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AEROSPACE RECOMMENDED PRACTICE

SAE ARP671 | REV. B

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Superseding ARP671A

Bearing, Ball Annular

RATIONALE

This noncurrent standard has been stabilized.

STABILIZED NOTICE

This document has been declared "Stabilized" by the SAE E-25 General Standards for Aerospace and Propulsion Systems and will no longer be subjected to periodic reviews for currency. Users are responsible for verifying references and continued suitability of technical requirements. Newer technology may exist.

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1. PURPOSE:

This recommended practice provides certain design requirements and quality assurance provisions for anti-friction bearings intended for use by the aircraft industry.

2. SCOPE:

This recommended practice covers single row, radial, deep groove, non-filling slot type ball bearings having tolerance grades 1, 3, 5 and 7, and having varying radial clearances.

3. APPLICABLE DOCUMENTS:

3.1 The following specifications form a part of this recommended practice:

SPECIFICATIONS

ASTM-A295-46T	Carbon-Chromium Ball and Roller Bearing Steels (Tentative)
AMS 2640	Magnetic Particle Inspection
AMS 2645	Fluorescent Penetrant Inspection
AMS 2800	Identification - Finished Parts
AS291	Surface Roughness (AA)

4. REQUIREMENTS:

4.1 Materials:

Materials should conform to the applicable specifications noted on the drawing. The manufacturer should use due care in subjecting this metal to metallographic examination in accordance with ASTM-A295-46T and to other suitable check analyses and physical tests to satisfy the purchaser as to the uniformity of the material being used.

4.1.1 The metal employed for balls and rings should be homogenous in structure, free from pipes, seams, laminations, excessive inclusion of nonmetallic impurities as specified in the quality section herein, and such other internal defects as would render the material unsuitable for the purpose for which intended.

4.2 Drawing Requirements:

The bearing and component parts should conform to all the requirements shown on the applicable drawing. Figure 1 illustrates recommended drawing format. The applicable tolerance grade of the bearing defined should be stated in the title block of the drawing as well as in the heading of the table shown in Figure 1A.

4.2.1 Marking: Unless otherwise specified, each bearing should be identified by the applicable bearing manufacturer's complete part number marked on either the inner or outer ring face. Additional manufacturer's symbols are permissible on any surface not detrimental to the bearing performance. For applications requiring identification by contractor's part number, due to necessity for insuring adequate interchangeability physically and performance wise, this marking shall take precedence over identification of manufacturer's part number if space does not permit the marking of both part numbers.

4.2.1.1 Method of Marking: Identification markings of bearings should be applied as specified by the contractor's applicable drawing. All markings should be legible and durable.

4.2.2 Surface Roughness: Surface roughness should be determined in accordance with AS291.

4.3 Reconditioned Parts:

New ball bearings should not contain reconditioned component parts.

4.4 Ball Diameter Variation and Sphericity:

Variation of the average diameter of each ball between the extreme values found in any one bearing assembly should not exceed .000050 inch in grades 1 and 3 and .000020 inch in grades 5 and 7. Ball sphericity or variation in ball diameter between the extreme values found in any one ball should not exceed .000025 inch in grades 1 and 3 and .000010 inch in grades 5 and 7.

4.5 Tolerances for Assembled Bearings:

Tolerances for assembled bearings should not exceed the applicable tolerances shown in Table 1 and Table 2.

4.6 Retainers:

Retainer tabs and rivets should not exhibit cracks, looseness or burrs after assembly. After assembly, retainers should not exhibit deformities and should be free of protrusions and dents on functional surfaces.