AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
29 West 39th Street
New York City

AMS 5667C

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ALLOY, CORROSION AND HEAT RESISTANT
Nickel Base - 15Cr - 7Fe - 2.5Ti - 1(Cb+Ta) - 0.7Al

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 and forging stock.

3. APPLICATION: Primarily for parts, such as bolts and turbine rotors, requiring high strength at 800 - 1100 F.

4. COMPOSITION:

Carbon	0.08 max
Manganese	0.30 - 1.00
Silicon	0.50 max
Sulfur	0.01 max
Chromium	14.00 - 16.00
Nickel + Cobalt	70.00 min
Cobalt, if determined	1.00 max
Columbium + Tantalum	0.70 - 1.20
Titanium	2.25 - 2.75
Aluminum	0.40 - 1.00
Iron	5.00 - 9.00
Copper	0.20 max

5. CONDITION:

5.1 Bars: Hot finished and equalized unless otherwise specified.

5.1.1 Round bars shall be ground or turned.

5.2 Forgings: Equalized unless otherwise specified.

5.3 Forging Stock: As ordered by the forging manufacturer.

6. TECHNICAL REQUIREMENTS:

6.1 Bars:

6.1.1 Heat Treatment: Equalized by heating to 1625 F ± 25, holding at that temperature for 24 hours followed by air cooling.

6.1.2 Hardness:

6.1.2.1 Diameter 2.5 in. and less: Not higher than Brinell 277 or equivalent.

6.1.2.2 Diameter over 2.5 in.: Not higher than Brinell 302 or equivalent.

6.1.3 Properties after Aging: Specimens taken from bars, shall, after aging at 1300 F ± 10 for 20 hr and air cooling, be capable of meeting the following requirements:

Tensile Strength, psi	165,000 min
Yield Strength at 0.2% offset or at 0.0111 inch in 2 in. extension under load, psi	110,000 min
Elongation, % in 4D	20 min
Reduction of Area, %	30 min
Hardness, Brinell	302-363

6.2 Forgings:

6.2.1 Heat Treatment: Equalized by heating to 1625 F ± 25, holding at that temperature for 24 hours followed by cooling as required.

6.2.2 Hardness:

6.2.2.1 Maximum Section Thickness 2.5 in. and less: Not higher than Brinell 277 or equivalent.

6.2.2.2 Maximum Section Thickness over 2.5 in.: Not higher than Brinell 302 or equivalent.

6.2.3 Hardness after Aging: Forgings shall, after aging at 1300 F ± 10 for 20 hr and air cooling, have hardness of Brinell 302-363.

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 shall conform to the latest issue of AMS 2261 as applicable. Diameter, width and thickness, and straightness tolerances shall be as specified below:

8.1 Diameter: Table VI.

8.2 Width and Thickness: Table IV.

8.3 Straightness: Rounds 6.4. Other than rounds 6.2.

9. REPORTS:

9.1 Unless otherwise specified, the vendor of the product shall furnish with each shipment three copies of a report of the results of tests for chemical composition of each heat in the shipment, and of tests to determine conformance to the technical requirements of Section 6. This report shall include the purchase order number, heat number, material specification number, size, and quantity from each heat. If forgings are supplied, the part number and size of stock used to make the forgings shall also be included.