

AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
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TOLERANCES

Copper and Copper Alloy Rods and Bars

1. PURPOSE: To publish established manufacturing tolerances.
2. APPLICATION: Tolerances shown herein apply, unless otherwise agreed upon by purchaser and vendor. These tolerances apply to all conditions, unless otherwise noted.
3. DIAMETER OR THICKNESS:
 - 3.1 Cold Finished:
 - 3.1.1 Rods; Rounds, Hexagons and Octagons:

TABLE I

Nominal Diameter or Distance Between Parallel Sides Inches	Tolerance, Inch, Plus and Minus			
	Non-refractory		Refractory	
	Round	Hexagonal Octagonal	Round	Hexagonal Octagonal
0.150 and under	0.0013	0.0025	0.002	--
Over 0.150 to 0.500, incl	0.0015	0.003	0.002	0.004
Over 0.500 to 1.00, incl	0.002	0.004	0.003	0.005
Over 1.00 to 2.00, incl	0.0025	0.005	0.004	0.006
Over 2.00	0.15%	0.30%	0.20%	0.40%

- 3.1.2 Bars; Squares and Rectangles:

- 3.1.2.1 Copper:

TABLE II

Thickness Tolerance, Inch, Plus and Minus
Width Ranges, Inches

Nominal Thickness Inches	0.500 and under	Over				
		0.500 to 1.250 incl	1.250 to 2.00 incl	2.00 to 4.00 incl	4.00 to 8.00 incl	8.00 to 12.00 incl
Over 0.188 to 0.500, incl	0.003	0.003	0.0035	0.004	0.0045	0.0055
Over 0.500 to 1.00, incl	--	0.004	0.004	0.0045	0.005	0.006
Over 1.00 to 2.00, incl	--	0.0045	0.0045	0.005	0.006	--
Over 2.00 to 4.00, incl	--	--	--	0.30%	--	--

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3.1.2.2 Non-Refractory Alloys:

TABLE III

Thickness Tolerance, Inch, Plus and Minus
Width Ranges, Inches

Nominal Thickness Inches	0.500 and under	Over	Over	Over	Over	Over
		0.500 to 1.250 incl	1.250 to 2.00 incl	2.00 to 4.00 incl	4.00 to 8.00 incl	8.00 to 12.00 incl
Over 0.188 to 0.500, incl	0.0035	0.004	0.0045	0.0045	0.006	0.008
Over 0.500 to 1.00, incl	--	0.0045	0.005	0.005	0.007	0.009
Over 1.00 to 2.00, incl	--	0.005	0.005	0.006	0.008	--
Over 2.00 to 4.00, incl	--	--	--	0.30%	--	--

3.1.2.3 Refractory Alloys:

TABLE IV

Thickness Tolerance, Inch, Plus and Minus
Width Ranges, Inches

Nominal Thickness Inches	0.500 and under	Over	Over	Over	Over	Over
		0.500 to 1.250 incl	1.250 to 2.00 incl	2.00 to 4.00 incl	4.00 to 8.00 incl	8.00 to 12.00 incl
Over 0.188 to 0.500, incl	0.005	0.005	0.006	0.007	0.009	0.012
Over 0.500 to 1.00, incl	--	0.006	0.007	0.008	0.010	0.013
Over 1.00 to 2.00, incl	--	0.006	0.007	0.009	0.011	--
Over 2.00 to 4.00, incl	--	--	--	0.50%	--	--

3.2 Extruded, All Shapes:

TABLE V

Nominal Diameter or Distance
Between Parallel Sides
Inches

Tolerance, Inch, Plus and Minus
Non-refractory Refractory

1.00 and under	0.010	0.020
Over 1.00 to 2.00, incl	0.015	0.030
Over 2.00 to 3.00, incl	0.025	0.050
Over 3.00 to 3.50, incl	0.035	0.070
Over 3.50 to 4.00, incl	0.060	0.120