages E77- E78 for discussion of shaft and housing design.

Drawn cup bearings of nominal inch and metric dimensions with one closed end, which are not tabulated, may be made available upon request.

Caged drawn cup bearings of nominal inch and metric dimensions, with engineered polymer cage, may be made available upon request.



Inner Rings for Drawn Cup Bearings



Hardened inner rings may be used where it is impossible to use the shaft as the inner raceway. Inner rings for use with drawn cup bearings are provided in inch (IR, IRA) nominal dimensions, designed to meet established inch tolerances.

The inner rings are designed to be wider than the matching drawn cup bearing. Shaft fillet radii (r_a) listed in the tables of dimensions are the maximum allowable to clear the minimum inner ring bore chamfers.

Most inner rings can be provided with a lubrication hole in the center and a lubrication groove in the bore. When ordering, please specify if lubrication groove and hole are desired.

BORE, O.D. AND WIDTH DIMENSIONS

d Bore (nominal)		Inner Ring Designation	d Bore†				F O.D.†				B Width			
			inch		mm		inch		mm		inch		mm	
inch	mm		min.	max.	min.	max.	max.	min.	max.	min.	max.	min.	max.	min.
3/16	4,76	IRA-3	0.1895	0.1900	4,813	4,826	0.3750	0.3745	9,525	9,512	0.536	0.526	13,61	13,36
1/4	6,35	IRA-4	0.2495	0.2500	6,337	6,350	0.4375	0.4370	11,112	11,099	0.536	0.526	13,61	13,36
5/16	7,94	IRA-5	0.3120	0.3125	7,925	7,938	0.5000	0.4995	12,700	12,687	0.536	0.526	13,61	13,36
3/8	9,52	IR-68	0.3745	0.3750	9,512	9,525	0.5625	0.5620	14,288	14,275	0.515	0.505	13,08	12,83
3/8	9,52	IR-612	0.3745	0.3750	9,512	9,525	0.5625	0.5620	14,288	14,275	0.765	0.755	19,43	19,18
3/8	9,52	IRA-6	0.3745	0.3750	9,512	9,525	0.5625	0.5620	14,288	14,275	0.786	0.776	19,96	19,71
3/8	9,52	IR-68-1	0.3745	0.3750	9,512	9,525	0.6250	0.6245	15,875	15,862	0.515	0.505	13,08	12,83
3/8	9,52	IR-612-1	0.3745	0.3750	9,512	9,525	0.6250	0.6245	15,875	15,862	0.765	0.755	19,43	19,18
7/16	11,11	IRA-7	0.4370	0.4375	11,100	11,113	0.6250	0.6245	15,875	15,862	0.786	0.776	19,96	19,71
1/2	12,70	IR-88	0.4995	0.5000	12,687	12,700	0.7500	0.7495	19,050	19,037	0.515	0.505	13,08	12,83
1/2	12,70	IR-812	0.4995	0.5000	12,687	12,700	0.7500	0.7495	19,050	19,037	0.765	0.755	19,43	19,18
1/2	12,70	IRA-8	0.4995	0.5000	12,687	12,700	0.7500	0.7495	19,050	19,037	0.786	0.776	19,96	19,71
5/8	15,88	IR-1012	0.6245	0.6250	15,862	15,875	0.8750	0.8745	22,225	22,212	0.765	0.755	19,43	19,18
5/8	15,88	IRA-10	0.6245	0.6250	15,862	15,875	0.8750	0.8745	22,225	22,212	0.786	0.776	19,96	19,71
5/8	15,88	IR-1016	0.6245	0.6250	15,862	15,875	0.8750	0.8745	22,225	22,212	1.015	1.005	25,78	25,53
3/4	19,05	IR-128	0.7495	0.7500	19,037	19,050	1.0000	0.9995	25,400	25,387	0.515	0.505	13,08	12,83
3/4	19,05	IR-1212	0.7495	0.7500	19,037	19,050	1.0000	0.9995	25,400	25,387	0.765	0.755	19,43	19,18
3/4	19,05	IR-1216	0.7495	0.7500	19,037	19,050	1.0000	0.9995	25,400	25,387	1.015	1.005	25,78	25,53
3/4	19,05	IRA-12	0.7495	0.7500	19,037	19,050	1.0000	0.9995	25,400	25,387	1.036	1.026	26,31	26,06
3/4	19,05	IR-1220	0.7495	0.7500	19,037	19,050	1.0000	0.9995	25,400	25,387	1.265	1.255	32,13	31,88
3/4	19,05	IR-1224	0.7495	0.7500	19,037	19,050	1.0000	0.9995	25,400	25,387	1.515	1.505	38,48	38,23
13/16	20,64	IR-1312	0.8120	0.8125	20,625	20,638	1.0000	0.9995	25,400	25,387	0.765	0.755	19,43	19,18
13/16	20,64	IR-1316	0.8120	0.8125	20,625	20,638	1.0000	0.9995	25,400	25,387	1.015	1.005	25,78	25,53
7/8	22,22	IR-1416	0.8745	0.8750	22,212	22,225	1.1250	1.1245	28,575	28,562	1.015	1.005	25,78	25,53
7/8	22,22	IRA-14	0.8745	0.8750	22,212	22,225	1.1250	1.1245	28,575	28,562	1.036	1.026	26,31	26,06

Inner rings for use with drawn cup bearings of nominal metric dimensions, may be made available on request.

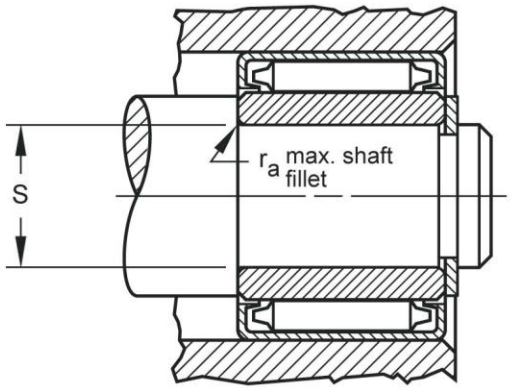
† Bore and o.d. tolerance limits correspond to the single mean diameter (the arithmetical mean of the largest and smallest diameters in a single radial plane).

DRAWN CUP NEEDLE ROLLER BEARINGS

Inner rings for drawn cup bearings are designed to provide a loose transition fit on the shaft, and should be axially clamped against a shoulder. If a tight transition fit must be used to keep the inner ring from rotating relative to the shaft, the inner ring o.d., after being mounted on the shaft, must not exceed the raceway diameter required for the matching drawn cup bearing. See tables of bearing dimensions for the required raceway diameter. In case the o.d. of the inner ring, when mounted on the shaft, exceeds the required raceway diameter for the matching drawn cup bearing, it should be ground to proper diameter while mounted on the shaft.

The unstamped end of the inner ring should be assembled against the shaft shoulder to assure clearing the maximum allowable shaft fillet (r_a) indicated in the tables.

Inch-metric conversions are given for the convenience of the user. The controlling dimensions are in inches for nominal inch inner rings.



MOUNTING DIMENSIONS

r_a Shaft Fillet* (max.)		Inner Ring Designation	S Shaft Diameter Transition Fit Loose				Transition Fit Tight			
			inch		mm		inch		mm	
inch	mm		max.	min.	max.	min.	max.	min.	max.	min.
0.025	0,64	IRA-3	0.1897	0.1892	4,818	4,805	0.1901	0.1896	4,829	4,816
0.025	0,64	IRA-4	0.2497	0.2492	6,342	6,329	0.2501	0.2496	6,353	6,340
0.025	0,64	IRA-5	0.3122	0.3117	7,930	7,917	0.3126	0.3121	7,940	7,927
0.025	0,64	IR-68	0.3747	0.3742	9,517	9,504	0.3751	0.3746	9,528	9,515
0.025	0,64	IR-612	0.3747	0.3742	9,517	9,504	0.3751	0.3746	9,528	9,515
0.025	0,64	IRA-6	0.3747	0.3742	9,517	9,504	0.3751	0.3746	9,528	9,515
0.025	0,64	IR-68-1	0.3747	0.3742	9,517	9,504	0.3751	0.3746	9,528	9,515
0.025	0,64	IR-612-1	0.3747	0.3742	9,517	9,504	0.3751	0.3746	9,528	9,515
0.025	0,64	IRA-7	0.4372	0.4367	11,105	11,092	0.4376	0.4371	11,115	11,102
0.040	1,02	IR-88	0.4997	0.4992	12,692	12,679	0.5001	0.4996	12,703	12,690
0.040	1,02	IR-812	0.4997	0.4992	12,692	12,679	0.5001	0.4996	12,703	12,690
0.040	1,02	IRA-8	0.4997	0.4992	12,692	12,679	0.5001	0.4996	12,703	12,690
0.040	1,02	IR-1012	0.6247	0.6242	15,867	15,854	0.6251	0.6246	15,878	15,865
0.040	1,02	IRA-10	0.6247	0.6242	15,867	15,854	0.6251	0.6246	15,878	15,865
0.040	1,02	IR-1016	0.6247	0.6242	15,867	15,854	0.6251	0.6246	15,878	15,865
0.040	1,02	IR-128	0.7497	0.7492	19,042	19,029	0.7501	0.7496	19,053	19,040
0.040	1,02	IR-1212	0.7497	0.7492	19,042	19,029	0.7501	0.7496	19,053	19,040
0.040	1,02	IR-1216	0.7497	0.7492	19,042	19,029	0.7501	0.7496	19,053	19,040
0.040	1,02	IRA-12	0.7497	0.7492	19,042	19,029	0.7501	0.7496	19,053	19,040
0.040	1,02	IR-1220	0.7497	0.7492	19,042	19,029	0.7501	0.7496	19,053	19,040
0.040	1,02	IR-1224	0.7497	0.7492	19,042	19,029	0.7501	0.7496	19,053	19,040
0.040	1,02	IR-1312	0.8122	0.8117	20,630	20,617	0.8126	0.8121	20,640	20,627
0.040	1,02	IR-1316	0.8122	0.8117	20,630	20,617	0.8126	0.8121	20,640	20,627
0.040	1,02	IR-1416	0.8747	0.8742	22,217	22,204	0.8751	0.8746	22,228	22,215
0.040	1,02	IRA-14	0.8747	0.8742	22,217	22,204	0.8751	0.8746	22,228	22,215

*Equal to minimum inner ring bore chamfer at unmarked end.

Continued on the next page.

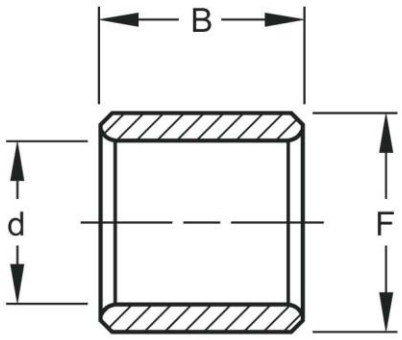
Inner Rings for Drawn Cup Bearings

Check for availability.

Hardened inner rings may be used where it is impossible to use the shaft as the inner raceway. Inner rings for use with drawn cup bearings are provided in inch (IR, IRA) nominal dimensions, designed to meet established inch tolerances.

The inner rings are designed to be wider than the matching drawn cup bearing. Shaft fillet radii (r_a) listed in the tables of dimensions are the maximum allowable to clear the minimum inner ring bore chamfers.

Most inner rings can be provided with a lubrication hole in the center and a lubrication groove in the bore. When ordering, please specify if lubrication groove and hole are desired.



BORE, O.D. AND WIDTH DIMENSIONS

d Bore (nominal)		Inner Ring Designation	d Bore†				F O.D.†				B Width			
			inch		mm		inch		mm		inch		mm	
inch	mm		min.	max.	min.	max.	max.	min.	max.	min.	max.	min.	max.	min.
15/16	23,81	IR-1516	0.9370	0.9375	23,800	23,813	1.1250	1.1245	28,575	28,562	1.015	1.005	25,78	25,53
1	25,40	IR-1612	0.9995	1.0000	25,387	25,400	1.2500	1.2495	31,750	31,737	0.765	0.755	19,43	19,18
1	25,40	IR-1616	0.9995	1.0000	25,387	25,400	1.2500	1.2495	31,750	31,737	1.015	1.005	25,78	25,53
1	25,40	IRA-16	0.9995	1.0000	25,387	25,400	1.2500	1.2495	31,750	31,737	1.036	1.026	26,31	26,06
1 1/8	28,58	IR-1812	1.1245	1.1250	28,562	28,575	1.3750	1.3745	34,925	34,912	0.765	0.755	19,43	19,18
1 1/8	28,58	IR-1816	1.1245	1.1250	28,562	28,575	1.3750	1.3745	34,925	34,912	1.015	1.005	25,78	25,53
1 1/8	28,58	IR-1820	1.1245	1.1250	28,562	28,575	1.3750	1.3745	34,925	34,912	1.265	1.255	32,13	31,88
1 3/16	30,16	IR-1916	1.1870	1.1875	30,150	30,163	1.5000	1.4995	38,100	38,087	1.015	1.005	25,78	25,53
1 3/16	30,16	IR-1920	1.1870	1.1875	30,150	30,163	1.5000	1.4995	38,100	38,087	1.265	1.255	32,13	31,88
1 1/4	31,75	IR-2016	1.2495	1.2500	31,737	31,750	1.5000	1.4995	38,100	38,087	1.015	1.005	25,78	25,53
1 1/4	31,75	IR-2020	1.2495	1.2500	31,737	31,750	1.5000	1.4995	38,100	38,087	1.265	1.255	32,13	31,88
1 1/4	31,75	IRA-20	1.2495	1.2500	31,737	31,750	1.5000	1.4995	38,100	38,087	1.286	1.276	32,66	32,41
1 3/8	34,92	IR-2220	1.3745	1.3750	34,912	34,925	1.6250	1.6245	41,275	41,262	1.265	1.255	32,13	31,88
1 7/16	36,51	IR-2316	1.4370	1.4375	36,500	36,513	1.7500	1.7495	44,450	44,437	1.015	1.005	25,78	25,53
1 7/16	36,51	IR-2324	1.4370	1.4375	36,500	36,513	1.7500	1.7495	44,450	44,437	1.515	1.505	38,48	38,23
1 1/2	38,10	IR-2416	1.4995	1.5000	38,087	38,100	1.7500	1.7495	44,450	44,437	1.015	1.005	25,78	25,53
1 1/2	38,10	IR-2424	1.4995	1.5000	38,087	38,100	1.7500	1.7495	44,450	44,437	1.515	1.505	38,48	38,23
1 11/16	42,86	IR-2724	1.6870	1.6875	42,850	42,863	2.0625	2.0620	52,388	52,375	1.515	1.505	38,48	38,23
1 3/4	44,45	IR-2824	1.7495	1.7500	44,437	44,450	2.0625	2.0620	52,388	52,375	1.515	1.505	38,48	38,23
1 13/16	46,04	IR-2916	1.8120	1.8125	46,025	46,038	2.0625	2.0620	52,388	52,375	1.015	1.005	25,78	25,53
1 13/16	46,04	IR-2924	1.8120	1.8125	46,025	46,038	2.0625	2.0620	52,388	52,375	1.515	1.505	38,48	38,23
1 7/8	47,62	IR-3024	1.8745	1.8750	47,612	47,625	2.1250	2.1245	53,975	53,962	1.515	1.505	38,48	38,23
2 1/2	63,50	IR-4016	2.4995	2.5000	63,487	63,500	2.7500	2.7495	69,850	69,837	1.015	1.005	25,78	25,53

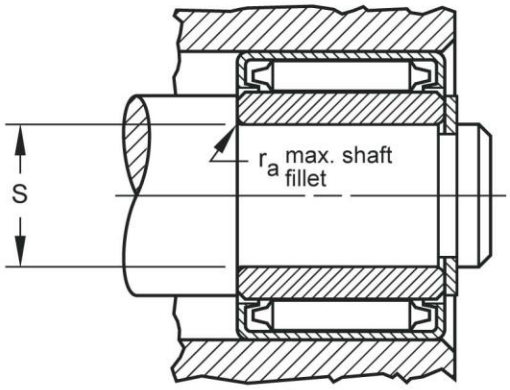
Inner rings for use with drawn cup bearings of nominal metric dimensions, may be made available on request.

†Bore and o.d. tolerance limits correspond to the single mean diameter (the arithmetical mean of the largest and smallest diameters in a single radial plane).

Inner rings for drawn cup bearings are designed to provide a loose transition fit on the shaft, and should be axially clamped against a shoulder. If a tight transition fit must be used to keep the inner ring from rotating relative to the shaft, the inner ring o.d., after being mounted on the shaft, must not exceed the raceway diameter required for the matching drawn cup bearing. See tables of bearing dimensions for the required raceway diameter. In case the o.d. of the inner ring, when mounted on the shaft, exceeds the required raceway diameter for the matching drawn cup bearing, it should be ground to proper diameter while mounted on the shaft.

The unstamped end of the inner ring should be assembled against the shaft shoulder to assure clearing the maximum allowable shaft fillet (r_a) indicated in the tables.

Inch-metric conversions given are for the convenience of the user. The controlling dimensions are in inches for nominal inch inner rings.



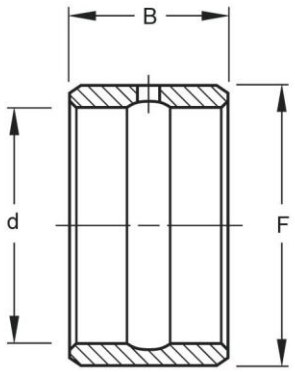
MOUNTING DIMENSIONS

r_a Shaft Fillet* (max.)		Inner Ring Designation	S Shaft Diameter Transition Fit Loose				Transition Fit Tight			
			inch		mm		inch		mm	
inch	mm		max.	min.	max.	min.	max.	min.	max.	min.
0.040	1,02	IR-1516	0.9372	0.9367	23,805	23,792	0.9376	0.9371	23,815	23,802
0.040	1,02	IR-1612	0.9997	0.9992	25,392	25,379	1.0001	0.9996	25,403	25,390
0.040	1,02	IR-1616	0.9997	0.9992	25,392	25,379	1.0001	0.9996	25,403	25,390
0.040	1,02	IRA-16	0.9997	0.9992	25,392	25,379	1.0001	0.9996	25,403	25,390
0.040	1,02	IR-1812	1.1247	1.1242	28,567	28,554	1.1251	1.1246	28,578	28,565
0.040	1,02	IR-1816	1.1247	1.1242	28,567	28,554	1.1251	1.1246	28,578	28,565
0.040	1,02	IR-1820	1.1247	1.1242	28,567	28,554	1.1251	1.1246	28,578	28,565
0.040	1,02	IR-1916	1.1872	1.1867	30,155	30,142	1.1876	1.1871	30,165	30,152
0.040	1,02	IR-1920	1.1872	1.1867	30,155	30,142	1.1876	1.1871	30,165	30,152
0.060	1,52	IR-2016	1.2497	1.2492	31,742	31,729	1.2501	1.2496	31,753	31,740
0.060	1,52	IR-2020	1.2497	1.2492	31,742	31,729	1.2501	1.2496	31,753	31,740
0.060	1,52	IRA-20	1.2497	1.2492	31,742	31,729	1.2501	1.2496	31,753	31,740
0.060	1,52	IR-2220	1.3747	1.3742	34,917	34,904	1.3751	1.3746	34,928	34,915
0.060	1,52	IR-2316	1.4372	1.4367	36,505	36,492	1.4376	1.4371	36,515	36,502
0.060	1,52	IR-2324	1.4372	1.4367	36,505	36,492	1.4376	1.4371	36,515	36,502
0.060	1,52	IR-2416	1.4997	1.4992	38,092	38,079	1.5001	1.4996	38,103	38,090
0.060	1,52	IR-2424	1.4997	1.4992	38,092	38,079	1.5001	1.4996	38,103	38,090
0.060	1,52	IR-2724	1.6872	1.6867	42,855	42,842	1.6876	1.6871	42,865	42,852
0.060	1,52	IR-2824	1.7497	1.7492	44,442	44,429	1.7501	1.7496	44,453	44,440
0.060	1,52	IR-2916	1.8122	1.8117	46,030	46,017	1.8126	1.8121	46,040	46,027
0.060	1,52	IR-2924	1.8122	1.8117	46,030	46,017	1.8126	1.8121	46,040	46,027
0.060	1,52	IR-3024	1.8747	1.8742	47,617	47,604	1.8751	1.8746	47,628	47,615
0.060	1,52	IR-4016	2.4998	2.4991	63,495	63,477	2.5002	2.4995	63,505	63,487

*Equal to minimum inner ring bore chamfer at unmarked end.

Inner Rings, Inch Series

Check for availability.



These inner rings meet Military Standard MS 51962

Inch-metric conversions given are for the convenience of the user. The controlling dimensions are in inches for nominal inch bearings.

Load ratings are given in pounds-force:

1 lbf = 0.454 kgf = 4.448 N

Inner ring diameters and widths listed below are nominal. For inspection purposes, see tolerance tables

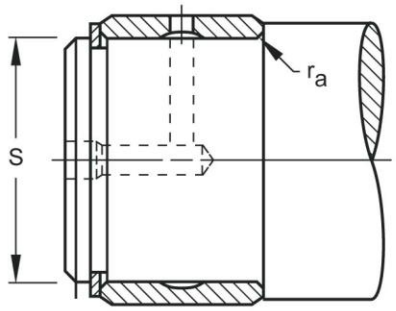
BORE, O.D., AND WIDTH DIMENSIONS

d Bore (nom.)		F Outside Diameter (nom.)		B Width (nom.)		Inner Ring Designation	Used with Bearing Designation
inch	mm	inch	mm	inch	mm		
0.3750	9,525	0.6250	15,875	0.750	19,05	IR-061012	HJ-101812
0.5000	12,700	0.7500	19,050	0.750	19,05	IR-081212	HJ-122012
0.5000	12,700	0.7500	19,050	1.000	25,40	IR-081216	HJ-122016
0.6250	15,875	0.8750	22,225	0.750	19,05	IR-101412	HJ-142212
0.6250	15,875	0.8750	22,225	1.000	25,40	IR-101416	HJ-142216
0.6875	17,462	0.8750	22,225	0.750	19,05	IR-111412	HJ-142212
0.7500	19,050	1.0000	25,400	0.750	19,05	IR-121612	HJ-162412
0.7500	19,050	1.0000	25,400	1.000	25,40	IR-121616	HJ-162416
0.8125	20,638	1.0000	25,400	1.000	25,40	IR-131616	HJ-162416
0.8750	22,225	1.1250	28,575	1.000	25,40	IR-141816	HJ-182616
0.8750	22,225	1.1250	28,575	1.250	31,75	IR-141820	HJ-182620
0.9375	23,812	1.1250	28,575	1.000	25,40	IR-151816	HJ-182616
0.9375	23,812	1.1250	28,575	1.250	31,75	IR-151820	HJ-182620
1.0000	25,400	1.2500	31,750	1.000	25,40	IR-162016	HJ-202816
1.0000	25,400	1.2500	31,750	1.250	31,75	IR-162020	HJ-202820
1.1250	28,575	1.3750	34,925	1.000	25,40	IR-182216	HJ-223016
1.1250	28,575	1.3750	34,925	1.250	31,75	IR-182220	HJ-223020
1.1875	30,162	1.5000	38,100	1.250	31,75	IR-192420	HJ-243320
1.2500	31,750	1.5000	38,100	1.000	25,40	IR-202416	HJ-243316
1.2500	31,750	1.5000	38,100	1.250	31,75	IR-202420	HJ-243320
1.3125	33,338	1.6250	41,275	1.000	25,40	IR-212616	HJ-263516
1.3125	33,338	1.6250	41,275	1.250	31,75	IR-212620	HJ-263520
1.3750	34,925	1.6250	41,275	1.250	31,75	IR-222620	HJ-263520
1.3750	34,925	1.7500	44,450	1.250	31,75	IR-222820	HJ-283720
1.4375	36,512	1.7500	44,450	1.000	25,40	IR-232816	HJ-283716
1.4375	36,512	1.7500	44,450	1.250	31,75	IR-232820	HJ-283720
1.5000	38,100	1.7500	44,450	1.000	25,40	IR-242816	HJ-283716
1.5000	38,100	1.7500	44,450	1.250	31,75	IR-242820	HJ-283720
1.5000	38,100	2.0000	50,800	1.250	31,75	IR-243220	HJ-324120
1.5625	39,688	1.8750	47,625	1.250	31,75	IR-253020	HJ-303920
1.5625	39,688	2.0000	50,800	1.250	31,75	IR-253220	HJ-324120
1.6250	41,275	2.0000	50,800	1.250	31,75	IR-263220	HJ-324120
1.6875	42,862	2.0000	50,800	1.000	25,40	IR-273216	HJ-324116
1.6875	42,862	2.0000	50,800	1.250	31,75	IR-273220	HJ-324120
1.7500	44,450	2.2500	57,150	1.500	38,10	IR-283624	HJ-364824
1.7500	44,450	2.2500	57,150	1.750	44,45	IR-283628	HJ-364828
1.9375	49,212	2.5000	63,500	1.500	38,10	IR-314024	HJ-405224
1.9375	49,212	2.5000	63,500	1.750	44,45	IR-314028	HJ-405228

These inner rings are designed for either a loose transition fit or an interference fit on the shaft. These fits, used in conjunction with the proper outer ring fit, will provide the correct operating clearances for most applications. If an interference fit is used for the inner ring, the outer ring should be mounted with a clearance fit.

