



AEROSPACE MATERIAL SPECIFICATIONS

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc.

485 Lexington Ave., New York, N. Y. 10017

AMS 4154J

Superseding AMS 4154H

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ALUMINUM ALLOY EXTRUSIONS 5.6Zn - 2.5Mg - 1.6Cu - 0.30Cr (7075-T6)

1. ACKNOWLEDGMENT: A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.
2. FORM: Bars, rods, wire, shapes, and tubing.
3. APPLICATION: Primarily for parts requiring high strength and whose fabrication does not usually involve welding or forming.
4. COMPOSITION:

	min	max
Zinc	5.1	6.1
Magnesium	2.1	2.9
Copper	1.2	2.0
Chromium	0.18	0.40
Iron	--	0.7
Silicon	--	0.50
Manganese	--	0.30
Titanium	--	0.20
Other Impurities, each	--	0.05
Other Impurities, total	--	0.15
Aluminum	remainder	

5. CONDITION: Solution and precipitation heat treated.
 - 5.1 Unless otherwise specified, extrusions shall be supplied with an as-extruded surface finish; light polishing to remove minor surface imperfections is permissible provided such imperfections can be removed within the dimensional tolerances.
6. TECHNICAL REQUIREMENTS: The product shall conform to the following requirements; tensile properties shall be determined in accordance with the latest issue of AMS 2355.

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6.1 Longitudinal Tensile Properties:

Nominal Diameter or Thickness, and Area (rods, bars, wire, shapes) or Nominal Wall Thickness and Area (tubing) Inches	Tensile Strength psi, min	Yield Strength at 0.2% Offset or at Extension Indicated (E = 10,300,000)		Elongation, % in 2 in. or 4D min
		psi, min	Extension Under Load in. in 2 in.	
Up to 0.250, excl, all areas	78,000	70,000	0.0176	7
0.250 to 0.499, incl, all areas	81,000	73,000	0.0182	7
Over 0.499 to 2.999, incl, all areas	81,000	72,000	0.0180	7
Over 2.999 to 4.499, incl				
Area up to 20 sq in., incl	81,000	71,000	0.0178	7
Area over 20 to 32 sq in., incl	78,000	70,000	0.0176	6
Over 4.499 to 5.000, incl				
Area up to 32 sq in., incl	78,000	68,000	0.0172	6

6.1.1 If sizes other than those shown above are ordered, tensile properties shall be as agreed upon by purchaser and vendor.

6.1.2 When a dispute occurs between purchaser and vendor over the yield strength value, yield strength determined by the offset method shall apply.

6.2 Long Transverse Tensile Properties: Rods, bars, and shapes, when tested in the long transverse direction, shall be capable of meeting the following requirements:

Nominal Diameter or Thickness and Area Inches	Tensile Strength psi, min	Yield Strength at 0.2% Offset or at Extension Indicated (E = 10,300,000)		Elongation, % in 2 in. or 4D min
		psi, min	Extension Under Load in. in 2 in.	
Up to 0.250, excl				
Area up to 20 sq in., incl	76,000	64,000	0.0164	5
0.250 to 0.499, incl				
Area up to 20 sq in., incl	77,000	66,000	0.0168	5
Over 0.499 to 0.749, incl				
Area up to 20 sq in., incl	73,000	63,000	0.0162	4
Over 0.749 to 1.499, incl				
Area up to 20 sq in., incl	72,000	62,000	0.0160	3
Over 1.499 to 2.999, incl				
Area up to 20 sq in., incl	66,000	57,000	0.0151	1
Over 2.999 to 4.499, incl				
Area up to 20 sq in., incl	66,000	56,000	0.0149	1
Area over 20 to 32 sq in., incl	65,000	55,000	0.0147	1
Over 4.499 to 5.000, incl				
Area up to 32 sq in., incl	64,000	54,000	0.0145	1

6.3 Hardness: Material should have hardness not lower than Brinell 135 using 500 kg load and 10 mm ball or 1000 kg load and 9/16 in. ball, or not lower than Brinell 140 using 1000 kg load and 10 mm ball, but shall not be rejected on the basis of hardness if the tensile property requirements are met.