CONSTRUCTION

This is a non-separable, self-aligning unit comprising an inner ring, needle rollers, outer ring with spherical O.D., retaining washers and housing ring with spherical I.D. The end washers are fastened to the inner ring. Type NBE has a single row of rollers, and type NBK has two rows of rollers.

Lubrication grooves and holes in the inner ring, outer ring and housing ring are provided in the type NBK bearing. The type NBE bearing is similarly designed, except groove and holes in the inner ring are omitted.

The self-aligning bearing outer ring and its housing ring are a matched assembly that must be kept together.

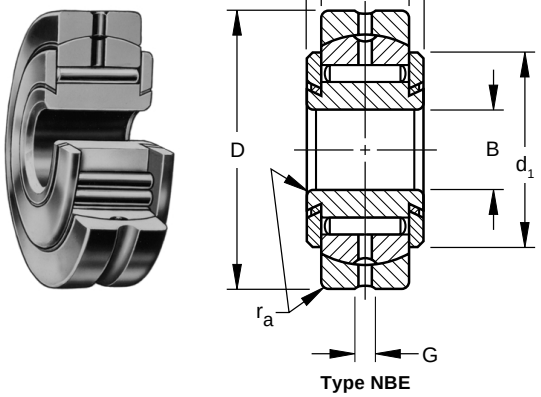
External surfaces, except the inner ring bore, are cadmium or zinc-nickel plated.

DIMENSIONS

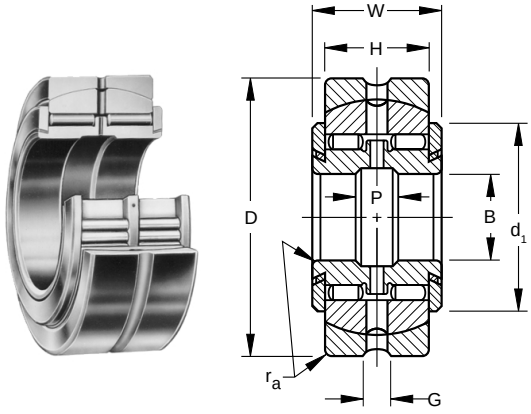
Dimensions listed are for the finished bearing after plating.

Bearings are made to ISO and U.S. Military Specifications, and are constructed to have low radial clearance when mounted to minimize vibration and backlash.

The shaft diameter and housing bore dimensions necessary to mount these bearings properly are listed on the facing page.



