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

AMS 5750A

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ALLOY BARS, FORGINGS, AND RINGS, CORROSION & HEAT RESISTANT
Nickel Base - 15.5Cr - 16Mo - 4W - 6Fe
Solution Treated

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, buckets, and bolts, requiring high strength up to 1500 F (815 C) and oxidation resistance up to 2000 F (1095 C).

4. COMPOSITION:

	min	max
Carbon	--	0.08
Manganese	--	1.00
Silicon	--	1.00
Phosphorus	--	0.040
Sulfur	--	0.030
Chromium	14.50	16.50
Molybdenum	15.00	17.00
Tungsten	3.00	4.50
Iron	4.00	7.00
Vanadium	--	0.35
Nickel + Cobalt	remainder	
Cobalt, if determined	--	2.50

4.1 Check Analysis: Composition variations shall meet the requirements of the latest issue
Ø of AMS 2269.

5. CONDITION:

5.1 Bars, Forgings, and Flash Welded Rings: Solution heat treated and free of continuous
Ø grain boundary carbide network unless otherwise specified.

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

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

Printed in U. S. A.

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 Tensile Properties: Tensile test specimens taken from bars over 2-1/2 in. in diameter or distance between parallel sides and forgings over 2-1/2 in. thickness and tested at room temperature shall meet the following requirements:

Tensile Strength, psi	100,000 min
Yield Strength at 0.2% Offset or at 0.0072 in. in 2 in. Extension Under Load (E = 28,500,000), psi	46,000 min
Elongation, % in 2 in. or 4D	20 min

6.2 Hardness: Shall be Brinell 163 - 217 or equivalent.

6.3 Stress Rupture Test at 1500 F (815.6 C): Specimens taken from bars and forgings, and from parent metal of flash welded rings, shall be capable of meeting the following requirements:

6.3.1 A tensile test specimen, maintained at 1500 F ± 5 (815.6 C ± 2.8) while an axial stress of 20,000 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 30,000 psi as necessary to produce rupture. In either case, the elongation after rupture, measured at room temperature, shall be not less than 15% 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 specified, tolerances shall conform to all applicable requirements of the latest issue of AMS 2261.

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 the results of tests on each size from each heat to determine conformance to the technical requirements of this specification. 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.