AERONAUTICAL MATERIAL SPECIFICATION

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

AMS 5577

Issued 2-15-52
Revised

STEEL TUBING, WELDED, CORROSION AND HEAT RESISTANT 25Cr - 20Ni (SAE 30310)

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

2. APPLICATION: Primarily for parts and assemblies requiring both corrosion and heat resistance and especially when such parts and assemblies are welded during fabrication. Parts and assemblies requiring oxidation resistance up to approximately 2000 F, but useful at that temperature only when stresses are low.

3. COMPOSITION:

		Check Analysis Under Min	Check Analysis Over Max
Carbon	0.08 max	--	0.01
Manganese	2.00 max	--	0.04
Silicon	0.75 max	--	0.05
Phosphorus	0.040 max	--	0.005
Sulfur	0.030 max	--	0.005
Chromium	24.00 - 26.00	0.25	0.25
Nickel	19.00 - 22.00	0.20	0.20
Molybdenum	0.50 max	--	0.03
Copper	0.50 max	--	0.03

4. CONDITION: Solution heat treated and descaled, or as ordered.

5. TECHNICAL REQUIREMENTS:

5.1 Tensile Properties:

Tensile Strength, psi	
OD: Under 0.312 in.	105,000 max
0.312 in. and over	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 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-degree included angle, to produce a flare having the permanent expanded OD specified in the following table.

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Nominal OD Inch	Expanded OD Inch, min	Nominal OD Inch	Expanded OD Inch, min
0.188	0.290	0.750	0.937
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

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. and less than 0.188 in. flarability shall be as agreed upon by purchaser and vendor.

5.3 Pressure Testing: Tubing shall show no bulges, leaks or other defects when subjected to an internal hydrostatic pressure, based on nominal dimensions, sufficient to cause a tensile stress of 20,000 psi in the tubing wall.

6. QUALITY:

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

6.2 If beads are present at the welds on the inner surface of the tubing, such beads shall not be thicker than 0.010 in., unless otherwise specified. The outer surfaces of the tubing shall be free from beads.

7. TOLERANCES: Unless otherwise specified, tolerances shall conform to the latest issue of AMS 2243 as applicable. Diameter tolerances shall conform to Table III.

8. REPORTS:

8.1 Unless otherwise specified, the vendor of the porduct shall furnish with each shipment three copies of a report of the results of tests for chemical composition of each heat in the shipment. 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.

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