



AEROSPACE STANDARD

AS8914™**REV. B**Issued 1999-08
Revised 2016-03

Superseding AS8914A

Bearing, Roller, Self-Aligning, Airframe, Antifriction

FSC 3110

RATIONALE

AS8914, Rev. B is a five year review. Updating standard to current requirements. Added zinc-nickel plating.

1. SCOPE

1.1 This standard covers the requirements for nonseparable antifriction roller bearings.

1.2 Classification

Bearings shall be of the following types as specified (see 6.2):

Type I Bearing, roller, self-aligning, single row, airframe, antifriction, sealed

Type II Bearing, roller, self-aligning, double row, airframe, antifriction, sealed

Type III Bearing, roller, self-aligning, double row, wide inner ring, airframe, antifriction, sealed

Type IV Bearing, roller, self-aligning, double row, torque tube, airframe, antifriction, sealed

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.

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Documents

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2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

AS21431	Bearing, Roller, Self-Aligning, Single Row, Anti-Friction, Sealed, -65 to 350 °F, Type I
AS28913	Bearing, Roller, Self-Aligning, Double Row, Airframe, Anti-Friction, Sealed, Type II
AS28914	Bearing, Roller, Self-Aligning, Double Row, Airframe, Anti-Friction, Sealed, Type III
AS28915	Bearing, Roller, Self-Aligning, Double Row, Torque Tube, Airframe, Anti-Friction, Sealed, Type IV
AMS-QQ-P-416	Plating, Cadmium (Electrodeposited)
AMS2417	Plating, Zinc-Nickel Alloy

2.2 U.S. Government

Copies of these documents are available online at <http://quicksearch.dla.mil>.

MIL-DTL-197	Packaging of Bearings, Antifriction, Associated Parts and Subassemblies
MIL-PRF-81322	Grease, Aircraft, General Purpose Wide Temperature Range
MIL-PRF-23827	Grease, Aircraft and Instrument, Gear and Actuator Screw, NATO Code Number G-354
MIL-STD-130	Identification Marking of U.S. Military Property
MIL-STD-810	Environmental Engineering Considerations and Laboratory Tests
MIL-STD-1916	DoD Preferred Methods for Acceptance of Product
MIL-HDBK-831	Preparation of Test Reports

2.3 Other Publications

Copies of these documents are available online at <http://webstore.ansi.org/>

ANSI/ASME B46.1	Surface Texture, Surface Roughness, Waviness, and Lay
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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-AS8914) at the time of award of contract (see 4.3 and 6.3). See Qualified Products Database (QPD) at <http://quicksearch.dla.mil/>.

3.1.1 Product Change

Any change in product design, including raceway geometry or dimensions, rolling element dimensions, rolling element quantity, seals, materials or plant location shall be reported to the qualifying activity and will require requalification of the product to an extent determined by the qualifying activity. Any other specific changes which must be brought to the qualifying activity's attention will be identified in the qualification notification letter.

3.1.2 Product Manufacture

The bearing manufacturer shall be capable of performing the majority of manufacturing operations in-house, but may subcontract these operations at its option. Component inspection shall be performed at the plant listed on the QPD. If manufacturing operations are performed in more than one plant, the manufacturer's additional plant(s) shall be reported to the qualifying activity and will be listed accordingly on the QPD. The manufacturer is responsible for meeting all requirements of the standard and for the quality of the end product, whether it is manufactured totally in-house or some of the operations are performed by a subcontractor. Inherent in the responsibility for the end product is the responsibility to verify that the subcontractor's processes meet standard requirements. A change in subcontractor need not be reported to the qualifying activity unless specifically identified in the qualification notification letter. (NOTE: Bearings partly or completely manufactured in foreign countries shall be subject to the laws and procurement regulations pertaining to acquisition of foreign made products.)

3.2 Materials

Material used to manufacture the bearing and its components shall conform to the applicable AS.

3.3 Design and Construction

Only factory new bearings conforming to requirements specified herein shall be used.

3.3.1 Hardness

The rings and rollers shall have a hardness of 60 to 65 on the Rockwell C scale. They shall be uniformly hardened.

3.3.2 Surface Roughness

3.3.2.1 Sides of Inner Ring

The sides of the inner ring shall have a smooth, machined finish that will not cut nor score the adjacent clevis or fitting, equal to or better than the surface roughness as specified on the applicable AS.

3.3.2.2 Faces of Raceway

Faces on inner and outer races shall conform to ANSI B46.1 and shall have a smooth finish that will not cut or score the fitting or clevis abutting the race face as specified on the applicable AS.

3.3.2.3 Finish

Except when made of corrosion-resistant steel, the face and the outside diameter surfaces, excluding the bore, shall be plated. Plating shall be in accordance with AMS-QQ-P-416 or AMS2417 as specified on the applicable AS.

3.3.3 Seals

Seals shall be of the contact type. The material shall be determined by the manufacturer to provide retention of lubricant and exclusion of environmental substances.

3.3.4 Lubrication Provisions

Holes and channels shall be provided for lubrication as shown on the applicable AS.

3.3.5 Retainers

Roller retainers or separators, when applicable, shall be made of steel or copper alloy as specified on the applicable AS.

3.3.6 Lubrication

The bearings shall be filled with grease conforming to MIL-PRF-81322 or MIL-PRF-23827, Type I or Type II so that at least 80% of the bearing void shall be filled. Bearings shall not have been lubricated more than 36 months prior to date of delivery. The bearings shall be thoroughly cleaned and dried before being lubricated.

3.3.7 Stability

The bearing components shall be dimensionally stable for operation from -67 to +250 °F.

3.4 Performance

3.4.1 Radial Strength

3.4.1.1 Radial Limit Load Rating

The bearings shall have a radial limit load rating of not less than the values specified on applicable AS and shall be tested as specified in 4.5.6.

3.4.1.2 Radial Fracture Load

The minimum static fracture capacity shall be not less than 1-1/2 times the radial limit load rating specified on the applicable AS and shall be tested as specified in 4.5.7.

3.4.1.3 Dynamic Load Rating

The bearings shall have a radial dynamic load rating of not less than the values specified on the applicable AS. The average life shall be 10,000 cycles oscillating through an arc of 90 degrees and shall be tested as specified in 4.5.10.

3.4.2 Axial Strength

3.4.2.1 Axial Limit Load Ratings

The bearings shall have an axial limit load rating of not less than the values specified on the applicable AS and shall be tested as specified in 4.5.8.

3.4.2.2 Axial Fracture Load

The minimum static fracture capacity shall be not less than 1-1/2 times the axial limit load rating values specified on the applicable AS and shall be tested as specified in 4.5.9.

3.4.3 Radial Play

Radial play, measured before and after the radial and axial limit load rating tests (4.5.6 and 4.5.8), shall be as specified on the applicable AS and shall be measured as specified in 4.5.11.

3.4.4 Axial Play

Axial play, measured before and after the radial and axial limit load rating tests, (4.5.6 and 4.5.8), shall be as specified as a function of the contact angle and the radial play, and shall be measured as specified in 4.5.12.

3.5 Dimensions and Tolerances

Dimensions and tolerances shall be in accordance with the applicable AS and shall be measured as specified in 4.5.15 and 4.5.16.