

AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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AMS 4071B

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ALUMINUM ALLOY TUBING 2.5Mg - 0.25Cr (52S) Hydraulic

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

2. **APPLICATION:** Primarily for aircraft hydraulic systems up to 1500 psi operating pressure.

3. **COMPOSITION:**

Magnesium	2.20 - 2.80
Chromium	0.15 - 0.35
Iron plus Silicon	0.45 max
Manganese	0.10 max
Copper	0.10 max
Zinc	0.10 max
Other Impurities, each	0.05 max
Other Impurities, total	0.15 max
Aluminum	remainder

4. **CONDITION:**

4.1 Annealed, then drawn if required to meet dimensional tolerances.

4.2 Unless otherwise specified, tubing shall be supplied unground with an as-drawn surface finish.

5. **TECHNICAL REQUIREMENTS:**

5.1 **Tensile Properties:** Unless otherwise specified, tubing shall conform to the following requirements:

Tensile Strength, psi	Yield Strength at 0.2% offset or at extension indicated	
	psi	Extension Under Load, inch in 2 in.
26,000 min	10,000 min	0.0060
35,000 max	20,000 max	0.0079

5.2 **Flattening:** Tubing shall be capable of being flattened sidewise under a gradually applied load, without cracking, to an outside dimension three times the wall thickness while under load.

5.3 **Flaring:** Tubing shall be capable of being flared sufficiently for use in standard compression type fittings, using shop equipment and practices.

- 5.4 Air Pressure Resistance: Unless otherwise specified, the manufacturer shall apply an air pressure of 250 psi to the inside of each finished tube 1-1/2 in. and less in diameter, for a period of not less than 5 seconds, while the tube is immersed in water or other suitable liquid. Any tube which leaks, as indicated by the formation of air bubbles in the liquid, shall be rejected.

6. QUALITY:

- 6.1 Tubing shall be uniform in quality and condition, sound and free from foreign materials and from internal and external defects detrimental to fabrication or to performance of parts. One end of a section of tube, polished and etched, shall show no evidence of cracks, seams, or folds when examined at a magnification of 100 diameters.
- 6.2 Cleanliness of Tubing: Tubing shall be free from grease or other foreign matter and shall have a good workmanlike finish. No metallic flakes or particles shall be collected by a clean white cloth when it is drawn through the length of the bore of a test sample. The presence of metallic flakes or particles on the cloth shall be cause for rejection. Discoloration of the cloth, without the presence of flakes or grit, shall not be cause for rejection.
7. TOLERANCES: Unless otherwise specified, tolerances shall conform to the latest issue of AMS 2203 as applicable. Diameter and wall thickness tolerances shall be as specified below:
- 7.1 Diameter: Table 1, Columns headed "Mean Diameter or Pi-Tape Measurement" and ϕ "Individual Measurement of Diameter" for Heat Treatable Alloys.
- 7.2 Wall Thickness: Table 11, Column headed "Individual Wall Thickness" for Non-heat Treatable Alloys.
8. REPORTS:
- 8.1 Unless otherwise specified, the vendor of tubing shall furnish with each shipment three copies of a notarized report stating that the physical properties and chemical composition of the tubing conform to the requirements specified. This report shall include the purchase order number, material specification number, size, and quantity.
- 8.2 Unless otherwise specified, the vendor of finished or semi-finished parts shall furnish with each shipment three copies of a notarized report showing the purchase order number, material specification number, contractor or other direct supplier of tubing, part number, and quantity. When tubing for making parts is produced or purchased by the parts vendor, that vendor shall inspect each lot of tubing to determine conformance to the requirements of this specification, and shall include in the report a certification that the tubing conforms, or shall include copies of laboratory reports showing the results of tests to determine conformance.