FEDERAL SUPPLY CLASS
3120

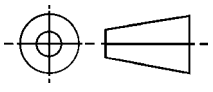
NOTICE

THIS DOCUMENT HAS BEEN TAKEN DIRECTLY FROM U.S. MILITARY SPECIFICATION MIL-B-81819/1 AND CONTAINS ONLY MINOR EDITORIAL AND FORMAT CHANGES REQUIRED TO BRING IT INTO CONFORMANCE WITH THE PUBLISHING REQUIREMENTS OF SAE TECHNICAL STANDARDS. THE INITIAL RELEASE OF THIS DOCUMENT IS INTENDED TO REPLACE MIL-B-81819/1. ANY PART NUMBERS ESTABLISHED BY THE ORIGINAL SPECIFICATION REMAIN UNCHANGED.

THE ORIGINAL MILITARY SPECIFICATION WAS ADOPTED AS AN SAE STANDARD UNDER THE PROVISIONS OF THE SAE TECHNICAL STANDARDS BOARD (TSB) RULES AND REGULATIONS (TSB 001) PERTAINING TO ACCELERATED ADOPTION OF GOVERNMENT SPECIFICATIONS AND STANDARDS. TSB RULES PROVIDE FOR (A) THE PUBLICATION OF PORTIONS OF UNREVISED GOVERNMENT SPECIFICATIONS AND STANDARDS WITHOUT CONSENSUS VOTING AT THE SAE COMMITTEE LEVEL, AND (B) THE USE OF THE EXISTING GOVERNMENT SPECIFICATION OR STANDARD FORMAT.

UNDER DEPARTMENT OF DEFENSE POLICIES AND PROCEDURES, ANY QUALIFICATION REQUIREMENTS AND ASSOCIATED QUALIFIED PRODUCTS LISTS ARE MANDATORY FOR DOD CONTRACTS. ANY REQUIREMENT RELATING TO QUALIFIED PRODUCTS LISTS (QPL'S) HAS NOT BEEN ADOPTED BY SAE AND IS NOT PART OF THIS SAE TECHNICAL DOCUMENT.