The shaft shoulder diameter adjacent to the inner ring must not exceed the inner ring O.D.

The unmarked end of the inner ring should be assembled against the shaft shoulder to assure clearing the maximum allowable shaft fillet (r_a) indicated in the tables.



MOUNTING DIMENSIONS

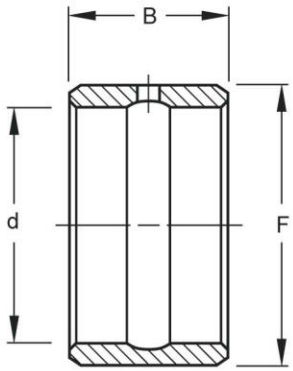
r_a* Shaft Fillet		S Loose Transition Fit Shaft Diameter (inches)		S Loose Transition Fit Shaft Diameter (millimeters)		Inner Ring Designation	S Interference Fit Shaft Diameter (inches)		S Interference Fit Shaft Diameter (millimeters)	
in.	mm	max.	min.	max.	min.		max.	min.	max.	min.
0.025	0,6	0.3748	0.3744	9,520	9,510	IR-061012	0.3755	0.3752	9,538	9,530
0.04	1,0	0.4997	0.4993	12,692	12,682	IR-081212	0.5006	0.5003	12,715	12,707
0.04	1,0	0.4997	0.4993	12,692	12,682	IR-081216	0.5006	0.5003	12,715	12,707
0.04	1,0	0.6247	0.6243	15,867	15,857	IR-101412	0.6256	0.6253	15,890	15,882
0.04	1,0	0.6247	0.6243	15,867	15,857	IR-101416	0.6256	0.6253	15,890	15,882
0.04	1,0	0.6872	0.6868	17,455	17,445	IR-111412	0.6881	0.6878	17,478	17,470
0.04	1,0	0.7497	0.7492	19,042	19,029	IR-121612	0.7507	0.7503	19,068	19,058
0.04	1,0	0.7497	0.7492	19,042	19,029	IR-121616	0.7507	0.7503	19,068	19,058
0.04	1,0	0.8122	0.8117	20,630	20,617	IR-131616	0.8132	0.8128	20,655	20,645
0.04	1,0	0.8747	0.8742	22,217	22,204	IR-141816	0.8757	0.8753	22,243	22,233
0.04	1,0	0.8747	0.8742	22,217	22,204	IR-141820	0.8757	0.8753	22,243	22,233
0.04	1,0	0.9372	0.9367	23,805	23,792	IR-151816	0.9382	0.9378	23,830	23,820
0.04	1,0	0.9372	0.9367	23,805	23,792	IR-151820	0.9382	0.9378	23,830	23,820
0.04	1,0	0.9997	0.9992	25,392	25,379	IR-162016	1.0007	1.0003	25,418	25,408
0.04	1,0	0.9997	0.9992	25,392	25,379	IR-162020	1.0007	1.0003	25,418	25,408
0.04	1,0	1.1247	1.1242	28,567	28,554	IR-182216	1.1257	1.1253	28,593	28,583
0.04	1,0	1.1247	1.1242	28,567	28,554	IR-182220	1.1257	1.1253	28,593	28,583
0.06	1,5	1.1872	1.1867	30,155	30,142	IR-192420	1.1882	1.1878	30,180	30,170
0.06	1,5	1.2496	1.2490	31,740	31,725	IR-202416	1.2508	1.2504	31,770	31,760
0.06	1,5	1.2496	1.2490	31,740	31,725	IR-202420	1.2508	1.2504	31,770	31,760
0.06	1,5	1.3121	1.3115	33,327	33,312	IR-212616	1.3133	1.3129	33,358	33,348
0.06	1,5	1.3121	1.3115	33,327	33,312	IR-212620	1.3133	1.3129	33,358	33,348
0.06	1,5	1.3746	1.3740	34,915	34,900	IR-222620	1.3758	1.3754	34,945	34,935
0.06	1,5	1.3746	1.3740	34,915	34,900	IR-222820	1.3758	1.3754	34,945	34,935
0.06	1,5	1.4371	1.4365	36,502	36,487	IR-232816	1.4383	1.4379	36,533	36,523
0.06	1,5	1.4371	1.4365	36,502	36,487	IR-232820	1.4383	1.4379	36,533	36,523
0.06	1,5	1.4996	1.4990	38,090	38,075	IR-242816	1.5008	1.5004	38,120	38,110
0.06	1,5	1.4996	1.4990	38,090	38,075	IR-242820	1.5008	1.5004	38,120	38,110
0.06	1,5	1.4996	1.4990	38,090	38,075	IR-243220	1.5008	1.5004	38,120	38,110
0.06	1,5	1.5621	1.5615	39,677	39,662	IR-253020	1.5633	1.5629	39,708	39,698
0.06	1,5	1.5621	1.5615	39,677	39,662	IR-253220	1.5633	1.5629	39,708	39,698
0.06	1,5	1.6246	1.6240	41,265	41,250	IR-263220	1.6258	1.6254	41,295	41,285
0.06	1,5	1.6871	1.6865	42,852	42,837	IR-273216	1.6883	1.6879	42,883	42,873
0.06	1,5	1.6871	1.6865	42,852	42,837	IR-273220	1.6883	1.6879	42,883	42,873
0.06	1,5	1.7496	1.7490	44,440	44,425	IR-283624	1.7508	1.7504	44,470	44,460
0.06	1,5	1.7496	1.7490	44,440	44,425	IR-283628	1.7508	1.7504	44,470	44,460
0.08	2,0	1.9371	1.9365	49,202	49,187	IR-314024	1.9383	1.9379	49,233	49,223
0.08	2,0	1.9371	1.9365	49,202	49,187	IR-314028	1.9383	1.9379	49,233	49,223

* Equal to minimum inner ring chamfer at unmarked end.

Inner Rings, Inch Series

Check for availability.

These inner rings meet Military Standard MS 51962
Inch-metric conversions given are for the convenience of the user.
The controlling dimensions are in inches for nominal inch bearings.
Load ratings are given in pounds-force:
1 lbf = 0.454 kgf = 4.448 N
Inner ring diameters and widths listed below are nominal.



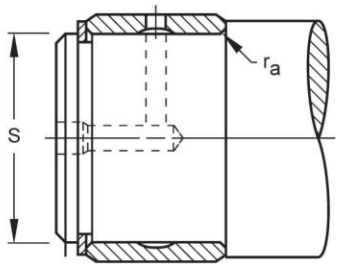
BORE, O.D., AND WIDTH DIMENSIONS

d Bore (nom.)		F Outside Diameter (nom.)		B Width (nom.)		Inner Ring Designation	Used with Bearing Designation
inch	mm	inch	mm	inch	mm		
2.0000	50,800	2.5000	63,500	1.500	38,10	IR-324024	HJ-405224
2.0000	50,800	2.5000	63,500	1.750	44,45	IR-324028	HJ-405228
2.1875	55,562	2.7500	69,850	1.750	44,45	IR-354428	HJ-445628
2.2500	57,150	2.7500	69,850	1.500	38,10	IR-364424	HJ-445624
2.2500	57,150	2.7500	69,850	1.750	44,45	IR-364428	HJ-445628
2.3750	60,325	3.0000	76,200	1.750	44,45	IR-384828	HJ-486028
2.5000	63,500	3.0000	76,200	1.500	38,10	IR-404824	HJ-486024
2.5000	63,500	3.0000	76,200	1.750	44,45	IR-404828	HJ-486028
2.7500	69,850	3.2500	82,550	1.750	44,45	IR-445228	HJ-526828
2.7500	69,850	3.2500	82,550	2.000	50,80	IR-445232	HJ-526832
2.9375	74,612	3.5000	88,900	2.000	50,80	IR-475632	HJ-567232
3.0000	76,200	3.5000	88,900	2.000	50,80	IR-485632	HJ-567232
3.1250	79,375	3.7500	95,250	2.000	50,80	IR-506032	HJ-607632
3.2500	82,550	3.7500	95,250	2.000	50,80	IR-526032	HJ-607632
3.2500	82,550	4.0000	101,600	2.000	50,80	IR-526432	HJ-648032
3.3750	85,725	4.0000	101,600	2.000	50,80	IR-546432	HJ-648032
3.5000	88,900	4.0000	101,600	2.000	50,80	IR-566432	HJ-648032
3.5000	88,900	4.2500	107,950	2.000	50,80	IR-566832	HJ-688432
3.7500	95,250	4.2500	107,950	2.000	50,80	IR-606832	HJ-688432
3.7500	95,250	4.5000	114,300	2.250	57,15	IR-607236	HJ-729636
3.7500	95,250	4.5000	114,300	2.500	63,50	IR-607240	HJ-729640
4.0000	101,600	5.0000	127,000	2.250	57,15	IR-648036	HJ-8010436
4.0000	101,600	5.0000	127,000	2.500	63,50	IR-648040	HJ-8010440
4.2500	107,950	5.0000	127,000	2.250	57,15	IR-688036	HJ-8010436
4.5000	114,300	5.5000	139,700	2.500	63,50	IR-728840	HJ-8811240
4.5000	114,300	5.5000	139,700	3.000	76,20	IR-728848	HJ-8811248
4.7500	120,650	5.7500	146,050	3.000	76,20	IR-769248	HJ-9211648
5.0000	127,000	6.0000	152,400	2.500	63,50	IR-809640	HJ-9612040
5.0000	127,000	6.0000	152,400	3.000	76,20	IR-809648	HJ-9612048
5.5000	139,700	6.5000	165,100	2.500	63,50	IR-8810440	HJ-10412840
5.5000	139,700	6.5000	165,100	3.000	76,20	IR-8810448	HJ-10412848
6.0000	152,400	7.2500	184,150	3.000	76,20	IR-9611648	HJ-11614648
6.5000	165,100	7.7500	196,850	3.000	76,20	IR-10412448	HJ-12415448
7.0000	177,800	8.2500	209,550	3.000	76,20	IR-11213248	HJ-13216248
7.5000	190,500	8.7500	222,250	3.000	76,20	IR-12014048	HJ-14017048
8.0000	203,200	9.2500	234,950	3.000	76,20	IR-12814848	HJ-14817848

These inner rings are designed for either a loose transition fit or an interference fit on the shaft. These fits, used in conjunction with the proper outer ring fit, will provide the correct operating clearances for most applications. If an interference fit is used for the inner ring, the outer ring should be mounted with a clearance fit.

The shaft shoulder diameter adjacent to the inner ring must not exceed the inner ring O.D.

The unmarked end of the inner ring should be assembled against the shaft shoulder to assure clearing the maximum allowable shaft fillet (r_a) indicated in the tables.

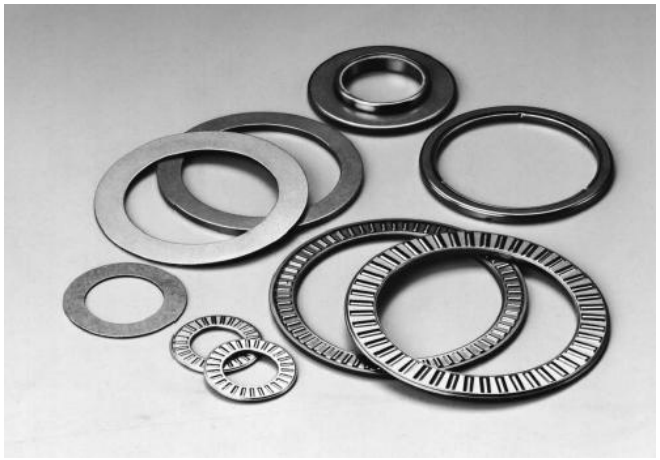


MOUNTING DIMENSIONS

r_a* Shaft Fillet		S Loose Transition Fit Shaft Diameter (inches)		S Loose Transition Fit Shaft Diameter (millimeters)		Inner Ring Designation	S Interference Fit Shaft Diameter (inches)		S Interference Fit Shaft Diameter (millimeters)	
in.	mm	max.	min.	max.	min.		max.	min.	max.	min.
0.08	2,0	1.9996	1.9989	50,790	50,772	IR-324024	2.0009	2.0004	50,823	50,810
0.08	2,0	1.9996	1.9989	50,790	50,772	IR-324028	2.0009	2.0004	50,823	50,810
0.08	2,0	2.1871	2.1864	55,552	55,534	IR-354428	2.1884	2.1879	55,585	55,572
0.08	2,0	2.2496	2.2489	57,140	57,122	IR-364424	2.2509	2.2504	57,173	57,160
0.08	2,0	2.2496	2.2489	57,140	57,122	IR-364428	2.2509	2.2504	57,173	57,160
0.08	2,0	2.3746	2.3739	60,315	60,297	IR-384828	2.3759	2.3754	60,348	60,335
0.08	2,0	2.4996	2.4989	63,490	63,472	IR-404824	2.5009	2.5004	63,523	63,510
0.08	2,0	2.4996	2.4989	63,490	63,472	IR-404828	2.5009	2.5004	63,523	63,510
0.08	2,0	2.7496	2.7489	69,840	69,822	IR-445228	2.7509	2.7504	69,873	69,860
0.08	2,0	2.7496	2.7489	69,840	69,822	IR-445232	2.7509	2.7504	69,873	69,860
0.08	2,0	2.9371	2.9364	74,602	74,584	IR-475632	2.9384	2.9379	74,635	74,622
0.08	2,0	2.9996	2.9989	76,190	76,172	IR-485632	3.0009	3.0004	76,223	76,210
0.10	2,5	3.1246	3.1239	79,365	79,347	IR-506032	3.1259	3.1254	79,398	79,385
0.10	2,5	3.2495	3.2487	82,537	82,517	IR-526032	3.2511	3.2505	82,578	82,563
0.10	2,5	3.2495	3.2487	82,537	82,517	IR-526432	3.2511	3.2505	82,578	82,563
0.10	2,5	3.3745	3.3737	85,712	85,692	IR-546432	3.3761	3.3755	85,753	85,738
0.10	2,5	3.4995	3.4987	88,887	88,867	IR-566432	3.5011	3.5005	88,928	88,913
0.10	2,5	3.4995	3.4987	88,887	88,867	IR-566832	3.5011	3.5005	88,928	88,913
0.10	2,5	3.7495	3.7487	95,237	95,217	IR-606832	3.7511	3.7505	95,278	95,263
0.10	2,5	3.7495	3.7487	95,237	95,217	IR-607236	3.7511	3.7505	95,278	95,263
0.10	2,5	3.7495	3.7487	95,237	95,217	IR-607240	3.7511	3.7505	95,278	95,263
0.10	2,5	3.9995	3.9987	101,587	101,567	IR-648036	4.0011	4.0005	101,628	101,613
0.10	2,5	3.9995	3.9987	101,587	101,567	IR-648040	4.0011	4.0005	101,628	101,613
0.10	2,5	4.2495	4.2487	107,937	107,917	IR-688036	4.2511	4.2505	107,978	107,963
0.10	2,5	4.4995	4.4987	114,287	114,267	IR-728840	4.5011	4.5005	114,328	114,313
0.10	2,5	4.4995	4.4987	114,287	114,267	IR-728848	4.5011	4.5005	114,328	114,313
0.12	3,0	4.7494	4.7485	120,635	120,612	IR-769248	4.7513	4.7506	120,683	120,665
0.12	3,0	4.9994	4.9985	126,985	126,962	IR-809640	5.0013	5.0006	127,033	127,015
0.12	3,0	4.9994	4.9985	126,985	126,962	IR-809648	5.0013	5.0006	127,033	127,015
0.12	3,0	5.4994	5.4985	139,685	139,662	IR-8810440	5.5013	5.5006	139,733	139,715
0.12	3,0	5.4994	5.4985	139,685	139,662	IR-8810448	5.5013	5.5006	139,733	139,715
0.12	3,0	5.9994	5.9985	152,385	152,362	IR-9611648	6.0013	6.0006	152,433	152,415
0.12	3,0	6.4994	6.4985	165,085	165,062	IR-10412448	6.5013	6.5006	165,133	165,115
0.12	3,0	6.9994	6.9985	177,785	177,762	IR-11213248	7.0013	7.0006	177,833	177,815
0.16	4,0	7.4994	7.4982	190,485	190,455	IR-12014048	7.5014	7.5006	190,536	190,516
0.16	4,0	7.9994	7.9982	203,185	203,155	IR-12814848	8.0014	8.0006	203,236	203,216

*Equal to minimum inner ring chamfer at unmarked end.

NEELDE ROLLER THRUST BEARINGS AND THRUST WASHERS



OVERVIEW: Thrust needle roller bearings are components of small diameter needle rollers arranged in a spoke-like configuration. Needle rollers are equally spaced by means of a cage whose web section separates the rollers and provides guidance to keep them tracking in an orbital path. The purpose of these assemblies is to transmit a thrust load between two relatively rotating objects while greatly reducing friction. Thrust needle roller bearings can also be unitized with lipped washers which service as raceway surfaces for needle rollers. Washers can be supplied separately or can be mechanically unitized to needle roller bearings for ease of handling.

APPLICATIONS: Automotive automatic and manual transmissions, automotive accessories (compressors, steering gears, etc.) agricultural and construction equipment.

TYPES: Needle Roller Thrust Bearings – AXK/NTA, Thrust Washers – AS/LS/WS/GS/TRA/TRB/TRC/TRD/TRE

1. INSPECTION PROCEDURE FOR THRUST BEARINGS AND THRUST WASHERS.

If an inspection of the bore diameter is desired, it should be checked with “go” and “no go” plug gages. The “go” plug gage size is the minimum bore diameter. The “no go” plug gage size is the maximum bore diameter. The bearing or washer, under its own weight, must fall freely from the “go” plug gage. The “no go” plug gage must not enter the bore. Where the “no go” plug gage can be forced through the bore, the bearing or washer must not fall from the gage under its own weight.

1.1 TOLERANCES OF NEEDLE ROLLER THRUST BEARINGS

TABLE 1. TOLERANCES FOR OUTSIDE DIAMETERS AND BORE DIAMETERS OF SERIES AXK

Bore Diameters mm		Deviations (E11) μm		Outside Diameters mm		Deviations (c12) μm	
>	≤	low	high	>	≤	low	high
3	6	+20	+95	10	18	-275	-95
6	10	+25	+115	18	30	-320	-110
10	18	+32	+142	30	40	-370	-120
18	30	+40	+170	40	50	-380	-130
30	50	+50	+210	50	65	-440	-140
50	80	+60	+250	65	80	-450	-150
80	120	+72	+292	80	100	-520	-170
120	180	+85	+335	100	120	-530	-180
				120	140	-600	-200
				140	160	-610	-210
				160	180	-630	-230
				180	200	-700	-240

TABLE2. TOLERANCES FOR OUTSIDE DIAMETERS AND BORE DIAMETERS OF SERIES NTA

Needle Roller Diameter		Deviations							
		Bore Diameter				Outside Diameters			
nominal		low		high		low		high	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
1.984	0.0781	+0.05	+0.002	+0.18	+0.007	-0.50	-0.020	-0.25	-0.010
2.175	0.1250	+0.05	+0.002	+0.25	+0.010	-0.63	-0.025	-0.25	-0.010

TABLE 3. TOLERANCES FOR THICKNESS OF SERIES AXK AND NTA

Bore Diameters	Deviations	
nominal	mm	
all	low	high
	-0.005	0

1.2 TOLERANCES OF THURST WASHERS

TABLE 4. TOLERANCES FOR OUTSIDE DIAMETERS AND BORE DIAMETERS OF SERIES LS811

Bore Diameters mm		Deviations (E12) μm		Outside Diameters mm		Deviations (a12) μm	
>	≤	low	high	>	≤	low	high
3	6	+20	+140	18	30	-500	-300
6	10	+25	+175	30	40	-560	-310
10	18	+32	+212	40	50	-570	-320
18	30	+40	+250	50	65	-640	-340
30	50	+50	+300	65	80	-660	-360
50	80	+60	+360	80	100	-730	-380
80	120	+72	+422	100	120	-760	-410
120	180	+85	+485	120	140	-860	-460
				140	160	-920	-520
				160	180	-980	-580
				180	200	-1120	-660

TABLE 5. TOLERANCES FOR OUTSIDE DIAMETERS OF SERIES GS811 AND BORE DIAMETERS OF SERIES WS811

Bore Diameters of Series WS mm		Deviations μm		Outside Diameters of Series GS mm		Deviations μm	
>	≤	low	high	>	≤	low	high
10	18	-8	0	10	18	-11	0
18	30	-10	0	18	30	-13	0
30	50	-12	0	30	50	-16	0
50	80	-15	0	50	80	-19	0
80	120	-20	0	80	120	-22	0
120	180	-25	0	120	180	-25	0
180	250	-30	0				

TABLE 6. TOLERANCES FOR OUTSIDE DIAMETERS AND BORE DIAMETERS OF SERIES TRA~TRE

Nominal Bore Diameter				Deviations				Nominal Outside Diameters				Deviations			
>		≤		low		high		>		≤		Low		high	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
6.0	0.24	57.2	2.25	+0.05	+0.002	+0.30	+0.012	6.0	0.24	133.4	5.25	-0.76	-0.030	-0.25	-0.010
57.2	2.25	133.4	5.25	+0.05	+0.002	+0.43	+0.017								

TABLE 7. TOLERANCES FOR OUTSIDE DIAMETERS AND BORE DIAMETERS OF SERIES AS

Bore Diameters mm		Deviations (E12) μm		Outside Diameters mm		Deviations (e13) μm	
>	≤	low	high	>	≤	low	high
3	6	+20	+140	18	30	-370	-40
6	10	+25	+175	30	50	-440	-50
10	18	+32	+212	50	80	-520	-60
18	30	+40	+250	80	120	-612	-72
30	50	+50	+300	120	180	-715	-85
50	80	+60	+360	180	250	-820	-100
80	120	+72	+422				
120	180	+85	+485				

