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

AMS 4079

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Revised

ALUMINUM ALLOY TUBING, SEAMLESS, DRAWN, CLOSE TOLERANCE
1Mg - 0.6Si - 0.25Cu - 0.25Cr (6061-0)

1. ACKNOWLEDGMENT: A vendor shall mention this specification number in all quotations and when acknowledging purchase orders.

2. APPLICATION: Primarily for ducts requiring high strength and small radius bends.

3. COMPOSITION:

Magnesium	0.8 - 1.2
Silicon	0.40 - 0.8
Copper	0.15 - 0.40
Chromium	0.15 - 0.35
Iron	0.7 max
Zinc	0.25 max
Manganese	0.15 max
Titanium	0.15 max
Other Impurities, each	0.05 max
Other Impurities, total	0.15 max
Aluminum	remainder

4. CONDITION: Annealed.

5. TECHNICAL REQUIREMENTS:

5.1 Tensile Properties:

Tensile Strength, psi	22,000 max
Elongation, % in 2 in.	15 min

5.2 Flattening: Tubing having nominal wall thickness less than 10% of the nominal OD shall be capable of withstanding, without cracking, flattening sideways under a load applied gradually at room temperature until the outside dimension under load is equal to the flattening factor times the nominal wall thickness.

Nominal Wall Thickness Inch	Flattening Factor
0.120 and under	3
Over 0.120 to 0.238, incl	4
Over 0.238 to 0.500, incl	6

5.2.1 If tubing does not pass the flattening test of 5.2, a section of the tube not less than 1/2 in. in length and embracing 1/3 to 1/2 the circumference of the tube shall be capable of withstanding, without cracking, bending at room temperature through an angle of 180 deg around a diameter equal to the bend factor times the nominal wall thickness of the tubing with axis of bend parallel to axis of tube and with inside of tube on inside of bend.

Nominal Wall Thickness Inch	Bend Factor
0.120 and under	1
Over 0.120 to 0.238, incl	2
Over 0.238 to 0.500, incl	4

5.3 Properties After Heat Treatment: Tubing after proper solution and precipitation heat treatment shall conform to the following requirements:

5.3.1 Tensile Properties:

Nominal Wall Thickness Inch	Tensile Strength psi, min	Yield Strength at 0.2% Offset or at Extension Indicated (E = 9,900,000)		Elongation % in 2 in., min	
		psi, min	Extension Under Load in. in 2 in.	Strip	Full Section
0.025 to 0.049, incl	42,000	35,000	0.0111	8	10
Over 0.049 to 0.259, incl	42,000	35,000	0.0111	10	12
Over 0.259 to 0.500, incl	42,000	35,000	0.0111	12	14

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

5.3.2 Hardness: Tubing should have hardness not lower than Rockwell B 50 or equivalent, but shall not be rejected on the basis of hardness if the tensile property requirements are met.

6. QUALITY: Tubing shall be uniform in quality and condition, clean, sound, and free from foreign materials and from internal and external imperfections detrimental to fabrication or to performance of parts.

7. TOLERANCES: Except as specified below for diameter and wall thickness, tolerances shall conform to the latest issue of AMS 2203 as applicable to heat treatable alloys.