AEROSPACE
MATERIAL SPECIFICATIONS

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc. 485 Lexington Ave., New York, N.Y. 10017

AMS 6323D

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STEEL TUBING, MECHANICAL
0.50Cr - 0.55Ni - 0.25Mo (0.38 - 0.43C) (SAE 8740)

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 parts, with section thickness of 0.375 in. or less at the time of heat treatment, requiring a through-hardening steel capable of developing hardness as high as Rockwell C 50 when properly hardened and tempered.

3. COMPOSITION:

	min	max
Carbon	0.38	0.43
Manganese	0.75	1.00
Silicon	0.20	0.35
Phosphorus	--	0.025
Sulfur	--	0.025
Chromium	0.40	0.60
Nickel	0.40	0.70
Molybdenum	0.20	0.30
Copper	--	0.35

3.1 Check Analysis: Composition variations shall meet the requirements of the latest issue of AMS 2259, paragraph titled "Low Alloy Steels".

4. CONDITION: In a machinable condition and cold finished having hardness not higher than Rockwell C 25 Ø or equivalent, except that tubing ordered hot finished shall be furnished in a machinable condition having hardness not higher than Rockwell B 99 or equivalent.

5. TECHNICAL REQUIREMENTS: When ASTM methods are specified for determining conformance to the following requirements, tests shall be conducted in accordance with the issue of the ASTM method listed in the latest issue of AMS 2350.

5.1 Hardenability: Shall be J50=5 min and J40=8 min when determined by the standard end-quench test specimen in accordance with the SAE Method of Determining Hardenability published in the latest issue of the SAE Handbook, except that the steel shall be normalized at 1700 F ± 10 (926.7 C ± 5.6) and the test specimen austenitized at 1500 F ± 10 (815.6 C ± 5.6). The hardenability test is not required on tubing which will not yield a suitable specimen but the steel from which the tubing is made shall conform to the hardenability specified in this paragraph.

5.2 Grain Size: Predominantly 5 or finer with occasional grains as large as 3 permissible, ASTM E112, McQuaid-Ehn test.

5.3 Decarburization:

5.3.1 Tubing ordered ground, turned, or polished shall be free from decarburization on the ground, turned, or polished surfaces. Inside decarburization of such tubing shall not exceed the maximum depth specified in 5.3.3.