

DIMENSIONAL TOLERANCES FOR EXTRUSIONS & MACHINING

Our aluminum extrusions comply with or are sometimes better than the standard commercial tolerances established by the Aluminum Association, Inc. The tolerance for an extrusion dimension is a function of the size of the particular dimension and the circle size of the extrusion die as shown in Table A. Tolerances for extreme fin ratios and some large extrusions tend to exceed the tolerances listed on this table and, conversely, some of the smaller (less than 7 inch circle size) extrusions can be supplied with half of the standard tolerances. When defining extrusion flatness, see Table B.

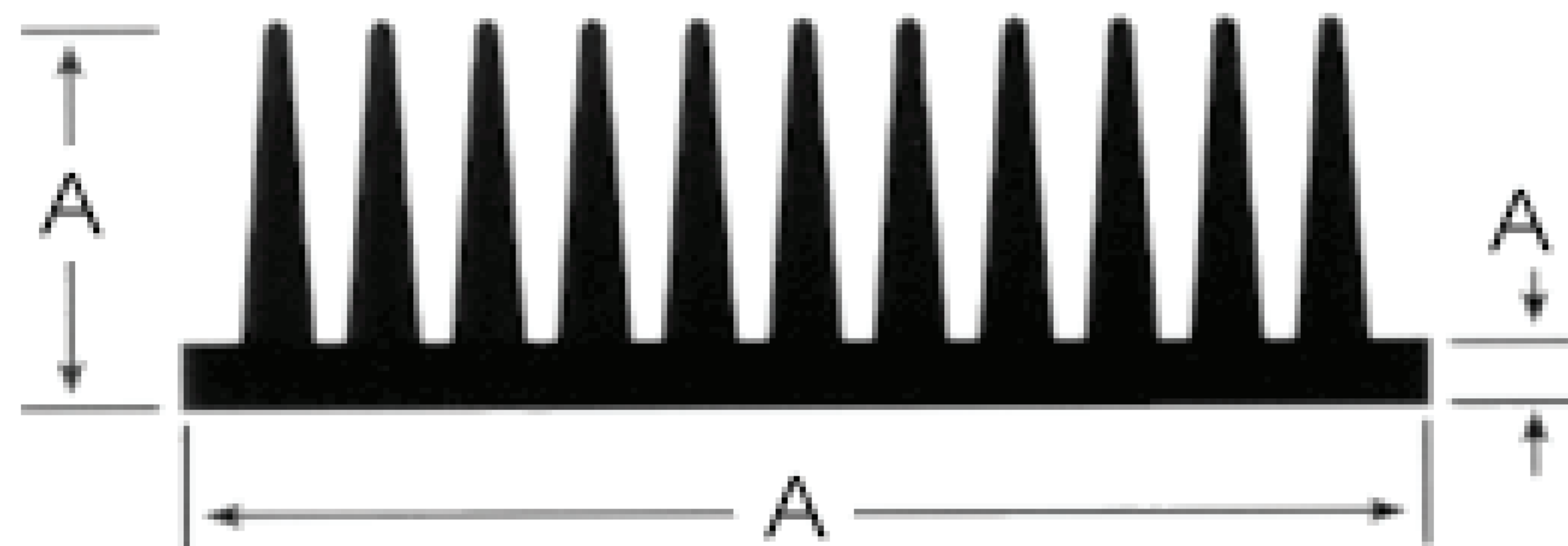
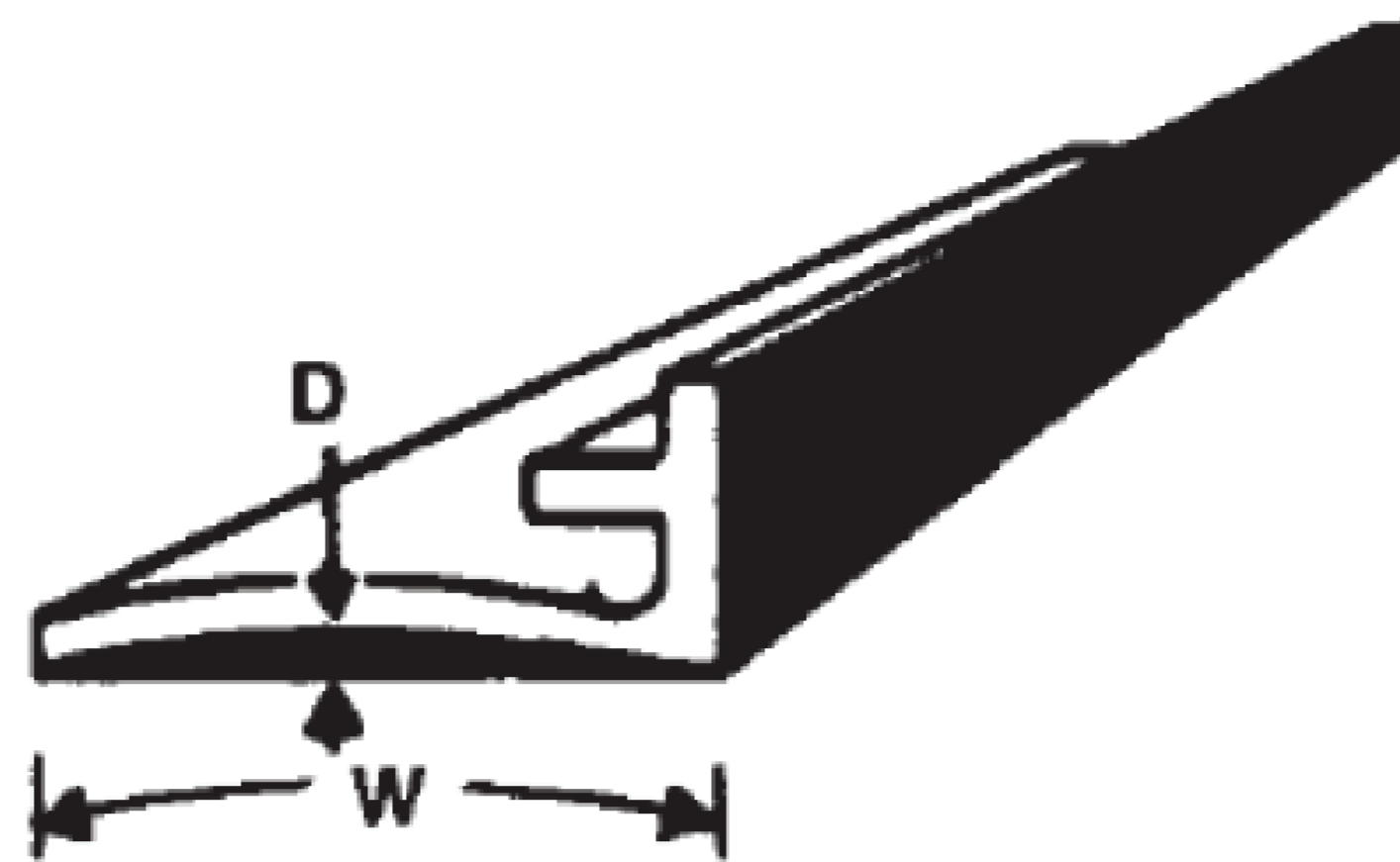


