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AEROSPACE MATERIAL SPECIFICATION

Submitted for recognition as an American National Standard

AMS 4827D

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Superseding AMS 4827C

BEARINGS, LEADED BRONZE
80Cu - 10Pb - 10Sn
Steel Back

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 SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order.

2.1 SAE Publications: Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

2.1.1 Aerospace Material Specifications:

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 ASTM, 1916 Race Street, Philadelphia, PA 19103-1187.

ASTM E 18 - Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials
ASTM E 478 - Chemical Analysis of Copper Alloys

2.3 U.S. Government Publications: Available from Naval Publications and Forms Center, Attn: NPODS, 5801 Tabor Avenue, Philadelphia, PA 19120-5099.

2.3.1 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, 0 determined by wet chemical methods in accordance with ASTM E 478, by spectrochemical methods, or by other analytical methods acceptable to purchaser:

	min		max
Copper (3.1.1.1)	77.00	-	83.00
Tin	9.00	-	11.00
Lead	8.00	-	11.00
Zinc	--		0.75
Nickel	--		0.50
Antimony	--		0.50
Iron	--		0.35
Phosphorus	--		0.05
Aluminum	--		0.00
Other Elements, total	--		0.35

3.1.1.1 May be determined by difference.

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 have hardness not higher than 75 HR15N, or equivalent, determined in accordance with ASTM E 18.

3.3.2 Cladding Structure: Shall be free of excessive lead segregation. Methods of testing and standards for acceptance shall be as 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 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 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 for all technical requirements are acceptance tests and preproduction tests and shall be performed prior to or 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 requested, preproduction test material shall be submitted to the cognizant agency as directed by the procuring activity, contracting officer, or request for procurement.

4.3 Sampling and Testing: Shall be in accordance with the following; the number of specimens to be sampled shall be the minimum number of specimens tested. A lot shall be all 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.

4.3.2 Bearing Metal: Two samples from each heat of alloy melted at the same time.

4.3.3 Bearings: Three samples from each lot.

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 and processes, and 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.

4.5 Reports: The vendor of bearings shall furnish with each shipment a report showing the results of tests for chemical composition, hardness, and cladding structure of each lot. This report shall include the purchase order number, lot number, AMS 4827D, part number, and quantity from each lot.