AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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New York City

AMS 4674 A

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NICKEL-COPPER ALLOY, CORROSION RESISTANT
67Ni - 30Cu
Free Machining

1. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter 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
Sulfur	0.025 - 0.060
Iron	2.5 max
Manganese	2.0 max
Cobalt, if determined	1.0 max
Silicon	0.50 max
Aluminum	0.50 max
Carbon	0.30 max
Copper	remainder

5. CONDITION:

5.1 Rods and Bars: Cold finished.

5.2 Forgings: As forged.

5.3 Forging Stock: As ordered by the forging manufacturer but shall be specially selected for freedom from surface seams and for good hot working characteristics.

6. TECHNICAL REQUIREMENTS:

6.1 Tensile Properties:

6.1.1 Rods and Bars:

Nominal Diameter or Distance between parallel sides, Inches	Tensile Strength, psi	Yield Strength at 0.2% offset or at Extension Indicated: psi, min	Extension Under Load, inch in 2 in.	Elongation, % in 4D, min
Rounds				
Under 0.5	85,000-100,000	50,000	0.0078	15
0.5 to 1.0, incl	85,000-110,000	50,000	0.0078	15
Over 1.0 to 3.0, incl	85,000 min	50,000	0.0078	15
Hexagons, Squares				
2.0 and under	85,000 min	50,000	0.0078	15

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6.1.1.1 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, 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
Rounds	
Under 0.5	B 84- 96
0.5 to 1.0, incl	B 84- 98
Over 1.0 to 3.0, incl	B 84-100
Hexagons, Squares	
2.0 and under	B 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 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, distance between parallel sides, and straightness tolerances shall be as specified below:

8.1 Diameter or Distance between Parallel Sides: Table I.

8.2 Straightness: Paragraph 6.1

9. REPORTS:

9.1 Unless otherwise specified, the vendor of the product shall furnish with each shipment three copies of a report showing the results of tests to determine conformance to the requirements of this specification or stating that the chemical composition of the product, tensile properties of rods and bars, and hardness of forgings conform to the requirements specified. This report shall include the purchase order number, material specification number, size, and quantity. If forgings are supplied, the part number and size of stock used to make the forgings shall also be included.