

AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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MANGANESE BRONZE FORGINGS 58Cu - 39.7Zn - 1.1Fe - 1.0Al - 0.2Mn

1. **ACKNOWLEDGMENT:** A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.
2. **FORM:** Forgings and forging stock.
3. **APPLICATION:** Primarily for parts, such as counterweights, requiring wear resistance and high specific gravity.
4. **COMPOSITION:**

Copper	56.0 - 60.0
Iron	0.80 - 1.3
Aluminum	0.70 - 1.2
Manganese	0.50 max
Total Other Elements	0.30 max
Zinc	remainder

5. **CONDITION:**

- 5.1 **Forgings:** Stress relieved sufficiently that distortion will not occur during machining.
- 5.2 **Forging Stock:** As ordered by the forging manufacturer.

6. **TECHNICAL REQUIREMENTS:**

- 6.1 **Tensile Properties:**

Tensile Strength, psi	70,000 min
Yield Strength at 0.2% offset or at 0.0073 inch in 2 in. extension under load, psi	25,000 min
Elongation, % in 4D	20 min

- 6.2 **Hardness:** Forgings shall have hardness of Brinell 120-140, using 1000 kg load, or equivalent hardness by other methods.
7. **QUALITY:** Material shall be uniform in quality and condition, clean, sound, smooth, and free from foreign materials and from internal and external defects detrimental to fabrication or to performance of parts.

8. **REPORTS:**

- 8.1 Unless otherwise specified, the vendor of the product shall furnish with each shipment three copies of a report showing the results of tests to determine conformance to the requirements of this specification or stating that the chemical composition of the product and hardness of the forgings conform to the requirements specified. This report shall include the purchase order number, material specification number, size, and quantity. If forgings are supplied the part number and size of stock used to make the forgings shall also be included.

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