

AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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AMS 6323B

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STEEL TUBING - SEAMLESS (MECHANICAL) 0.55Ni - 0.5Cr - 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. **FORM:** Heavy wall tubing for machining.
3. **APPLICATION:** Parts with sections 0.375 in. or less in thickness at the time of heat treatment which require a through-hardening steel capable of developing hardness as high as Rockwell C50 when properly hardened and tempered and also parts of greater sections but requiring proportionately lower hardness.
4. **COMPOSITION:**

		Check Analysis	
		Under Min	or Over Max
Carbon	0.38 - 0.43	0.02	0.02
Manganese	0.75 - 1.00	0.04	0.04
Silicon	0.20 - 0.35	0.02	0.02
Phosphorus	0.040 max	--	0.005
Sulfur	0.040 max	--	0.005
Chromium	0.40 - 0.60	0.03	0.03
Nickel	0.40 - 0.70	0.03	0.03
Molybdenum	0.20 - 0.30	0.02	0.02

5. **CONDITION:** Unless otherwise specified, tubing shall be supplied cold finished in a machinable condition with hardness not higher than Rockwell C25. If hot finished tubing is ordered, it shall be supplied in a machinable condition with hardness not higher than Rockwell B99.
6. **TECHNICAL REQUIREMENTS:**
 - 6.1 **Hardenability:** The 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 $\pm$ 10 and the test specimen austenitized at 1500 F $\pm$ 10. 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.
 - 6.2 **Grain Size:** Five or finer as determined on the billet, ASTM E19-46, method a. A heat of steel predominantly five or finer with grains as large as three is permissible.
 - 6.3 **Decarburization:**
 - 6.3.1 Tubing ordered ground, turned, or polished shall be free from decarburization on such ground, turned or polished surfaces. Inside decarburization shall not exceed the maximum depth specified in 6.3.3.