AERONAUTICAL MATERIAL SPECIFICATION

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S T E E L
1.85Ni - 0.5Cr - 0.25Mo - 0.05V - 0.004B

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

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

3. APPLICATION: Carburized parts, including gears, which require high minimum core hardness with narrow range. The core is machinable after hardening.

4. COMPOSITION:

		Check Analysis Under Min	Check Analysis Over Max
Carbon	0.08 - 0.13	0.01	0.01
Manganese	0.75 - 1.00	0.04	0.04
Silicon	0.20 - 0.40	0.05	0.05
Phosphorus	0.040 max	--	0.005
Sulfur	0.040 max	--	0.005
Chromium	0.40 - 0.60	0.03	0.03
Nickel	1.65 - 2.00	0.05	0.05
Molybdenum	0.20 - 0.30	0.02	0.02
Vanadium	0.03 - 0.08	0.01	0.01
Boron	0.001 - 0.007	--	--

5. CONDITION:

5.1 Bars: In a machinable condition having hardness not higher than Brinell 229 or equivalent, except that, if ordered cold finished, hardness may be as high as Brinell 248 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 J41 max and J35=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 and the test specimen austenitized at 1555 F ± 5. 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.