AERONAUTICAL MATERIAL SPECIFICATION

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STEEL
0.4Cr - 0.45Ni - 0.1Mo - B (0.15-0.20C) (94B17)

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

2. FORM: Bars, forgings, forging stock, and mechanical tubing.

3. APPLICATION: Carburized parts which require high minimum core hardness and allow wide hardness range in sections 0.50 in. and less in thickness. The core may or may not be machinable after hardening.

4. COMPOSITION:

		Check Analysis Under Min or Over Max	
Carbon	0.15 - 0.20	0.01	0.01
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	0.30 - 0.50	0.03	0.03
Nickel	0.30 - 0.60	0.03	0.03
Molybdenum	0.08 - 0.15	0.01	0.01
Boron	Present, but not exceeding 0.007		

5. CONDITION:

5.1 Bars: In a machinable condition having hardness not higher than Brinell 229 or equivalent.

5.2 Tubing: In a machinable condition.

5.3 Forgings: As ordered.

5.4 Forging Stock: As ordered by the forging manufacturer.

6. TECHNICAL REQUIREMENTS:

6.1 Hardenability: The hardenability shall be J46=1 max and J34=5 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 and the test specimen austenitized at 1550 F ± 10. The hardenability test is not required on a product which will not yield a suitable specimen but the steel from which the product is made shall conform to the hardenability specified in this paragraph.

6.2 Grain Size: Five or finer, ASTM E19-46, method a. A heat of steel predominantly five or finer with grains as large as three is permissible.

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