TABLE 8. TOLERANCES FOR THICKNESS OF SERIES AS

Thickness	Deviations	
mm	mm	
all	low	high
	-0.05	+0.05

TABLE 9. TOLERANCES FOR THICKNESS OF SERIES LS811,WS811 AND GS811

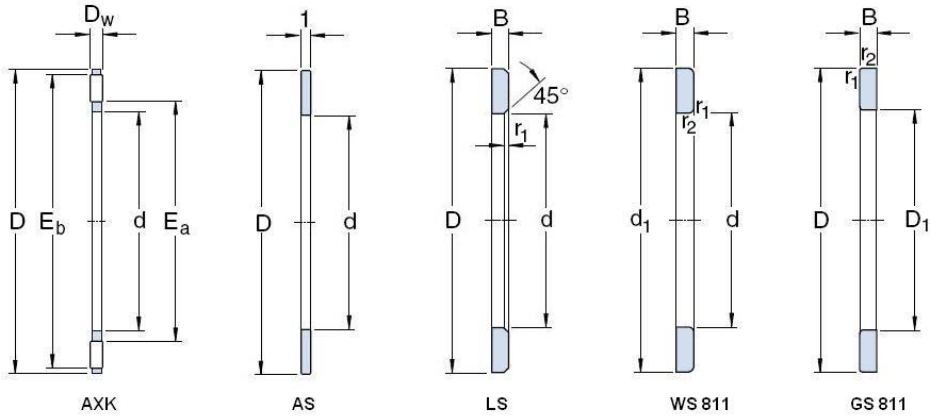
Thickness		Deviations	
mm		mm	
>	≤	low	high
2	3	-0.060	0
3	6	-0.075	0
6	10	-0.090	0

TABLE 10. TOLERANCES FOR THICKNESS OF SERIES TRA~TRE

Series	Deviation (mm)	
	low	high
TRA	-0.04	+0.01
TRB	-0.08	0
TRC	-0.07	+0.01
TRD	-0.08	0
TRE	-0.09	-0.01

NEELDE ROLLER THRUST BEARINGS AND THRUST WASHERS

- Needle Roller Thrust Bearings and Thrust Washers
  - Metric Series
    - Thrust Bearing (AXK)
    - Thin Thrust Washer (AS)
    - Heavy Thrust Washer (LS)
    - Heavy Shaft Washer (WS)
    - Heavy Housing Washer (GS)



Bearing Designation	Dimensions(mm)					Load Rating(kN)		Limiting Speed(RPM)	Mass(kg)
	d	D	Dw	Ea	Eb	Dynamic	Static	Oil	Approx.
AXK 0414 TN	4	14	2	5	13	4.40	8.00	21500	0.001
AXK 0515 TN	5	15	2	6	14	4.75	9.20	20600	0.001
AXK 0619 TN	6	19	2	7	18	6.80	15.50	18900	0.001
AXK 0821 TN	8	21	2	9	20	7.80	19.40	17800	0.002
AXK 1024	10	24	2	12	23	9.20	25.50	16900	0.003
AXK 1226	12	26	2	14	20	9.90	29.00	15200	0.003
AXK 1528	15	28	2	17	27	11.30	36.00	13200	0.004
AXK 1730	17	30	2	19	29	11.90	39.50	12100	0.004
AXK 2035	20	35	2	22	34	13.10	46.50	10500	0.005
AXK 2542	25	42	2	29	41	14.70	58.00	8400	0.007
AXK 3047	30	47	2	34	46	16.30	70.00	7300	0.008
AXK 3552	35	52	2	39	51	17.80	81.00	6500	0.010
AXK 4060	40	60	3	45	58	28.00	114.0	5600	0.016
AXK 4565	45	65	3	50	63	30.00	128.0	5100	0.018
AXK 5070	50	70	3	55	68	32.00	143.0	4700	0.020
AXK 5578	55	78	3	60	76	38.00	186.0	4250	0.028
AXK 6085	60	85	3	65	83	44.50	234.0	3900	0.033

Bearing Designation	Dimensions(mm)					Load Rating(kN)		Limiting Speed(RPM)	Mass(kg)
	d	D	Dw	Ea	Eb	Dynamic	Static	Oil	Approx.
AXK 6590	65	90	3	70	88	46.50	255.0	3650	0.035
AXK 7095	70	95	4	74	93	54.00	255.0	3450	0.060
AXK 75100	75	100	4	79	98	55.00	265.0	3250	0.061
AXK 80105	80	105	4	84	103	56.00	280.0	3100	0.063
AXK 85110	85	110	4	89	108	58.00	290.0	2950	0.067
AXK 90120	90	120	4	94	118	73.00	405.0	2700	0.086
AXK 100135	100	135	4	105	133	91.00	560.0	2420	0.104
AXK 110145	110	145	4	115	143	97.00	620.0	2230	0.122
AXK 120155	120	155	4	125	153	102.0	680.0	2070	0.131
AXK 130170	130	170	5	136	167	133.0	840.0	1900	0.205
AXK 140180	140	180	5	146	177	138.0	900.0	1780	0.219
AXK 150190	150	190	5	156	187	143.0	960.0	1680	0.232
AXK 160200	160	200	5	166	197	148.0	1020	1590	0.246

NEELDE ROLLER THRUST BEARINGS AND THRUST WASHERS

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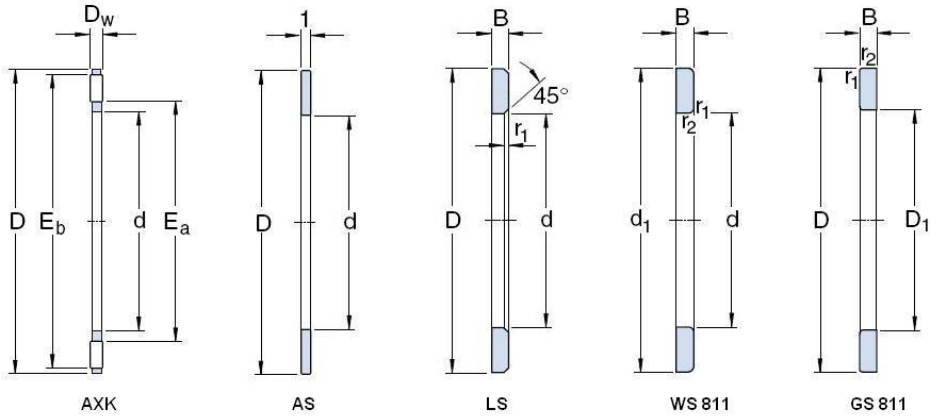

Bearing Designation				Dimensions(mm)					Mass(kg)	
				d	d1	D	D1	B	AS.	LS,WS,GS
AS 0414	-	-	-	4	-	14	-	-	0.001	-
AS 0515	-	-	-	5	-	15	-	-	0.001	-
AS 0619	**LS 0619**	-	-	6	-	19	-	2.75	0.002	0.004
AS 0821	**LS 0821**	-	-	8	-	21	-	2.75	0.002	0.004
AS 1024	**LS 1024**	-	-	10	-	24	-	2.75	0.003	0.007
AS 1226	**LS 1226**	-	-	12	-	26	-	2.75	0.003	0.008
AS 1528	**LS 1528**	**WS 81102**	**GS 81102**	15	28	28	16	2.75	0.003	0.009
AS 1730	**LS 1730**	**WS 81103**	**GS 81103**	17	30	30	18	2.75	0.004	0.009
AS 2035	**LS 2035**	**WS 81104**	**GS 81104**	20	35	35	21	2.75	0.005	0.013
AS 2542	**LS 2542**	**WS 81105**	**GS 81105**	25	42	42	26	3	0.007	0.019
AS 3047	**LS 3047**	**WS 81106**	**GS 81106**	30	47	47	32	3	0.008	0.022
AS 3552	**LS 3552**	**WS 81107**	**GS 81107**	35	52	52	37	3.5	0.009	0.029
AS 4060	**LS 4060**	**WS 81108**	**GS 81108**	40	60	60	42	3.5	0.012	0.040
AS 4565	**LS 4565**	**WS 81109**	**GS 81109**	45	65	65	47	4	0.013	0.050
AS 5070	**LS 5070**	**WS 81110**	**GS 81110**	50	70	70	52	4	0.014	0.055
AS 5578	**LS 5578**	**WS 81111**	**GS 81111**	55	78	78	57	5	0.019	0.088
AS 6085	**LS 6085**	**WS 81112**	**Gs 81112**	60	85	85	62	4.75	0.022	0.097

Bearing Designation				Dimensions(mm)					Mass(kg)	
				d	d1	D	D1	B	AS	LS,WS,GS
AS 6590	**LS 6590**	**WS 81113**	**GS 81113**	65	90	90	67	5.25	0.024	0.115
AS 7095	**LS 7095**	**WS 81114**	**GS 81114**	70	95	95	72	5.25	0.025	0.125
AS 75100	**LS 75100**	**WS 81115**	**GS 81115**	75	100	100	77	5.75	0.027	0.140
AS 80105	**LS 80105**	**WS 81116**	**GS 81116**	80	105	105	82	5.75	0.028	0.150
AS 85110	**LS 85110**	**WS 81117**	**GS 81117**	85	110	110	87	5.75	0.029	0.160
AS 90120	**LS 90120**	**WS 81118**	**GS 81118**	90	120	120	92	6.50	0.039	0.235
AS 100135	**LS 100135**	**WS 81120**	**GS 81120**	100	135	135	102	7	0.050	0.350
AS 110145	**LS 110145**	**WS 81122**	**GS 81122**	110	145	145	112	7	0.055	0.385
AS 120155	**LS 120155**	**WS 81124**	**GS 81124**	120	145	155	122	7	0.059	0.415
AS 130170	**LS 130170**	**WS 81126**	**GS 81126**	130	170	170	132	9	0.065	0.665
AS 140180	**LS 140180**	**WS 81128**	**GS 81128**	140	178	180	142	9.5	0.079	0.750
AS 150190	**LS 150190**	**WS 81130**	**GS 81130**	150	188	190	152	9.5	0.084	0.795
AS 160200	**LS 160200**	**WS 81132**	**GS 81132**	160	198	200	162	9.5	0.089	0.840

- Needle Roller Thrust Bearings and Thrust Washers
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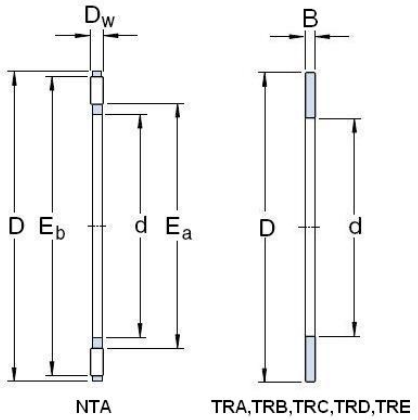
    - Thrust Washer (TRA, TRB, TRC,TRD)



Bearing Designation	Dimensions(mm/in.)					Load Rating(kN)		Limiting Speed(RPM)	Mass(kg)
	d	D	Dw	Ea	Eb	Dynamic	Static	Oil	Approx.
NTA 411	6.35 0.250	17.45 0.687	1.984 0.0781	8.636 0.340	14.732 0.580	5.12	10.76	26000	0.001
NTA 512	7.92 0.312	19.05 0.75	1.984 0.0781	10.16 0.400	16.256 0.640	5.83	13.17	24000	0.002
NTA 613	9.53 0.375	20.625 0.812	1.984 0.0781	11.68 0.460	18.034 0.710	60.5	14.32	22000	0.002
NTA 815	12.70 0.500	23.80 0.937	1.984 0.0781	14.99 0.590	21.08 0.830	7.16	19.13	19000	0.002
NTA 916	14.275 0.562	25.40 1.000	1.984 0.0781	16.51 0.650	22.606 0.890	7.70	21.53	18000	0.003
NTA 1018	15.88 0.625	28.575 1.125	1.984 0.0781	18.03 0.710	25.908 1.020	9.79	30.38	15000	0.003
NTA 1220	19.05 0.750	31.75 1.250	1.984 0.0781	21.34 0.840	28.956 1.140	10.90	36.48	14000	0.004
NTA 1423	22.23 0.875	36.50 1.437	1.984 0.0781	24.38 0.960	33.782 1.330	13.43	49.82	12000	0.005
NTA 1427	22.23 0.875	42.85 1.687	1.984 0.0781	25.91 1.020	39.878 1.570	18.46	78.29	9800	0.008

Bearing Designation	Dimensions(mm/in.)					Load Rating(kN)		Limiting Speed(RPM)	Mass(kg)
	d	D	Dw	Ea	Eb	Dynamic	Static	Oil	Approx.
NTA 1625	25.40 1.000	39.675 1.562	1.984 0.0781	27.69 1.090	36.83 1.450	13.83	53.82	11000	0.006
NTA 1828	28.58 1.125	44.45 1.75	1.984 0.0781	30.73 1.210	41.656 1.640	16.68	71.17	9600	0.009
NTA 2031	31.75 1.250	49.20 1.937	1.984 0.0781	34.04 1.340	46.228 1.820	20.15	93.41	8600	0.010
NTA 2233	34.93 1.375	52.375 2.062	1.984 0.0781	37.08 1.460	49.53 1.950	21.35	103.20	8000	0.010
NTA 2435	38.10 1.500	55.55 2.187	1.984 0.0781	40.39 1.590	52.578 2.070	23.22	117.88	7600	0.011
NTA 2840	44.45 1.750	63.50 2.500	1.984 0.0781	46.74 1.840	58.928 2.320	25.31	137.45	6800	0.014
NTA 3244	50.80 2.000	69.85 2.750	1.984 0.0781	53.09 2.090	65.278 2.570	24.02	132.56	6100	0.015
NTA 3446	53.98 2.125	73.025 2.875	1.984 0.0781	56.39 2.220	68.58 2.700	24.42	137.45	5800	0.016
NTA 3648	57.15 2.250	76.20 3.000	1.984 0.0781	59.44 2.340	71.628 2.820	24.78	142.34	5600	0.017

- Needle Roller Thrust Bearings and Thrust Washers
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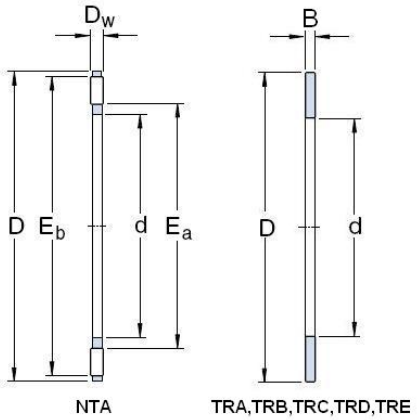
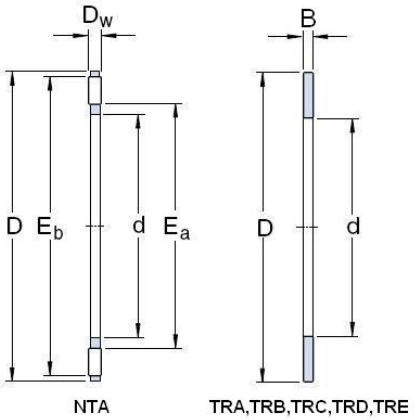


Bearing Designation	Dimensions(mm/in.)					Load Rating(kN)		Limiting Speed(RPM)	Mass(kg)
	d	D	Dw	Ea	Eb	Dynamic	Static	Oil	Approx.
NTA 3650	57.15 2.250	79.375 3.125	3.175 0.1250	59.94 2.360	75.184 2.960	37.68	177.04	5300	0.029
NTA 4052	63.50 2.500	82.55 3.250	1.984 0.0781	65.79 2.590	77.978 3.070	25.53	152.13	5100	0.019
NTA 4458	69.85 2.750	92.075 3.625	3.175 0.1250	72.64 2.860	87.884 3.460	47.60	255.8	4600	0.037
NTA 4860	76.20 3.000	95.25 3.750	1.984 0.0781	78.49 3.090	90.678 3.570	26.96	172.1	4400	0.022

Bearing Designation	Dimensions(mm/in.)					Load Rating(kN)		Limiting Speed(RPM)	Mass(kg)
	d	D	Dw	Ea	Eb	Dynamic	Static	Oil	Approx.
NTA 5266	82.55 3.250	104.78 4.125	3.175 0.1250	85.34 3.360	100.58 3.960	51.60	294.9	4000	0.042
NTA 6074	95.25 3.750	117.48 4.625	3.175 0.1250	98.04 3.860	113.28 4.460	56.05	344.3	3500	0.050
NTA 6681	104.78 4.125	128.57 5.062	3.175 0.125	107.44 4.230	124.46 4.900	63.61	414.6	3200	0.062

- Needle Roller Thrust Bearings and Thrust Washers
  - Inch Series
    - Thrust Bearing (NTA)
    - Thrust Washer (TRA, TRB, TRC,TRD)

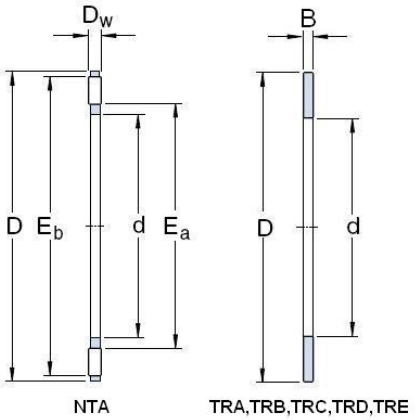


Bearing Designation	Dimensions(mm/in.)			Mass(kg)
	d	D	B	Approx.
TRA 411	6.35 0.250	17.45 0.687	0.8 0.031	0.001
TRA 512	7.92 0.312	19.05 0.75	0.8 0.031	0.001
TRA 613	9.53 0.375	20.625 0.812	0.8 0.031	0.001
TRA 815	12.70 0.500	23.80 0.937	0.8 0.031	0.002
TRA 916	14.275 0.562	25.40 1.000	0.8 0.031	0.002
TRA 1018	15.88 0.625	28.575 1.125	0.8 0.031	0.003
TRA 1220	19.05 0.750	31.75 1.250	0.8 0.031	0.003
TRA 1423	22.23 0.875	36.50 1.437	0.8 0.031	0.004
TRA 1625	25.40 1.000	39.675 1.562	0.8 0.031	0.005

Bearing Designation	Dimensions(mm/in.)			Mass(kg)
	d	D	B	Approx.
TRA 1828	28.58 1.125	44.45 1.75	0.8 0.031	0.006
TRA 2031	31.75 1.250	49.20 1.937	0.8 0.031	0.007
TRA 2233	34.93 1.375	52.375 2.062	0.8 0.031	0.007
TRA 2435	38.10 1.500	55.55 2.187	0.8 0.031	0.008
TRA 2840	44.45 1.750	63.50 2.500	0.8 0.031	0.010
TRA 3244	50.80 2.000	69.85 2.750	0.8 0.031	0.011
TRA 3446	53.98 2.125	73.025 2.875	0.8 0.031	0.012
TRA 3648	57.15 2.250	76.20 3.000	0.8 0.031	0.012
TRA 4052	63.50 2.500	82.55 3.250	0.8 0.031	0.015

Bearing Designation	Dimensions(mm/in.)			Mass(kg)
	d	D	B	Approx.
TRA 4458	69.85 2.750	92.075 3.625	0.8 0.031	0.018
TRA 4860	76.20 3.000	95.25 3.750	0.8 0.031	0.015
TRA 5266	82.55 3.250	104.78 4.125	0.8 0.031	0.020
TRA 6074	95.25 3.750	117.48 4.625	0.8 0.031	0.023
TRA 6681	104.78 4.125	128.57 5.062	0.8 0.031	0.027

- Needle Roller Thrust Bearings and Thrust Washers
  - Inch Series
    - Thrust Bearing (NTA)
    - Thrust Washer (TRA, TRB, TRC,TRD)

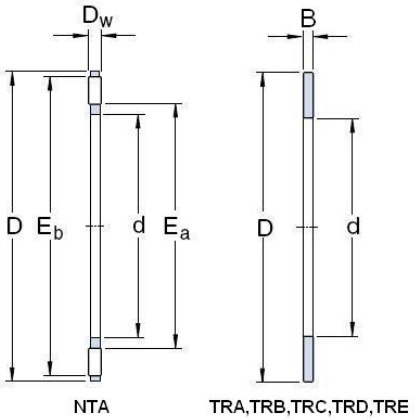


Bearing Designation	Dimensions(mm/in.)			Mass(kg)
	d	D	B	Approx.
TRB 411	6.35 0.250	17.45 0.687	1.6 0.063	0.002
TRB 512	7.92 0.312	19.05 0.75	1.6 0.063	0.003
TRB 613	9.53 0.375	20.625 0.812	1.6 0.063	0.003
TRB 815	12.70 0.500	23.80 0.937	1.6 0.063	0.004
TRB 916	14.275 0.562	25.40 1.000	1.6 0.063	0.004
TRB 1018	15.88 0.625	28.575 1.125	1.6 0.063	0.005
TRB 1220	19.05 0.750	31.75 1.250	1.6 0.063	0.006
TRB 1423	22.23 0.875	36.50 1.437	1.6 0.063	0.008
TRB 1427	22.23 0.875	42.85 1.687	1.6 0.063	0.013

Bearing Designation	Dimensions(mm/in.)			Mass(kg)
	d	D	B	Approx.
TRB 1625	25.40 1.000	39.675 1.562	1.6 0.063	0.009
TRB 1828	28.58 1.125	44.45 1.75	1.6 0.063	0.006
TRB 2031	31.75 1.250	49.20 1.937	1.6 0.063	0.014
TRB 2233	34.93 1.375	52.375 2.062	1.6 0.063	0.015
TRB 2435	38.10 1.500	55.55 2.187	1.6 0.063	0.015
TRB 2840	44.45 1.750	63.50 2.500	1.6 0.063	0.020
TRB 3244	50.80 2.000	69.85 2.750	1.6 0.063	0.011
TRB 3446	53.98 2.125	73.025 2.875	1.6 0.063	0.024
TRB 3648	57.15 2.250	76.20 3.000	1.6 0.063	0.022

Bearing Designation	Dimensions(mm/in.)			Mass(kg)
	d	D	B	Approx.
TRB 4052	63.50 2.500	82.55 3.250	1.6 0.063	0.027
TRB 4458	69.85 2.750	92.075 3.625	1.6 0.063	0.035
TRB 4860	76.20 3.000	95.25 3.750	1.6 0.063	0.032
TRB 6074	95.25 3.750	117.48 4.625	1.6 0.063	0.046

- Needle Roller Thrust Bearings and Thrust Washers
  - Inch Series
    - Thrust Bearing (NTA)
    - Thrust Washer (TRA, TRB, TRC,TRD)

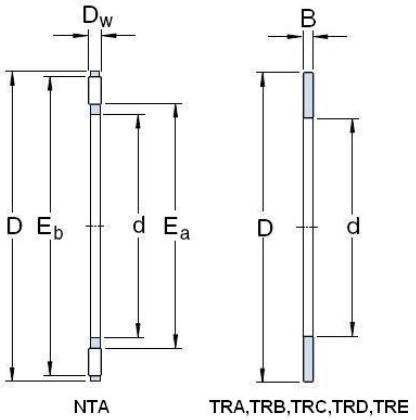


Bearing Designation	Dimensions(mm/in.)			Mass(kg)
	d	D	B	Approx.
TRC 411	6.35 0.250	17.45 0.687	2.4 0.094	0.004
TRC 613	9.53 0.375	20.625 0.812	2.4 0.094	0.004
TRC 815	12.70 0.500	23.80 0.937	2.4 0.094	0.005
TRC 916	14.275 0.562	25.40 1.000	2.4 0.094	0.006
TRC 1018	15.88 0.625	28.575 1.125	2.4 0.094	0.008
TRC 1220	19.05 0.750	31.75 1.250	2.4 0.094	0.010
TRC 1423	22.23 0.875	36.50 1.437	2.4 0.094	0.012
TRC 1427	22.23 0.875	42.85 1.687	2.4 0.094	0.020
TRC 1828	28.58 1.125	44.45 1.75	2.4 0.094	0.017

Bearing Designation	Dimensions(mm/in.)			Mass(kg)
	d	D	B	Approx.
TRC 2031	31.75 1.250	49.20 1.937	2.4 0.094	0.020
TRC 2233	34.93 1.375	52.375 2.062	2.4 0.094	0.018
TRC 2435	38.10 1.500	55.55 2.187	2.4 0.094	0.023
TRC 2840	44.45 1.750	63.50 2.500	2.4 0.094	0.029
TRC 3244	50.80 2.000	69.85 2.750	2.4 0.094	0.033
TRC 3446	53.98 2.125	73.025 2.875	2.4 0.094	0.035
TRC 3648	57.15 2.250	76.20 3.000	2.4 0.094	0.037
TRC 4052	63.50 2.500	82.55 3.250	2.4 0.094	0.041
TRC 4458	69.85 2.750	92.075 3.625	2.4 0.094	0.051

Bearing Designation	Dimensions(mm/in.)			Mass(kg)
	d	D	B	Approx.
TRC 6074	95.25 3.750	117.48 4.625	2.4 0.094	0.069
TRC 6681	104.78 4.125	128.57 5.062	2.4 0.094	0.081

- Needle Roller Thrust Bearings and Thrust Washers
  - Inch Series
    - Thrust Bearing (NTA)
    - Thrust Washer (TRA, TRB, TRC,TRD)



Bearing Designation	Dimensions(mm/in.)			Mass(kg)
	d	D	B	Approx.
TRD 1018	15.88 0.625	28.575 1.125	3.2 0.126	0.011
TRD 1220	19.05 0.750	31.75 1.250	3.2 0.126	0.012
TRD 1423	22.23 0.875	36.50 1.437	3.2 0.126	0.015
TRD 1427	22.23 0.875	42.85 1.687	3.2 0.126	0.026
TRD 1625	25.40 1.000	39.675 1.562	3.2 0.126	0.017
TRD 1828	28.58 1.125	44.45 1.75	3.2 0.126	0.022
TRD 2031	31.75 1.250	49.20 1.937	3.2 0.126	0.026
TRD 2233	34.93 1.375	52.375 2.062	3.2 0.126	0.029
TRD 2435	38.10 1.500	55.55 2.187	3.2 0.126	0.030

Bearing Designation	Dimensions(mm/in.)			Mass(kg)
	d	D	B	Approx.
TRD 2840	44.45 1.750	63.50 2.500	3.2 0.126	0.038
TRD 3244	50.80 2.000	69.85 2.750	3.2 0.126	0.044
TRD 3446	53.98 2.125	73.025 2.875	3.2 0.126	0.047
TRD 3648	57.15 2.250	76.20 3.000	3.2 0.126	0.048
TRD 4458	69.85 2.750	92.075 3.625	3.2 0.126	0.069
TRD 4860	76.20 3.000	95.25 3.750	3.2 0.126	0.061
TRD 5266	82.55 3.250	104.78 4.125	3.2 0.126	0.080
TRD 6074	95.25 3.750	117.48 4.625	3.2 0.126	0.092
TRD 6681	104.78 4.125	128.57 5.062	3.2 0.126	0.109

Bearing Designation	Dimensions(mm/in.)			Mass(kg)
	d	D	B	Approx.
TRE 1018	15.88 0.625	28.575 1.125	4.0 0.157	0.013
TRE 1220	19.05 0.750	31.75 1.250	4.0 0.157	0.015
TRE 1625	25.40 1.000	39.675 1.562	4.0 0.157	0.021
TRE 2233	34.93 1.375	52.375 2.062	4.0 0.157	0.037

OVERVIEW: Drawn cup roller clutches are similar to drawn cup needle roller bearings in design, but allow free rotation in only one direction, while transmitting torque in the opposite direction. These designs use the same small radial section as drawn cup needle roller bearings and are offered as clutch-only units or as clutch and bearing assemblies.

