

SAE-AS27642

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SAE-AS27642 should be used instead of MS27642G, which was canceled on 23 July 1998.

Custodians:

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Navy - AS
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(Project 3110-1086)

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PREPARED BY AIRFRAME CONTROL BEARINGS GROUP (ACBG)

SAE The Engineering Society
For Advancing Mobility
Land Sea Air and Space
INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE STANDARD

BEARING, BALL, AIRFRAME,
EXTRA LIGHT DUTY

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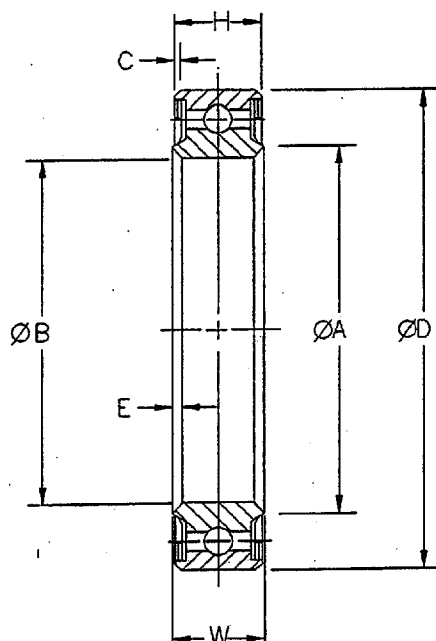


TABLE I. BEARING DIMENSIONS AND MAXIMUM TORQUE

MS DASH NO.	ØB 3/ BORE	BORE TOLERANCE		ØD 2/ OUTSIDE DIAMETER	W 2/ WIDTH INNER RING	H 2/ WIDTH OUTER RING	ØA SHOULDER DIAMETER INNER RING (APPROX)	E AND C 4/ INNER & OUTER RING CORNER CHAMFER X 45° 5/ + .015 - .000	RADIAL INTERNAL CLEARANCE		WEIGHT POUNDS (APPROX)	MAXIMUM STARTING TORQUE (INCH-OZ)
		WITHOUT SUFFIX S	WITH SUFFIX S						WITHOUT SUFFIX S	WITH SUFFIX S		
-16	1.0000	+ .0000 - .0005		1.7500			1.141				.14	5
-21	1.3130			2.0625			1.454				.16	7
-23	1.4380			2.1875	.437	.375	1.575	.024	.0003 TO .0010		.17	8
-25	1.5630			2.3125			1.693				.19	9
-29	1.8130			2.5625			1.931				.21	12
-33	2.0630			2.8125			2.231				.23	14
-37	2.3130			3.0625			2.468				.26	17
-47	2.9380			3.8750			3.093				.49	24
-49	3.0630			4.0000			3.222				.53	25
-52	3.2500		-0.0005 -0.0010	4.1875	.531	.469	3.479			.0001 TO .0005	.55	26
-56	3.5000	+ .0000 - .0010		4.4375			3.775				.58	28
-60	3.7500			4.6875			4.014				.61	28
-64	4.0000			4.9375			4.253				.64	
-68	4.2500			5.3125			4.517	.039	.0003 TO .0015		.73	
-72	4.5000			5.5625			4.774				.76	
-76	4.7500			5.8125			5.046				1.00	
-80	5.0000			6.0625	.593	.531	5.246				1.04	1/
-84	5.2500			6.3125			5.506				1.09	
-88	5.5000			6.5625			5.770				1.14	
-92	5.7500			6.8125			6.033				1.18	
-96	6.0000			7.0625			6.303				1.23	

1/ TORQUE VALUES FOR THESE SIZE BEARINGS SHALL BE SPECIFIED IN PURCHASE ORDERS.

2/ ALL DIMENSIONS TO BE MET AFTER PLATING.

3/ OUT-OF-ROUND TOLERANCES: BORE: -16 THRU -49 +.0003, -.0013, -52 THRU -96 +.0005, -.0015.

OUTER DIAMETER: +.0010, -.0021

4/ A RADIUS GIVING APPROXIMATELY THE SAME GRIP FOR STAKING THE BEARING IN THE HOUSING WILL BE ACCEPTABLE.

5/ A RADIUS GIVING APPROXIMATELY THE SAME FILLET CLEARANCE WILL BE ACCEPTABLE.

(F) DENOTES CHANGES

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TABLE II. BEARING ECCENTRICITIES AND LOADS

MS DASH NO.	ECCENTRICITIES				RADIAL LIMIT LOAD RATING LBS.	THRUST LIMIT LOAD RATING LBS.	RADIAL LOAD RATING (LBS.) FOR AVERAGE LIFE OF 10,000 COMPLETE 90° CYCLES	
	RADIAL		LATERAL				1/	2/
	INNER	OUTER	INNER	OUTER			CASE I	CASE II
-16	.0010	.0016	.0010	.0016	8085	3600	4260	3960
-21					9840	4400	4590	4290
-23					10500	4700	4650	4360
-25					11300	5000	4680	4420
-29					12700	5600	4760	4530
-33					14400	6400	4820	4630
-37					15800	7000	4880	4690
-47					24700	10900	6600	6390
-49	.0012	.0016	.0010	.0016	27500	12100	8150	7840
-52					28700	12600	8210	7880
-56					31200	13700	8240	7970
-60					33100	14600	8290	8010
-64					35000	15400	8350	8100
-68					41900	18400	10280	9900
-72					44300	19500	10330	10000
-76					46700	20500	10350	10050
-80	.0014	.0018	.0012	.0018	48200	21200	10360	10090
-84					50600	22300	10420	10120
-88					53000	23300	10480	10200
-92					55400	24400	10550	10240
-96	.0014	.0020	.0016	.0020	57700	25400	10520	10210

1/ CASE 1 = LOAD FIXED WITH RESPECT TO OUTER RING

CASE 2 = LOAD FIXED WITH RESPECT TO INNER RING

2/ THESE RATINGS ARE FOR OPERATIONS UP TO 250°F, FOR OPERATIONS UP TO 350°F, THE RATINGS SHALL BE REDUCED BY 20%.

REQUIREMENTS:

- 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.
- 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 MS27642 DASH NUMBER. MIL-G-23827 SHALL NOT BE USED FOR OPERATION WHERE TEMPERATURES EXCEED 250°F.
- HARDNESS: HEAT TREAT RINGS AND BALLS TO ROCKWELL "C" 60 TO 66 AND STABILIZE FOR OPERATION AT 250°F.
- SURFACE ROUGHNESS: RACEWAYS AND BALLS SHALL BE 8 MICROINCHES Ra PER ANSI/ASME B46.1.
- 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 OF .0003 TO .0006 INCHES.