AEROSPACE
MATERIAL SPECIFICATIONS
SOCIETY OF AUTOMOTIVE ENGINEERS, Inc. 485 Lexington Ave., New York 17, N.Y.

AMS 2204B

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TOLERANCES
Aluminum Rolled or Extruded Standard Structural Shapes

1. PURPOSE: To publish established manufacturing tolerances.

2. APPLICATION: Tolerances shown herein are applicable to rolled or extruded standard structural shapes. Standard structural shapes are shapes which are commonly used for structural purposes but limited to shapes commonly produced by rolling, such as angles, channels, Tees, Zees, I-Beams, and H-Beams. Tolerances shown herein apply unless otherwise agreed upon by purchaser and vendor and apply to all tempers, unless otherwise noted. The term "excl" is used to apply only to the higher figure of the specified range.

3. CROSS-SECTIONAL DIMENSIONS:

3.1 Structural Shapes Where Depth, Flange Width, or Stem Height Is Less Than 8.000 In.:

TABLE I

Nominal Dimension	Shape	Tolerance (See Note 1), Inch or Percent of Nominal Dimension: Alloys 5083, 5086, and 5456	Tolerance (See Note 1), Inch or Percent of Nominal Dimension: Other Alloys
Thickness	Angles, Channels, Tees, Zees, I-Beams, and H-Beams	± 4% or ± 0.015 in., whichever is greater	± 2-1/2% or ± 0.010 in., whichever is greater
Flange Width	Angles and Zees	± 2-1/2% or ± 1/16 in., whichever is greater	± 2-1/2% or ± 1/16 in., whichever is greater
	Channels, Tees, I-Beams, and H-Beams	± 4%	± 4%
Depth	Zees and H-Beams	± 2-1/2% or ± 1/16 in., whichever is greater	± 2-1/2% or ± 1/16 in., whichever is greater
	Channels and I-Beams	+ 3/32 in., - 1/16 in.	+ 3/32 in., - 1/16 in.
Stem Height	Tees	± 2-1/2% or ± 1/16 in., whichever is greater	± 2-1/2% or ± 1/16 in., whichever is greater

3.2 Structural Shapes Where Depth, Flange Width, or Stem Height Is 8.000 to 15.000 in., Incl.:

TABLE II

Nominal Dimension	Shape	Tolerance (See Note 1), Inch or Percent of Nominal Dimension: Alloys 5083, 5086, and 5456	Tolerance (See Note 1), Inch or Percent of Nominal Dimension: Other Alloys
Thickness	I-Beams, H-Beams, and Channels	± 4% or ± 0.020 in., whichever is greater	± 3% or ± 0.015 in., whichever is greater
	Angles, Tees, and Zees	± 4% or ± 0.020 in., whichever is greater	± 2-1/2% or ± 0.015 in., whichever is greater
Flange Width	I-Beams, Channels and Tees	± 4%	± 4%
	H-Beams	± 4% or ± 1/4 in., whichever is greater	± 4% or ± 1/4 in., whichever is greater
	Angles	± 2-1/2% or ± 3/16 in., whichever is greater	± 2-1/2% or ± 3/16 in., whichever is greater
	Zees	± 2-1/2% or ± 3/32 in., whichever is greater	± 2-1/2% or ± 3/32 in., whichever is greater
Depth	I-Beams, Channels, and Zees	± 2-1/2% or ± 1/4 in., whichever is greater	± 2-1/2% or ± 1/4 in., whichever is greater
	H-Beams	± 3% or ± 1/4 in., whichever is greater	± 3% or ± 1/4 in., whichever is greater
Stem Height	Tees	± 2-1/2% or ± 1/4 in., whichever is greater	± 2-1/2% or 1/4 in., whichever is greater

4. LENGTH:

TABLE III

Nominal Depth, Flange Width, or Stem Height (Whichever is Greater) Inches	Tolerance, Inch, Plus Only, Length Ranges, Feet: Up to 12 incl	Over 12 to 30, incl	Over 30 to 50, incl	Over 50
Up 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 to 15.000, incl	1/4	3/8	1/2	1

5. STRAIGHTNESS (Allowable deviation from straight) (See Note 2):

In any foot or less of length: 0.025 in.
In total length of piece: 0.025 x length, ft