

AEROSPACE MATERIAL SPECIFICATION

Submitted for recognition as an American National Standard



AMS 2224F

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Superseding AMS 2224E

Tolerances Copper and Copper Alloy Wire

1. SCOPE:

This specification covers established inch/pound manufacturing tolerances applicable to copper and copper alloy wire ordered to inch/pound dimensions. These tolerances apply to all conditions, unless otherwise noted.

1.1 MAM 2224 is the metric version of this AMS.

2. DIAMETER OR THICKNESS:

2.1 Metallic Coated, Not Redrawn:

2.1.1 Round Only, Non-Refractory: See Table 1.

TABLE 1 - Diameter or Thickness Tolerance Round, Non-Refractory

Specified Diameter Inch	Tolerance Inch plus	Tolerance Inch minus
Up to 0.010, incl	0.0001	0.0001
Over 0.010	3.0%D	1.0%D

2.2 Bare and Metallic Coated, Cold Drawn:

See 2.2.1 and 2.2.2.

2.2.1 Round, Hexagon, and Octagon: See Table 2.

2.2.2 Square and Rectangular: See Table 3

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TABLE 2 - Diameter or Thickness Tolerance, Round, Hexagon, and Octagon

Specified Diameter or Distance Between Parallel Surfaces Inch	Tolerance, Inch Plus and Minus Non-Refractory Round	Tolerance, Inch Plus and Minus Non-Refractory Hexagon Octagon	Tolerance, Inch Plus and Minus Refractory Round	Tolerance, Inch Plus and Minus Refractory Hexagon Octagon
Up to 0.010, incl	0.0001	--	0.0002	--
Over 0.010 to 0.020, incl	0.0002	--	0.0003	--
Over 0.020 to 0.030, incl	0.0003	--	0.0005	--
Over 0.030 to 0.040, incl	0.0004	0.0008	0.0007	0.002
Over 0.040 to 0.050, incl	0.0005	0.0010	0.0008	0.003
Over 0.050 to 0.060, incl	0.0006	0.0012	0.0010	0.003
Over 0.060 to 0.080, incl	0.0008	0.0016	0.0015	0.004
Over 0.080 to 0.150, incl	0.0010	0.002	0.002	0.004
Over 0.150 to 0.500, incl	0.0015	0.003	0.002	0.004
Over 0.500 to 0.750, incl	0.002	0.004	0.003	0.005

TABLE 3 - Diameter or Thickness Tolerances, Square and Rectangular

Specified Thickness Inch	Tolerance, Inch Plus and Minus Width Ranges Inch Up to 0.500, incl Copper	Tolerance, Inch Plus and Minus Width Ranges Inch Up to 0.500, incl Non-Refractory	Tolerance, Inch Plus and Minus Width Ranges Inch Up to 0.500, incl Refractory	Tolerance, Inch Plus and Minus Width Ranges Inch Over 0.500 to 1.250, incl Copper	Tolerance, Inch Plus and Minus Width Ranges Inch Over 0.500 to 1.250, incl Non-Refractory	Tolerance, Inch Plus and Minus Width Ranges Inch Over 0.500 to 1.250, incl Refractory
Up to 0.013, incl	0.0010	0.0010	0.0015	0.0013	0.0013	0.002
Over 0.013 to 0.050, incl	0.0013	0.0013	0.0015	0.0015	0.0015	0.002
Over 0.050 to 0.090, incl	0.0015	0.0015	0.002	0.002	0.002	0.003
Over 0.090 to 0.130, incl	0.002	0.002	0.003	0.0025	0.0025	0.004
Over 0.130 to 0.188, incl	0.003	0.003	0.004	0.0035	0.0035	0.0045

3. WIDTH; RECTANGULAR:

See Table 4.

TABLE 4 - Width Tolerances, Rectangular

Specified Width Inches	Tolerance, Inch Plus and Minus Non-Refractory	Tolerance, Inch Plus and Minus Refractory
Up to 0.050, incl	0.0013	0.0015
Over 0.050 to 0.090, incl	0.0015	0.002
Over 0.090 to 0.130, incl	0.002	0.003
Over 0.130 to 0.188, incl	0.003	0.004
Over 0.188 to 0.500, incl	0.0035	0.005
Over 0.500 to 1.250, incl	0.005	0.007

4. LENGTH:

Square and rectangular wire in straight lengths shall not vary from the ordered length by more than -0, +0.375 inch when specific lengths are ordered or by more than -0, +1.0 inch when specific lengths with ends or stock lengths with or without ends are ordered. No length tolerances are established for round, hexagonal, and octagonal wire.

5. STRAIGHTNESS:

Square and rectangular wire having cross-sectional area of 0.010 square inch and over and thickness of 0.010 inch and over, when supplied in straight lengths, in rolls, or on bucks, shall be of such straightness that the maximum edgewise curvature (depth of arc) shall be not greater than 0.500 inch in any 6 feet of length, or 0.083 inch x length in feet for shorter lengths. No straightness tolerances are established for round, hexagonal, and octagonal wire, for square and rectangular wire under 0.010 square inch in cross-sectional area or under 0.010 inch thick or when supplied on reels or on stagger-wound rolls.

6. FLATNESS:

No requirement established.

7. SPECIAL TOLERANCES:

- 7.1 If tolerances specified herein are plus and minus and if all plus or all minus are desired, use the sum of the plus and minus values specified, neglecting the signs.
- 7.2 If tolerances specified herein are all plus and if all minus are desired, use the same values specified.
- 7.3 If tolerances specified herein are all plus and if plus and minus are desired, halve the values specified.