THIRD ANGLE PROJECTION



ISSUED 2002-02

CUSTODIAN: SAE ACBG

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

AEROSPACE STANDARD

BEARINGS, PLAIN, SLIDING SPHERICAL, SELF-LUBRICATING, SELF-ALIGNING, HIGH SPEED OSCILLATION

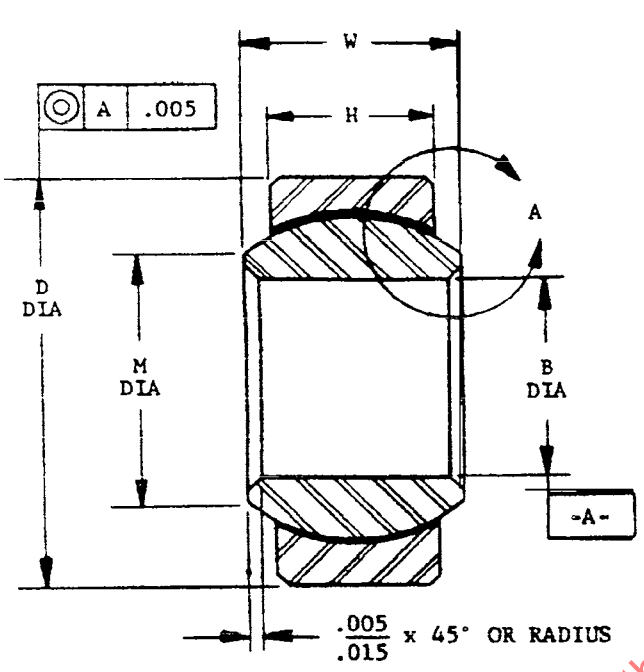
AS81819/1
SHEET 1 OF 4

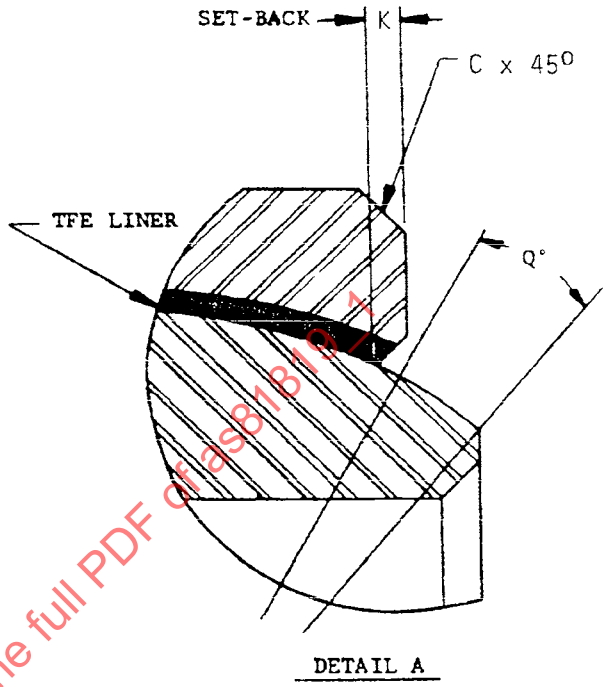
Printed in the U.S.A.

TO PLACE A DOCUMENT ORDER: (724) 776-4970 FAX: (724) 776-0790 SAE WEB ADDRESS: http://www.sae.org

THIS SPECIFICATION IS APPROVED FOR USE BY ALL DEPARTMENTS AND AGENCIES OF THE DEPARTMENT OF DEFENSE.

THE COMPLETE REQUIREMENTS FOR PROCURING THE BEARINGS DESCRIBED HEREIN SHALL CONSIST OF THIS DOCUMENT AND THE LATEST ISSUE OF MIL-B-81819.





DETAIL A

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

AEROSPACE STANDARD

BEARINGS, PLAIN, SLIDING SPHERICAL, SELF-LUBRICATING, SELF-ALIGNING, HIGH SPEED OSCILLATION

TEST CONDITION NUMBER DASH NO.	R MAX	C ± .005	B +.0000 -.0005	D +.0000 -.0005	H ± .0005	M MIN	Q MIN	W +.000 -.002	NO-LOAD ROTATIONAL BREAKAWAY TORQUE (IN. LB)	WT LB (MAX)	QUALIFICATION TESTS									
											STATIC LIMIT LOAD		CONSTANT LOAD OSCILLATION WEAR TEST CONDITIONS				CYCLIC LOAD OSCILLATION WEAR TEST CONDITIONS 5/			
											RADIAL (LB) 1/	AXIAL (LB) 2/	TEST LOAD (LBS) 3/	TEST SPEED (CPM) 4/	OSC. ANGLE (DEGREES)	TEST TIME (HOURS)	TEST LOAD (LBS) 6/	TEST SPEED (CPM)	OSC. ANGLE (DEGREES)	TEST TIME (HOURS)
4	.035	.025	.3750	.8125	.312	.475	9	.406	1-15	.038	10800	1200	340	1500	± 6	800				
3	.040	.025	.6250	1.1875	.500	.739	8	.625	1-15	.110	29450	3600	900	1000	± 6	800				
2	.045	.035	1.0000	1.7500	.797	1.118	9	1.000	1-24	.386	75100	10200	2300	300	± 10	600	±2300 2300 ± 2300	300	±10	600
1	.045	.045	2.0000	3.2500	1.375	2.221	13	1.937	1-40	3.00	256600	33700	7890	200	± 7	750				

1/ Radial static limit load (pounds) = 68000 dh
Where d = nominal ball diameter
h = minimum liner width

2/ Axial static limit load (pounds) = $\frac{26000\ \pi h^2}{4}$

3/ Load for constant oscillation wear test shall be applied with load link in compression using housing design specified in MIL-B-81819.

4/ One cycle shall consist of rotation from zero to +θ degrees, return to zero to −θ degrees and return to zero.

5/ Cyclic load oscillation wear tests shall be conducted on M81819/1-2 bearings. Satisfactory performance of -2 bearing in the cyclic load tests is adequate evidence that sizes -1, -3 and -4 will meet the requirements of cyclic load tests.

6/ Cyclic load tests shall be conducted so that the maximum load and maximum ball surface speed occur at the same time. Both Type I and Type II cyclic load tests are required.

TEST TYPE	RELATIONSHIP BETWEEN CYCLIC LOAD AND OSCILLATION ANGLE DURING ONE CYCLE OF OPERATION.
I	0 lbs → +2300 lbs → 0 lbs → −2300 lbs → 0 lbs +10° → 0° → −10° → 0° → +10°
II	2300 lbs → 4600 lbs → 2300 lbs → 0 lbs → 2300 lbs +10° → 0° → −10° → 0° → +10°