APPLICATIONS: Office equipment, paper-towel dispensers, exercise equipment, appliances and two speed gearboxes.

TYPES: Without bearing assemblies- **HF/FC/RC**, with bearing assemblies- **HFL/FCB/RCB**

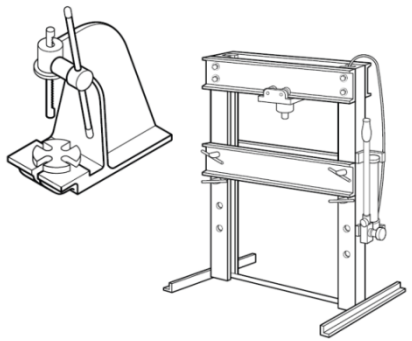
1. INSPECTION OF DRAWN CUP ROLLER CLUTCHES

Although the outer cup of the clutch is accurately drawn from strip steel, it can go slightly out of round during heat treat. When the assembly is pressed into a ring gage or properly prepared housing of correct size and wall thickness, it becomes round and properly sized. Direct measurement of the outside diameter of a drawn cup assembly is an incorrect procedure. The proper inspection procedure is as follows:

1. Press the assembly into a ring gage of the proper size as given in the tabular data.
2. Gage the bore with the specified plug gages of the proper size, as given in the tables of dimensions.
   a. The locking plug is rotated to insure lockup when the clutch is operated at low limit shaft and is mounted in a high limit housing strong enough to properly size the clutch.
   b. The overrun plug is rotated to ensure free over-running when the clutch is operated on a high limit shaft and is mounted in a low limit housing.
   c. The go plug and no go plug insure proper size of the bearings in the clutch and bearing assemblies.

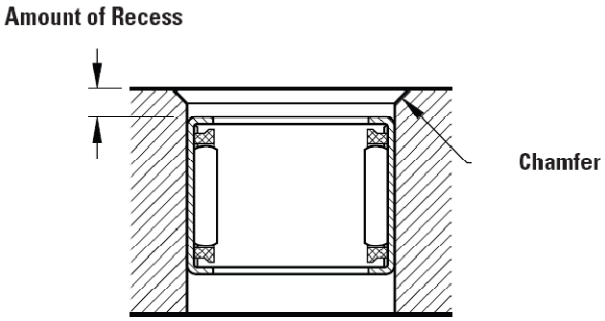
2. INSTALLATION OF DRAWN CUP ROLLER CLUTCHES

Simplicity of installation promotes additional cost savings. The drawn cup roller clutch, or the clutch and bearing assembly, must be pressed into its housing. The unit is pressed into the bore of a gear hub or pulley hub, or housing of the proper size, and no shoulders, splines, keys, screws or snap rings are required. Installation procedures are summarized in the following sketches:



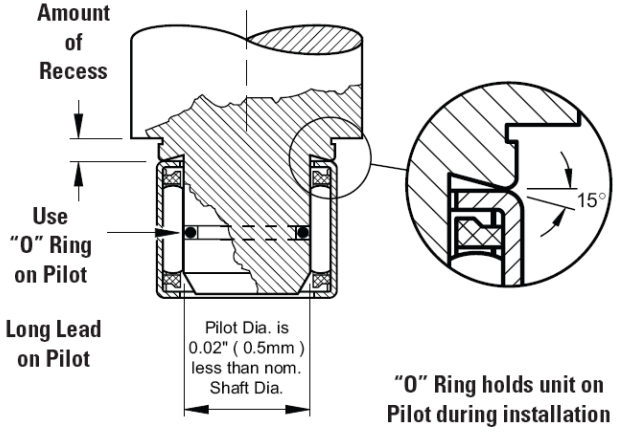
Use an arbor press or hydraulic ram press which will exert steady pressure. Never use a hammer or other tool requiring pounding to drive the clutch into its housing.

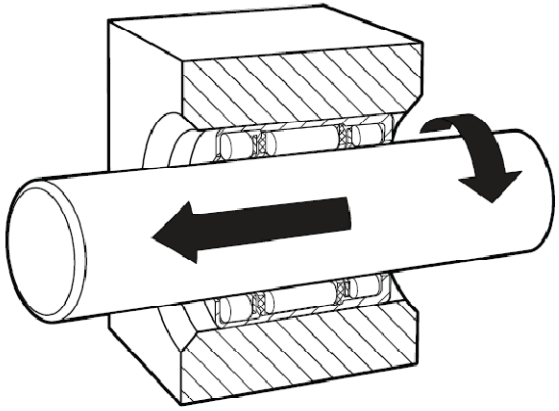
Make sure that the housing bore is chamfered to permit easy introduction of the clutch and bearing or the clutch unit. Press unit slightly beyond the chamfer in the housing bore to assure full seating. Through-bored housings are always preferred. If the housing has a shoulder, never seat the clutch against the shoulder.



IMPORTANT : The mounted clutch or clutch and bearing assembly engages when the housing is rotated relative to the shaft in the direction of the arrow and LOCK marking [LOCK] stamped on the cup. Make sure that the unit is oriented properly before pressing it into its housing.

Use an installation tool as shown in the diagram below. If clutch is straddled by needle roller bearings, press units into position in proper sequence and preferably leave a small clearance between units. When assembling the shaft, it should be rotated in the overrun direction during insertion. The end of the shaft should have a large chamfer or rounding.

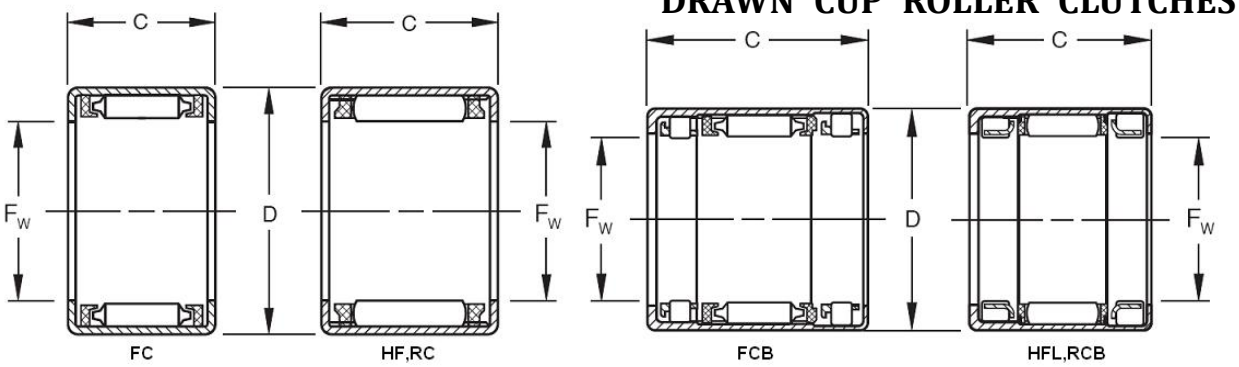




DRAWN CUP ROLLER CLUTCHES

- Drawn Cup Roller Clutches
  - Metric Series
    - Regular Clutch (HF)
    - Regular Clutch and Bearing Assembly (HFL)

  Suffix:
    - No Suffix — Stainless Steel Springs
    - KF — Integral Plastic Springs (HF-KF, HFL-KF)
    - R — Knurls (HF-R, HF-R)



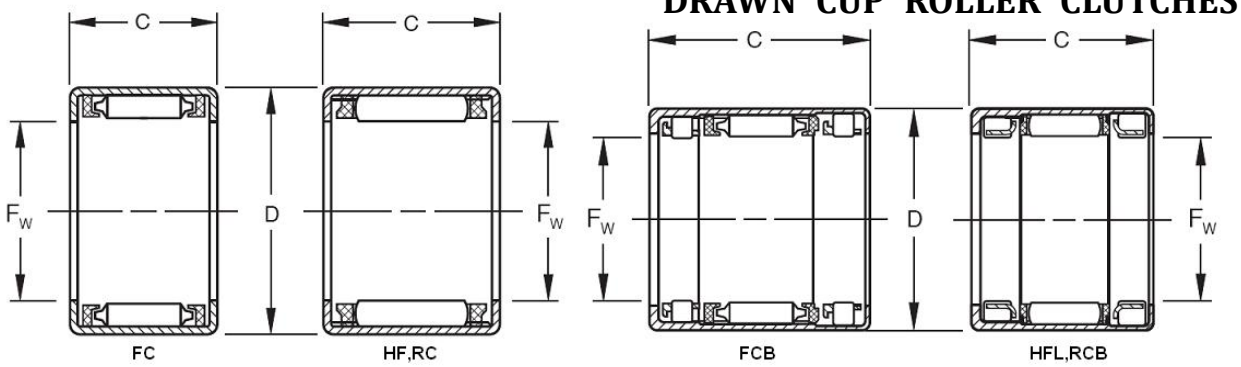
Bearing Designation	Dimensions(mm)			Torque Rating	Overrun Limiting Speed(RPM)		Mass(kg)
	Fw	D	C	N·m	Rotating Shaft	Rotating Housing	Approx.
HF 0612	6	10	12	1.76	23000	13000	0.003
HF 0812	8	12	12	3.15	17000	12000	0.004
HF 1012	10	14	12	5.3	14000	11000	0.004
HF 1216	12	18	16	12.2	11000	9000	0.005
HF 1416	14	20	16	17.3	9500	8000	0.010
HF 1616	16	22	16	20.5	8500	7500	0.014
HF 1816	18	24	16	24.1	7500	7500	0.016
HF 2016	20	26	16	28.5	7000	6500	0.017
HF 2520	25	32	20	66	5500	5500	0.030
HF 3020	30	37	20	90	4500	4500	0.036
HF 3520	35	42	20	121	3900	3900	0.040

Bearing Designation	Dimensions(mm)			Torque Rating	Overrun Limiting Speed(RPM)		Mass(kg)
	Fw	D	C	N·m	Rotating Shaft	Rotating Housing	Approx.
HF 0306 KF	3	6.5	6	0.18	45000	8000	0.001
HF 0406 KF	4	8	6	0.34	34000	8000	0.001
HF 0612 KF	6	10	12	1.76	23000	13000	0.003
HF 0812 KF	8	12	12	3.15	17000	12000	0.004
HF 1012 KF	10	14	12	5.3	14000	11000	0.004
HF 0306 KF R	3	6.5	6	0.06	45000	8000	0.001
HF 0406 KF R	4	8	6	0.1	34000	8000	0.001
HF 0612 KF R	6	10	12	0.6	23000	13000	0.003
HF 0812 KF R	8	12	12	1.0	17000	12000	0.004
HF 0612 R	6	10	12	0.6	23000	13000	0.003
HF 0812 R	8	12	12	1.0	17000	12000	0.004

DRAWN CUP ROLLER CLUTCHES

- Drawn Cup Roller Clutches
  - Metric Series
    - Regular Clutch (HF)
    - Regular Clutch and Bearing Assembly (HFL)

  Suffix:
    - No Suffix — Stainless Steel Springs
    - KF — Integral Plastic Springs (HF-KF, HFL-KF)
    - R — Knurls (HF-R, HF-R)



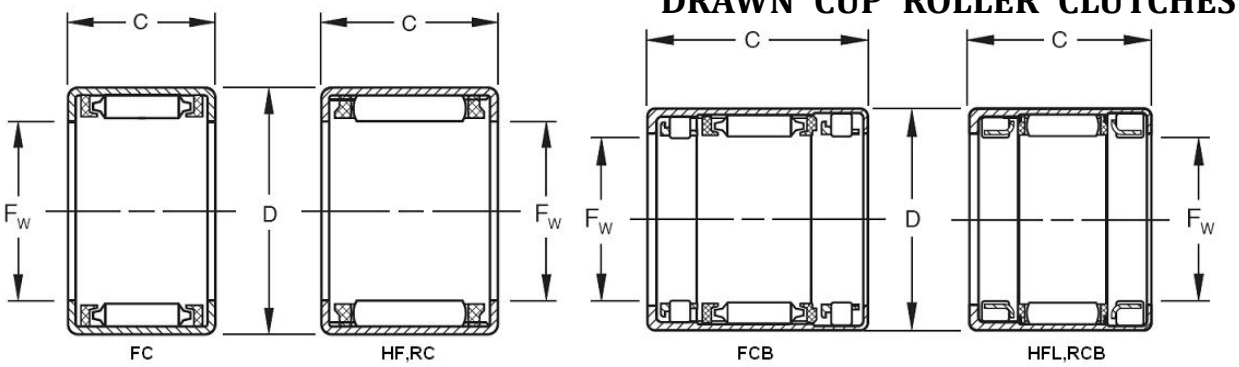
Bearing Designation	Dimensions(mm)			Torque Rating	Overrun Limiting Speed(RPM)		Load Rating(N)	Mass(kg)
	F_w	D	C	N·m	Rotating Shaft	Rotating Housing	Max.	Approx.
with plain bearing assemblies								
HFL 0615	6	10	15	1.76	23000	13000	110	0.004
HFL 0308 KF	3	6.5	8	0.18	45000	8000	60	0.001
HFL 0408 KF	4	8	8	0.34	34000	8000	80	0.002
HFL 0615 KF	6	10	15	1.76	23000	13000	110	0.004
HFL 0308 KFR	3	6.5	8	0.06	45000	8000	60	0.001
HFL 0408 KFR	4	8	8	0.1	34000	8000	80	0.002
HFL 0606 KFR	6	10	6	0.5	23000	13000	40	0.001
HFL 0615 KFR	6	10	15	0.6	23000	13000	110	0.004
HFL 0806 KFR	8	12	6	0.7	17000	12000	54	0.002
HFL 0615 R	6	10	15	0.5	23000	13000	110	0.004

Bearing Designation	Dimensions(mm)			Torque Rating	Overrun Limiting Speed(RPM)		Load Rating(N)		Mass(kg)
	F_w	D	C	N·m	Rotating Shaft	Rotating Housing	Dynamic	Static	Approx.
with roller bearing assemblies									
HFL 0822	8	12	22	3.15	17000	12000	3650	3950	0.007
HFL 1022	10	14	22	5.3	14000	11000	3950	4500	0.008
HFL 1226	12	18	26	12.2	11000	8000	6300	6700	0.018
HFL 1426	14	20	26	17.3	9500	8000	6800	7800	0.020
HFL 1626	16	22	26	20.5	8500	7500	7400	9000	0.022
HFL 1826	18	24	26	24.1	7500	7500	8000	10200	0.025
HFL 2026	20	26	26	28.5	7000	6500	8500	11400	0.027
HFL 2530	25	32	30	66	5500	5500	10600	14000	0.044
HFL 3030	30	37	30	90	4500	4500	11600	16900	0.051
HFL 3530	35	42	30	121	3900	3900	12200	18800	0.058
HFL 0822 KF	8	12	22	3.15	17000	12000	3650	3950	0.007
HFL 0822 KFR	8	12	22	1	17000	12000	3650	3950	0.007
HFL 0822 R	8	12	22	1	17000	12000	3650	3950	0.007

DRAWN CUP ROLLER CLUTCHES

- Drawn Cup Roller Clutches
  - Inch Series
    - Regular Clutch (RC)
    - Regular Clutch and Bearing Assembly (RCB)

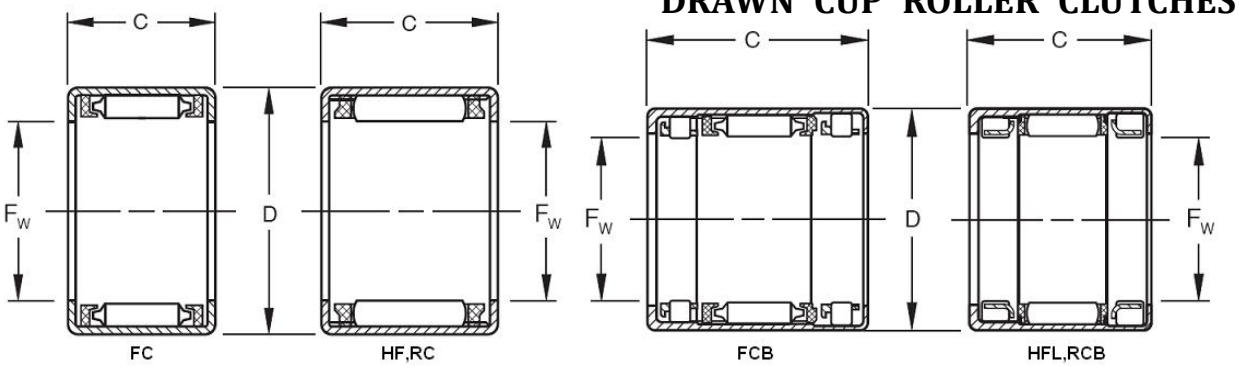
  Suffix:
    - No Suffix — Integral Plastic Springs
    - FS — Stainless Steel Springs (RC-FS, RCB-FS)



Bearing Designation		Dimensions(mm/in.)			Torque Rating	Overrun Limiting Speed(RPM)	Mass(kg)
		Fw	D	C	N·m	Rotating Shaft	Approx.
-	RC-02	3.18 0.125	7.14 0.281	6.35 0.250	0.323	34000	0.001
-	RC-040708	6.35 0.250	11.13 0.438	12.70 0.500	2.02	20000	0.004
RC-61008-FS	RC-061008	9.53 0.375	15.88 0.625	12.7 0.500	5.45	18000	0.008
RC-081208-FS	RC-081208	12.70 0.500	19.05 0.750	12.70 0.500	8.85	17000	0.009
RC-101410-FS	RC-101410	15.88 0.625	22.23 0.875	15.88 0.625	16.8	14000	0.014
RC-121610-FS	RC-121610	19.05 0.750	25.40 1.000	15.88 0.625	23.3	12000	0.015
RC-162110-FS	RC-162110	25.40 1.000	33.35 1.313	15.88 0.625	49.6	8700	0.026

Bearing Designation		Dimensions(mm/in.)			Torque Rating	Overrun Limiting Speed(RPM)	Load Rating(kN)		Mass(kg)
		Fw	D	C	N·m	Rotating Shaft	Dynamic	Static	Approx.
RCB-061014-FS	RCB-061014	9.53 0.375	15.88 0.625	22.23 0.875	5.45	18000	4.89	6.01	0.014
RCB-081214-FS	RCB-081214	12.70 0.500	19.05 0.750	22.23 0.875	8.85	17000	6.49	7.12	0.016
RCB-101416-FS	RCB-101416	15.88 0.625	22.23 0.875	25.40 1.000	16.8	14000	8.14	8.05	0.023
RCB-121616-FS	RCB-121616	19.05 0.750	25.40 1.000	25.40 1.000	23.3	12000	9.79	8.90	0.026
RCB-162117-FS	RCB-162117	25.40 1.000	33.35 1.313	27.00 1.063	49.6	8700	17.6	15.4	0.045

- Drawn Cup Roller Clutches
  - Metric Series
    - Regular Clutch with Multi-roller per Stainless Steel Spring (FC)
    - Regular Clutch and Bearing Assembly with Multi-roller per Stainless Steel Spring (FCB)



Bearing Designation	Dimensions(mm)			Torque Rating	Overrun Limiting Speed(RPM)	Mass(kg)
	Fw	D	C	N·m	Rotating Shaft	Approx.
FC-8	8	14	12	4.42	21000	0.007
FC-10	10	16	12	5.82	19000	0.009
FC-12	12	18	16	14.00	19000	0.012
FC-16	16	22	16	21.70	14000	0.018
FC-20	20	26	16	32.60	11000	0.021
FC-25	25	32	20	71.00	8700	0.034
FC-30	30	37	20	99.10	7300	0.042

Bearing Designation	Dimensions(mm)			Torque Rating	Overrun Limiting Speed(RPM)	Load Rating(kN)		Mass(kg)
	Fw	D	C	N·m	Rotating Shaft	Dynamic	Static	Approx.
FCB-8	8	14	20	4.42	21000	4.22	3.04	0.011
FCB-10	10	16	20	5.82	19000	4.84	3.80	0.013
FCB-12	12	18	26	14.00	19000	6.30	5.84	0.018
FCB20	20	26	26	32.60	11000	8.16	9.46	0.028
FCB-25	25	32	30	71.00	8700	11.30	13.10	0.048
FCB-30	30	37	30	99.10	7300	11.50	14.90	0.054

OVERVIEW: Drawn cup needle roller bearings support radial loads and reduce friction between rotating components, with a drawn outer shell serving as a raceway for the rollers. The low cross section of drawn cup bearing provides high load-carrying capacity with minimum required space. Drawn cup bearings are easily installed with a press fit in the housing.

APPLICATIONS: Transmissions, transfer cases, engines, valve trains, steering and breaking system, axle supports, outboard engines, power tools, copiers, fax machines, paper moving equipment and appliances.

