

AN AMERICAN NATIONAL STANDARD



400 Commonwealth Drive, Warrendale, PA 15096-0001

**AEROSPACE
MATERIAL
SPECIFICATION**

Submitted for recognition as an American National Standard

AMS 4825C

Issued 10-1-45
Revised 10-1-89

BEARINGS, LEADED BRONZE
74Cu - 15.5Pb - 10Sn
Steel Back

This specification has been declared "NONCURRENT" by the Aerospace Materials Division, SAE, as of October 25, 1988. It is recommended that this specification not be specified for new designs.

This cover sheet should be attached to the "C" revision of the subject specification.

Noncurrent refers to those materials which have previously been widely used and which may be required on some existing designs in the future. The Aerospace Materials Division, however, does not recommend these as standard materials for future use in new designs. Each of these "Noncurrent" specifications is available on request from SAE.

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 <p>SAE The Engineering Society For Advancing Mobility Land Sea Air and Space® INTERNATIONAL</p> <p>400 Commonwealth Drive, Warrendale, PA 15096-0001</p>	<p>AEROSPACE MATERIAL SPECIFICATION</p>	<p>AMS 4825C Superseding AMS 4825B</p>		
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BEARINGS, LEADED BRONZE
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1. SCOPE:

1.1 Form: This specification covers bearings of a leaded bronze cast on one or both faces of a steel backing.

1.2 Application: Primarily for bushings and bearings.

2. APPLICABLE DOCUMENTS: The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material Specifications (AMS) shall apply. The applicable issue of other documents shall be as specified in AMS 2350.

2.1 SAE Publications: Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096.

2.1.1 Aerospace Material Specifications:

AMS 2350 - Standards and Test Methods

AMS 2370 - Quality Assurance Sampling of Carbon and Low-Alloy Steels,
Wrought Products Except Forgings and Forging Stock

AMS 2800 - Identification, Finished Parts

2.2 ASTM Publications: Available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

ASTM E18 - Rockwell Hardness and Rockwell Superficial Hardness of Metallic
Materials

ASTM E478 - Chemical Analysis of Copper Alloys

2.3 U.S. Government Publications: Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

2.3.1 Federal Standards:

Federal Test Method Standard No. 151 - Metals, Test Methods

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2.3.2 Military Standards:

MIL-STD-794 - Parts and Equipment, Procedures for Packaging and Packing of

3. TECHNICAL REQUIREMENTS:

3.1 Composition:

3.1.1 Bearing Metal: Shall conform to the following percentages by weight, determined by wet chemical methods in accordance with ASTM E478, by spectrographic methods in accordance with Federal Test Method Standard No. 151, Method 112, or by other analytical methods approved by purchaser:

	min	max
Copper	70.0	78.0
Lead	13.0	18.0
Tin	9.0	11.0
Iron	-	0.35
Zinc	-	0.30
Phosphorus	-	0.01
Other Elements, total	-	0.20

3.1.2 Backing: Shall be a low-carbon steel.

3.2 Condition: Shall be a composite material produced by casting leaded bronze onto one or both faces of a steel backing.

3.3 Properties: Bearings shall conform to the following requirements:

3.3.1 Hardness: Steel backing shall, unless otherwise specified by purchaser, have hardness not higher than 75 HR15N or equivalent, determined in accordance with ASTM E18.

3.3.2 Cladding Structure: Shall be free of excessive lead segregation, in accordance with standards specified by purchaser, determined by a procedure agreed upon by purchaser and vendor.

3.4 Quality: Bearings, as received by purchaser, shall be uniform in quality and condition, sound, and free from foreign materials and from internal and external imperfections detrimental to usage of the bearings.

3.4.1 Cladding shall be firmly and continuously bonded to the steel backing, determined by a procedure agreed upon by purchaser and vendor.

4. QUALITY ASSURANCE PROVISIONS:

- 4.1 Responsibility for Inspection: The vendor of bearings shall supply all
Ø samples for vendor's tests and shall be responsible for performing all required tests. Results of such tests shall be reported to the purchaser as required by 4.5. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the bearings conform to the requirements of this specification.
- 4.2 Classification of Tests: Tests to determine conformance to all technical
Ø requirements of this specification are classified as acceptance tests and as preproduction tests and shall be performed on the first-article shipment of a bearing to a purchaser, on each lot, when a change in material and/or processing requires reapproval as in 4.4.2, and when purchaser deems confirmatory testing to be required.
- 4.2.1 For direct U.S. Military procurement, substantiating test data and, when
Ø requested, preproduction test material shall be submitted to the cognizant agency as directed by the procuring activity, the contracting officer, or the request for procurement.
- 4.3 Sampling: Shall be in accordance with the following; a lot shall be all
Ø parts of one size and configuration made from a single heat of steel backing and a single heat of bearing metal processed in one continuous run and presented for vendor's inspection at one time:
- 4.3.1 Steel Backing: AMS 2370.
Ø
- 4.3.2 Bearing Metal: Two samples from each heat of alloy melted at the same
Ø time.
- 4.3.3 Bearings: Three samples from each lot.
Ø
- 4.4 Approval:
- 4.4.1 Sample bearings shall be approved by purchaser before bearings for
production use are supplied, unless such approval be waived by purchaser.
- 4.4.2 Vendor shall use materials, manufacturing procedures, processes, and
Ø methods of inspection on production parts which are essentially the same as those used on the approved, sample parts. If necessary to make any change in materials, manufacturing procedures, or processing, vendor shall submit for reapproval a statement of the proposed changes in material and/or processing and, when requested, sample bearings. Production bearings made by the revised procedure shall not be shipped prior to receipt of reapproval.