

## INCH-POUND

MS27645E

20 January 1998

SUPERSEDING

MS27645D

5 December 1994

## MILITARY SPECIFICATION SHEET

BEARING, BALL, AIRFRAME, ANTI-FRICTION,  
SELF-ALIGNING, LIGHT AND HEAVY DUTY

This Specification is approved for use by all Departments and  
Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification  
sheet and the issue of the following specification listed in that issue of the Department of Index of  
Specifications and Standards (DODISS) specified in the solicitation: MIL-B-7949.

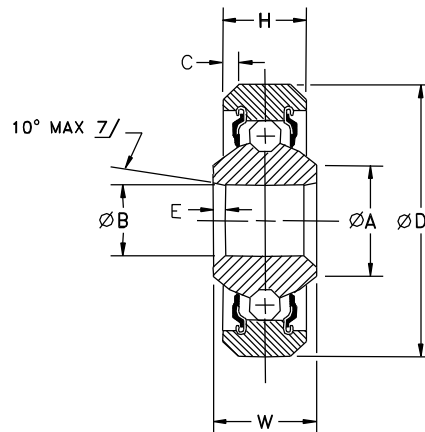


TABLE I. DIMENSIONS AND LOADS

MS DASH NO.	ØB 2/ BORE	ØD OUTSIDE DIAMETER 1/ 2/	W WIDTH INNER RING 1/	H WIDTH OUTER RING 1/	ØA SHOULDER DIAMETER INNER RING (APPROX)	E 4/ INNER RING CORNER CHAMFER	C 3/ OUTER RING CORNER CHAMFER	RADIAL LIMIT LOAD RATING LBS	THRUST LIMIT LOAD RATING LBS	6/ RADIAL LOAD RATING (LBS) FOR AVERAGE LIFE OF 10,000 COMPLETE 90 CYCLES		AXIAL INTERNAL CLEARANCE (MAX)	WEIGHT POUNDS (APPROX)	MAXIMUM STARTING TORQUE (INCH-OZ)	MINIMUM TORQUE TO DISLODGE SEAL (IN-LB)
	+ .0000 - .0005	+ .0000 - .0005	+ .000 - .005	+ .000 - .005		+ .015 - .000				CASE I	CASE II				
-3A	.1900	.6250	.245	.203	.253			550	100	550	480	.023	.01	1	4
-4A	.2500	.7500	.281	.219	.321	.005		900		900	770	.025		1	6
-5A	.3125	.8125	.297	.234	.381	.015	.016	1000	200	950	815	.028	.02	2	10
-6A	.3750	.8750	.313	.250	.453	.016		1120		1120	990	.030		3	8
-3	.1900	.6250	.245	.203	.253		.022	900		900	770	.023	.03	1	6
-4	.2500	.7500	.281	.219	.321	.005		1410	300	1230	1230	.025	.04	1	5
-5	.3125	.8125	.297	.234	.381		.032	2190		2190	1890	.028	.10	2	16
-6	.3750	.8750	.313	.250	.453			2980	400	2980	2580	.030	.15	3	18
-8	.5000	1.6875	.620	.500	.791	.015		3670	500	3670	3290	.032	.23	4	20
-10	.6250	1.9375	.813	.625	.916		.044	5320	600	4980	4360	.034	.37	6	25

1/ Dimensions to be met after plating.

2/ Out-of-round tolerances: Bore: +.0002, -.0007; outer dia: +.0005, -.0010.

3/ 45° chamfer or a radius giving approximately the same grip for staking the bearing in the housing will be acceptable.

4/ 45° chamfer or a radius giving approximately the same fillet clearance will be acceptable.

5/ Case I = load fixed with respect to outer ring.

Case II = load fixed with respect to inner ring.

6/ These ratings are for operation up to 250°F. For operation up to 350°F, the ratings shall be reduced by 20%.

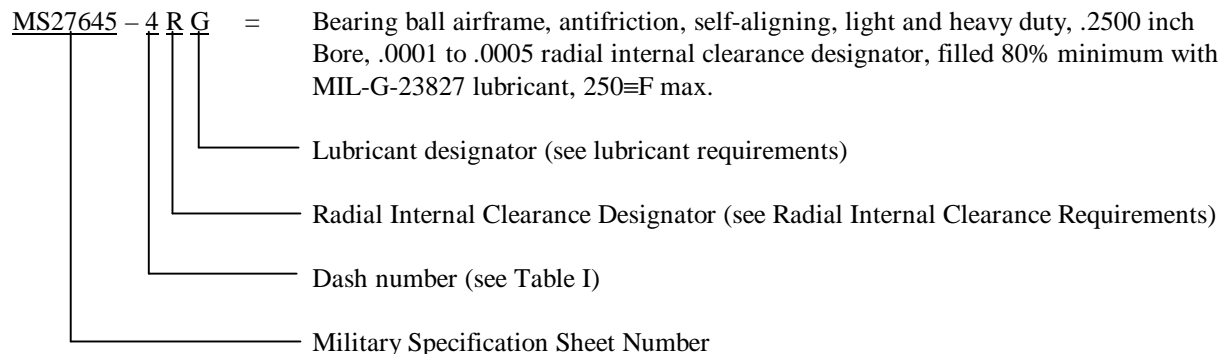
7/ These bearings are internal self-aligning for 10° in either direction except MS-4A, -5A, and -6A which are self-aligning for 8° in either direction.

## MS27645E

## REQUIREMENTS:

1. MATERIAL: Rings: 52100 steel per AMS6440, or E52100 steel per FED-STD-66.  
Balls: 52100 steel per AMS6440 or 51100 steel per AMS6449, or E51100 or E52100 steel per FED-STD-66.  
Seals: Polytetrafluoroethylene per AMS3652 or Polytetrafluoroethylene sheet. Glass fabric reinforced Per AMS3666.  
Seal retainers: Any corrosion resistant steel.
2. LUBRICANT: MIL-G-81322 or MIL-G-23827, all bearings shall be packed with grease conforming to MIL-G-81322 unless otherwise specified. If MIL-G-23827 is required, add the letter "G" after the MS27645 dash number. MIL-G-23827 shall not be used for operation where temperatures exceed 250°F.
3. HARDNESS: Heat treat rings and balls to rockwell "C" 60 to 66 and stabilize for operation at 250°F.
4. SURFACE ROUGHNESS: Raceways and balls shall be 8 microinches Ra per ANSI/ASME B46.1.
5. PLATING: All external surfaces except bore, seals and seal retainers shall be zinc nickel in accordance with AMS 2417, Type 2, or cadmium plated in accordance with QQ-P-416, Type I, Class 2, with a thickness range of .0003 to .0006 inches.
6. RADIAL INTERNAL CLEARANCE: Without designator "R" part number indicates .0000 to .0010 with designator "R" the part number indicates .0001 to .0005.
7. RADIAL and LATERAL ECCENTRICITY: Inner ring, .0010 max, outer ring, .0016 max.
8. PART NUMBER: The part number shall be sequenced left to right with designations in the following sequence:

## EXAMPLE OF PART NUMBER:



## NOTES:

1. Unless otherwise specified, all dimensions are in inches.
2. This specification takes precedence over any other documents referenced herein.
3. Referenced documents are the issues in effect at the date of invitation for bid.
4. The parts covered by MS27261 are cancelled. Use MS27645 for new design and replacement.

Custodians:

Army - AV  
Air Force - 99  
Navy - AS

Preparing activity:

Navy - AS

(Project 3110-1065)

Review activities:

Army – AR, AT, MI  
Air Force – 84  
DLA-IS