AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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AMS 5613A

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STEEL, CORROSION AND MODERATE HEAT RESISTANT
12Cr (SAE 51410)

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

2. FORM: Bars, billets, and forgings.

3. APPLICATION: Parts and assemblies, such as compressor wheels and blades, requiring oxidation resistance up to 1000 F, but useful at the higher temperatures only when stresses are low.

4. COMPOSITION:

		Check Analysis Under Min	Check Analysis Over Max
Carbon	0.09 - 0.15	0.01	0.01
Manganese	0.25 - 0.80	0.03	0.03
Silicon	0.50 max	—	0.05
Phosphorus	0.040 max	—	0.005
Sulfur	0.030 max	—	0.005
Chromium	11.50 - 13.00	0.15	0.15
Nickel	0.50 max	—	0.03
Molybdenum	0.50 max	—	0.03
Copper	0.50 max	—	0.03

5. CONDITION: Unless otherwise specified, the product shall be supplied in the following condition:

5.1 Bars: All hexagons and other bars 2.75 in. and less in diameter or distance between parallel sides shall be cold finished and have hardness not higher than Brinell 241 or equivalent.

5.2 Forgings: As ordered.

5.3 Forging Stock: As ordered by the forging manufacturer.

6. TECHNICAL REQUIREMENTS:

6.1 Hardenability: Material shall be capable of meeting the following test:

6.1.1 Specimens 3/8 in. thick, cut from a bar or forging, shall be heated to 1750 F ± 10, held for 30 minutes and cooled in still air. Hardness of such specimens shall be Rockwell C 35 - 45.

7. QUALITY: Material shall be uniform in quality and condition, clean, sound, and free from foreign materials and from internal and external defects detrimental to fabrication or to performance of parts.

8. TOLERANCES: Unless otherwise specified, tolerances for bars shall conform to the latest issue of AMS 2241 as applicable. Thickness tolerances for all hexagons shall conform to Table I.

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