

AERONAUTICAL MATERIAL SPECIFICATION

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TOLERANCES Magnesium Alloy ZK60A Extrusions

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. The term "excl" is used to apply only to the higher figure of the specified range.
3. **DIAMETER OR THICKNESS:**
 - 3.1 Rods, Bars, Solid Shapes, and Shapes where none of the nominal dimension is space:

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TABLE I

Nominal Dimension Inches	Tolerance, Inch, Plus and Minus Width/Thickness Ratio (1)		
	Over 20.0		
	20.0 and under	to 40.0, incl	Over 40.0
Under 0.125	0.006	0.010	0.016
0.125 to 0.250, excl	0.007	0.010	0.016
0.250 to 0.500, excl	0.008	0.010	0.016
0.500 to 0.750, excl	0.009	0.010	0.016
0.750 to 1.000, excl	0.010	0.010	0.016
1.000 to 1.500, excl	0.012	0.012	0.016
1.500 to 2.000, excl	0.016	0.016	0.016
2.000 to 4.000, excl	0.024	0.024	0.024
4.000 to 6.000, excl	0.034	0.034	0.034
6.000 to 8.000, excl	0.044	0.044	0.044
8.000 to 10.000, excl	0.054	0.054	0.054
10.000 to 12.000, excl	0.064	0.064	0.064
12.000 to 14.000, excl	0.074	0.074	0.074
14.000 to 15.000, excl	0.080	0.080	0.080

Note. (1) See Figure 2.

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Ø 3.2 Shapes where any of the nominal dimension is space:

3.2.1 Where specified dimension is less than 0.250 in. thick and has Width/Thickness Ratio greater than 8.0 (1):

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TABLE II

Nominal Dimension (4) Inches	Tolerance, Inch, Plus and Minus When specified dimension is at following distance in inches from base of cantilevered leg (2) (3)			
	0.25 to 0.625, excl	0.625 to 1.25, excl	1.25 to 2.50, excl	2.50 and over
Under 0.125	0.014			
0.125 to 0.250, excl	0.015	0.023		
0.250 to 0.500, excl	0.016	0.024	0.040	
0.500 to 0.750, excl	0.017	0.025	0.041	
0.750 to 1.000, excl	0.018	0.026	0.042	
1.000 to 1.500, excl	0.020	0.028	0.044	0.066
1.500 to 2.000, excl	0.024	0.032	0.048	0.070
2.000 to 4.000, excl	0.032	0.040	0.056	0.076

Notes. (1) See Figure 2.

(2) Where the space is completely enclosed, use Table I for dimensions which can be taken completely over solid metal. For dimensions partly over space, use Section 7 or 12, as applicable.

(3) For dimensions at points less than 0.25 in. from base of leg, use Table I, column headed "20.0 and under".

(4) Where nominal dimension is 4.000 to 15.000 in., excl, use Table III.

3.2.2 Where specified dimension is other than in 3.2.1:

TABLE III

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Nominal Dimension Inches	Tolerance, Inch, Plus and Minus			
	When specified dimension is at following distance in inches from base of cantilevered leg (1) (2)			
	0.250 to 0.625, excl	0.625 to 1.25, excl	1.25 to 2.50, excl	2.50 and over
Under 0.125	0.010	0.012	0.014	0.016
0.125 to 0.250, excl	0.012	0.014	0.016	0.020
0.250 to 0.500, excl	0.014	0.016	0.018	0.022
0.500 to 0.750, excl	0.016	0.018	0.020	0.026
0.750 to 1.000, excl	0.018	0.020	0.022	0.030
1.000 to 1.500, excl	0.020	0.022	0.026	0.034
1.500 to 2.000, excl	0.024	0.028	0.034	0.050
2.000 to 4.000, excl	0.032	0.036	0.048	0.064
4.000 to 6.000, excl	0.042	0.050	0.064	0.088
6.000 to 8.000, excl	0.054	0.062	0.082	0.112
8.000 to 10.000, excl	0.064	0.074	0.100	0.136
10.000 to 12.000, excl	0.074	0.088	0.116	0.160
12.000 to 14.000, excl	0.084	0.100	0.134	0.184
14.000 to 15.000, excl	0.090	0.106	0.142	0.196

Notes. (1) Where the space is completely enclosed, use Table I for dimensions which can be taken completely over solid metal. For dimensions partly over space, use Section 7 or 12, as applicable.

(2) For dimensions at points less than 0.25 in. from base of leg, use Table I, column headed "20.0 and under".

3.3 Round Tubing:

TABLE IV

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Nominal OD Inches	Tolerance, Inch, Plus and Minus	
	Mean Diameter (1)	Diameter at Any Point (2)
Under 1.00	0.010	0.020
1.00 to 2.00, excl	0.012	0.025
2.00 to 4.00, excl	0.015	0.030
4.00 to 6.00, excl	0.025	0.050
6.00 to 8.00, excl	0.035	0.075
8.00 to 10.00, excl	0.045	0.100

Notes. (1) Mean diameter is the average of two measurements taken at right angles to each other.

(2) Not applicable to tubing having wall thickness less than 2.5% of OD.