AERONAUTICAL MATERIAL SPECIFICATION

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AMS 6441B

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STEEL TUBING, SEAMLESS (MECHANICAL)
1.45Cr (0.95-1.10C) (SAE 52100)

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 which require a through-hardening steel usually with hardness of approximately Rockwell C60.

4. COMPOSITION:

		Check Analysis Under Min or Over Max	
Carbon	0.95 - 1.10	0.03	0.03
Manganese	0.25 - 0.45	0.03	0.03
Silicon	0.20 - 0.35	0.02	0.02
Phosphorus	0.025 max	--	0.005
Sulfur	0.025 max	--	0.005
Chromium	1.30 - 1.60	0.05	0.05

5. CONDITION: Unless otherwise specified, tubing shall be supplied cold finished in a machinable condition with microstructure of spheroidized cementite in ferrite matrix and with hardness not higher than Rockwell C24. If hot finished tubing is ordered, it shall be supplied in a machinable condition with microstructure as above and with hardness not higher than Rockwell B95.

6. TECHNICAL REQUIREMENTS:

6.1 Hardenability: Specimens shall be full sections of the tubing, and shall have wall thickness of 0.5 in. or less, wall thicknesses over 0.5 in. being turned to 0.5 in.; specimens shall be ground on both faces, normal to the axis, so that length is 0.625 in. The specimens shall be protected by suitable means, or treated in an atmosphere, to minimize scaling and prevent either carburization or decarburization during heat treatment. The specimens shall be placed in a furnace which is at 1525 F ± 10, allowed to heat to 1525 F ± 10, held at heat for 20 minutes and quenched in commercial paraffin oil (100 SUS at 100 F) at room temperature. The hardened specimens shall have substantially uniform hardness not lower than Rockwell C63 at any point below any permissible decarburization.

6.2 Decarburization:

6.2.1 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 6.2.3.

6.2.2 Allowable decarburization of pierced billets, or of tubing for redrawing, shall be as agreed upon by purchaser and vendor.