Type NBE



Type NBK

SPECIFICATIONS AND ORDERING INFORMATION

BEARING DIMENSIONS

Bearing Designation	MS24463 MS24464 Dash No.	B* Bore max.		B* Bore min.		D* O.D. max.		D* O.D. min.		W Widths Δ +.000 -.005		H Widths Δ +.000 -.005		r_a § Shaft Fillet (max.)		d_1 End Washer Diameter (ref.)		G Outer Ring Groove Width (ref.)	
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
3NBE514ZP	MS24463-3	0.1900	4.826	0.1893	4.808	0.8750	22.23	0.8745	22.21	0.312	7.92	0.218	5.54	0.022	0.56	0.625	15.88	0.062	1.57
4NBE615ZP	MS24463-4	0.2500	6.350	0.2493	6.332	0.9375	23.81	0.9370	23.80	0.375	9.53	0.281	7.14	0.022	0.56	0.688	17.48	0.094	2.39
5NBE717ZP	MS24463-5	0.3125	7.938	0.3118	7.920	1.0625	26.99	1.0620	26.97	0.437	11.10	0.344	8.74	0.022	0.56	0.750	19.05	0.094	2.39
6NBK919YZP	MS24464-6	0.3750	9.525	0.3743	9.507	1.1875	30.16	1.1870	30.15	0.562	14.27	0.469	11.91	0.022	0.56	0.812	20.62	0.125	3.18
7NBK1021YZP	MS24464-7	0.4375	11.113	0.4368	11.095	1.3125	33.34	0.3120	7.92	0.625	15.88	0.531	13.49	0.032	0.81	0.875	22.23	0.125	3.18
8NBK1224YZP	MS24464-8	0.5000	12.700	0.4993	12.682	1.5000	38.10	1.4995	38.09	0.750	19.05	0.656	16.66	0.032	0.81	1.031	26.19	0.125	3.18
9NBK1427YZP	MS24464-9	0.5625	14.288	0.5618	14.270	1.6875	42.86	1.6870	42.85	0.875	22.23	0.781	19.84	0.032	0.81	1.094	27.79	0.156	3.96
10NBK1628YZP	MS24464-10	0.6250	15.875	0.6243	15.857	1.7500	44.45	1.7495	44.44	1.000	25.40	0.906	23.01	0.032	0.81	1.156	29.36	0.156	3.96
12NBK1830YZP	MS24464-12	0.7500	19.050	0.7493	19.032	1.8750	47.63	1.8745	47.61	1.125	28.58	1.000	25.40	0.032	0.81	1.281	32.54	0.156	3.96
14NBK2034YZP	MS24464-14	0.8750	22.225	0.8743	22.207	2.2150	56.26	2.1244	53.96	1.250	31.75	1.125	28.58	0.032	0.81	1.500	38.10	0.156	3.96
16NBK2036YZP	MS24464-16	1.0000	25.400	0.9993	25.382	2.2500	57.15	2.2494	57.13	1.250	31.75	1.125	28.58	0.032	0.81	1.625	41.28	0.156	3.96
20NBK2040YZP	MS24464-20	1.2500	31.750	1.2493	31.732	2.5000	63.50	2.4994	63.48	1.250	31.75	1.049	26.64	0.032	0.81	1.906	48.41	0.156	3.96
24NBK2044YZP	MS24464-24	1.5000	38.100	1.4993	38.082	2.7500	69.85	2.7494	69.83	1.250	31.75	1.049	26.64	0.032	0.81	2.156	54.76	0.156	3.96
32NBK2052YZP	MS24464-32	2.0000	50.800	1.9993	50.782	3.2500	82.55	3.2492	82.53	1.250	31.75	1.049	26.64	0.032	0.81	2.656	67.46	0.156	3.96
40NBK2060YZP	MS24464-40	2.5000	63.500	2.4993	63.482	3.7500	95.25	3.7492	95.23	1.250	31.75	1.049	26.64	0.032	0.81	3.156	80.16	0.156	3.96
48NBK2068YZP	MS24464-48	3.0000	76.200	2.9993	76.182	4.2500	107.95	4.2492	107.93	1.250	31.75	1.049	26.64	0.032	0.81	3.656	92.86	0.156	3.96
56NBK2078YZP	MS24464-56	3.5000	88.900	3.4992	88.880	4.8750	123.83	4.8740	123.80	1.250	31.75	1.049	26.64	0.044	1.12	4.219	107.16	0.156	3.96

*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).

§ Equal to minimum inner bearing chamfers.

MOUNTING

The housing bore dimensions shown below are applicable to bearings mounted in steel. These dimensions should be decreased .0002 in. (.005mm) when aluminum alloy housings are used.

The end washers are fastened to the inner ring in a manner only to maintain the integrity of the assembly while handling and installing the bearing. Therefore, when mounted they should be firmly backed up by washers or other clamping surfaces that are flat and square with the shaft center line. To provide sufficient washer support, the outside diameter of the clamping surfaces should be at least as large as the minimum clamping diameter (d_a) listed below. The maximum clamping diameter is also given to assure that a misalignment of ±5° can be accommodated.

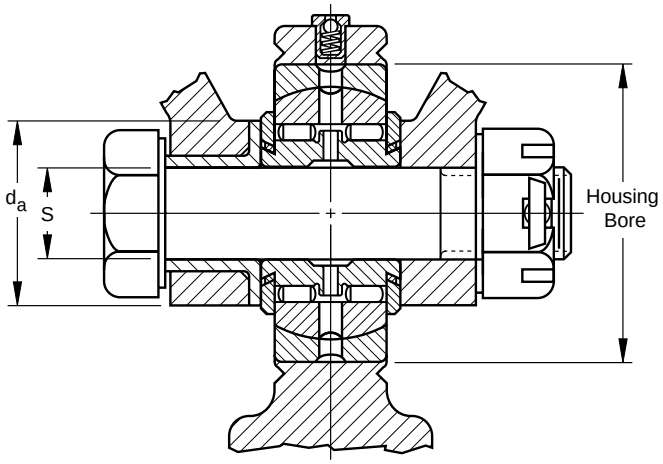
LOAD RATINGS

The limit load ratings (also called “allowable working load ratings”) of the bearings are listed below. The ultimate load ratings are not less than 1.5 times the limit load ratings. The ultimate load ratings correspond to the Aircraft Static Capacity ratings.

