AERONAUTICAL
MATERIAL SPECIFICATIONS
SOCIETY OF AUTOMOTIVE ENGINEERS, Inc. 485 Lexington Ave., New York 17, N.Y.

AMS 5754C

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ALLOY, CORROSION AND HEAT RESISTANT
Nickel Base - 22Cr - 1.5Co - 9Mo - 0.6W - 18.5Fe

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, flash welded rings, and stock for forgings or flash welded rings.

3. APPLICATION: Primarily for parts and assemblies, such as turbine rotors, shafts, flanges, buckets, and bolts, requiring oxidation resistance up to 2200 F, and relatively high strength above 1500 F.

4. COMPOSITION:

Carbon	0.05 - 0.15
Manganese	1.00 max
Silicon	1.00 max
Phosphorus	0.040 max
Sulfur	0.030 max
Chromium	20.50 - 23.00
Cobalt	0.50 - 2.50
Molybdenum	8.00 - 10.00
Tungsten	0.20 - 1.00
Iron	17.00 - 20.00
Nickel	remainder

4.1 Check Analysis: Composition variations shall meet the requirements of the latest issue of AMS 2248.

5. CONDITION:

5.1 Bars, Forgings, and Flash Welded Rings: Solution heat treated.

5.1.1 Bars less than 0.75 in. in diameter or distance between parallel sides shall be descaled.

5.1.2 Bars 0.75 in. and over in diameter or distance between parallel sides shall be centerless ground.

5.1.3 Flash welded rings shall not be supplied unless specified or permitted on purchaser's part drawing. When supplied, they shall be manufactured in accordance with the latest issue of AMS 7490, unless otherwise specified.

5.2 Stock for Forgings or Flash Welded Rings: As ordered by the forging or flash welded ring manufacturer.

6. TECHNICAL REQUIREMENTS:

6.1 Bars, Forgings, and Flash Welded Rings:

6.1.1 Heat Treatment: The product shall be solution heat treated by heating to 2150 F ± 25, holding at heat for not less than the time indicated below, and either quenching in water or rapid air cooling.

Nominal Diameter or Maximum Cross Section Inches	Time at Heat min
0.5 and under	30
Over 0.5 to 1.0, incl	45
Over 1.0 to 2.0, incl	60

6.1.2 Hardness:

6.1.2.1 Bars: Shall have hardness not higher than Brinell 241 or equivalent when taken approximately midway between surface and center.

6.1.2.2 Forgings and Flash Welded Rings: Shall have hardness not higher than Brinell 241 or equivalent.

6.1.3 Stress-Rupture Test at 1500 F: Specimens taken from bars and forgings, and from parent metal of flash welded rings, shall be capable of meeting the following requirements:

6.1.3.1 The tensile specimen maintained at 1500 F ± 5 while an axial stress of 15,000 psi is applied continuously shall not rupture in less than 24 hours. The test shall be continued, after the 24 hr, until the specimen ruptures, either maintaining the same stress or increasing the stress to not over 25,000 psi as necessary to produce rupture. In either case, the elongation after rupture, measured at room temperature, shall be not less than 10% in 4D.

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

8. TOLERANCES: Unless otherwise agreed upon by purchaser and vendor, tolerances shall conform to the latest issue of AMS 2261 as applicable and as specified below.

8.1 Diameter: Table VII.

8.2 Thickness: Table VIII.

8.3 Width: Table IX.