AERONAUTICAL MATERIAL SPECIFICATION

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

AMS 5570 D

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STEEL TUBING, CORROSION AND HEAT RESISTANT
Seamless
18 Chromium 8 Nickel

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

2. COMPOSITION:

Carbon	0.10 max
Manganese	0.20 - 2.50
Silicon	0.20 - 1.50
Copper	0.50 max
Phosphorus	0.04 max
Sulphur	0.04 max
Chromium	17.00 min
Nickel	7.00 min
Columbium or Titanium	8 times C min 4 times C min

3. CONDITION: (a) Solution heat treated and pickled.

(b) Test pieces pulled at the rate of .05 inch per inch per minute shall conform to the following physical properties:

Tensile Strength, lb per sq in.	105,000 max
Elongation, % in 2 in., Strip	35 min
Elongation, % in 2 in., Full Section	40 min

(c) The tubing shall be capable of being expanded on a hardened and polished tapered steel pin having a 60° included angle, to a diameter 35% greater than the original diameter without cracking.

4. QUALITY: (a) The tubing shall have a good workmanlike finish conforming to the best practice for high quality aircraft material. It shall be smooth, clean, and free from burrs, seams, tears, grooves, laminations, slivers, pits, and other injurious defects. Surface imperfections such as handling marks, straightening marks, light mandrel and die marks, shallow pits, and scale pattern will not be considered as injurious defects, provided the imperfections are removable within the tolerances specified herein for diameter and wall thickness. The removal of surface imperfections is not required.

(b) The material shall be free from grease or other foreign matter.

5. EMBRITTLEMENT: The material shall be capable of meeting the following test but the actual conducting of the test is an option of the purchaser:

After being heated to 1200°F for two hours and aircooled, embrittlement test specimens shall withstand a 48 hour boiling in 10% copper sulphate, 10% sulphuric acid solution without evidence of intercrystalline surface attack. After such immersion, the specimens must withstand cold bending through an angle of 180° over a diameter equal to the thickness of the specimen without cracking.

6. TOLERANCES: The following variations in nominal outside diameter and wall thickness are permissible:

Nominal Dimensions		Variation from Nominal	
Outside Diameter Inches	Wall Thickness Inch	Outside Diameter Inch	Wall Thickness Per Cent
Less than 0.5	All Thicknesses	+ 0.010 - 0.000	± 15
0.5 to 1.5	0.065 and over	+ 0.010 - 0.000	
	Less than 0.065	+ 0.020 - 0.000	± 10
1.5 to 3.5	0.095 and over	± 0.010	
	Less than 0.095	± 0.020	± 10

7. REPORTS: (a) Unless otherwise specified, the tubing supplier shall furnish three copies of a notarized report stating that the chemical composition and physical properties of the material conform to requirements specified. This report shall include the purchase order number, material specification number, size, and quantity.

(b) The vendor of finished or semi-finished machined 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 material, part number, and quantity. When material for making parts is supplied by the machined parts vendor, the vendor shall inspect each lot of material to determine conformance to the requirements of this specification, and shall include in the above report a certification that the material conforms, or shall include copies of the laboratory report showing the results of tests to determine conformance.

8. IDENTIFICATION: (a) Unless otherwise specified, each tube in sizes 1/2 inch in diameter or over shall be marked with AMS 5570D, the manufacturer's name or trade mark, and heat number, at intervals not greater than two feet between centers. The characters shall be not less than 1/4 inch in height. 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, nor by grease nor oil, and shall not interefere with welding procedures.

(b) Tubes less than 1/2 inch in diameter may be securely bundled and identified by a metal tag stamped with the above information and attached to each bundle, or boxed and the identification tab enclosed.

(c) Material that cannot be identified at destination is subject to rejection.