AEROSPACE STANDARD

AS81820	REV. D
Issued 1998-03 Revised 2014-07 Superseding AS81820C	

Bearings, Plain, Self-Aligning, Self-Lubricating, Low Speed Oscillation

RATIONALE

The reason for updating this document is to clarify the requirements for the subzero testing for Type A bearing qualification, mandate passivation for 440C balls after June 1, 2015, add Liquid Nitrogen testing requirements and to remove chrome plating on the ball OD.

1. SCOPE

This SAE Aerospace Standard (AS) covers plain spherical bearings which are self-aligning and self-lubricating by utilizing polytetrafluoroethylene (PTFE) in a fabric composite or molded material that is bonded to the inner diameter surface of the race and when specified, to the bore diameter surface of the ball. These bearings are for use in the temperature range -65 to +325 °F (-54 to +163 °C).

2. APPLICABLE DOCUMENTS

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

AS1241	Fire Resistant Phosphate Ester Hydraulic Fluid for Aircraft
ARP5448/4	Plain Bearing Bond Integrity - Peelable Woven Fabric PTFE Liners
ARP5448/5	Plain Bearing No-Load Rotational Breakaway Torque Measurement
ARP5448/8	Plain Spherical Bearing Radial and Axial Clearance Measurement
ARP5448/9	Plain Bearing Lined Inside Diameter Plug Gaging

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)**
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Fax: 724-776-0790
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SAE values your input. To provide feedback on this Technical Report, please visit
http://www.sae.org/technical/standards/AS81820D

AS8243	Anti-Icing and Deicing - Defrosting Fluids
AS8942	Bearings, Plain and PTFE Lined, Self-Aligning
AS14101	Bearing, Plain, Self-Lubricating, Self-Aligning, Low Speed, Narrow, Grooved Race, -65 to +325 °F
AS14102	Bearing, Plain, Self-Lubricating, Self-Aligning, Low Speed, Wide, Chamfered Race, -65 to +325 °F
AS14103	Bearing, Plain, Self-Lubricating, Self-Aligning, Low Speed, Wide, Grooved Race, -65 to +325 °F
AS14104	Bearing, Plain, Self-Lubricating, Self-Aligning, Low Speed, Narrow, Chamfered Race, -65 to +325 °F
AS81820/1	Bearing, Plain, Self-Aligning, Self-Lubricating, Lined Bore, Low Speed, Narrow, Grooved Race, -65 to +325 °F
AS81820/2	Bearing, Plain, Self-Aligning, Self-Lubricating, Lined Bore, Low Speed, Wide, Chamfered Race, -65 to +325 °F
AS81820/3	Bearing, Plain, Self-Aligning, Self-Lubricating, Lined Bore, Low Speed, Wide, Grooved Race, -65 to +325 °F
AS81820/4	Bearing, Plain, Self-Aligning, Self-Lubricating, Lined Bore, Low Speed, Narrow, Chamfered Race, -65 to +325 °F
AMS1424	Deicing/Anti-Icing Fluid, Aircraft, SAE Type I
AMS2417	Plating, Zinc-Nickel Alloy
AMS2700	Passivation of Corrosion Resistant Steels
AMS5629	Steel, Corrosion-Resistant, Bars, Wire, Forgings, Rings, and Extrusions, 13Cr - 8.0Ni - 2.2Mo - 1.1Al, Vacuum Induction Plus Consumable Electrode Melted, Solution Heat Treated, Precipitation Hardenable
AMS-QQ-P-416	Plating, Cadmium (Electrodeposited)

2.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM F25	Standard Test Method for Sizing and Counting Airborne Particulate Contamination in Clean Rooms and Other Dust Controlled Areas Designed for Electronic and Similar Applications
ASTM F50	Standard Practice for Continuous Sizing and Counting of Airborne Particles in Dust Controlled Areas Using Instruments Based Upon Light Scattering Principles
ASTM C794	Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealant
ASTM A967	Standard Specification for Chemical Passivation Treatments for Stainless Steel Parts

2.3 ASME Publications

Available from ASME, P.O. Box 2900, 22 Law Drive, Fairfield, NJ 07007-2900, Tel: 800-843-2763 (U.S./Canada), 001-800-843-2763 (Mexico), 973-882-1170 (outside North America), www.asme.org.

ASME B46.1 Surface Texture (Surface Roughness, Waviness, and Lay)

ASME Y14.24 Types and Applications of Engineering Drawings

ASME Y14.34M Associated Lists

ASME Y14.35M Revision of Engineering Drawings and Associated Documents

ASME Y14.100 Engineering Drawing Practices

2.4 U.S. Government Publications

Available from DLA Document Services, Bldg 4/D, 700 Robbins Ave, Philadelphia, PA 19111, Tel: 215-697-6396, http://quicksearch.dla.mil/ or http://www.assistdocs.com/search/search_basic.cfm.

MIL-STD-129 DoD Standard Practice Military Marking for Shipment and Storage

MIL-DTL-197 Packaging of Bearings, Anti-Friction, Associated Parts and Sub-Assemblies

MIL-STD-2073-1 Standard Practice for Military Packaging

MIL-PRF-5606 Hydraulic Fluid, Petroleum Base; Aircraft, Missile and Ordnance

MIL-DTL-5624 Turbine Fuel, Aviation, Grades JP-5 and JP-5/JP-8 ST

MIL-PRF-7808 Lubricating Oil, Aircraft Turbine Engine, Synthetic Base, NATO Code Number O-148

MIL-PRF-83282 Hydraulic Fluid, Fire Resistant, Synthetic Hydrocarbon Base, Aircraft, Metric, NATO Code Number H-537

3. REQUIREMENTS

3.1 Qualification

Bearings furnished under this standard shall be products which are authorized by the qualifying activity for listing on the applicable Qualified Products List (QPL-AS81820) at the time of award of contract (see 4.3 and 6.3). See Qualified Products Database (QPD) at http://quicksearch.dla.mil/, or http://www.assistdocs.com/search/search_basic.cfm.

3.2 Materials

The ball, race and liner shall conform to the applicable AS sheet.

3.2.1 Plating

When specified, plating of the race shall be Zinc-Nickel plating in accordance with AMS2417 Type 2 Grade A or B and the applicable drawing or Cadmium plating per AMS-QQ-P-416 Type II, Class 2 and the applicable drawing.

When AMS2417 is specified, only Type 2 Grade B shall be permitted on bearings manufactured after June 1, 2015.