AERONAUTICAL
MATERIAL SPECIFICATIONS
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AMS 2203C
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TOLERANCES
Aluminum Alloy Drawn Tubing

1. PURPOSE: To publish established manufacturing tolerances.

2. APPLICATION: Tolerances shown herein apply, unless otherwise agreed upon by purchaser and vendor. The term "excl" is used to apply only to the higher figure of the specified range.

3. DIAMETER, WIDTH, OR DEPTH:

3.1 Round:

TABLE I

Nominal OD or ID Inches (See Notes 1 and 2)	Tolerance, Inch, Plus and Minus: Diameter at Any Point (See Note 4)		
	Mean Diameter (See Note 3)	Non-Heat Treatable Alloys (See Note 5)	Heat Treatable Alloys
0.500 and under	0.003	0.003	0.006
Over 0.500 to 1.000, incl	0.004	0.004	0.008
Over 1.000 to 2.000, incl	0.005	0.005	0.010
Over 2.000 to 3.000, incl	0.006	0.006	0.012
Over 3.000 to 5.000, incl	0.008	0.008	0.016
Over 5.000 to 6.000, incl	0.010	0.010	0.020
Over 6.000 to 8.000, incl	0.015	0.015	0.030
Over 8.000 to 10.000, incl	0.020	0.020	0.040
Over 10.000 to 12.000, incl	0.025	0.025	0.050

3.2 Square, Rectangular, Hexagonal, and Octagonal:

TABLE I CONT.

ø Nominal Width or Depth Inches (See Note 1)	Tolerance, Inch, Plus and Minus: At Corners Square and Rectangular	Not at Corners (See Note 4): Square, Hexagonal, and Octagonal	Not at Corners (See Note 4): Rectangular
0.500 and under	0.003	0.006	The tolerance for the width is the value in the preceding column for a dimension equal to the depth, and conversely, but in no case less than that for its own dimension at the corners (See Note 6)
Over 0.500 to 1.000, incl	0.004	0.008	
Over 1.000 to 2.000, incl	0.005	0.010	
Over 2.000 to 3.000, incl	0.006	0.012	
Over 3.000 to 5.000, incl	0.008	0.016	
Over 5.000 to 6.000, incl	0.010	0.020	
Over 6.000 to 8.000, incl	0.015	0.030	
Over 8.000 to 10.000, incl	0.020	0.040	
Over 10.000 to 12.000, incl	0.025	0.050	

3.3 Streamline, Oval, and Elliptical:

TABLE I CONT.

Ø Nominal Equivalent Round Diameter Inches (See Notes 1 and 7)	Tolerance, Inch			
	Major Axis		Minor Axis	
	Plus	Minus	Plus	Minus
2.500 and under	0.040	0.025	0.025	0.015
Over 2.500 to 4.250, incl	0.050	0.035	0.035	0.025
Over 4.250 to 6.000, incl	0.070	0.050	0.055	0.040
Over 6.000 to 8.000, incl	0.100	0.085	0.080	0.060
Over 8.000 to 10.000, incl	0.160	0.140	0.115	0.085

4. WALL THICKNESS:

TABLE II

Ø Nominal Wall Thickness Inch (See Notes 1 and 2)	Tolerance, Inch, Plus and Minus		
	Mean Wall Thickness (See Note 8)	Wall Thickness at Any Point From Nominal Wall Thickness (Eccentricity)	
		Round Non-Heat Treatable	Round Heat Treatable, Other than Round, and All Coiled Tubes
0.010 to 0.035, incl	0.002	0.002	±10% of mean wall thickness; min tolerance ±0.003 in.
Over 0.035 to 0.049, incl	0.003	0.003	
Over 0.049 to 0.083, incl	0.004	0.004	
Over 0.083 to 0.120, incl	0.005	0.006	
Over 0.120 to 0.203, incl	0.006	0.008	
Over 0.203 to 0.300, incl	0.008	0.012	
Over 0.300 to 0.375, incl	0.015	0.020	
Over 0.375 to 0.500, incl	0.020	0.030	

5. LENGTH:

5.1 Straight Lengths:

TABLE III

Ø Nominal OD, Width, or Depth, Whichever Is Greatest Inches	Tolerance, Inch, Plus Only			
	Length Ranges, Feet			
	12 and under	Over 12 to 30, incl	Over 30 to 50, incl	Over 50
Under 0.250	1/4	3/8	1/2	-
0.250 to 3.000, excl	1/8	1/4	3/8	1
3.000 to 8.000, excl	3/16	5/16	7/16	1
8.000 and over	1/4	3/8	1/2	1

5.2 Coiled Lengths:

TABLE III CONT.

Nominal OD, Width, or Depth, Whichever Is Greatest Inches	Tolerance, %, Plus and Minus, Except As Indicated — Length Ranges, Feet			
	100 and under	Over 100 to 250, excl	250 to 500, excl	500 and over
Under 1.250	+5, -0	10	15	20

6. STRAIGHTNESS:

TABLE IV

Nominal OD, Width, or Depth, Whichever Is Greatest Inches	Tolerance, Inches (See Notes 9 and 10)	
	In Each Foot of Length (See Note 11)	In Total Length (L) of Piece
Under 0.375	0.500	0.500L
0.375 to 6.000, excl	0.010	0.010L
6.000 and over	0.020	0.020L

7. TWIST:

TABLE VI

Nominal OD, Width, or Depth, Whichever Is Greatest Inches	Tolerance, Degrees (See Note 9)	
	In Each Foot of Length	In Total Length (L) of Piece
Under 1.500	1	L
1.500 to 3.000, excl	1/2	L/2; 5 max
3.000 and over	1/4	L/4; 3 max

8. CORNER RADII:

TABLE VIII

Nominal Radius Inch	Tolerance
Sharp Corners	+1/64 in.
0.187 and under	±1/64 in.
Over 0.187	±10%

9. CUT ENDS: Ends shall not deviate from square by more than 1 degree.

10. ANGULARITY: The allowable deviation from specified angle is ±2 degrees.