



# AEROSPACE MATERIAL SPECIFICATION

AMS4631™

REV. F

Issued	1946-11
Revised	1978-01
Noncurrent	1988-04
Reaf. Nonc.	2011-11
Stabilized	2017-05

Superseding AMS4631E

Aluminum Bronze Rods, Bars, and Forgings  
90.5Cu - 7.5Al - 1.95:  
Stress Relieved

## RATIONALE

AMS4631F results from a limited scope ballot to stabilize this document.

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## 1. SCOPE:

### 1.1 Form:

This specification covers one type of aluminum bronze in the form of rods, bars, forgings, and forging stock.

### 1.2 Application:

Primarily for parts requiring strength and wear resistance at moderate temperatures. This material has slightly better corrosion resistance than AMS 4630.

## 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 15096-0001.

#### 2.1.1 Aerospace Material Specifications:

AMS 2221	Tolerances, Copper and Copper Alloy Rods and Bars
AMS 2350	Standards and Test Methods
AMS 2808	Identification, Forgings

### 2.2 ASTM Publications:

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

ASTM B154	Mercurous Nitrate Test for Copper and Copper Alloys
ASTM B249	General Requirements for Wrought Copper and Copper-Alloy Rod, Bar, and Shapes
ASTM E8	Tension Testing of Metallic Materials
ASTM E10	Brinell Hardness of Metallic Materials
ASTM E18	Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials
ASTM E478	Chemical Analysis of Copper-Base Alloys

### 2.3 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

#### 2.3.2 Military Specifications:

MIL-C-3993 Copper and Copper-Base Alloy Mill Products, Packaging of

### 3. TECHNICAL REQUIREMENTS:

#### 3.1 Composition:

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 approved analytical methods:

	min	max
Copper	89.00	--
Aluminum	6.50	8.50
Silicon	1.60	2.25
Other Elements, each	--	0.05
Other Elements, total	--	0.50

#### 3.2 Condition:

The product shall be supplied in the following condition:

- 3.2.1 Rods and Bars: Hot rolled or drawn, or extruded, cold finished if necessary, and stress relieved.
- 3.2.2 Forgings: Stress relieved.
- 3.2.3 Forging Stock: As ordered by the forging manufacturer.