When the application requires dynamic self-alignment, additional bearing loads (due to the friction of dynamic self-alignment) must be taken into account.

Load ratings are given in pounds-force:
1 lbf = 0.454 kgf = 4.448 N

Before final bearing selection is made, please consult the RBC Aerospace Engineering Department.



SPECIFICATIONS AND ORDERING INFORMATION

MOUNTING DIMENSIONS

P Inner Ring Groove Width (ref.)		Weight (approx.)		S Shaft Diameters				Housing Bore				d_a Clamping Diameter				Clamping Force (max.)		Limit Load Rating	
				Transition Fits (loose range)		Transition Fits (tight range)		Transition Fits (tight range)		Transition Fits (loose range)		max.		min.					
				max.	min.	max.	min.	max.	min.	max.	min.								
in.	mm	lbs	kgs	in.	in.	in.	in.	in.	in.	in.	in.	in.	mm	in.	mm	lbf	N	lbf	N
-	-	0.041	0.02	0.1894	0.1889	0.1902	0.1897	0.8742	0.8747	0.8749	0.8754	0.625	15.88	0.438	11.13	480	2100	1800	8000
-	-	0.053	0.02	0.2494	0.2489	0.2502	0.2497	0.9367	0.9372	0.9374	0.9379	0.688	17.48	0.516	13.11	870	3900	2870	12800
-	-	0.079	0.04	0.3119	0.3114	0.3127	0.3122	1.0617	1.0622	1.0624	1.0629	0.734	18.64	0.578	14.68	1400	6200	4070	18100
0.188	4.78	0.130	0.06	0.3744	0.3739	0.3752	0.3747	1.1867	1.1872	1.1874	1.1879	0.781	19.84	0.641	16.28	2100	9300	4530	20200
0.188	4.78	0.174	0.08	0.4369	0.4364	0.4377	0.4372	1.3116	1.3122	1.3124	1.3130	0.844	21.44	0.703	17.86	2850	12700	5870	26100
0.188	4.78	0.293	0.13	0.4994	0.4989	0.5002	0.4997	1.4991	1.4997	1.4999	1.5005	1.000	25.40	0.844	21.44	3840	17100	8670	38600
0.188	4.78	0.420	0.19	0.5619	0.5614	0.5627	0.5622	1.6866	1.6872	1.6874	1.6880	1.062	26.97	0.891	22.63	4870	21700	11800	52500
0.250	6.35	0.520	0.24	0.6244	0.6239	0.6252	0.6247	1.7491	1.7497	1.7499	1.7505	1.094	27.79	0.953	24.21	6150	27400	15500	68900
0.250	6.35	0.630	0.29	0.7494	0.7489	0.7502	0.7497	1.8741	1.8747	1.8749	1.8755	1.156	29.36	1.078	27.38	8950	39800	20000	89000
0.375	9.53	0.870	0.39	0.8744	0.8739	0.8752	0.8747	2.1238	2.1246	2.1249	2.1257	1.375	34.93	1.250	31.75	12200	54300	25800	114800
0.375	9.53	0.960	0.44	0.9994	0.9989	1.0002	0.9997	2.2488	2.2496	2.2499	2.2507	1.500	38.10	1.375	34.93	16300	72500	28700	127700
0.375	9.53	1.070	0.49	1.2494	1.2488	1.2503	1.2497	2.4988	2.4996	2.4999	2.5007	1.781	45.24	1.625	41.28	25800	114800	31400	139700
0.375	9.53	1.230	0.56	1.4994	1.4988	1.5003	1.4997	2.7488	2.7496	2.7499	2.7507	2.062	52.37	1.875	47.63	25800	114800	36600	162800
0.375	9.53	1.490	0.68	1.9994	1.9987	2.0003	1.9996	3.2485	3.2495	3.2498	3.2508	2.594	65.89	2.375	60.33	25800	114800	47100	209500
0.375	9.53	1.780	0.81	2.4994	2.4987	2.5003	2.4996	3.7485	3.7495	3.7498	3.7508	3.062	77.77	2.875	73.03	25800	114800	57500	255800
0.375	9.53	2.060	0.93	2.9994	2.9987	3.0003	2.9996	4.2485	4.2495	4.2498	4.2508	3.562	90.47	3.375	85.73	25800	114800	67900	302000
0.375	9.53	2.650	1.20	3.4994	3.4986	3.5004	3.4996	4.8735	4.8745	4.8748	4.8758	4.141	105.18	3.969	100.81	25800	114800	80100	356300