Table A: Typical Tolerances of Extruded Aluminum

Dimension A	+/- Tolerance on "A"	
	Circle Size Diameter of Extrusion Die	
Inches	Up to 10"	≥ 10"
Up thru .124	0.006	0.014
0.125 - 0.249	0.007	0.015
0.250 - 0.499	0.008	0.016
0.500 - 0.749	0.009	0.017
0.750 - 0.999	0.010	0.018
1.000 - 1.499	0.012	0.019
1.500 - 1.999	0.014	0.024
2.000 - 3.999	0.024	0.034
4.000 - 5.999	0.034	0.044
6.000 - 7.999	0.044	0.054
8.000 - 9.999	0.054	0.064
10.000 - 11.999		0.074
12.000 - 13.999		0.084
14.000 - 15.999		0.094
16.000 - 17.999		0.104
18.000 - 19.999		0.114



WIDTHS OVER 1 INCH
Maximum Allowable Deviation D
= TOLERANCE × W (in.)

Table B: Base Flatness								
Minimum Thickness of Metal Forming the Surface (in.)	Surface Width (in.)							
	UP to 5.999	6.000 to 7.999	8.000 to 9.999	10.000 to 11.999	12.000 to 13.999	14.000 to 15.999	16.000 to 17.999	18.000 to 19.999
	TOLERANCE							
Up thru 0.124	0.004	0.006	0.010	0.014
0.125 - 0.187	0.004	0.006	0.008	0.012	0.014	0.014	0.014	...
0.188 - 0.249	0.004	0.006	0.008	0.010	0.012	0.012	0.012	0.014
0.250 - 0.374	0.004	0.006	0.006	0.008	0.010	0.010	0.012	0.012
0.375 - 0.499	0.004	0.004	0.006	0.008	0.008	0.008	0.010	0.010
0.500 - 0.749	0.004	0.004	0.006	0.006	0.008	0.008	0.008	0.008
0.750 - 0.999	0.004	0.004	0.006	0.006	0.008	0.008	0.008	0.008
1.000 - 1.499	0.004	0.004	0.004	0.006	0.006	0.008	0.008	0.008
1.500 - 1.999	0.004	0.004	0.004	0.004	0.006	0.006	0.006	0.008
2.000 and up	0.004	0.004	0.004	0.004	0.004	0.006	0.006	0.006

Standard machining tolerances are +/- 0.010" for lead-in dimensions from edge/datum line, and +/- 0.005" thereafter from feature to feature. Due to the nature of extruded aluminum, this may not coincide exactly with the generic tolerances listed on most drawing title blocks. In the majority of cases, however, it is sufficient. If you require tighter tolerance, we can accommodate this need with additional machining. When defining machined flatness, use the statement of 0.001 inch per inch to preclude steps allowable with other methods of defining flatness. See Table C. Please contact us with any questions or concerns regarding these tolerances.

Table C: Base Flatness and Surface Roughness		
Surface	Flatness (in/in)	Surface Roughness (RMS)
As Extruded	See Table B	125 - 64
Timesaver Sanding (except for edge rounding)	0.002 / 0.003	64 - 32
Machined	0.001	32 or better