

AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
29 West 39th Street
New York City

AMS 4674B

Issued 5-1-48

Revised 5-1-54

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 - 0.06
Iron	2.5 max
Manganese	2.0 max
Cobalt, if determined	1.0 max
Silicon	0.5 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 (E = 26,000,000)		
			Extension	Elongation
		psi, min	Under Load in. in 2 in.	% 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, Rectangles				
2.0 and under	85,000 min	50,000	0.0078	15

Section 7C of the SAE Technical Board rules provides that: "All technical reports, including standards approved and practices recommended, are advisory only. Their use by anyone engaged in industry or trade is entirely voluntary. There is no agreement to adhere to any SAE standard or recommended practice, and no commitment to conform to or be guided by any technical report. In formulating and approving technical reports, the Board and its Committees will not investigate or consider patents which may apply to the subject matter. Prospective users of the report are responsible for protecting themselves against infringement of patents."

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, Rectangles 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 and as specified below:

8.1 Diameter, or Width and Thickness: Table I.

8.2 Straightness: 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.