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

AMS 4675

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Revised

NICKEL-COPPER ALLOY BARS AND FORGINGS, CORROSION RESISTANT
67Ni - 30Cu

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

2. FORM: Rods, bars, forgings, and forging stock.

3. APPLICATION: Primarily for fittings, such as cones, nipples, and unions, in fluid line assemblies using AMS 4574 or AMS 4575 tubing.

4. COMPOSITION:

Nickel + Cobalt	63.0	- 70.0
Iron	2.5	max
Manganese	2.0	max
Cobalt, if determined	1.0	max
Silicon	0.50	max
Carbon	0.30	max
Sulfur	0.024	max
Copper	remainder	

5. CONDITION:

5.1 Rods and Bars: Cold drawn and stress relieved.

5.2 Forgings: As forged.

5.3 Forging Stock: As ordered by the forging manufacturer.

6. TECHNICAL REQUIREMENTS:

6.1 Tensile Properties:

6.1.1 Rods:

Nominal Diameter Inches	Tensile Strength psi, min	Yield Strength at 0.2% Offset or at Extension Indicated (E = 26,000,000)		Elongation % in 4D min (See 6.1.3)
		psi, min	Extension Under Load in. in 2 in.	
0.093 to 0.500, excl	84,000	50,000	0.0078	10
0.500 to 3.500, incl	87,000	60,000	0.0086	22
Over 3.500 to 4.000, incl	84,000	55,000	0.0082	25

6.1.2 Bars:

Nominal Thickness Hexagons, Squares and Rectangles Inches	Tensile Strength psi, min	Yield Strength at 0.2% Offset or at Extension Indicated (E = 26,000,000) psi, min	Extension Under Load in. in 2 in.	Elongation % in 4D min (See 6.1.3)
0.093 to 0.500, excl	84,000	50,000	0.0078	10
0.500 and over	84,000	50,000	0.0078	22

6.1.3 All rods and bars shall be tested in full section when practicable, except that for referee purposes machined specimens shall be prepared if section size will permit. Elongation of full section specimens for shapes other than rounds shall be based on gage length of 4.5 times the square root of the cross sectional area.

6.1.4 Tensile test specimens from rods and bars over 1.5 in. in diameter or distance between parallel sides shall have their axes located approximately midway between center and surface.

6.2 Hardness:

6.2.1 Rods and Bars: Should have hardness as follows, or equivalent (ASTM E140 of the issue listed in the latest issue of AMS 2350), but shall not be rejected on the basis of hardness if the tensile property requirements are met:

Nominal Diameter or Distance Between Parallel Sides Inches	Hardness, Rockwell B
Rounds	
Up to 0.5, excl	84 - 96
0.5 to 1.0, incl	84 - 98
Over 1.0 to 3.0, incl	84 - 100
Hexagons Up to 2.0, incl Squares Up to 2.125, incl Rectangles Up to 1.75, incl	80 - 94

6.2.1.1 Hardness determinations shall be made on the surface, except on rounds where a flat, as necessary for accuracy, may be made.

6.2.2 Forgings: Shall have hardness of Rockwell B 78 - 96 or equivalent.

7. QUALITY: Material shall be uniform in quality and condition, clean, sound, smooth, 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.