

REV.  
A

SAE AS81819/1

# RATIONALE

FEDERAL SUPPLY CLASS  
3120

THE REASON FOR UPDATING THIS DOCUMENT IS TO BRING QUALIFICATION TESTING IN LINE WITH CURRENT INDUSTRY TEST CAPABILITIES. THIS SLASH SHEET DELETES THE -1, -3, AND -4 ONLY THE -2 REMAINS. OTHER SIZES WITH LINER THICKNESS LESS THAN .015" WILL BE OFFERED IN A NEW STANDARD.

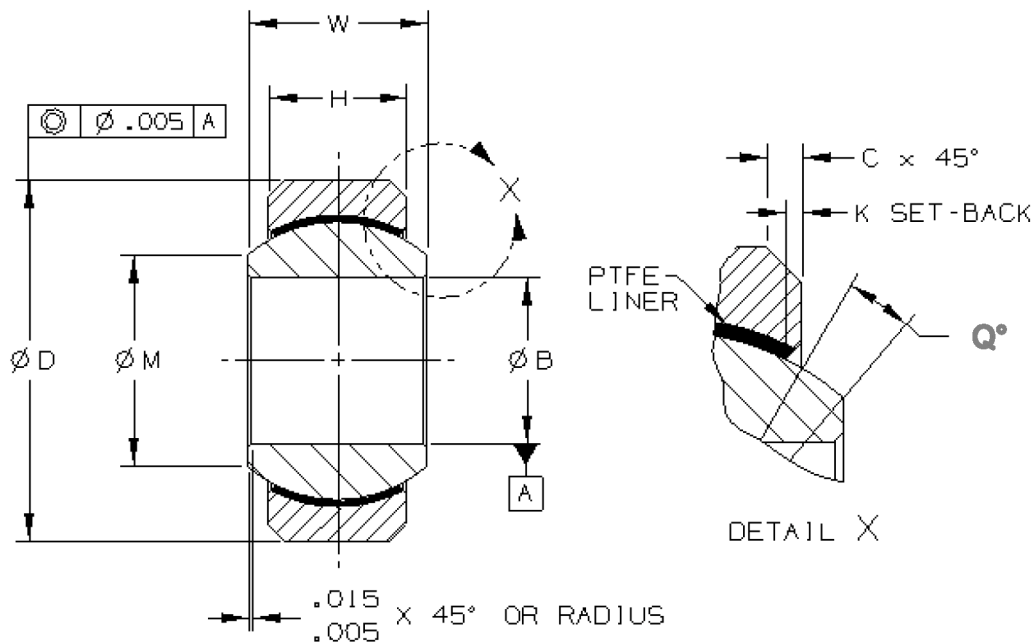
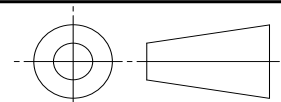


FIGURE 1 – CROSS-SECTION OF AS81819 BEARING

SAE values your input. To provide feedback on this Technical Report, please visit <http://www.sae.org/technical/standards/AS81819/1A>

THIRD ANGLE PROJECTION



CUSTODIAN: ACBG

PROCUREMENT SPECIFICATION: AS81819

**SAE Aerospace**  
An SAE International Group

## AEROSPACE STANDARD

(R) BEARINGS, PLAIN, SELF-LUBRICATING  
SELF-ALIGNING, HIGH SPEED OSCILLATION  
-65 TO +160 °F

**SAE AS81819/1**  
SHEET 1 OF 3

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TABLE 1 – DIMENSIONS &amp; QUALIFICATION TEST CRITERIA

| DASH NO. | K<br>MAX. | C<br>± .005 | Ø B<br>+.0000<br>-.0005 | Ø D<br>+.0000<br>-.0005 | H<br>±.0005 | Ø M<br>MIN. | Q°<br>MIN. | W<br>+.000<br>-.002 | NO-LOAD<br>ROTATIONAL<br>BREAKAWAY<br>TORQUE<br>(IN-LB) | WT<br>LB<br>(MAX) |
|----------|-----------|-------------|-------------------------|-------------------------|-------------|-------------|------------|---------------------|---------------------------------------------------------|-------------------|
| -2       | .045      | .035        | 1.0000                  | 1.7500                  | .797        | 1.118       | 9          | 1.000               | 1-24                                                    | .386              |

