

## CONSTRUCTION

This is a non-separable unit comprising a DC-type needle bearing, inner race, and retaining washers. The end washers are fastened to the inner race.

Lubrication grooves and holes are provided in the inner race for all bearings except the 3, 4, and 5 for relubrication purposes. The DC needle bearing can be provided with an oil hole in its outer shell. If so desired, please specify on order.

Exposed surfaces, as mounted, are cadmium plated to meet military specifications.

These bearings must not be used as rollers.

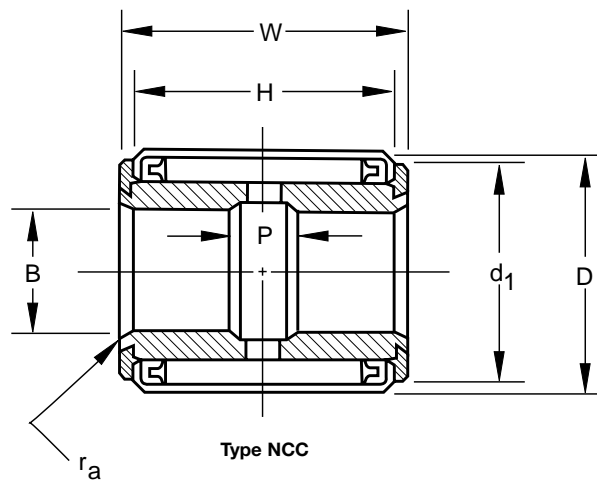


## DIMENSIONS

Dimensions given below are for the finished bearing after cadmium plating. Only the nominal bearing O.D. is given since the bearing depends on the housing dimensions for its final sizing.

Bearings are made to AFMBA and military specifications and are constructed to have low radial clearances when mounted, in order to keep vibration and backlash in mechanisms to a minimum.

Shaft diameter and housing bore dimensions necessary to mount these bearings properly are given on the facing page.



AIRFRAME CONTROL NEEDLE ROLLER BEARINGS

## SPECIFICATIONS AND ORDERING INFORMATION

### BEARING DIMENSIONS

Bearing Designation	MS24462 Dash No.	B Bore		D Housing Bore		W Widths H				ra § Radius or 45° Bevel	d1 End Ring Dia.		
		+0.00	+0.000	+0.0005	+0.013	+0.000	+0.000	+0.000	+0.000		in.	mm	
		-0.0005	-0.013	-0.0005	-0.013	-0.005	-0.13	-0.010	-0.25				
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm		
3NCC1010P	MS24462-3	0.1900	4.826	0.6250	15.875	0.625	15.88	0.500	12.70	0.022	0.56	0.563	14.30
4NCC910P	MS24462-4	0.2500	6.350	0.6250	15.875	0.562	14.27	0.500	12.70	0.022	0.56	0.563	14.30
5NCC1011P	MS24462-5	0.3125	7.938	0.6875	17.463	0.625	15.88	0.500	12.70	0.022	0.56	0.625	15.88
6NCC1312YP	MS24462-6	0.3750	9.525	0.7500	19.050	0.812	20.62	0.750	19.05	0.022	0.56	0.688	17.48
7NCC1413YP	MS24462-7	0.4375	11.113	0.8125	20.638	0.875	22.23	0.750	19.05	0.032	0.81	0.750	19.05
8NCC1416YP	MS24462-8	0.5000	12.700	1.0000	25.400	0.875	22.23	0.750	19.05	0.032	0.81	0.938	23.83
10NCC1418YP	MS24462-10	0.6250	15.875	1.1250	28.575	0.875	22.23	0.750	19.05	0.032	0.81	1.063	27.00
12NCC1820YP	MS24462-12	0.7500	19.050	1.2500	31.750	1.125	28.58	1.000	25.40	0.032	0.81	1.188	30.18
14NCC1822YP	MS24462-14	0.8750	22.225	1.3750	34.925	1.125	28.58	1.000	25.40	0.032	0.81	1.313	33.35
16NCC1824YP	MS24462-16	1.0000	25.400	1.5000	38.100	1.125	28.58	1.000	25.40	0.032	0.81	1.438	36.53
20NCC2230YP	MS24462-20	1.2500	31.750	1.8750	47.625	1.375	34.93	1.250	31.75	0.032	0.81	1.813	46.05

§ Equal to minimum bearing chamfers.

