SAE Aerospace
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AEROSPACE MATERIAL SPECIFICATION

MAM 2261D

Issued	APR 1981
Revised	JAN 1990
Reaffirmed	APR 1994
Noncurrent	MAR 2003
Cancelled	JUL 2007

Superseded by AMS 2261

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

RATIONALE

MAM 2261C has been designated cancelled and superseded because equivalent technical requirements are contained in AMS 2261.

CANCELLATION NOTICE

This specification has been declared "CANCELLED" by the Aerospace Materials Division, SAE, as of July, 2007, and has been superseded by AMS 2261. The requirements of the latest issue of AMS 2261 shall be fulfilled whenever reference is made to the cancelled MAM 2261C. By this action, this document will remain listed in the Numerical Section of the Index of Aerospace Material Specifications, noting that it has been superseded by AMS 2261.

Cancelled specifications are available from SAE.

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AEROSPACE MATERIAL SPECIFICATION

SAE MAM 2261C

Issued APR 1981
Revised JAN 1990
Reaffirmed APR 1994
Noncurrent MAR 2003

Superseding MAM 2261B

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

NONCURRENCY NOTICE

This specification has been declared “NONCURRENT” by the Aerospace Materials Division, SAE, as of March, 2003. It is recommended, therefore, that this specification not be specified for new designs.

AMS 2261 covers the same requirements.

“NONCURRENT” refers to those materials which have been widely used and which may be required on some existing designs in the future. The Aerospace Materials Division, however, does not recommend these as standard materials for future use in new designs.

“NONCURRENT” specifications are available from SAE.

1. SCOPE:

   This specification covers established metric manufacturing tolerances applicable to bars, rods, and wire of nickel, nickel alloys, and cobalt alloys ordered to metric 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.

1.1 Throughout this specification, the term “metric” is intended to refer to the SI system. These tables are based upon logical metric values and preferred metric sizes.

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.

1.3 AMS 2261, specified in inch/pound units, is the equivalent of this MAM.

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2. DIAMETER OR THICKNESS AND WIDTH:

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

2.1 Cold Drawn:

2.1.1 Nickel and Nickel-Copper Alloys:

2.1.1.1 Rounds:

TABLE I

Specified Diameter Millimetres	Tolerance, Millimetre Minus Only
1.55 to 4.75, excl	0.05
4.75 to 12.50, excl	0.08
12.50 to 23.80, incl	0.05
Over 23.80 to 49.20, incl	0.08
Over 49.20 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

2.1.1.2 Hexagons, Squares, and Rectangles:

TABLE II

Specified Distance Between Parallel Sides Millimetres	Tolerance, Millimetre Minus Only
1.55 to 4.75, excl	0.05
4.75 to 23.80, incl	0.08
Over 23.80 to 38.10, incl	0.10
Over 38.10 to 50.80, incl	0.13
Over 50.80 to 69.85, incl	0.15
Over 69.85 to 101.60, incl	0.18

2.1.2 Nickel-Chromium Alloys: The tolerances of Table III and Table IV do not apply to heat-treatable nickel-chromium alloys 12.50 millimetres and over in specified dimensions.

2.1.2.1 Rounds:

TABLE III

Specified Diameter Millimetres	Tolerance, Millimetre Plus	Tolerance, Millimetre Minus
1.55 to 4.75, excl	0.00	0.05
4.75 to 12.50, excl	0.00	0.08
12.50 to 23.80, incl	0.03	0.05
Over 23.80 to 49.20, incl	0.04	0.08
Over 49.20 to 63.50, incl	0.05	0.10

2.1.2.2 Hexagons, Squares, and Rectangles:

TABLE IV

Specified Distance Between Parallel Sides Millimetres	Tolerance, Millimetre Minus Only
1.55 to 4.75, excl	0.05
4.75 to 12.50, excl	0.08

2.2 Hot Finished:

2.2.1 Nickel, Nickel-Copper, and Nickel-Chromium Alloys:

2.2.1.1 Rounds, Hexagons, Squares, and Rectangles: The tolerances of Table V are not applicable to heat-treatable nickel-chromium alloy rounds and hexagons, hot-rolled sections over 100 millimetres, or forged sections of all sizes. See Table VI for tolerances of heat-treatable nickel-chromium alloy rounds.