TYPES: Caged Type - **HK/BK/SCE/BCE**, Full Complement Type - **F/FH/MF/MFH/B/BH/M-1/MH-1**

1. INSPECTION OF DRAWN CUP NEEDLE ROLLER BEARINGS

Although the bearing cup is accurately drawn from strip steel, because of its fairly thin section it may go out of round during heat treatment. When the bearing is pressed into a true round housing or ring gage, of correct size and wall thickness, it becomes round and is sized properly. For this reason, it is incorrect to inspect an unmounted drawn cup bearing by measuring the outside diameter. The correct method for inspecting the bearing size is to:

1. Press the bearing into a ring gage of proper size.
2. Plug the bearing bore with the appropriate “go” and “no go” gages or measure it with a tapered arbor (lathe mandrel).

The “go” gage size is the minimum needle roller complement bore diameter. The “no go” gage size is larger than the maximum needle roller complement bore diameter by 0.002 mm.

Table 1-1. Tolerances for Metric Series Drawn Cup Needle Roller Bearings

Nominal Bore Diameter	Ring Gage	Dimensions of Needle Roller Complement Bore Diameter (mm)	
mm	mm	Min.	Max.
3	**6.484**	3.006	3.024
4	**7.984**	4.010	4.028
5	**8.984**	5.010	5.028
6	**9.984**	6.010	6.028
7	**10.980**	7.013	7.031
8	**11.980**	8.013	8.031
9	**12.980**	9.013	9.031
10	**13.980**	10.013	10.031
12	**15.980**	12.016	12.034
12	**17.980**	12.016	12.034
13	**18.976**	13.016	13.034
14	**19.976**	14.016	14.034
15	**20.976**	15.016	15.034

Table 1-2. Tolerances for Metric Series Drawn Cup Needle Roller Bearings

Nominal Bore Diameter	Ring Gage	Dimensions of Needle Roller Complement Bore Diameter (mm)	
mm	mm	Min.	Max.
16	**21.976**	16.016	16.034
17	**22.976**	17.016	17.034
18	**23.976**	18.016	18.034
20	**25.976**	20.020	20.041
22	**27.976**	22.020	22.041
25	**31.972**	25.020	25.041
28	**34.972**	28.020	28.041
30	**36.972**	30.020	30.041
35	**41.972**	35.025	35.050
40	**46.972**	40.025	40.050
45	**51.967**	45.025	45.050
50	**57.967**	50.025	50.050
60	**67.967**	30.030	60.060

Table 2-1. Tolerances for Inch Series Drawn Cup Needle Roller Bearings

Nominal Bore Designation	Nominal Bore Diameter	Ring Gage	Dimensions of Needle Roller Complement Bore Diameter (inch)	
	inch	inch	Min.	Max.
2	0.1250	0.2505	0.1258	0.1267
2 1/2	0.1562	0.2817	0.1571	0.1580
3	0.1875	0.3437	0.1883	0.1892
4	0.2500	0.4380	0.2515	0.2524
5	0.3125	0.5005	0.3140	0.3149
H 5	0.3125	0.5630	0.3140	0.3149
6	0.3750	0.5630	0.3765	0.3774
H 6	0.3750	0.6255	0.3765	0.3774
7	0.4375	0.6255	0.4390	0.4399
H 7	0.4375	0.6880	0.4390	0.4399
8	0.5000	0.6880	0.5015	0.5024
H 8	0.5000	0.7505	0.5015	0.5024
9	0.5625	0.7505	0.5640	0.5649
H 9	0.5625	0.8130	0.5640	0.5649
10	0.6250	0.8130	0.6265	0.6274
H 10	0.6250	0.8755	0.6265	0.6274
11	0.6875	0.8755	0.6890	0.6899
H 11	0.6875	0.9380	0.6890	0.6899
12	0.7500	0.9995	0.7505	0.7514
H 12	0.7500	1.0620	0.7505	0.7514
13	0.8125	1.0620	0.8130	0.8139
H 13	0.8125	1.1245	0.8130	0.8139
14	0.8750	1.1245	0.8755	0.8764
H 14	0.8750	1.1870	0.8755	0.8764

Table 2-2. Tolerances for Inch Series Drawn Cup Needle Roller Bearings

Nominal Bore Designation	Nominal Bore Diameter	Ring Gage	Dimensions of Needle Roller Complement Bore Diameter (inch)	
	Inch	inch	Min.	Max.
15	0.9375	1.1870	0.9380	0.9389
16	1.0000	1.2495	1.0005	1.0014
H 16	1.0000	1.3120	1.0005	1.0014
17	1.0625	1.3120	1.0630	1.0639
18	1.1250	1.3745	1.1255	1.1264
H 18	1.1250	1.4995	1.1255	1.1264
19	1.1875	1.4995	1.1880	1.1889
20	1.2500	1.4995	1.2505	1.2514
H 20	1.2500	1.6245	1.2505	1.2514
21	1.3125	1.6245	1.3130	1.3140
22	1.3750	1.6245	1.3755	1.3765
H 22	1.3750	1.7495	1.3755	1.3765
24	1.5000	1.8745	1.5005	1.5016
26	1.6250	1.9995	1.6255	1.6266
28	1.7500	2.1245	1.7505	1.7517
30	1.8750	2.2495	1.8755	1.8767
32	2.0000	2.3745	2.0006	2.0018
H 33	2.0625	2.5307	2.0630	2.0644
34	2.1250	2.4995	2.1256	2.1270
36	2.2500	2.6245	2.2506	2.2520
42	2.6250	2.9995	2.6260	2.6274
44	2.7500	3.1245	2.7510	2.7524
56	3.5000	3.9995	3.5010	3.5024
88	5.5000	5.9990	5.5010	5.5029

Table3. Tolerances for the Width of Drawn Cup Needle Roller Bearings

Series	Tolerance (mm)
Metric	- 0.30 ~ 0
Inch	- 0.30 ~ 0

2. INSTALLATION OF DRAWN CUP NEEDLE ROLLER BEARINGS

2.1 RECOMMENDED SHAFT AND HOUSING BORE TOLERANCES.

Table 4. Recommended Shaft and Housing Bore Tolerances.

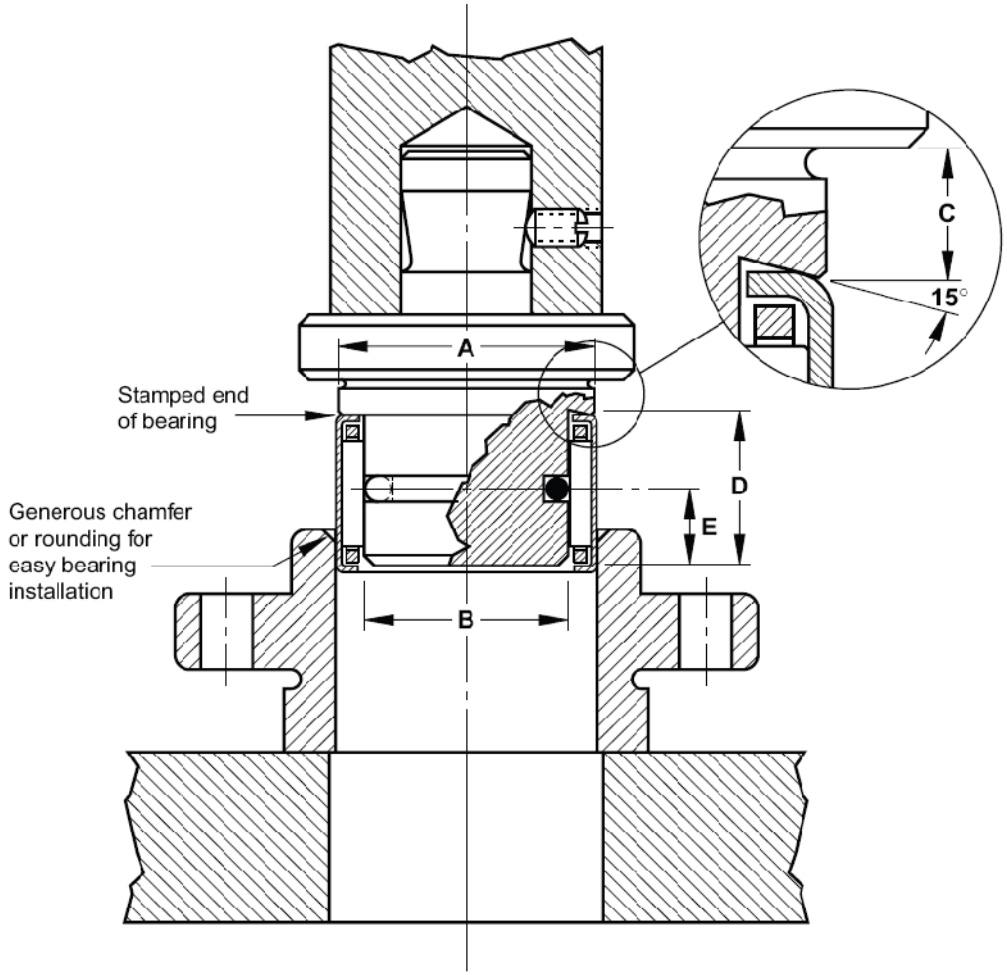
Housing Material	Housing Bore	Shaft	
		With Inner Ring	Without Inner Ring
Steel or Cast Iron	N6(N7)	k5(j6)	h5(h6)
Light Alloy	R6(R7)	k5(j6)	h5(h6)

2.2 GENERAL INSTALLATION REQUIREMENTS

- A drawn cup needle bearing must be pressed into its housing.
- An installation tool similar to the one illustrated, must be used in conjunction with a standard press.
- The bearing must not be hammered into its housing even in conjunction with the proper assembly mandrel.
- The bearing must not be pressed tightly against a shoulder in the housing.
- If it is necessary to use a shouldered housing, the depth of the housing bore must be sufficient to ensure that the housing shoulder fillet, as well as the shoulder face, clears the bearing.
- The installation tool must be coaxial with the housing bore.

2.3 INSTALLATION OF OPEN ENDS DRAWN CUP BEARINGS

It is advisable to utilize a positive stop on the press tool to locate the bearing properly in the housing. The assembly should have a leader or a pilot, as shown, to aid in starting bearing true in the housing. The "O" ring shown on the drawing may be used to assist in holding the bearing on the installation tool. The bearing should be installed with the marked end (the end with the identification markings) against the angled shoulder of the pressing tool.



A — 0.4 mm less than housing bore

B — 0.08 mm less than shaft diameter

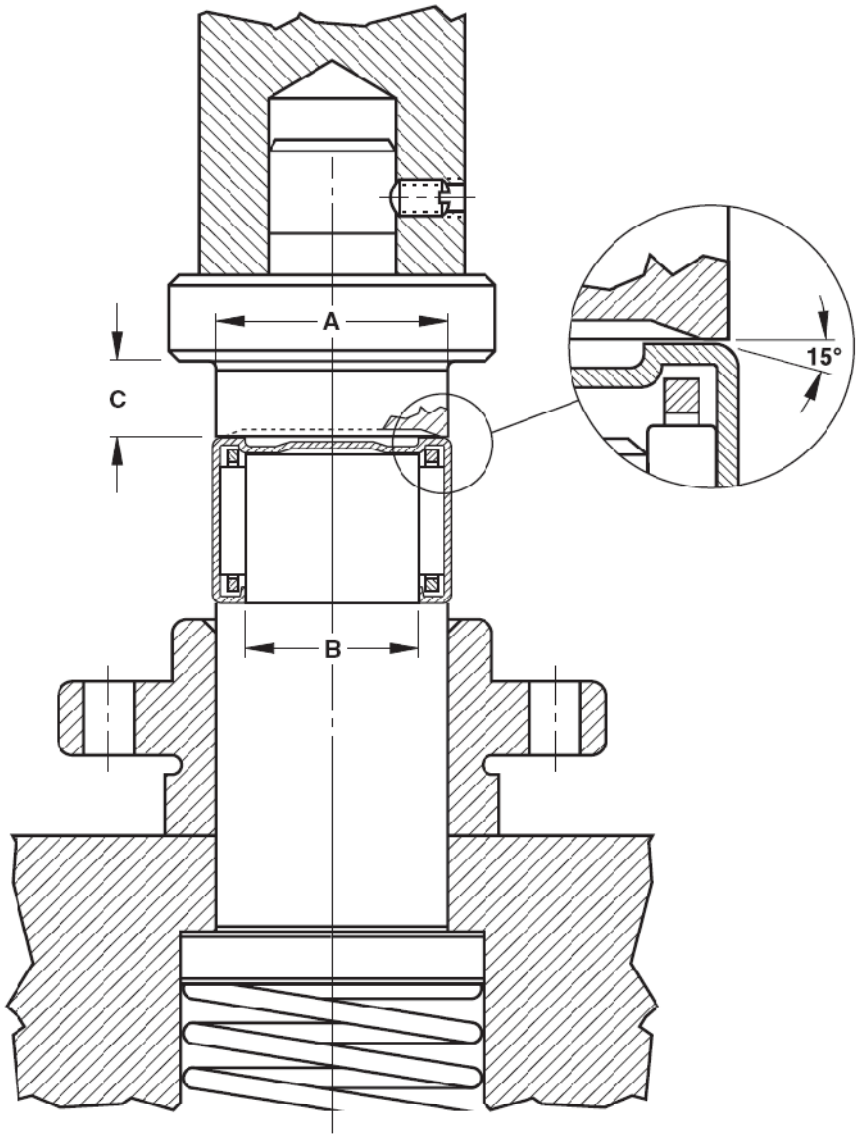
C — distance bearing will be inset into housing, minimum of 0.2 mm

D — pilot length should be length of bearing less 0.8 mm

E — approximately $^1/_2$ D

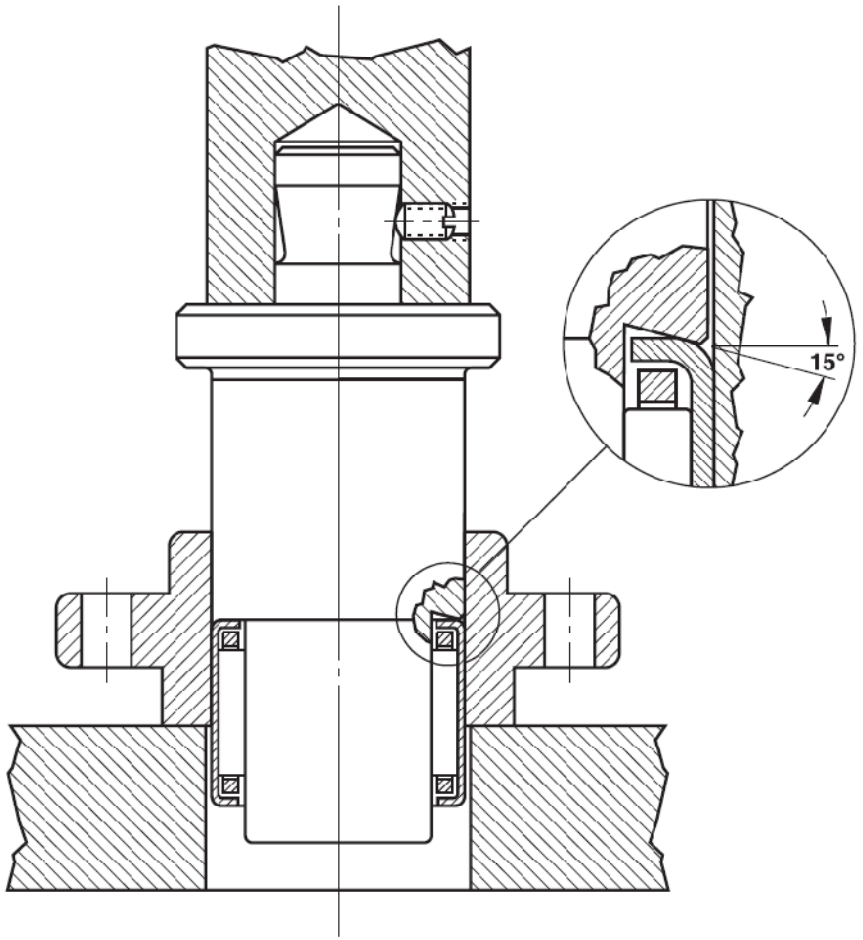
2.4 INSTALLATION OF CLOSED END DRAWN CUP BEARINGS

Bearing can be piloted from below for installation.



2.5 EXTRACTION FROM A STRAIGHT HOUSING

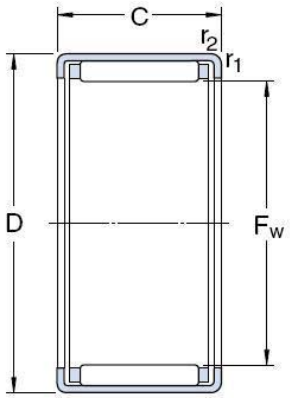
Bearing can be extracted by pushing it through the housing. After extraction, the drawn cup bearing should not be reused.



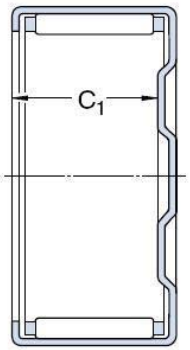
DRAWN CUP NEEDLE ROLLER BEARINGS

- Drawn Cup Needle Roller Bearings
  - Metric Series
    - Caged Type
    - Open Ends (HK) and Closed One End (BK)

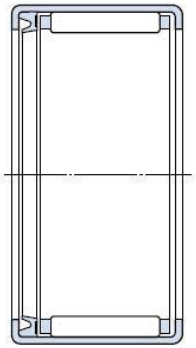
  Suffix:
    - RS — One Seal
    - 2RS — Two Seals
    - OH — Lubrication Hole
    - TN — Plastic Cage

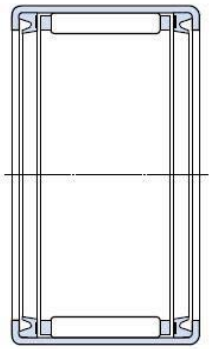


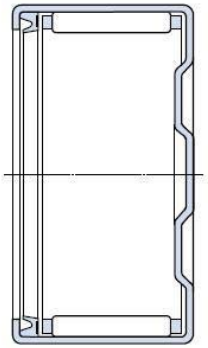
HK,SCE Series



BK,BCE Series


HK-RS,BCE-P Series


HK-2RS,SCE-PP Series


HK-RS,SCE-P Series

Bearing Designation		Dimensions(mm)			Load Rating(kN)		Limiting Speed(RPM)	Mass(kg)	
		Fw	D	C	Dynamic	Static	Oil	HK	BK
HK0306	**BK0306**	3	6.5	6	1.23	0.84	48000	0.001	0.001
HK0408	**BK0408**	4	8	8	1.78	1.31	42500	0.002	0.002.
HK0509	**BK0509**	5	9	9	2.40	1.99	39000	0.002	0.002
HK0606	-	6	10	6	1.61	1.22	36500	0.002	-
HK0608	-	6	10	8	2.03	1.65	36500	0.002	-
HK0609	**BK0609**	6	10	9	2.85	2.60	36500	0.003	0.003
HK0709	**BK0709**	7	11	9	3.10	2.95	33000	0.003	0.003
HK0808	**BK0808**	8	12	8	2.75	2.60	29500	0.003	0.003
HK0810	**BK0810**	8	12	10	3.80	3.95	29500	0.003	0.003
HK0908	-	9	13	8	3.55	3.75	26500	0.003	-
HK0910	**BK0910**	9	13	10	4.25	4.65	26500	0.004	0.004
HK0912	**BK0912**	9	13	12	5.30	6.30	26500	0.005	0.005
HK1010	**BK1010**	10	14	10	4.40	5.10	24300	0.004	0.004
HK1012	**BK1012**	10	14	12	5.50	6.80	24300	0.005	0.005
HK1015	-	10	14	15	6.80	8.80	24300	0.006	0.006
HK1210	**BK1210**	12	16	10	4.95	6.20	20700	0.005	0.005
HK1212	**BK1212**	12	18	12	6.50	7.30	20700	0.009	0.010

Bearing Designation		Dimensions(mm)			Load Rating(kN)		Limiting Speed(RPM)	Mass(kg)	
		Fw	D	C	Dynamic	Static	Oil	HK	BK
HK1312	**BK1312**	13	19	12	6.80	7.90	18700	0.010	0.011
HK1412	**BK1412**	14	20	12	7.10	8.50	17500	0.011	0.012
HK1512	**BK1512**	15	21	12	7.90	9.40	16300	0.011	0.013
HK1516	**BK1516**	15	21	16	10.50	16.40	16300	0.015	0.017
HK1522	-	15	21	22	13.40	19.50	16300	0.020	-
HK1612	**BK1612**	16	22	12	7.60	9.70	15600	0.012	0.014
HK1616	**BK1616**	16	22	16	10.90	15.30	15600	0.016	0.018
HK1622	**BK1622**	16	22	22	13.10	19.40	15600	0.022	0.024
HK1712	-	17	23	12	7.90	10.30	14700	0.012	-
HK1812	**BK1812**	18	24	12	8.10	10.90	14000	0.013	0.015
HK1816	**BK1816**	18	24	16	11.60	17.30	14000	0.018	0.020
HK2010	-	20	26	10	6.40	8.20	12700	0.012	-
HK2012	-	20	26	12	8.60	12.10	12700	0.014	-
HK2016	**BK2016**	20	26	16	12.70	20.10	12700	0.019	0.022
HK2020	**BK2020**	20	26	20	15.70	26.00	12700	0.024	0.027
HK2030	-	20	26	30	21.80	40.00	12700	0.035	-
HK2210	-	22	28	10	7.50	10.50	11700	0.013	

DRAWN CUP NEEDLE ROLLER BEARINGS

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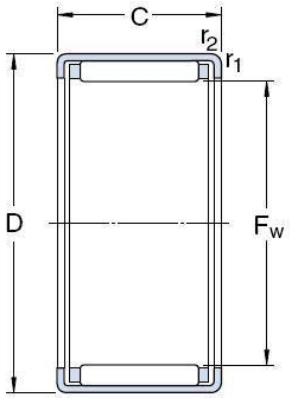
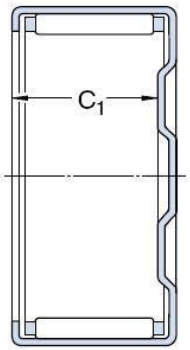
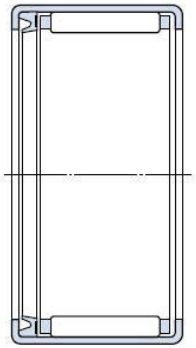
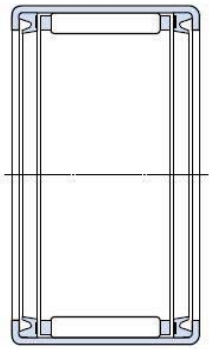


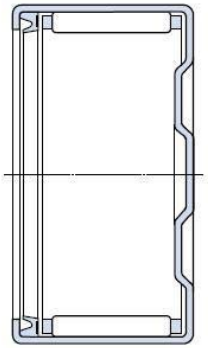
HK,SCE Series



BK,BCE Series


HK-RS,BCE-P Series


HK-2RS,SCE-PP Series


HK-RS,SCE-P Series

Bearing Designation		Dimensions(mm)			Load Rating(kN)		Limiting Speed(RPM)	Mass(kg)	
		Fw	D	C	Dynamic	Static	Oil	HK	BK
HK2212	**BK2212**	22	28	12	9.10	13.40	11700	0.015	0.018
HK2216	**BK2216**	22	28	16	13.40	22.10	11700	0.021	0.024
HK2220	-	22	28	20	16.50	29.00	11700	0.026	-
HK2512	-	25	32	12	11.00	15.20	10200	0.020	-
HK2516	**BK2516**	25	32	16	15.60	24.00	10200	0.027	0.032
HK2520	**BK2520**	25	32	20	19.90	33.00	10200	0.033	0.038
HK2526	**BK2526**	25	32	26	25.50	45.00	10200	0.044	0.048
HK2538	**BK2538**	25	32	38	34.00	66.00	10200	0.064	0.068
HK2816	-	28	35	16	16.40	26.50	9200	0.029	
HK2820	**BK2820**	28	35	20	20.90	36.00	9200	0.036	0.040
HK3012	**BK3012**	30	37	12	12.10	18.20	8600	0.023	0.028
HK3016	-	30	37	16	17.2	29.00	8600	0.031	
HK3020	**BK3020**	30	37	20	22.00	39.50	8600	0.039	0.044
HK3022		30	37	22	24.80	46.00	8600	0.042	
HK3026	**BK3026**	30	37	26	28.00	54.00	8600	0.051	0.056
HK3038	**BK3038**	30	37	38	37.50	79.00	8600	0.076	0.081
HK3220		32	39	20	23.00	42.50	8100	0.041	

