



AEROSPACE MATERIAL SPECIFICATION

AMS2261™**REV. M**

Issued 1948-05
Reaffirmed 2007-01
Revised 2025-02

Superseding AMS2261L

Tolerances
Nickel, Nickel Alloy, and Cobalt Alloy Bars, Rods, and Wire

RATIONALE

AMS2261M is the result of a Five-Year Review and update of the specification. The revision updates terminology, replacing cold worked and cold reduced with cold drawn for consistency (see 3.1.3 and Table 13), adds the term “all alloys,” which is not alloy-specific, for clarity (see 3.1.5 and 3.1.6), removes vacuum melting special dimensional requirements (see 3.2.2.2 and 3.2.2.3), updates size range for consistency (see Table 5), removes unnecessary table references (see 7.1.1), and establishes requirements for all materials in ground and turned condition (see Table 13).

1. SCOPE

1.1 Form

This specification covers established manufacturing tolerances applicable to bars, rods, and wire of nickel, nickel alloy, and cobalt alloys ordered to inch-pound dimensions. These tolerances apply to all conditions, unless otherwise noted. The term “excl” is used to apply only to the higher figure of a specified range.

1.2 Where the terms “nickel,” “nickel-copper,” “nickel-chromium,” “nickel-molybdenum,” “nickel-molybdenum-chromium,” and “cobalt” are used without qualification, they refer to both non-heat-treatable and heat-treatable alloys as applicable, unless otherwise noted.

2. APPLICABLE DOCUMENTS

The issue of the following documents in effect on the date of the purchase order forms a part of this specification to the extent specified herein. The supplier may work to a subsequent revision of a document unless a specific document issue is specified. When the referenced document has been cancelled and no superseding document has been specified, the last published issue of that document shall apply.

2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

AS7766 Terms Used in Aerospace Metals Specifications

2.2 Definitions

Terms used in AMS are defined in AS7766.

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3. DIAMETER OR THICKNESS AND WIDTH

Specified dimensions apply to diameter of rounds, to distance between parallel sides of hexagons and squares, and separately to width and thickness of rectangles.

3.1 Cold Finished

3.1.1 Cold Drawn Nickel and Nickel-Copper Alloys

3.1.1.1 Rounds

Tolerances for cold finished, cold drawn nickel and nickel-copper alloy rounds shall be as shown in Table 1.

Table 1A - Tolerances, diameter, inch/pound units

Specified Diameters Inches	Tolerance, Inch Minus Only
0.062 to 0.188, excl	0.002
0.188 to 0.500, excl	0.003
0.500 to 0.938, incl	0.002
Over 0.938 to 1.938, incl	0.003
Over 1.938 to 2.500, incl	0.004
Over 2.500 to 3.000, incl	0.005
Over 3.000 to 3.500, incl	0.006
Over 3.500 to 4.000, incl	0.007

Table 1B - Tolerances, diameter, SI units

Specified Diameters Millimeters	Tolerance, Millimeter Minus Only
1.57 to 4.78, excl	0.05
4.78 to 12.70, excl	0.08
12.70 to 23.83, incl	0.05
Over 23.83 to 49.22, incl	0.08
Over 49.22 to 63.50, incl	0.10
Over 63.50 to 76.20, incl	0.13
Over 76.20 to 88.90, incl	0.15
Over 88.90 to 101.60, incl	0.18

3.1.1.2 Hexagons, Squares, and Rectangles

Tolerances for cold finished, cold drawn hexagons, squares, and rectangles in nickel and nickel-copper alloys shall be as shown in Table 2.

Table 2A - Tolerances, diameter, inch/pound units

Specified Distance Between Parallel Sides Inches	Tolerance, Inch Minus Only
0.062 to 0.188, excl	0.002
0.188 to 0.938, incl	0.003
Over 0.938 to 1.500, incl	0.004
Over 1.500 to 2.500, incl	0.005
Over 2.500 to 2.750, incl	0.006
Over 2.750 to 4.000, incl	0.007

Table 2B - Tolerances, diameter, SI units

Specified Distance Between Parallel Sides Millimeters	Tolerance, Millimeter Minus Only
1.57 to 4.78, excl	0.05
4.78 to 23.83, incl	0.08
Over 23.83 to 38.10, incl	0.10
Over 38.10 to 63.50, incl	0.13
Over 63.50 to 69.85, incl	0.15
Over 69.85 to 101.60, incl	0.18

3.1.2 Cold Drawn Nickel-Chromium Alloys

The tolerances of Tables 3 and 4 do not apply to heat-treatable nickel-chromium alloys 0.500 inch (12.70 mm) and over in specified dimensions.

3.1.2.1 Rounds

The tolerances for cold drawn nickel-chromium alloy rounds shall be as shown in Table 3.

Table 3A - Tolerances, diameter, inch/pound units

Specified Diameters Inches	Tolerance, Inch Plus	Tolerance, Inch Minus
0.062 to 0.188, excl	0.000	0.002
0.188 to 0.500, excl	0.000	0.003
0.500 to 0.938, incl	0.001	0.002
Over 0.938 to 1.938, incl	0.0015	0.003
Over 1.938 to 2.500, incl	0.002	0.004

Table 3B - Tolerances, diameter, SI units

Specified Diameters Millimeters	Tolerance, Millimeter Plus	Tolerance, Millimeter Minus
1.57 to 4.78, excl	0.00	0.05
4.78 to 12.70, excl	0.00	0.08
12.70 to 23.83, incl	0.03	0.05
Over 23.83 to 49.23, incl	0.04	0.08
Over 49.23 to 63.50, incl	0.05	0.10

3.1.2.2 Hexagons, Squares, and Rectangles

The tolerances for cold drawn hexagons, squares, and rectangles in nickel-chromium alloys shall be as shown in Table 4.