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

AMS 4676

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Revised

NICKEL-COPPER ALLOY BARS AND FORGINGS, CORROSION RESISTANT
66Ni - 3.0Al - 0.6Ti - 30Cu

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

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

3. APPLICATION: Primarily for parts requiring moderate strength, resistance to corrosion, and low magnetic permeability.

4. COMPOSITION:

	min	max
Nickel + Cobalt	63.0	70.0
Cobalt, if determined	--	1.0
Aluminum	2.0	4.0
Titanium	0.25	1.0
Iron	--	2.0
Manganese	--	1.5
Silicon	--	1.0
Carbon	--	0.25
Copper	remainder	

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

5. CONDITION:

5.1 Bars: Hot finished and quenched into water from not lower than 1450 F (788 C), unless otherwise specified.

5.2 Forgings: Quenched into water from not lower than 1450 F (788 C), unless otherwise specified.

5.3 Forging Stock: As ordered by the forging manufacturer.

6. TECHNICAL REQUIREMENTS:

6.1 Hardness: Bars and forgings shall have hardness not higher than Brinell 248 or equivalent.

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6.2 Properties After Precipitation Heat Treatment: Material shall conform to the following requirements after being precipitation heat treated by heating to 1080 - 1100 F (582.2 - 593.3 C), holding at heat for 16 hr, and furnace cooling at a rate of 15 - 25 F (8.3 - 13.9 C) per hr to 900 F (482.2 C). Cooling from 900 F (482.2 C) may be accomplished without regard to cooling rate.

6.2.1 Tensile Properties:

Tensile Strength, psi	140,000 min
Yield Strength at 0.2% Offset or at 0.0117 in. in 2 in. Extension Under Load (E = 26,000,000), psi	100,000 min
Elongation, % in 2 in. or 4D,	
Round bars over 4.25 in dia and over 12 ft long	17 min
All other products	20 min

6.2.2 Hardness: Not lower than Brinell 262 or equivalent. Hardness requirements will not be cause for rejection if all other requirements of this specification are met.

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 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.

9.2 Unless otherwise specified, the vendor of finished or semi-finished parts shall furnish with each shipment three copies of a report showing the purchase order number, material specification number, contractor or other direct supplier of material, part number, and quantity. When material for making parts is produced or purchased by the parts vendor, that vendor shall inspect each lot of material to determine conformance to the requirements of this specification, and shall include in the report a statement that the material conforms, or shall include copies of laboratory reports showing the results of tests to determine conformance.