



AEROSPACE MATERIAL SPECIFICATIONS

SOCIETY OF AUTOMOTIVE ENGINEERS, Inc.

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

AMS 4038A

Issued 6-30-60

Revised 3-15-66

ALUMINUM ALLOY PLATE 5.6Zn - 2.5Mg - 1.6Cu - 0.30Cr (7075-T651) Stress-Relief Stretched

1. **ACKNOWLEDGMENT:** A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.
2. **APPLICATION:** Primarily for machined parts subject to excessive warpage during machining due to residual stresses, and for structural parts which will be painted or otherwise protected from corrosion. Certain design and processing procedures may cause this material to be susceptible to stress corrosion cracking; ARP 823 recommends practices to minimize such conditions.

3. **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	

4. **CONDITION:** Solution heat treated, stress-relieved by stretching, and precipitation heat treated.
 - 4.1 Material shall be stretched in the solution heat treated condition to produce a nominal permanent set of 2%, but not less than 1-1/2% nor more than 3%.
 - 4.2 Material shall receive no further straightening operations after stretching.
5. **TECHNICAL REQUIREMENTS:** The product shall conform to the following requirements; tensile properties shall be determined in accordance with the latest issue of AMS 2355.

- 5.1 **Tensile Properties:**

Nominal Thickness 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.	
0.250 to 0.499, incl	77,000	66,000	0.0168	8
Over 0.499 to 1.000, incl	77,000	66,000	0.0168	6
Over 1.000 to 2.000, incl	77,000	66,000	0.0168	4
Over 2.000 to 2.500, incl	73,000	62,000	0.0160	3
Over 2.500 to 3.000, incl	70,000	60,000	0.0157	3
Over 3.000 to 3.500, incl	70,000	57,000	0.0151	3
Over 3.500 to 4.000, incl	67,000	53,000	0.0143	2