

# AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.  
29 West 39th Street  
New York City

## AMS4862A

Issued 3-1-42

Revised 5-1-44

### MANGANESE BRONZE CASTINGS High Strength

1. ACKNOWLEDGMENT: A vendor must mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.

2. COMPOSITION:

Copper	60.0 - 68.0
Aluminum	3.0 - 7.5
Manganese	2.5 - 5.0
Iron	2.0 - 4.0
Tin	0.50 max
Lead	0.20 max
Other Elements	0.20 max
Zinc	Remainder

3. CONDITION: As cast.

4. PHYSICAL PROPERTIES: (a) Tensile test bars shall be cast with each melt of castings immediately before the metal for the castings is taken. The test bars shall be poured at the temperature of pouring the castings and in a mold made with the regular foundry mix of green sand without using chills or artificial means of cooling.

(b) Unless otherwise specified or noted on the drawing, the test bars and/or test specimens cut from castings (when size permits) shall conform to the following minimum physical requirements:

Tensile Strength, lb per sq in.	110,000
Yield Strength (Offset 0.2%) lb per sq in.	60,000
Equivalent Extension Under Load, inch in 2 in.	0.0120
Elongation, % in 2 in.	12

(c) The castings shall have a hardness of Brinell 217-269.

5. QUALITY: (a) Castings must be homogeneous and free from shrinkage defects, cracks, blowholes, porosity, sand holes, hard spots, foreign matter and other injurious defects, and must not reveal defects when machining. The castings shall be smooth and well cleaned.

(b) Castings when broken for fracture test must show a uniform composition and color and be substantially free from oxides and other defects, particularly in locations subject to stresses in service.

(c) Castings shall be ductile enough to show a definite amount of bending before rupture when being broken for the fracture test.