TABLE V

Specified Dimensions Millimetres	Tolerance, Millimetre Plus	Tolerance, Millimetre Minus
Up to 25, incl	0.40	0.40
Over 25 to 50, incl	0.80	0.40
Over 50 to 100, incl	1.20	0.80
Over 100	3.20	1.60

2.2.1.2 Ground or Turned Rounds: Rounds under 25 millimetres in specified diameter are usually ground; larger diameters are normally turned.

TABLE VI

Specified Diameter Millimetres	Tolerance, Millimetre Plus	Tolerance, Millimetre Minus
Up to 25, excl	0.13	0.13
25 and over	0.80	0.00

2.2.2 Nickel-Molybdenum, Nickel-Molybdenum-Chromium, and Cobalt Alloys:

2.2.2.1 Rounds: Rounds 19.0 to 89.0 millimetres, incl, in specified diameter are ground or turned.

TABLE VII

Specified Diameter Millimetres	Tolerance, Millimetre Plus	Tolerance, Millimetre Minus
8.00 to 11.00, incl	0.30	0.30
Over 11.00 to 16.00, incl	0.35	0.35
Over 16.00 to 19.00, excl	0.40	0.40
19.00 to 89.00, incl	0.25	0.00

2.2.2.2 Thickness of Squares and Rectangles: Tolerances shown for lengths over 2250 millimetres apply to all rectangles having a width greater than three times the thickness regardless of length and to all vacuum melted alloys regardless of length.

TABLE VIII

Specified Thickness Millimetres	Specified Width Millimetres	Thickness Tolerance Millimetres for Length Range Indicated Millimetres 2250 and under		Thickness Tolerance Millimetres for Length Range Indicated Millimetres	Thickness Tolerance Millimetres for Length Range Indicated Millimetres Over 2250
		Plus	Minus	Plus	Minus
19.0 to 38.0, incl	19.0 to 150.0, incl	0.80	0.80	3.20	1.60
Over 38.0 to 75.0, incl	Over 38.0 to 150.0, incl	3.20	1.60	3.20	1.60
Over 75.0	Over 75.0	6.35	0.00	6.35	0.00

2.2.2.3 Width of Rectangles: Tolerances shown for lengths over 2250 millimetres apply to all rectangles having a width greater than three times the thickness regardless of length and to all vacuum melted alloys regardless of length.

TABLE IX

Specified Width Millimetres	Specified Thickness Millimetres	Thickness Tolerance Millimetres for Length Range Indicated Millimetres 2250 and under Plus	Thickness Tolerance Millimetres for Length Range Indicated Millimetres 2250 and under Minus	Thickness Tolerance Millimetres for Length Range Indicated Millimetres Plus	Thickness Tolerance Millimetres for Length Range Indicated Millimetres Over 2250 Minus
19.0 to 90.0, incl	19.0 to 38.0, incl	0.80	0.80	3.20	1.60
Over 90.0 to 150.0, incl	19.0 to 38.0, incl	3.20	1.60	3.20	1.60
Over 38.0 to 150.0, incl	Over 38.0 to 75.0, incl	3.20	1.60	3.20	1.60
Over 75.0	Over 75.0	6.35	0.00	6.35	0.00

3. LENGTH:

3.1 Nickel, Nickel-Copper, and Nickel-Chromium Alloys:

Definite lengths shall vary not more than +3.20 millimetres, -0 for sizes 200 millimetres and under in specified diameter or distance between parallel sides, and not more than +6.35 millimetres, -0 for larger sizes.

3.2 Nickel-Molybdenum, Nickel-Molybdenum-Chromium, and Cobalt Alloys:

Definite lengths shall vary not more than +1.60 millimetres, -0 for rounds 50 millimetres and under in specified diameter and not more than +3.20 millimetres, -0 for larger rounds and for all sizes of squares and rectangles.