Bearing Designation		Dimensions(mm)			Load Rating(kN)		Limiting Speed(RPM)	Mass(kg)	
		Fw	D	C	Dynamic	Static	Oil	HK	BK
HK3224		32	39	24	27.50	54.00	8100	0.049	
HK3512	-	35	42	12	1310	21.30	7500	0.027	
HK3516	-	35	42	16	18.70	33.50	7500	0.036	
HK3520	**BK3520**	35	42	20	23.80	46.00	7500	0.044	0.050
HK4012	-	40	47	12	14.00	24.30	6600	0.030	
HK4016	-	40	47	16	20.00	38.50	6600	0.039	
HK4020	**BK4020**	40	47	20	25.50	52.08	6600	0.054	0.060
HK4512	-	45	52	12	14.90	27.50	5900	0.033	
HK4516	-	45	52	16	21.30	43.00	5900	0.046	
HK4520	**BK4520**	45	52	20	27.00	59.00	5900	0.056	0.062
HK5020	-	50	58	20	31.00	63.00	5300	0.070	
HK5025	-	50	58	25	38.50	84.00	5300	0.090	
HK5520	-	55	63	20	31.50	67.00	4850	0.074	
HK5528	-	55	63	28	44.00	103.00	4850	0.105	
HK6012	-	60	68	12	17.40	32.00	4450	0.049	
HK6020	-	60	68	20	33.50	75.00	4450	0.081	
HK6032	-	60	68	32	53.00	135.00	4450	0.136	

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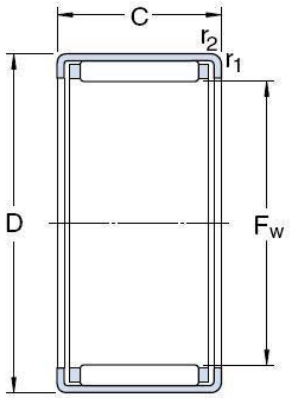
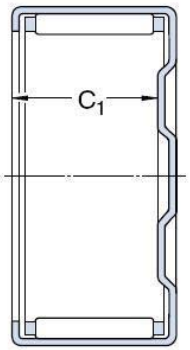
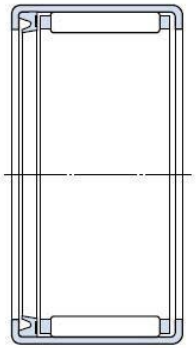
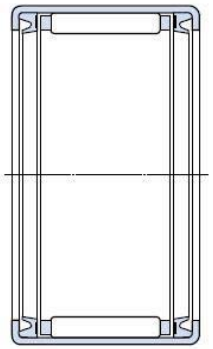


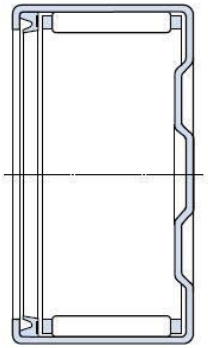
HK,SCE Series



BK,BCE Series


HK-RS,BCE-P Series


HK-2RS,SCE-PP Series


HK-RS,SCE-P Series

Bearing Designation		Dimensions(mm/in.)			Load Rating(kN)		Limiting Speed(RPM)	Mass(kg)
		Fw	D	C	Dynamic	Static	Oil	Approx
SCE24 TN	**B**CE24 TN	3.175 1/8	6.35 0.25	6.35 0.25	1.07	0.74	31500	0.001
SCE2 1/2-4	-	3.969 5/32	7.145 0.281	6.35 0.25	1.26	0.94	25000	0.001
SCE34 TN	**B**CE34 TN	4.762 3/16	8.731 0.344	6.35 0.25	1.79	1.36	21000	0.001
SCE36	**B**CE36	4.762 3/16	8.731 0.344	9.525 0.375	2.80	2.44	21000	0.002
SCE44	**B**CE44	6.35 1/4	11.112. 0.437	6.35 0.25	1.60	1.20	44000	0.002
SCE45	**B**CE45	6.35 1/4	11.112. 0.437	7.938 0.313	1.60	1.20	44000	0.002
SCE47	**B**CE47	6.35 1/4	11.112. 0.437	11.112 0.437	4.00	3.85	44000	0.004
SCE55	**BCE55**	7.938 5/16	12.7 0.5	7.938 0.313	2.90	2.60	36500	0.004
SCE57	**BCE57**	7.938 5/16	12.7 0.5	11.112 0.437	4.70	4.85	35500	0.006

Bearing Designation		Dimensions(mm/in.)			Load Rating(kN)		Limiting Speed(RPM)	Mass(kg)
		Fw	D	C	Dynamic	Static	Oil	Approx
SCE59	**BCE59**	7.938 5/16	12.7 0.5	14.288 0.563	6.00	6.60	35500	0.006
SCE65	**BCE65**	9.525 3/8	14.288 0.563	7.938 0.313	2.90	2.70	29500	0.003
SCE66	**BCE66**	9.525 3/8	14.288 0.563	9.525 0.375	3.90	3.95	29500	0.004
SCE67	**BCE67**	9.525 3/8	14.288 0.563	11.112 0.437	4.35	4.60	29500	0.005
SCE68	**BCE68**	9.525 3/8	14.288 0.563	12.7 0.5	5.80	6.60	29500	0.006
SCE610	**BCE610**	9.525 3/8	14.288 0.563	15.875 0.625	7.40	9.00	29500	0.007
SCE78	**BCE78**	11.112 7/16	15.875 0.625	12.7 0.5	6.40	7.80	25000	0.007
SCE710	-	11.112 7/16	15.875 0.625	15.875 0.625	8.10	10.70	25000	0.009
SCE85	**BCE85**	12.7 1/2	17.462 0.687	7.938 0.313	3.65	3.95	22000	0.004

DRAWN CUP NEEDLE ROLLER BEARINGS

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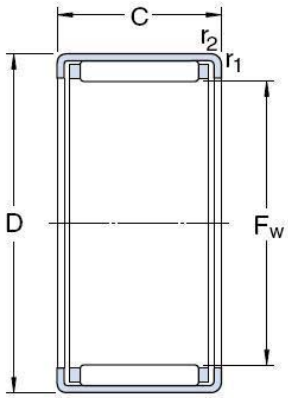
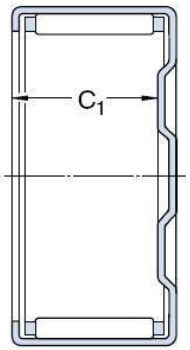
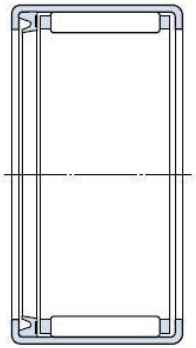
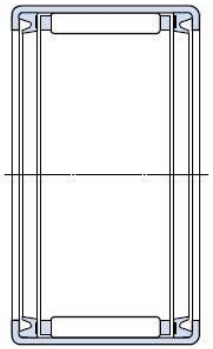


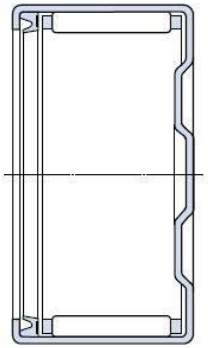
HK,SCE Series



BK,BCE Series


HK-RS,BCE-P Series


HK-2RS,SCE-PP Series


HK-RS,SCE-P Series

Bearing Designation		Dimensions(mm/in.)			Load Rating(kN)		Limiting Speed(RPM)	Mass(kg)
		Fw	D	C	Dynamic	Static	Oil	Approx
SCE86	BCE86	12.7 1/2	17.462 0.687	9.525 0.375	4.60	5.40	22000	0.005
SCE87	BCE87	12.7 1/2	17.462 0.687	11.112 0.437	5.90	7.40	22000	0.006
SCE88	BCE88	12.7 1/2	17.462 0.687	12.7 0.5	6.90	9.00	22000	0.007
SCE810	BCE810	12.7 1/2	17.462 0.687	15.875 0.625	8.80	12.30	22000	0.009
SCE812	BCE812	12.7 1/2	17.462 0.687	19.05 0.75	9.90	14.30	22000	0.011
SCE96	BCE96	14.288 9/16	19.05 0.75	9.525 0.375	5.20	6.40	19600	0.006
SCE98	BCE98	14.288 9/16	19.05 0.75	12.7 0.5	7.70	10.80	19600	0.009
SCE910	BCE910	14.288 9/16	19.05 0.75	15.875 0.625	9.60	14.00	19600	0.010
SCE912	BCE912	14.288 9/16	19.05 0.75	19.05 0.75	10.70	16.40	19600	0.012

Bearing Designation		Dimensions(mm/in.)			Load Rating(kN)		Limiting Speed(RPM)	Mass(kg)
		Fw	D	C	Dynamic	Static	Oil	Approx
SCE105	BCE105	15.875 5/8	20.638 0.813	7.938 0.313	4.30	5.20	17600	0.005
SCE107	BCE1017	15.875 5/8	20.638 0.813	11.112 0.437	6.60	9.30	17600	0.008
SCE10-7 1/2	BCE10-7 1/2	15.875 5/8	20.638 0.813	11.912 0.469	7.10	10.30	17600	0.008
SCE108	BCE108	15.875 5/8	20.638 0.813	12.7 0.5	8.10	12.00	17600	0.009
SCE1010	BCE1010	15.875 5/8	20.638 0.813	15.875 0.625	10.40	16.30	17600	0.011
SCE1012	BCE1012	15.875 5/8	20.638 0.813	19.05 0.75	12.10	19.70	17600	0.014
SCE116	-	17.462 11/16	22.225 0.875	9.525 0.375	5.70	7.90	16000	0.006
SCE118	BCE118	17.462 11/16	22.225 0.875	12.7 0.5	8.60	13.20	16000	0.010
SCE1110	BCE1110	17.462 11/16	22.225 0.875	15.875 0.625	10.90	18.00	16000	0.013

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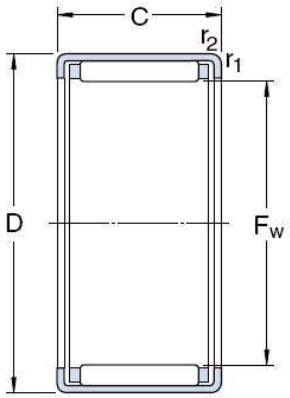
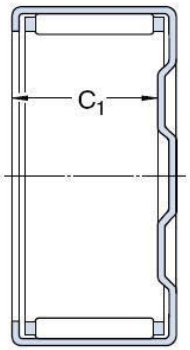
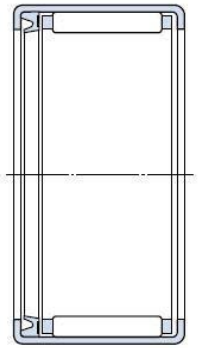
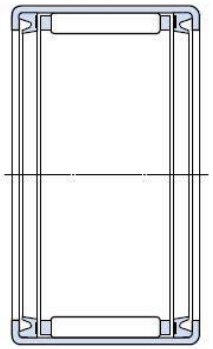


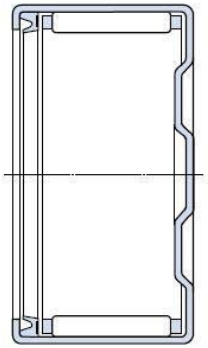
HK,SCE Series



BK,BCE Series


HK-RS,BCE-P Series


HK-2RS,SCE-PP Series


HK-RS,SCE-P Series

Bearing Designation		Dimensions(mm/in.)			Load Rating(kN)		Limiting Speed(RPM)	Mass(kg)
		Fw	D	C	Dynamic	Static	Oil	Approx
SCE1112	BCE1112	17.462 11/16	22.225 0.875	19.05 0.75	12.40	21.00	16000	0.016
SCE126	BCE126	19.05 3/4	25.4 1	9.525 0.375	7.10	8.30	14700	0.010
SCE128	BCE128	19.05 3/4	25.4 1	12.7 0.5	9.80	12.50	14700	0.014
SCE1210	BCE1210	19.05 3/4	25.4 1	15.875 0.625	12.80	17.50	14700	0.018
SCE1212	BCE1212	19.05 3/4	25.4 1	19.05 0.75	15.30	22.10	14700	0.021
SCE138	BCE138	20.638 13/16	26.988 1.063	12.7 0.5	10.80	14.30	13600	0.016
SCE1314	-	20.638 13/16	26.988 1.063	22.225 0.875	18.50	29.00	13600	0.027
SCE146	BCE146	22.225 7/8	28.575 1.125	9.525 0.375	8.20	10.70	12600	0.013
SCE148	BCE148	22.225 7/8	28.575 1.125	12.7 0.5	11.20	15.80	12600	0.019

Bearing Designation		Dimensions(mm/in.)			Load Rating(kN)		Limiting Speed(RPM)	Mass(kg)
		Fw	D	C	Dynamic	Static	Oil	Approx
SCE1412	BCE1412	22.225 7/8	28.575 1.125	19.05 0.75	16.90	27.00	12600	0.028
SCE1416	BCE1416	22.225 7/8	28.575 1.125	25.4 1	22.10	38.00	12600	0.034
SCE166	BCE166	25.4 1	31.75 1.25	9.525 0.375	7.80	10.20	11000	0.018
SCE168	BCE168	25.4 1	31.75 1.25	12.7 0.5	12.60	19.10	11000	0.019
SCE1612	BCE1612	25.4 1	31.75 1.25	19.05 0.75	18.50	31.50	11000	0.027
SCE1616	BCE1616	25.4 1	31.75 1.25	25.4 1	24.80	45.50	11000	0.038
SCE188	BCE188	28.575 1-1/8	34.925 1.375	12.7 0.5	12.80	20.20	9800	0.021
SCE1812	BCE1812	28.575 1-1/8	34.925 1.375	19.05 0.75	18.90	34.00	9800	0.030
SCE1816	BCE1816	28.575 1-1/8	34.925 1.375	25.4 1	26.00	49.50	9800	0.040

DRAWN CUP NEEDLE ROLLER BEARINGS

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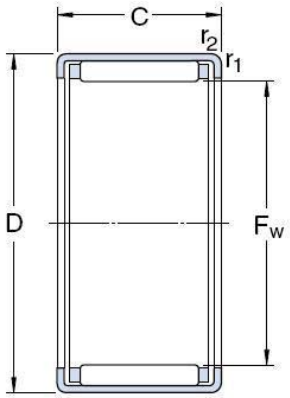
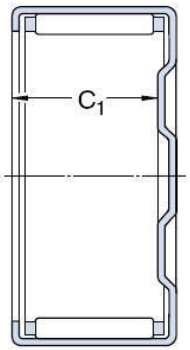
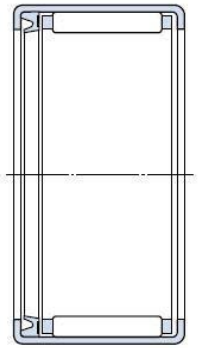
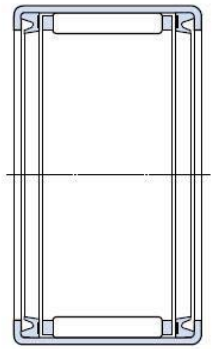


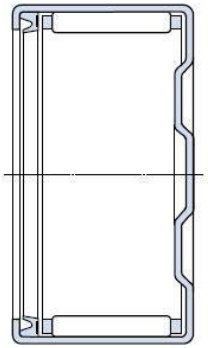
HK,SCE Series



BK,BCE Series


HK-RS,BCE-P Series


HK-2RS,SCE-PP Series


HK-RS,SCE-P Series

Bearing Designation		Dimensions(mm/in.)			Load Rating(kN)		Limiting Speed(RPM)	Mass(kg)
		Fw	D	C	Dynamic	Static	Oil	Approx
SCE208	BCE208	31.75 1-1/4	38.1 1.5	12.7 0.5	13.50	22.20	8800	0.022
SCE2010	BCE2010	31.75 1-1/4	38.1 1.5	15.875 0.625	16.50	29.00	8800	0.030
SCE2012	BCE2012	31.75 1-1/4	38.1 1.5	19.05 0.75	21.10	39.50	8800	0.037
SCE2016	BCE2016	31.75 1-1/4	38.1 1.5	25.4 1	27.00	55.00	8800	0.045
SCE2020	BCE2020	31.75 1-1/4	38.1 1.5	31.75 1.25	33.50	71.00	8800	0.056
SCE2110	-	33.338 1-5/16	41.275 1.625	15.875 0.625	21.10	34.00	8400	0.037
SCE228	BCE228	34.925 1-3/8	41.275 1.625	12.7 0.5	13.60	23.70	8000	0.025
SCE2212	BCE2212	34.925 1-3/8	41.275 1.625	19.05 0.75	21.50	42.50	8000	0.039
SCE2216	-	34.925 1-3/8	41.275 1.625	25.4 1	27.50	59.00	8000	0.058

Bearing Designation		Dimensions(mm/in.)			Load Rating(kN)		Limiting Speed(RPM)	Mass(kg)
		Fw	D	C	Dynamic	Static	Oil	Approx
SCE2220	BCE2220	34.925 1-3/8	41.275 1.625	31.75 1.25	34.00	77.00	8000	0.081
SCE248	BCE248	38.1 1-1/2	47.625 1.875	12.7 0.5	18.60	26.00	7400	0.048
SCE2410	BCE2410	38.1 1-1/2	47.625 1.875	15.875 0.625	24.40	36.50	7400	0.054
SCE2412	BCE2412	38.1 1-1/2	47.625 1.875	19.05 0.75	30.50	48.50	7400	0.062
SCE2414	BCE2414	38.1 1-1/2	47.625 1.875	22.225 0.875	36.00	60.00	7400	0.072
SCE2416	BCE2416	38.1 1-1/2	47.625 1.875	25.4 1	38.50	66.00	7400	0.083
SCE2420	BCE2420	38.1 1-1/2	47.625 1.875	31.75 1.25	47.50	86.00	7400	0.105
SCE2610	BCE2610	41.275 1-5/8	50.8 2	15.875 0.625	25.50	40.00	6800	0.055
SCE2620	BCE2620	41.275 1-5/8	50.8 2	31.75 1.25	51.00	97.00	6800	0.110

DRAWN CUP NEEDLE ROLLER BEARINGS

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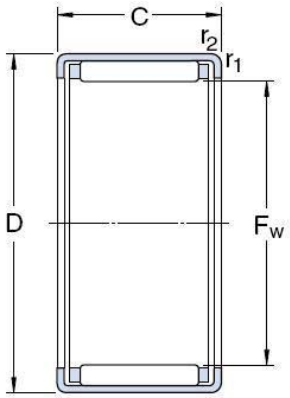
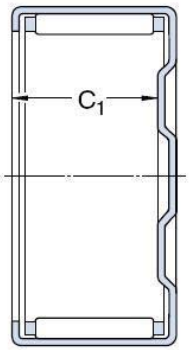
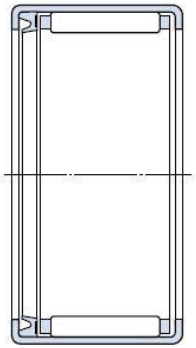
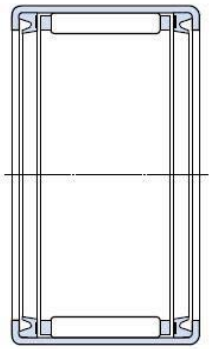


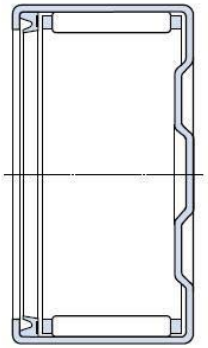
HK,SCE Series



BK,BCE Series


HK-RS,BCE-P Series


HK-2RS,SCE-PP Series

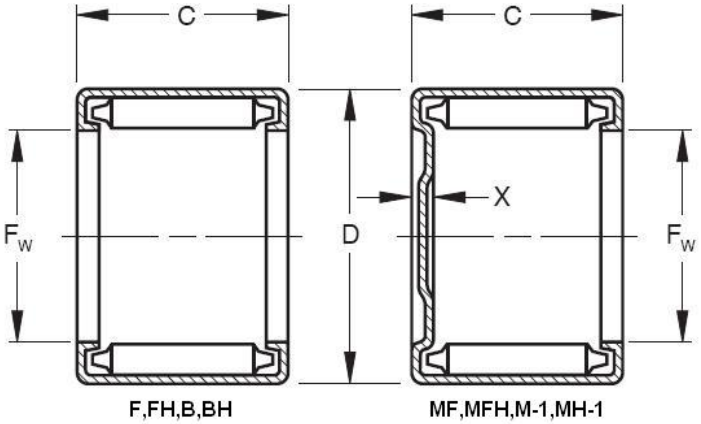

HK-RS,SCE-P Series

Bearing Designation		Dimensions(mm/in.)			Load Rating(kN)		Limiting Speed(RPM)	Mass(kg)
		Fw	D	C	Dynamic	Static	Oil	Approx
SCE2816	**BCE2816**	44.45 1-3/4	53.975 2.125	25.4 1	41.50	76.00	6300	0.115
SCE2824	**BCE2824**	44.45 1-3/4	53.975 2.125	38.1 1.5	62.00	130.00	6300	0.163
SCE328	**-**	50.8 2	60.325 2.375	12.7 0.5	21.80	35.00	5500	0.058
SCE3210	**-**	50.8 2	60.325 2.375	15.875 0.625	28.50	49.50	5500	0.068
SCE3216	**BCE3216**	50.8 2	60.325 2.375	25.4 1	41.50	80.00	5500	0.102

Bearing Designation		Dimensions(mm/in.)			Load Rating(kN)		Limiting Speed(RPM)	Mass(kg)
		Fw	D	C	Dynamic	Static	Oil	Approx
SCE348	**-**	53.975 2-1/8	63.5 2.5	12.7 0.5	25.20	39.00	5200	0.062
SCE3410	**BCE3410**	53.975 2-1/8	63.5 2.5	15.875 0.625	31.00	57.00	5200	0.072
SCE3612	**BCE3412**	57.15 2-1/4	66.675 2.625	19.05 0.75	37.50	72.00	4900	0.089
SCE3616	**BCE3416**	57.15 2-1/4	66.675 2.625	25.4 1	50.00	107.00	4900	0.120
SCE4412	**BCE4412**	69.85 2-3/4	79.375 3.125	19.05 0.75	38.50	80.00	4000	0.132

DRAWN CUP NEEDLE ROLLER BEARINGS

- Drawn Cup Needle Roller Bearings
  - Metric Series
    - Full Complement Type
    - Open Ends (F,FH) and Closed One End (MF,MFH)



