AERONAUTICAL MATERIAL SPECIFICATION

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AMS 5573A

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STEEL TUBING, SEAMLESS, CORROSION AND HEAT RESISTANT
17.5Cr - 12.5Ni - 2.3Mo (SAE 30316)

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

2. APPLICATION: Parts and assemblies requiring both corrosion and heat resistance up to 1600 F. At high temperatures, strength of this steel is slightly higher than, and oxidation resistance is similar to, that of 18-8 types.

3. COMPOSITION:

			Check Analysis Under Min	Check Analysis Over Max
	Carbon	0.08 max	--	0.01
	Manganese	1.50 - 2.00	0.04	0.04
Ø	Silicon	1.00 max	--	0.05
	Phosphorus	0.045 max	--	0.010
	Sulfur	0.030 max	--	0.005
	Chromium	16.00 - 19.00	0.20	0.20
	Nickel	11.00 - 14.00	0.15	0.15
	Molybdenum	2.00 - 2.50	0.10	0.10
	Copper	0.50 max	--	0.03

4. CONDITION: Solution heat treated free from continuous carbide network and Ø descaled, or as ordered.

4.1 Fabrication: Any surface finishing operation applied to remove objectionable pits and surface blemishes shall be performed prior to the last solution heat treatment. A light polish to improve surface appearance may be employed after solution heat treatment. Passivation treatment shall follow any polishing treatment.

5. TECHNICAL REQUIREMENTS:

5.1 Tensile Properties:

Tensile Strength, psi	100,000 max
Elongation, % in 2 in.	
Strip	35 min
Full Section	40 min

5.2 Flarability: Tubing shall be capable of being flared without formation of cracks or other visible defects. Specimens for flaring may be cut from any portion of the tube, or an entire tube may be used as a specimen. The end of ø the specimen to be flared shall be cut square, with the cut end smooth and free from burrs, but not rounded. The specimen shall, at room temperature, be forced axially with steady pressure over a hardened and polished tapered steel pin having a 74 deg included angle, to produce a flare having the permanent expanded OD specified in the following table.

Nominal OD Inches	Expanded OD Inches, min	Nominal OD Inches	Expanded OD Inches, min
0.250	0.359	1.000	1.187
0.312	0.421	1.250	1.500
0.375	0.484	1.500	1.721
0.500	0.656	1.750	2.106
0.625	0.781	2.000	2.356
0.750	0.937		

5.2.1 Tubing with intermediate nominal OD shall take the same percentage flare as that for the next larger OD.

5.2.2 Tubing with nominal OD greater than 2.00 in. or less than 0.250 in. shall ø have flarability as agreed upon by purchaser and vendor.

6. QUALITY: Tubing shall have a good workmanlike finish conforming to the best practice for high quality aircraft material. Tubing shall be uniform in quality and condition, clean, sound, and free from grease and other foreign matter, and from internal and external defects detrimental to fabrication or to performance of parts.

7. TOLERANCES: Unless otherwise specified, tolerances shall conform to the latest issue of AMS 2243 as applicable. Diameter tolerances shall conform to Table I, columns headed "Annealed or Solution Heat Treated".

8. REPORTS:

8.1 Unless otherwise specified, the vendor of the product shall furnish with each shipment three copies of a report of the results of tests for chemical composition of each heat in the shipment and the results of tests of each size from each heat to determine conformance to the technical requirements of this specification. This report shall include the purchase order number, heat number, material specification number, size, and quantity from each heat.

8.2 Unless otherwise specified, the vendor of finished or semi-finished parts shall furnish with each shipment three copies of a 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 produced or purchased by the parts vendor, that vendor shall inspect each lot of material to determine conformance to the requirements of this specification, and shall include in the report a statement that the material conforms, or shall include copies of laboratory reports showing the results of tests to determine conformance.