

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. The term "excl" is used to apply only to the higher figure of a specified range.

2. **DIAMETER OR THICKNESS:**

2.1 **Metallic Coated, Not Redrawn:**

2.1.1 **Round Only, Non-Refractory:** When the tolerance is expressed as a percentage of a nominal dimension, the tolerance so calculated shall be rounded to the nearest 0.0001 in. to obtain the permissible tolerance.

TABLE I

Nominal Diameter Inch	Tolerance, Inch	
	plus	minus
Up to 0.010, incl	0.0003	0.0001
Over 0.010	3.0%D	1.0%D

2.2 **Bare and Metallic Coated, Cold Drawn:**

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2.2.1 Round, Hexagon, and Octagon:

TABLE II

Nominal Diameter or Distance Between Parallel Sides Inch	Tolerance, Inch, Plus and Minus			
	Non-Refractory		Refractory	
	Hexagon		Hexagon	
	Round	Octagon	Round	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	0.001	0.0008	0.003
Over 0.050 to 0.060, incl	0.0006	0.0012	0.001	0.003
Over 0.060 to 0.080, incl	0.0008	0.0016	0.0015	0.004
Over 0.080 to 0.150, incl	0.001	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

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2.2.2 Square and Rectangular:

TABLE III

Tolerance, Inch, Plus and Minus
Width Ranges, Inches

Nominal Thickness Inch	Up to 0.500, incl		Over 0.500 to 1.250, incl	
	Non- Refractory		Non- Refractory	
	Copper	Refractory	Copper	Refractory
Up to 0.013, incl	0.001	0.0015	0.001	0.0013
Over 0.013 to 0.050, incl	0.0013	0.0015	0.0013	0.0015
Over 0.050 to 0.090, incl	0.0015	0.002	0.0015	0.002
Over 0.090 to 0.130, incl	0.002	0.003	0.002	0.0025
Over 0.130 to 0.188, incl	0.0025	0.004	0.0025	0.0035
				0.0045

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3. WIDTH:

3.1 Rectangular:

TABLE IV

Nominal Width Inches	Tolerance, Inch, Plus and Minus	
	Non-Refractory	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 in. when specific lengths are ordered or by more than -0, +1.0 in. when stock lengths 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 sq in. and over and thickness of 0.010 in. 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 in. in any 6 ft of length, or 0.083 in. 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 sq in. in cross-sectional area or under 0.010 in. thick or when supplied on reels or on stagger-wound rolls.
6. FLATNESS: No requirements for AMS.
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.