AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
29 West 39th Street
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AMS 4062

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Revised

ALUMINUM TUBING (Seamless)
(2S-1/2H)

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

2. COMPOSITION:

Aluminum	99.0 min
Iron + Silicon	1.0 max
Copper	0.2 max
Manganese	0.10 max
Zinc	0.10 max
Other Impurities, each	0.05 max
Other Impurities, total	0.15 max

3. CONDITION: (a) Half hard, unless otherwise specified, conforming to the following physical properties:

Ultimate Tensile Strength - - - 16,000 lbs, per sq in. - Min.

(b) The tubing shall be capable of being flattened sidewise under a gradually applied load, without cracking, into an oval shape until the minimum outside dimension is six times the wall thickness.

(c) The tubing shall be capable of being flared sufficiently for use in standard compression type fitting using usual shop equipment and practices.

4. QUALITY: The material shall be seamless, uniform in quality and temper, commercially straight, clean, smooth, and free from seams, laminations, blisters, and other injurious defects, within the limits of best commercial manufacturing methods. Material revealing defects during fabrication is subject to rejections.

5. TOLERANCES: (a) Diameter - The outside diameter of the tubing at any section shall not vary from the nominal diameter by more than the following tolerances; all dimensions are in inches:

Nominal Outside Diameter Inches	TOLERANCES, Plus or Minus	
	Mean Diameter Measurement	Individual Diameter Measurement
1/4 to 1/2, inclusive	0.003	0.003
Over 1/2 to 1 "	0.004	0.004
" 1 to 2 "	0.005	0.005
" 2 to 3 "	0.006	0.006
" 3 to 5 "	0.008	0.008
" 5 to 6 "	0.010	0.010
" 6 to 8 "	0.015	0.015
" 8 to 10 "	0.020	0.020
" 10 to 12 "	0.025	0.025

5. TOLERANCES: (Cont'd)

Note: (a) The tolerances of individual measurements shall not apply to tubes in which the wall thickness is less than 2.5 per cent of the diameter or lass than 0.020 in. Such thin wall tubes shall be commercially round.

(b) If so specified in the purchase order, the tolerances for outside diameter shall apply to the inside diameter instead but not to both inside and outside diameter of the same lot of tubing.

(b) Wall Thickness: Tubing shall be of the specified wall thickness at any point along the tubing within the following respective tolerances:

Wall Thickness Inch	Tolerance (Plus or Minus) Inch
0.035 and under	0.002
Over 0.035 to 0.049, inclusive	0.003
" 0.049 to 0.120 "	0.004
" 0.120 to 0.203 "	0.005
" 0.204 to 0.300 "	0.008
" 0.301 to 0.375 "	0.012
" 0.376 to 0.500 "	0.032

If so specified, a "plus only" or "minus only" tolerance will be allowed in which case the tolerance shall be double the respective "plus or minus" tolerance.

(c) Length: Standard lengths shall be 12 feet unless otherwise specified.

(d) Straightness: Tubing in diameters 3/8" and greater shall be straight within a tolerance of 0.1" in 10' or one part in twelve hundred parts of length. Smaller tubing shall be substantially free from kinks and sharp bends and shall be commercially straight. Tubing shall be cut square within a tolerance of 1/64" per inch of diameter or fraction thereof.

6. IDENTIFICATION: (a) Unless otherwise specified, each tube 5/8 inch in diameter and over shall be marked with the manufacturer's identification, and, in addition, the alloy name or number or AMS 4062, and the temper. The characters shall not be less than 1/8 inch in height and shall be applied continuously at intervals not exceeding 2 feet. The characters shall be clearly legible and applied to the material by suitable means and suitable marking fluid, and shall not be obliterated by normal handling or annealing operations.

(b) Tubes less than 5/8 inch in diameter may be identified by other means as agreed upon by the vendor and purchaser.

7. REPORTS: The manufacturer shall furnish three copies of a notarized report showing the results of physical tests and stating that the material is within the chemical requirements. This report shall include the purchase order number, material specification number, size and quantity, and part number if parts are supplied.