Bearing Designation		Dimensions(mm)			Load Rating(kN)		Limiting Speed(RPM)	Mass(kg)	
		Fw	D	C	Dynamic	Static	Oil	F	MF
FH0810	**MFH0810**	8	14	10	5.55	6.70	10000	0.006	0.006
FH0910	**MFH0910**	9	15	10	6.10	7.50	10000	0.004	0.007
F1010	**MF1010**	10	14	10	5.80	8.30	5600	0.005	0.005
FH1010	**MFH1010**	10	16	10	6.65	9.70	9000	0.007	0.007
F1210	**MF1210**	12	16	10	6.45	10.85	5000	0.005	0.006
F1212	**MF1212**	12	16	12	7.95	13.05	5000	0.007	0.007
FH1212	**MFH1212**	12	18	12	9.00	15.10	7500	0.010	0.011
F1312	**MF1312**	13	19	12	9.55	14.20	7100	0.011	0.012
F1412	**MF1412**	14	20	12	9.45	17.20	6000	0.012	0.014
F1413	**MF1413**	14	20	13	10.40	18.35	6000	0.013	0.015
F1416	**MF1416**	14	20	16	13.30	24.45	6000	0.018	0.019
F1510	**MF1510**	15	21	10	8.05	16.20	6000	0.010	0.012
F1512	**MF1512**	15	21	12	10.30	19.50	6000	0.012	0.014
F1514	**MF1514**	15	21	14	12.40	24.35	6000	0.015	0.016
F1516	**MF1516**	15	21	16	14.50	27.40	6000	0.017	0.018

Bearing Designation		Dimensions(mm)			Load Rating(kN)		Limiting Speed(RPM)	Mass(kg)	
		Fw	D	C	Dynamic	Static	Oil	F	MF
F1612	**MF1612**	16	22	12	10.20	21.50	5300	0.014	0.015
F1616	**MF1616**	16	22	16	14.40	29.60	5300	0.018	0.020
F1712	**MF1712**	17	23	12	11.30	23.40	5600	0.014	0.015
F1716	**MF1716**	17	23	16	15.80	29.50	5600	0.018	0.020
F1720	**MF1720**	17	23	20	20.20	37.15	5600	0.023	0.024
F1812	**MF1812**	18	24	12	10.90	25.45	5000	0.014	0.016
F1816	**MF1816**	18	24	16	15.30	34.30	5000	0.019	0.022
F2012	**MF2012**	20	26	12	11.50	27.80	4500	0.017	0.019
F2016	**MF2016**	20	26	16	16.20	37.60	4500	0.022	0.025
F2020	**MF2020**	20	26	20	20.50	44.50	4500	0.028	0.030
F2210	**MF2210**	22	28	10	9.40	17.80	4000	0.014	0.017
F2212	**MF2212**	22	28	12	12.10	30.65	4000	0.018	0.021
F2216	**MF2216**	22	28	16	17.10	40.35	4000	0.024	0.027
F2220	**MF2220**	22	28	20	21.60	48.20	4000	0.030	0.033
F2516	**MF2516**	25	32	16	20.20	43.50	4500	0.031	0.035

DRAWN CUP NEEDLE ROLLER BEARINGS

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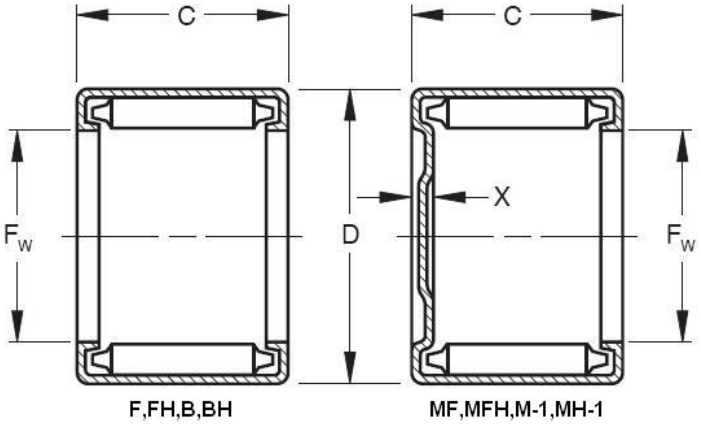

Bearing Designation		Dimensions(mm)			Load Rating(kN)		Limiting Speed(RPM)	Mass(kg)	
		F_W	D	C	Dynamic	Static	Oil	F	MF
F2520	**MF2520**	25	32	20	25.90	51.60	4500	0.040	0.043
F2526	**MF2526**	25	32	26	34.00	74.20	4500	0.052	0.055
F2812	**MF2812**	28	35	12	14.80	35.30	4000	0.026	0.032
F2816	**MF2816**	28	35	16	21.30	45.85	4000	0.035	0.040
F2820	**MF2820**	28	35	20	27.30	58.30	4000	0.044	0.048
F2826	**MF2826**	28	35	26	35.50	79.65	4000	0.057	0.062
F3014	**MF3014**	30	37	14	18.90	42.35	3800	0.030	0.034
F3016	**MF2016**	30	37	16	22.10	50.20	3800	0.035	0.040
F3020	**MF3020**	30	37	20	28.40	65.80	3800	0.046	0.051
F3026	**MF3026**	30	37	26	37.00	80.65	3800	0.061	0.066
F3512	**MF3512**	35	42	12	16.90	47.50	3400	0.031	0.038
F3516	**MF3516**	35	42	16	24.00	62.10	3400	0.042	0.049

Bearing Designation		Dimensions(mm)			Load Rating(kN)		Limiting Speed(RPM)	Mass(kg)	
		F_W	D	C	Dynamic	Static	Oil	F	MF
F3520	**MF3520**	35	42	20	31.00	71.20	3400	0.053	0.060
F3526	**MF3526**	35	42	26	40.00	102.5	3400	0.070	0.076
F4016	**MF4016**	40	47	16	25.70	67.40	3000	0.048	0.056
F4020	**MF4020**	40	47	20	32.50	97.50	3000	0.060	0.069
F4026	**MF4026**	40	47	26	43.00	115.4	3000	0.079	0.088
F4516	**MF4516**	45	52	16	27.30	77.20	2600	0.053	0.064
F4520	**MF4520**	45	52	20	35.00	105.20	2600	0.067	0.078
F4526	**MF4526**	45	52	26	45.50	125.0	2600	0.088	0.099
F5020	**MF5020**	50	58	20	39.50	115.5	2800	0.081	0.095
F5024	**MF5024**	50	58	24	48.00	137.6	2800	0.098	0.110
F5520	**MF5520**	55	63	20	41.50	127.4	2400	0.088	0.105
F5524	**MF5524**	55	63	24	50.50	150.3	2400	0.105	0.125

DRAWN CUP NEEDLE ROLLER BEARINGS

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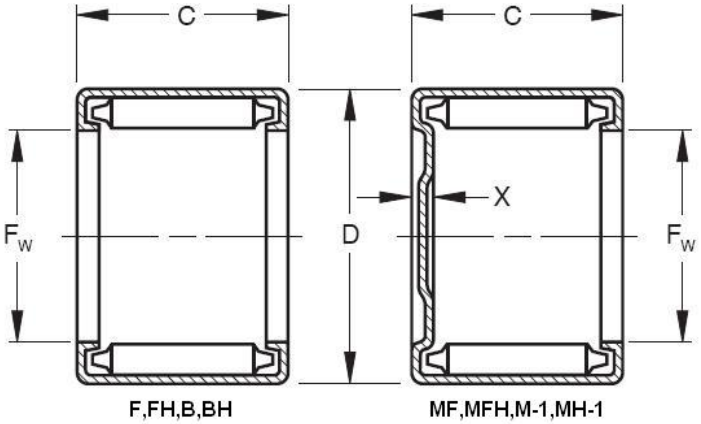

Bearing Designation		Dimensions(mm/in.)				Load Rating(kN)		Limiting Speed(RPM)		Mass(kg)	
		Fw	D	C	X	Dynamic	Static	Grease	Oil	B	M
B-24	-	3.175	6.350	6.35	-	1.73	1.65	8100	13000	0.001	-
		0.1250	0.2500	0.250							
B-2-1/2-4	-	3.970	7.142	6.35	-	2.00	2.00	7000	11000	0.001	-
		0.1563	0.2812	0.250							
B-2-1/2	-	3.970	7.142	7.92	-	2.58	2.80	7000	11000	0.001	-
		0.1563	0.2812	0.312							
B-34	**M-341**	4.763	8.733	6.35	1.78	2.22	2.14	7000	11000	0.001	0.002
		0.1875	0.3438	0.250	0.07						
B-36	**M-361**	4.763	8.733	9.53	1.78	3.78	4.23	7000	11000	0.002	0.003
		0.1875	0.3438	0.375	0.07						
B-44	**M-441**	6.350	11.113	6.35	2.03	2.76	2.62	6500	10000	0.002	0.003
		0.2500	0.4375	0.250	0.08						
B-45	**M-451**	6.350	11.113	7.92	2.03	3.56	3.69	6500	10000	0.003	0.004
		0.2500	0.4375	0.312	0.08						
B-46	-	6.350	11.113	9.53	-	4.54	5.03	6500	10000	0.004	-
		0.2500	0.4375	0.375							
B-47	**M-471**	6.350	11.113	11.13	2.03	5.52	6.45	6500	10000	0.004	0.005
		0.2500	0.4375	0.438	0.08						

Bearing Designation		Dimensions(mm/in.)				Load Rating(kN)		Limiting Speed(RPM)		Mass(kg)	
		Fw	D	C	X	Dynamic	Static	Grease	Oil	B	M
B-55	**M-551**	7.938	12.700	7.92	2.03	4.09	4.58	5400	8300	0.004	0.004
		3.125	0.5000	0.312	0.08						
B-56	-	7.938	12.700	9.53	-	5.25	6.32	5400	8300	0.005	-
		3.125	0.5000	0.375							
B-57	**M-571**	7.938	12.700	11.13	2.03	6.32	8.10	5400	8300	0.005	0.006
		3.125	0.5000	0.438	0.08						
B-59	-	7.938	12.700	14.27	-	8.36	11.60	5400	8300	0.006	-
		3.125	0.5000	0.562							
BH-57	**MH-571**	7.938	14.288	11.13	2.29	7.03	7.34	7500	12000	0.007	0.008
		3.125	0.5625	0.438	0.09						
BH-59	-	7.938	14.288	14.27	-	9.47	10.80	7500	12000	0..009	-
		3.125	0.5625	0.562							
B-65	**M-651**	9.525	14.288	7.92	2.03	4.54	5.52	4600	7100	0.004	0.005
		0.3750	0.5625	0.312	0.08						
B-66	**M-661**	9.525	14.288	9.53	2.03	5.83	7.61	4600	7100	0.005	0.005
		0.3750	0.5625	0.375	0.08						
B-67	-	9.525	14.288	11.13	-	7.07	9.70	4600	7100	0.006	-
		0.3750	0.5625	0.438							

DRAWN CUP NEEDLE ROLLER BEARINGS

- Drawn Cup Needle Roller Bearings
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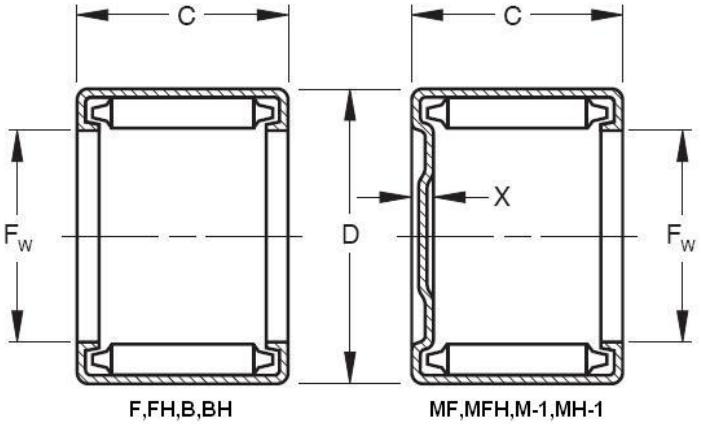

Bearing Designation		Dimensions(mm/in.)				Load Rating(kN)		Limiting Speed(RPM)		Mass(kg)	
		Fw	D	C	X	Dynamic	Static	Grease	Oil	B	M
B-68	**M-681**	9.525	14.288	12.70	2.03	8.18	11.80	4600	7100	0.007	0.008
		0.3750	0.5625	0.500	0.08						
B-69	**-**	9.525	14.288	14.27	-	9.34	13.92	4600	7100	0.007	-
		0.3750	0.5625	0.562							
B-610	**M-6101**	9.525	14.288	15.88	2.03	10.4	16.00	4600	7100	0.008	0.010
		0.3750	0.5625	0.625	0.08						
BH-68	**-**	9.525	15.875	12.70	-	9.34	10.09	6500	10000	0.010	-
		0.3750	0.6250	0.500							
B-76	**-**	11.113	15.875	9.53	-	6.36	8.90	4100	6300	0.005	-
		0.4375	0.6250	0.375							
B-77	**-**	11.113	15.875	11.13	-	7.70	11.30	4100	6300	0.007	-
		0.4375	0.6250	0.438							
B-78	**M-781**	11.113	15.875	12.70	2.03	8.99	13.80	4100	6300	0.008	0.009
		0.4375	0.6250	0.500	0.08						
B-710	**-**	11.113	15.875	15.88	-	11.30	18.70	4100	6300	0.010	-
		0.4375	0.6250	0.625							
BH-78	**-**	11.113	17.463	12.70	-	10.30	12.80	5700	8800	0.010	-
		0.4375	0.6875	0.500							

Bearing Designation		Dimensions(mm/in.)				Load Rating(kN)		Limiting Speed(RPM)		Mass(kg)	
		Fw	D	C	X	Dynamic	Static	Grease	Oil	B	M
B-85	**M-851**	12.700	17.463	7.92	2.03	5.34	7.38	3600	5600	0.005	0.006
		0.5000	0.6875	0.312	0.08						
B-86	**M-861**	12.700	17.463	9.53	2.03	6.85	10.1	3600	5600	0.006	0.007
		0.5000	0.6875	0.375	0.08						
B-87	**M-871**	12.700	17.463	11.13	2.03	8.32	13.0	3600	5600	0.007	0.008
		0.5000	0.6875	0.438	0.08						
B-88	**M-881**	12.700	17.463	12.70	2.03	9.61	15.7	3600	5600	0.009	0.010
		0.5000	0.6875	0.500	0.08						
B-810	**M-8101**	12.700	17.463	15.88	2.03	12.2	21.34	3600	5600	0.010	0.012
		0.5000	0.6875	0.625	0.08						
B-812	**M-8121**	12.700	17.463	19.05	2.03	14.7	27.0	3600	5600	0.013	0.014
		0.5000	0.6875	0.750	0.08						
BH-87	**-**	12.700	19.050	11.13	-	9.47	11.8	5100	7900	0.010	-
		0.5000	0.7500	0.438							
BH-88	**-**	12.700	19.050	12.70	-	11.2	14.6	5100	7900	0.012	-
		0.5000	0.7500	0.500							
BH-810	**-**	12.700	19.050	15.88	-	14.4	20.2	5100	7900	0.015	-
		0.5000	0.7500	0.625							

DRAWN CUP NEEDLE ROLLER BEARINGS

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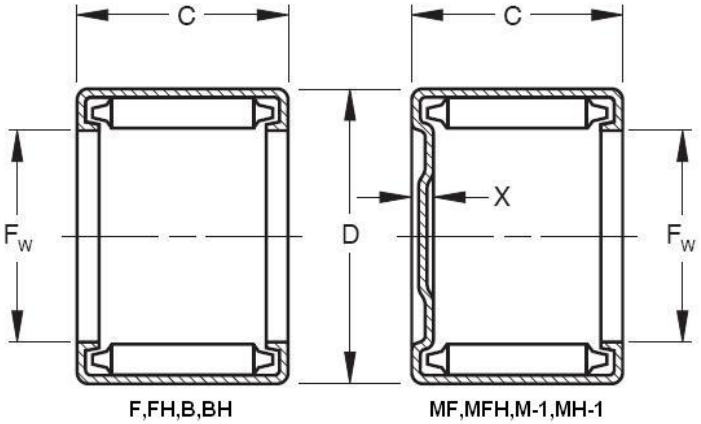

Bearing Designation		Dimensions(mm/in.)				Load Rating(kN)		Limiting Speed(RPM)		Mass(kg)	
		Fw	D	C	X	Dynamic	Static	Grease	Oil	B	M
BH-812	**MH-8121**	12.700	19.050	19.05	2.29	17.4	25.8	5100	7900	0.018	0.020
		0.5000	0.7500	0.750	0.09						
B-95	**M-951**	14.288	19.050	7.92	2.03	5.74	9.32	3300	5000	0.006	0.006
		0.5625	0.7500	0.312	0.08						
B-96	**M-961**	14.288	19.050	9.53	2.03	7.34	11.4	3300	5000	0.007	0.008
		0.5625	0.7500	0.375	0.08						
B-97	**M-971**	14.288	19.050	11.13	2.03	8.85	14.6	3300	5000	0.008	0.010
		0.5625	0.7500	0.438	0.08						
B-98	**M-981**	14.288	19.050	12.70	2.03	10.3	17.7	3300	5000	0.009	0.010
		0.5625	0.7500	0.500	0.08						
B-910	**M-9101**	14.288	19.050	15.88	2.03	13.1	24.0	3300	5000	0.012	0.013
		0.5625	0.7500	0.625	0.08						
B-912	**M-9121**	14.288	19.050	19.05	2.03	15.7	30.3	3300	5000	0.014	0.015
		0.5625	0.7500	0.750	0.08						
BH-98	**-**	14.288	20.638	12.70	-	12.0	16.5	4600	7100	0.013	-
		0.5625	0.8125	0.500							
BH-910	**-**	14.288	20.638	15.88	-	15.4	22.7	4600	7100	0.016	-
		0.5625	0.8125	0.625							

Bearing Designation		Dimensions(mm/in.)				Load Rating(kN)		Limiting Speed(RPM)		Mass(kg)	
		Fw	D	C	X	Dynamic	Static	Grease	Oil	B	M
BH-912	**-**	14.288	20.638	19.05	-	18.6	29.0	4600	7100	0.020	-
		0.5625	0.8125	0.750							
B-105	**M-1051**	15.875	20.638	7.92	2.03	6.1	9.25	3000	4500	0.006	0.007
		0.6250	0.8125	0.312	0.08						
B-107	**M-1071**	15.875	20.638	11.13	2.03	9.39	16.2	3000	4500	0.009	0.010
		0.6250	0.8125	0.438	0.08						
B-108	**M-1081**	15.875	20.638	12.70	2.03	10.9	19.7	3000	4500	0.010	0.012
		0.6250	0.8125	0.500	0.08						
B-1010	**M-10101**	15.875	20.638	15.88	2.03	13.80	26.70	3000	4500	0.013	0.015
		0.6250	0.8125	0.625	0.08						
B-1012	**M-10121**	15.875	20.638	19.05	2.03	16.6	33.7	3000	4500	0.015	0.017
		0.6250	0.8125	0.750	0.08						
BH-108	**MH-1081**	15.875	22.212	12.70	2.29	12.7	18.3	4200	6500	0.014	0.016
		0.6250	0.8745	0.500	0.09						
BH-1010	**-**	15.875	22.212	15.88	-	16.4	25.3	4200	6500	0.018	-
		0.6250	0.8745	0.625							
BH-1012	**-**	15.875	22.212	19.05	-	19.8	32.3	4200	6500	0.021	-
		0.6250	0.8745	0.750							

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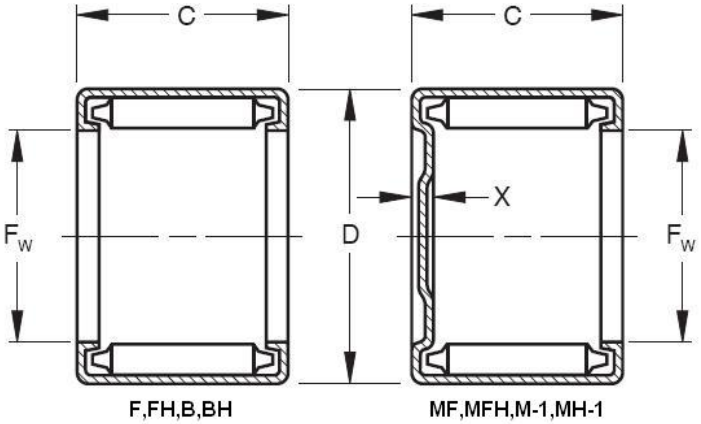

Bearing Designation		Dimensions(mm/in.)				Load Rating(kN)		Limiting Speed(RPM)		Mass(kg)	
		Fw	D	C	X	Dynamic	Static	Grease	Oil	B.	M
BH-1016	-	15.875	22.212	25.40	-	26.2	46.3	4200	6500	0.028	-
		0.6250	0.8745	1.000							
B-116	M-1161	17.463	22.212	9.53	2.03	8.18	14.0	2700	4200	0.008	0.009
		0.6875	0.8745	0.375	0.08						
B-118	M-1181	17.463	22.212	12.70	2.03	11.5	21.7	2700	4200	0.011	0.012
		0.6875	0.8745	0.500	0.08						
B-1110	M-11101	17.463	22.212	15.88	2.03	14.6	29.4	2700	4200	0.014	0.015
		0.6875	0.8745	0.625	0.08						
B-1112	M-11121	17.463	22.212	19.05	2.03	17.4	37.1	2700	4200	0.016	0.019
		0.6875	0.8745	0.750	0.08						
BH-117	-	17.463	23.813	11.13	-	11.4	16.2	3900	6000	0.014	-
		0.6875	0.9375	0.438							
BH-1110	M-11101	17.463	23.813	15.88	2.29	17.9	27.8	3900	6000	0.019	0.021
		0.6875	0.9375	0.625	0.09						
BH-1112	-	17.463	23.813	19.05	-	20.9	35.5	3900	6000	0.023	-
		0.6875	0.9375	0.750							
B-126	M-1261	19.050	25.400	9.53	2.29	9.7	13.6	3600	5600	0.012	0.014
		0.7500	1.0000	0.375	0.09						

Bearing Designation		Dimensions(mm/in.)				Load Rating(kN)		Limiting Speed(RPM)		Mass(kg)	
		Fw	D	C	X	Dynamic	Static	Grease	Oil	B	M
B-128	M-1281	19.050	25.400	12.70	2.29	14.1	22.0	3600	5600	0.016	0.019
		0.7500	1.0000	0.500	0.09						
B-1210	M-12101	19.050	25.400	15.88	2.29	18.2	30.3	3600	5600	0.020	0.024
		0.7500	1.0000	0.625	0.09						
B-1212	M-12121	19.050	25.400	19.05	2.29	21.9	38.7	3600	5600	0.024	0.028
		0.7500	1.0000	0.750	0.09						
B-136	-	20.638	26.988	9.53	-	10.1	14.68	3400	5200	0.013	-
		0.8125	1.0625	0.375							
B-138	M-1381	20.638	26.988	12.70	2.29	14.8	23.80	3400	5200	0.018	0.020
		0.8125	1.0625	0.500	0.09						
B-1314	M-13141	20.638	26.988	22.23	2.29	26.7	51.15	3400	5200	0.031	0.035
		0.8125	1.0625	0.875	0.09						
B-1316	M-13161	20.638	26.988	25.40	2.29	30.3	60.05	3400	5200	0.035	0.040
		0.8125	1.0625	1.000	0.09						
B-1320	-	20.638	26.988	31.75	-	37.3	78.29	3500	5200	0.044	-
		0.8125	1.0625	1.250							
BH-138	M-1381	20.643	28.575	12.70	2.79	14.9	20.82	4100	6300	0.023	0.026
		0.8125	1.1250	0.500	0.11						

DRAWN CUP NEEDLE ROLLER BEARINGS

- Drawn Cup Needle Roller Bearings
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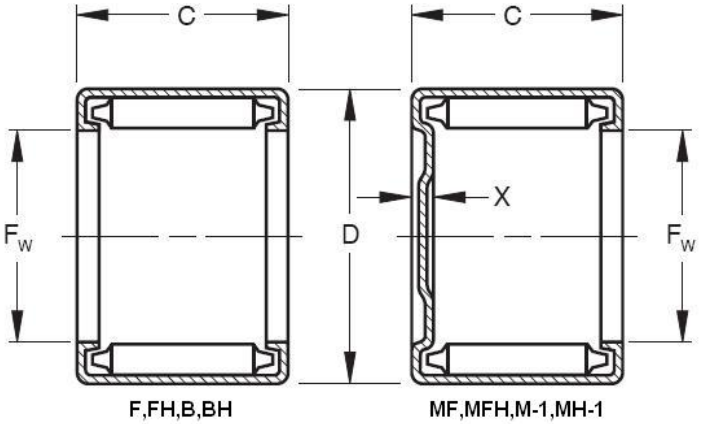
    - Full Complement Type
    - Open Ends (B,BH) and Closed One End (M-1,MH-1)