| DASH NO. | QUALIFICATION TESTS  |                     |                                                   |                              |                        |                         |                                                    |                        |                       |                         |
|----------|----------------------|---------------------|---------------------------------------------------|------------------------------|------------------------|-------------------------|----------------------------------------------------|------------------------|-----------------------|-------------------------|
|          | STATIC<br>LIMIT LOAD |                     | CONSTANT LOAD OSCILLATION<br>WEAR TEST CONDITIONS |                              |                        |                         | CYCLIC LOAD OSCILLATION<br>WEAR TEST CONDITIONS 5/ |                        |                       |                         |
|          | RADIAL<br>(LB)<br>1/ | AXIAL<br>(LB)<br>2/ | TEST<br>LOAD<br>(LB)<br>3/                        | TEST<br>SPEED<br>(CPM)<br>4/ | OSC.<br>ANGLE<br>(DEG) | TEST<br>TIME<br>(HOURS) | TEST<br>CONDITION                                  | TEST<br>SPEED<br>(CPM) | OSC<br>ANGLE<br>(DEG) | TEST<br>TIME<br>(HOURS) |
| -2       | 75 100               | 10 200              | 2300                                              | 300                          | ±10                    | 600*                    | I                                                  | 300                    | ±10                   | 600                     |
|          |                      |                     |                                                   |                              |                        |                         | II                                                 | 300                    | ±10                   | 600                     |

| TEST<br>CONDITION<br>6/ | RELATIONSHIP BETWEEN CYCLIC LOAD AND OSCILLATION<br>ANGLE DURING ONE CYCLE OF OPERATION |
|-------------------------|-----------------------------------------------------------------------------------------|
| I                       | 0 LB → +2300 LB → 0 LB → -2300 LB → 0 LB<br>+10° → 0° → -10° → 0° → +10°                |
| II                      | +2300 LB → +4600 LB → +2300 LB → 0 LB → +2300 LB<br>+10° → 0° → -10° → 0° → +10°        |

\*EXCEPT FLUID CONTAMINATION TESTS, WHICH ARE 200 HOURS TEST TIME

1/ RADIAL STATIC LIMIT LOAD (LBS) =  $68000 \times d \times h$

WHERE d = NOMINAL BALL DIAMETER  
h = MINIMUM LINER WIDTH

2/ AXIAL STATIC LIMIT LOAD (LBS) =  $\frac{26000 \times \Pi \times h^2}{4}$

3/ LOAD FOR CONSTANT OSCILLATION WEAR TEST SHALL BE APPLIED WITH LOAD LINK IN COMPRESSION USING HOUSING DESIGN SPECIFIED IN AS81819.

4/ ONE CYCLE SHALL CONSIST OF ROTATION FROM ZERO TO +10 DEGREES, RETURN TO ZERO TO -10 DEGREES AND RETURN TO ZERO.

5/ TWO EACH OF CONDITION I AND CONDITION II CYCLIC LOAD TESTS ARE REQUIRED. MAXIMUM ALLOWABLE LINER WEAR FOR CONDITION I IS 0.013 INCH, FOR CONDITION II IS 0.008 INCH.

6/ CYCLIC LOAD TESTS SHALL BE CONDUCTED SO THAT THE MAXIMUM LOAD AND MAXIMUM BALL SURFACE SPEED OCCUR AT THE SAME TIME.

#### NOTICE

THIS DOCUMENT REFERENCES A PART WHICH CONTAINS CADMIUM AS A PLATING MATERIAL. CONSULT LOCAL OFFICIALS IF YOU HAVE QUESTIONS CONCERNING CADMIUM USE.

|                                                                                                                   |                                                                                                  |                                                                                                                        |                                                                                                        |
|-------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| <br>An SAE International Group | <b>AEROSPACE STANDARD</b>                                                                        |  <b>AS81819/1</b><br>SHEET 2 OF 3 | <b>REV. A</b><br> |
|                                                                                                                   | (R) BEARINGS, PLAIN, SELF-LUBRICATING<br>SELF-ALIGNING, HIGH SPEED OSCILLATION<br>-65 TO +160 °F |                                                                                                                        |                                                                                                        |

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