

AERONAUTICAL MATERIAL SPECIFICATION

Society of Automotive Engineers, Inc.
29 West 39th Street
New York City

AMS 2221A

Issued 7/1/45

Revised 12/1/47

TOLERANCES Copper and Copper Alloy Rods and Bars

Page 1 of 3

- PURPOSE:** To publish established manufacturing tolerances.
- APPLICATION:** Tolerances shown herein apply, unless otherwise agreed between purchaser and vendor. These tolerances apply to all conditions, unless otherwise noted.
- DIAMETER OR THICKNESS:**

TABLE I
RODS

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 - 0.500, incl	0.0015	0.003	0.002	0.004
Over 0.500 - 1.00, incl	0.002	0.004	0.003	0.005
Over 1.00 - 2.00, incl	0.0025	0.005	0.004	0.006
Over 2.00	0.15%	0.30%	0.20%	0.40%

TABLE II
SQUARES, RECTANGLES - COPPER

Nominal Thickness Inches	Thickness Tolerance, Inch, Plus and Minus					
	Width Ranges, Inches					
	Over 0.500 to 1.250 incl	Over 1.250 to 2.00 incl	Over 2.00 to 4.00 incl	Over 4.00 to 8.00 incl	Over 8.00 to 12.00 incl	Over 12.00 to -- incl
Over 0.187 - 0.500, incl	0.003	0.003	0.0035	0.004	0.0045	0.0055
Over 0.500 - 1.00, incl	--	0.004	0.004	0.0045	0.005	0.006
Over 1.00 - 2.00, incl	--	0.0045	0.0045	0.005	0.006	--
Over 2.00 - 4.00, incl	--	--	--	0.30%	--	--

TABLE III
SQUARES, RECTANGLES - NON-REFRACTORY

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

Nominal Thickness Inches	0.500 and under	Over 0.500	Over 1.250	Over 2.00	Over 4.00	Over 8.00
		to 1.250 incl	to 2.00 incl	to 4.00 incl	to 8.00 incl	to 12.00 incl
Over 0.187 - 0.500, incl	0.0035	0.004	0.0045	0.0045	0.006	0.008
Over 0.500 - 1.00, incl	--	0.0045	0.005	0.005	0.007	0.009
Over 1.00 - 2.00, incl	--	0.005	0.005	0.006	0.008	--
Over 2.00 - 4.00, incl	--	--	--	0.30%	--	--

TABLE IV
SQUARES, RECTANGLES - REFRACTORY

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

Nominal Thickness Inches	0.500 and under	Over 0.500	Over 1.250	Over 2.00	Over 4.00	Over 8.00
		to 1.250 incl	to 2.00 incl	to 4.00 incl	to 8.00 incl	to 12.00 incl
Over 0.187 - 0.500, incl	0.005	0.005	0.006	0.007	0.009	0.012
Over 0.500 - 1.00, incl	--	0.006	0.007	0.008	0.010	0.013
Over 1.00 - 2.00, incl	--	0.006	0.007	0.009	0.011	--
Over 2.00 - 4.00, incl	--	--	--	0.50%	--	--

TABLE V
EXTRUDED

Nominal
Diameter or Distance
Between Parallel Sides
Inches

Tolerance, Inch Plus and Minus
Round, Square, Rectangular
Hexagonal, Octagonal
Non-refractory Refractory

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