Bearing Designation		Dimensions(mm/in.)				Load Rating(kN)		Limiting Speed(RPM)		Mass(kg)	
		Fw	D	C	X	Dynamic	Static	Grease	Oil	B.	M
BH-1310	MH-13101	20.643	28.575	15.88	2.79	19.70	29.89	4100	6300	0.029	0.032
		0.8125	1.1250	0.625	0.11						
BH-1312	MH-13121	20.643	28.575	19.05	2.79	24.2	38.97	4100	6300	0.034	0.039
		0.8125	1.1250	0.35	0.11						
B-146	M-1461	22.225	28.575	9.53	2.29	10.5	15.84	3100	4800	0.014	0.016
		0.8750	1.1250	0.375	0.09						
B-148	M-1481	22.225	28.575	12.70	2.29	15.4	25.62	3100	4800	0.0119	0.022
		0.8750	1.1250	0.500	0.09						
B-1412	M-14121	22.225	28.575	19.05	2.29	23.9	45.37	3100	4800	0.028	0.032
		0.8750	1.1250	0.750	0.09						
B-1416	M-14161	22.225	28.575	25.40	2.29	31.6	64.94	3100	4800	0.038	0.043
		0.8750	1.1250	1.000	0.09						
B-1418	-	22.225	28.575	28.58	-	35.2	74.73	3100	4800	0.043	-
		0.8750	1.1250	1.125							
BH-1410	MH-14101	22.225	30.163	15.88	2.79	20.3	32.21	3800	5880	0.030	0.035
		0.8750	1.1875	0.625	0.11						
BH-1412	MH-14121	22.225	30.163	19.05	2.79	25.0	41.99	3800	5880	0.036	0.041
		0.8750	1.1875	0.750	0.11						

Bearing Designation		Dimensions(mm/in.)				Load Rating(kN)		Limiting Speed(RPM)		Mass(kg)	
		Fw	D	C	X	Dynamic	Static	Grease	Oil	B	M
BH-1416	-	22.225	30.163	25.40	-	33.7	61.39	3800	5880	0.049	-
		0.8750	1.1875	1.000							
B-158	-	23.813	30.163	12.70	-	15.9	27.49	3000	4500	0.020	-
		0.9375	1.1875	0.500							
B-1516	M-15161	23.813	30.163	25.40	2.29	32.8	69.39	3000	4500	0.040	0.045
		0.9375	1.1875	1.000	0.09						
B-166	-	25.400	31.750	9.53	-	11.3	18.10	2800	4300	0.016	-
		1.0000	1.2500	0.375							
B-167	M-1671	25.400	31.750	11.13	2.29	14.0	23.66	2800	4300	0.019	0.021
		1.0000	1.2500	0.438	0.09						
B-1610	M-16101	25.400	31.750	15.88	2.29	21.2	40.52	2800	4300	0.026	0.030
		1.0000	1.2500	0.625	0.09						
B-1612	M-16121	25.400	31.750	19.05	2.29	25.7	51.60	2800	4300	0.032	0.036
		1.0000	1.2500	0.750	0.09						
B-1616	M-16161	25.400	31.750	25.40	2.29	33.9	74.29	2800	4300	0.043	0.048
		1.0000	1.2500	1.000	0.09						
BH-168	MH-1681	25.400	33.338	12.70	2.79	16.6	25.6	3400	5200	0.027	0.031
		1.0000	1.3125	0.500	0.11						

DRAWN CUP NEEDLE ROLLER BEARINGS

- Drawn Cup Needle Roller Bearings
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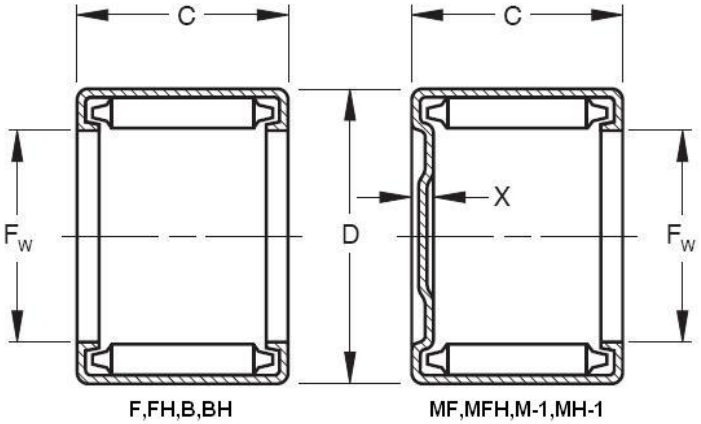
    - Open Ends (B,BH) and Closed One End (M-1,MH-1)



Bearing Designation		Dimensions(mm/in.)				Load Rating(kN)		Limiting Speed(RPM)		Mass(kg)	
		Fw	D	C	X	Dynamic	Static	Grease	Oil	B	M
BH-1610	**-**	25.400	33.338	15.88	-	22.0	36.8	3400	5200	0.034	-
		1.0000	1.3125	0.625							
BH-1612	**MH-16121**	25.400	33.338	19.05	2.79	27.1	48.0	3400	5200	0.041	0.046
		1.0000	1.3125	0.750	0.11						
BH-1614	**-**	25.400	33.338	22.23	-	31.9	59.2	3400	5200	0.048	-
		1.0000	1.3125	0.875							
BH-1616	**MH-16161**	25.400	33.338	25.40	2.79	36.5	70.3	3400	5200	0.054	0.062
		1.0000	1.3125	1.000	0.11						
BH-1620	**-**	25.400	33.338	31.75	-	45.4	93.0	3400	5200	0.068	-
		1.0000	1.3125	1.250							
BH-1624	**MH-16241**	25.400	33.338	38.10	2.79	53.4	115.2	3400	5200	0.082	0.093
		1.0000	1.3125	1.500	0.11						
B-1710	**M-17101**	26.988	33.338	15.88	2.29	21.9	43.1	2600	4000	0.028	0.032
		1.0625	1.3125	0.625	0.09						
BH-1712	**-**	26.988	34.925	19.05	-	29.49	52.49	2300	3400	0.035	-
		1.0625	1.3750	0.750							
B-186	**M-18161**	28.575	34.925	9.53	2.29	12.1	20.37	2500	3800	0.018	0.020
		1.1250	1.3750	0.375	0.09						

Bearing Designation		Dimensions(mm/in.)				Load Rating(kN)		Limiting Speed(RPM)		Mass(kg)	
		Fw	D	C	X	Dynamic	Static	Grease	Oil	B	M
B-188	**M-1881**	28.575	34.925	12.70	2.29	17.6	33.0	2500	3800	0.024	0.027
		1.1250	1.3750	0.500	0.09						
B-1810	**-**	28.575	34.925	15.88	-	22.6	45.8	2500	3800	0.029	-
		1.1250	1.3750	0.625							
B-1812	**M-18121**	28.575	34.925	19.05	2.29	27.3	58.3	2500	3800	0.035	0.040
		1.1250	1.3750	0.750	0.09						
B-1816	**M-18161**	28.575	34.925	25.40	2.29	36.2	83.6	2500	3800	0.047	0.054
		1.1250	1.3750	1.000	0.09						
BH-1812	**MH-18121**	28.575	38.100	19.05	3.05	31.5	52.9	3600	5600	0.056	0.063
		1.1250	1.5000	0.750	0.12						
BH-1816	**MH-18161**	28.575	38.100	25.40	3.05	42.5	77.8	3600	5600	0.074	0.084
		1.1250	1.5000	1.000	0.12						
BH-1820	**MH-18201**	28.575	38.100	31.75	3.05	52.9	103.2	3600	5600	0.093	0.105
		1.1250	1.5000	1.250	0.12						
B-1910	**M-19101**	30.163	38.100	15.88	3.05	24.1	43.8	2900	4400	0.040	0.045
		1.1875	1.500	0.625	0.12						
B-1916	**-**	30.163	38.100	25.40	-	40.0	83.6	2900	4400	0.064	-
		1.1875	1.500	1.000							

DRAWN CUP NEEDLE ROLLER BEARINGS

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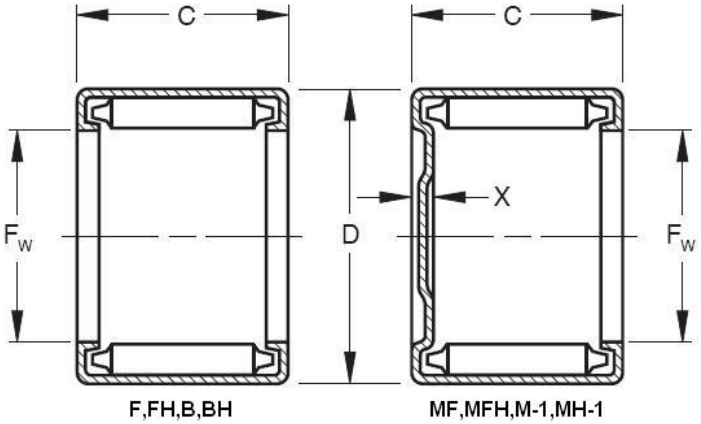

Bearing Designation		Dimensions(mm/in.)				Load Rating(kN)		Limiting Speed(RPM)		Mass(kg)	
		Fw	D	C	X	Dynamic	Static	Grease	Oil	B	M
B-208	M-2081	31.750	38.100	12.70	2.29	18.6	36.6	2900	4400	0.026	0.029
		1.2500	1.5000	0.500	0.09						
B-2010	M-20101	31.750	38.100	15.88	2.29	23.9	50.7	2300	3500	0.032	0.044
		1.2500	1.5000	0.625	0.09						
B-2012	M-20121	31.750	38.100	19.05	2.29	28.9	64.5	2300	3500	0.039	0.045
		1.2500	1.5000	0.750	0.09						
B-2016	M-20161	31.750	38.100	25.40	2.29	38.2	92.5	2300	3500	0.052	0.059
		1.2500	1.5000	1.000	0.09						
B-2020	M-20201	31.750	38.100	31.75	2.29	47.2	121	2300	3500	0.065	0.073
		1.2500	1.5000	1.250	0.09						
BH-208	MH-2081	31.750	41.275	12.70	3.05	19.7	30	3300	5000	0.041	0.046
		1.2500	1.6250	0.500	0.12						
BH-2012	MH-20121	31.750	41.275	19.05	3.05	33.1	58.7	3300	5000	0.061	0.069
		1.2500	1.6250	0.975	0.12						
BH-2016	MH-20161	31.750	41.275	25.40	3.05	44.9	86.7	3300	5000	0.081	0.092
		1.2500	1.6250	1.000	0.12						
BH-2020	MH-20201	31.750	41.275	31.75	3.05	56.0	115	3300	5000	0.102	0.115
		1.2500	1.6250	1.250	0.12						

Bearing Designation		Dimensions(mm/in.)				Load Rating(kN)		Limiting Speed(RPM)		Mass(kg)	
		Fw	D	C	X	Dynamic	Static	Grease	Oil	B	M
B-218	M-2181	33.338	41.275	12.70	2.79	19.3	33.7	2600	4100	0.034	0.039
		1.3125	1.6250	0.500	0.11						
B-2110	M-21101	33.338	41.275	15.88	2.79	25.5	48.5	2600	4100	0.043	0.049
		1.3125	1.6250	0.625	0.11						
B-2120	-	33.338	41.275	31.75	-	52.5	122	2600	4100	0.087	-
		1.3125	1.6250	1.250							
B-228	M-2281	34.925	41.275	12.70	2.29	19.5	40.4	2100	3200	0.028	0.032
		1.3750	1.6250	0.500	0.09						
B-2212	M-22121	34.925	41.275	19.05	2.29	30.4	71.2	2100	3200	0.043	0.049
		1.3750	1.6250	0.750	0.09						
B-2216	M-22161	34.925	41.275	25.40	2.29	40.2	102	2100	3200	0.057	0.064
		1.3750	1.6250	1.000	0.09						
B-2220	M-22201	34.925	41.275	31.75	2.29	49.4	113	2100	3200	0.071	0.080
		1.3750	1.6250	1.250	0.09						
BH-228	-	34.925	44.450	12.70	-	21.2	33.5	3000	4700	0.044	-
		1.3750	1.7500	0.500							
BH-2210	-	34.925	44.450	15.88	-	28.5	48.9	3000	4700	0.055	-
		1.3750	1.7500	0.625							

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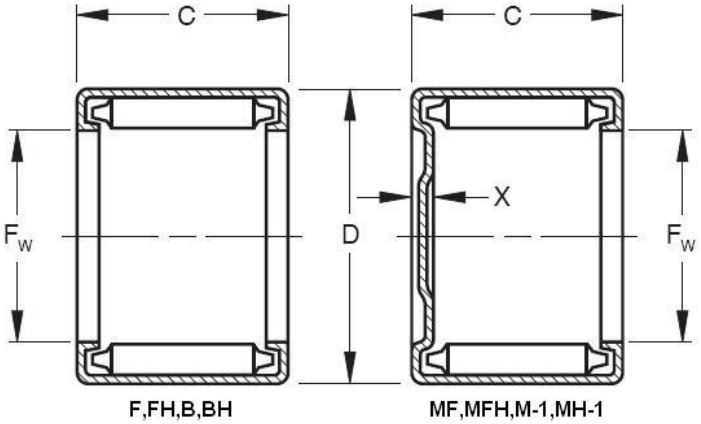

Bearing Designation		Dimensions(mm/in.)				Load Rating(kN)		Limiting Speed(RPM)		Mass(kg)	
		Fw	D	C	X	Dynamic	Static	Grease	Oil	B	M
BH-2212	MH-22121	34.925	44.450	19.05	3.05	35.3	64.5	3000	4700	0.066	0.075
		1.3750	1.7500	0.750	0.12						
BH-2216	MH-22161	34.925	44.450	25.4	3.05	47.6	94.8	3000	4700	0.088	0.100
		1.3750	1.7500	1.000	0.12						
BH-2220	-	34.925	44.450	31.75	-	59.6	126	3000	4700	0.111	0.125
		1.3750	1.7500	1.250							
B-248	M-2481	38.100	47.625	12.70	3.05	22.3	37.1	2800	4300	0.048	0.054
		1.5000	1.8750	0.500	0.12						
B-2410	M-24101	38.100	47.625	15.88	3.05	29.8	53.8	2800	4300	0.060	.068
		1.5000	1.8750	0.625	0.12						
B-2412	M-24121	38.100	47.625	19.05	3.05	36.9	70.7	2800	4300	0.072	0.081
		1.5000	1.8750	0.750	0.12						
B-2414	M-24141	38.100	47.625	22.23	3.05	43.5	87.6	2800	4300	0.083	0.095
		1.5000	1.8750	0.875	0.12						
B-2416	M-24161	38.100	47.625	25.4	3.05	49.8	103	2800	4300	0.096	0.108
		1.5000	1.8750	1.000	0.12						
B-2420	M-24201	38.100	47.625	31.75	3.05	61.8	138	2800	4300	0.119	0.135
		1.5000	1.8750	1.250	0.12						

Bearing Designation		Dimensions(mm/in.)				Load Rating(kN)		Limiting Speed(RPM)		Mass(kg)	
		Fw	D	C	X	Dynamic	Static	Grease	Oil	B	M
B-268	-	41.275	50.800	12.70	-	22.8	39.2	2600	3900	0.051	-
		1.6250	2.0000	0.500							
B-2610	M-26101	41.275	50.800	15.88	3.05	30.6	57.4	2600	3900	0.064	0.073
		1.6250	2.0000	0.625	0.12						
B-2616	-	41.275	50.800	25.40	-	51.6	112	2600	3900	0.103	-
		1.6250	2.0000	1.000							
B-2620	M-26201	41.275	50.800	31.75	3.05	64.0	149	2600	3900	0.128	0.145
		1.6250	2.0000	1.250	0.12						
B-2812	M-28121	44.450	53.975	19.05	3.05	39.3	81.4	2400	3700	0.082	0.093
		1.7500	2.2150	0.750	0.12						
B-2816	M-28161	44.450	53.975	25.40	3.05	53.4	121	2400	3700	0.110	0.124
		1.7500	2.2150	1.000	0.12						
B-2820	-	44.450	53.975	31.75	-	66.3	160	2400	3700	0.137	-
		1.7500	2.2150	1.250							
B-2824	M-28241	44.450	53.975	38.10	3.05	78.7	199	2400	3700	0.165	0.186
		1.7500	2.2150	1.500	0.12						
B-308	M-3081	47.625	57.150	12.70	3.05	25.1	46.3	2300	3500	0.059	0.066
		1.8750	2.2500	0.500	0.12						

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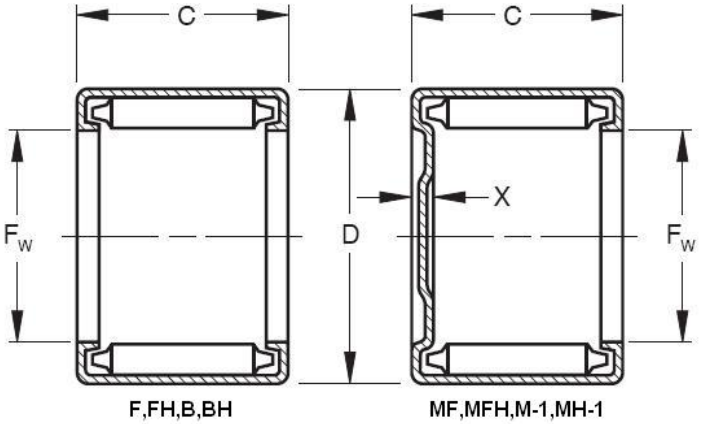
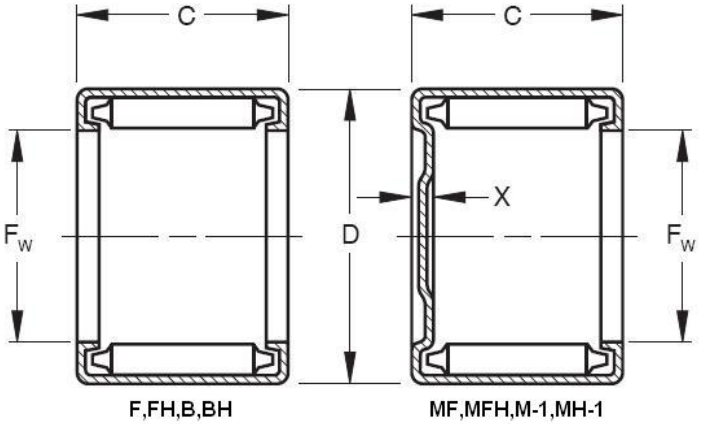


Bearing Designation		Dimensions(mm/in.)				Load Rating(kN)		Limiting Speed(RPM)		Mass(kg)	
		Fw	D	C	X	Dynamic	Static	Grease	Oil	B	M
B-3010		47.625	57.150	15.888		33.6	67.61	2300	3500	0.073	-
		1.8750	2.2500	0.625							
B-3012	-	47.625	57.150	19.05		41.5	88.5	2300	3500	0.088	-
		1.8750	2.2500	0.750							
B-3016	M-30161	47.625	57.150	25.40	3.05	56.0	130	2300	3500	0.117	0.132
		1.8750	2.2500	1.000	0.12						
B-328	M-3281	50.800	60.325	12.70	3.05	25.4	48.0	2100	3300	0.062	0.070
		2.0000	2.3750	0.500	0.12						
B-3210	-	50.800	60.325	15.88		34.2	70.7	2200	3300	0.078	-
		2.0000	2.3750	0.625							
B-3214	-	50.800	60.325	22.23		54.3	115	2200	3300	0.108	-
		2.0000	2.3750	0.875							
B-3216	M-32161	50.800	60.325	25.40	3.05	57.4	138	2100	3300	0.124	0.140
		2.0000	2.3750	1.000	0.12						
B-3220	M-32201	50.800	60.325	31.75	3.05	71.6	183	2100	3300	0.155	0.175
		2.0000	2.3750	1.250	0.12						
B-3224	M-32241	50.800	60.325	38.1	3.05	85.0	228	2100	3300	0.186	0.211
		2.0000	2.3750	1.500	0.12						

Bearing Designation		Dimensions(mm/in.)				Load Rating(kN)		Limiting Speed(RPM)		Mass(kg)	
		Fw	D	C	X	Dynamic	Static	Grease	Oil	B	M
B-3228	M-32281	50.800	60.325	44.45	3.05	97.4	273	2100	3300	0.217	0.245
		2.0000	2.3750	1.750	0.12						
BH-3312	-	52.388	64.292	19.05		46.3	86.7	2600	4100	0.122	-
		2.0625	2.5312	0.750							
BH-3316	MH-33161	52.388	64.292	25.40	3.56	64.0	133	2600	4100	0.162	0.184
		2.0625	2.5312	1.000	0.14						
BH-3324	MH-33241	52.388	64.292	38.10	3.56	97.0	226	2600	4100	0.244	0.276
		2.0625	2.5312	1.500	0.14						
B-348	-	53.975	63.500	25.40	3.56	26.1	51.2	2000	3100	0.065	-
		2.1250	2.5312	1.000	0.14						
B-3412	-	53.975	63.500	19.05	-	43.6	99.2	2100	3100	0.098	-
		2.1250	2.5312	0.750							
B-3416	M-34161	53.975	63.500	25.40	3.05	59.2	147	2000	3100	0.131	0.148
		2.1250	2.5312	1.000	0.12						
B-3420	-	53.975	63.500	31.75	-	73.4	194	2000	3100	0.164	-
		2.1250	2.5312	1.250							
B-3424	M-34241	53.975	63.500	38.10	3.05	87.2	242	2000	3100	0.196	0.223
		2.1250	2.5312	1.500	0.12						

- Drawn Cup Needle Roller Bearings
  - Inch Series
    - Full Complement Type
    - Open Ends (B,BH) and Closed One End (M-1,MH-1)



Bearing Designation		Dimensions(mm/in.)				Load Rating(kN)		Limiting Speed(RPM)		Mass(kg)	
		Fw	D	C	X	Dynamic	Static	Grease	Oil	B	M
B-3612	**M-36121**	57.150	66.675	19.05	3.30	45.8	105	2000	3000	0.103	0.117
		2.2500	2.6250	0.750	0.13						
B-3620	**-**	57.150	66.675	31.75	-	77.4	206	2000	3000	0.172	-
		2.2500	2.6250	1.250							
B-3624	**M-36241**	57.150	66.675	38.10	3.30	92.1	257	2000	3000	0.207	0.235
		2.2500	2.6250	1.500	0.13						
B-4216	**M-42161**	66.675	76.200	25.40	3.30	66.7	182	1700	2500	0.159	0.181
		2.6250	3.0000	1.000	0.13						
B-4410	**-**	69.850	79.375	15.88	-	41.0	98	1600	2500	0.104	-
		2.7500	3.125	0.625							

Bearing Designation		Dimensions(mm/in.)				Load Rating(kN)		Limiting Speed(RPM)		Mass(kg)	
		Fw	D	C	X	Dynamic	Static	Grease	Oil	B	M
B-4416	**-**	69.850	79.375	25.40	-	69.0	190	1600	2500	0.166	-
		2.7500	3.125	1.000							
B-4420	**M-44201**	69.850	79.375	31.75	3.30	85.4	252	1600	2500	0.208	0.235
		2.7500	3.125	1.250	0.13						
B-5612	**-**	88.900	101.600	19.05	-	64.9	150	1800	2700	0.212	-
		3.5000	4.0000	0.750							
B-8812	**-**	139.700	512.400	19.05	-	77.00	231	1000	1600	0.325	-
		5.5000	6.0000	0.750							