For aluminum, die castings and similar low tensile housings, consult with the RBC Aerospace Engineering Department.

**MOUNTING**

The housing bore dimensions shown below are for mounting bearings in steel housings. These dimensions should be decreased .001 in. (.025mm) or more for initial trial if die-cast housings of low tensile strength are used.

End washers are fastened to bearings only to facilitate handling and installation. They should be firmly backed up by washers or other clamping surfaces that are flat and square with the shaft center line. In order to provide sufficient washer support, the outside diameter of the clamping surfaces should be at least as large as the minimum clamping diameters ( $d_a$ ) given below.

**LOAD RATINGS**

The Aircraft Static Capacities shown below are obtained by use of the formula:

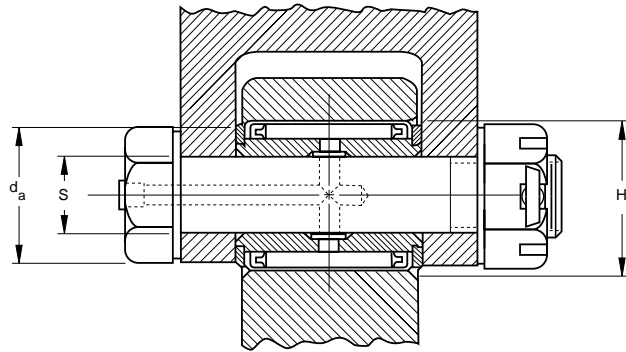
$$15800 \text{ P.D.} \times l$$

“P.D.” is the bearing pitch diameter and “l” is the effective length of the rollers. They are based on the Aircraft Static Capacities of the DC needle bearings which are components of the NCC bearings.

The allowable dynamic working load should be taken as one-half of the Aircraft Static Capacity.

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 Race Groove Width	Limit Load Rating	Weight  (approx.)	S Shaft Diameters				H Housing Bore Press Fit		$d_a$ Clamping Diameter		Clamping Force				
			Transition Fits (loose fits)		Transition Fits (tight range)		max.	min.	(minimum)		(max.)				
			max.	min.	max.	min.			in.	mm	lbf	N			
0.000	0.00	679	3000	0.040	0.02	0.1894	0.1889	0.1902	0.1897	0.6255	0.6245	0.469	11.91	480	2100
0.000	0.00	878	3900	0.025	0.01	0.2494	0.2489	0.2502	0.2497	0.6255	0.6245	0.500	12.70	870	3900
0.000	0.00	988	4400	0.050	0.02	0.3119	0.3114	0.3127	0.3122	0.6880	0.6870	0.563	14.29	1400	6200
0.188	4.78	1920	8500	0.060	0.03	0.3744	0.3739	0.3752	0.3747	0.7505	0.7495	0.625	15.88	2100	9300
0.188	4.78	2110	9400	0.090	0.04	0.4369	0.4364	0.4377	0.4372	0.8130	0.8120	0.688	17.46	2850	12700
0.188	4.78	2350	10500	0.120	0.05	0.4994	0.4989	0.5002	0.4997	1.0005	0.9995	0.844	21.43	3840	17100
0.250	6.35	2690	12000	0.150	0.07	0.6244	0.6239	0.6252	0.6247	1.1255	1.1245	0.969	24.61	6150	27400
0.250	6.35	4480	19900	0.210	0.10	0.7494	0.7489	0.7502	0.7497	1.2505	1.2495	1.094	27.78	8950	39800
0.375	9.53	5000	22200	0.240	0.11	0.8744	0.8739	0.8752	0.8747	1.3755	1.3745	1.219	30.96	12200	54300
0.375	9.53	5510	24500	0.270	0.12	0.9994	0.9989	1.0002	0.9997	1.5005	1.4995	1.344	34.13	16300	72500
0.375	9.53	8180	36400	0.300	0.14	1.2494	1.2488	1.2503	1.2497	1.8755	1.8745	1.641	41.67	25800	114800

AIRFRAME CONTROL  
NEEDLE ROLLER  
BEARINGS