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**BRITISH STANDARD: AEROSPACE SERIES**  
**SPECIFICATION FOR**  
**SHEET AND STRIP**  
**OF ALUMINIUM-COPPER-MAGNESIUM-**  
**SILICON-MANGANESE ALLOY**  
 (Solution treated and precipitation treated)  
 (Cu 4.4, Mg 0.5, Si 0.7, Mn 0.8)

**NOTE 1.** If substantial manipulation is necessary, this material should be purchased in the as-rolled condition to British Standard L. 106.

**NOTE 2.** Other forms of material of similar composition are covered by British Standards as listed in Appendix A.

### 1. INSPECTION AND TESTING PROCEDURE

This British Standard shall be used in conjunction with Sections 1 and 9 of British Standard L.100.

### 2. QUALITY OF MATERIAL

The material shall be made from aluminium and alloying constituents, with or without approved scrap, at the discretion of the manufacturer.

### 3. CHEMICAL COMPOSITION

The chemical composition of the material shall be:

Element	%	
	min.	max.
Copper	3.9	5.0
Magnesium	0.20	0.8
Silicon	0.50	0.90
Iron	-	0.5
Manganese	0.40	1.2
*Nickel	-	0.2
*Zinc	-	0.2
*Lead	-	0.05
*Tin	-	0.05
*Titanium plus Zirconium	-	0.2
*Chromium	-	0.10
Aluminium	-	The remainder

\*Subject to the discretion of the Inspecting Authority, determination of these elements need be made on a small proportion only of the samples analysed.

# L.104, August, 1971

(Superseding British Standard 2L.71)

## 4. CONDITION

The material shall be supplied solution treated, straightened and subsequently precipitation treated.

## 5. HEAT TREATMENT

The material shall be heat treated as follows:

(1) Solution treat by heating at a temperature of  $505 \pm 5^\circ\text{C}$  and quenching in water at a temperature not exceeding  $40^\circ\text{C}$ .

(2) Precipitation treat by heating uniformly for the requisite period at a temperature between  $160^\circ\text{C}$  and  $190^\circ\text{C}$ .

NOTE. The following temperatures and times at temperature have been found appropriate:

Temperature	Time at temperature
$^\circ\text{C}$	hours
165	12 to 18
175	9 to 12
185	3 to 6

## 6. MECHANICAL PROPERTIES

**6.1 Tensile test.** The mechanical properties obtained from test pieces selected and prepared in accordance with the relevant requirements of British Standard L.100 shall be not less than the following values:

Nominal thickness	0.2% proof stress	Tensile strength	Elongation on gauge length of 50 mm
mm	N/mm <sup>2</sup>	N/mm <sup>2</sup>	%
0.4 up to and including 0.8	390	430	6
Over 0.8 up to and including 6.0	390	430	7

NOTE.  $1 \text{ N/mm}^2 = 1 \text{ MN/m}^2 = 0.102 \text{ kgf/mm}^2 = 0.1 \text{ hbar} = 0.065 \text{ tonf/in}^2$ . Information on SI units is given in BS 3763, 'The International System of units (SI)' and in PD 5686, 'The use of SI units'. See also BS 350, 'Conversion factors and tables'.

**6.2 Hardness test.** The value of X shall be as shown in the following table:

Tensile strength of test piece	Value of X
N/mm <sup>2</sup>	%
430 to less than 450	5
450 to less than 465	7.5
465 and over	10

## 7. IDENTIFICATION

The requirements relating to 'all over' marking in British Standard L.100, Section 9, shall apply.

## APPENDIX A

BRITISH STANDARDS COVERING OTHER FORMS OF MATERIAL  
OF SIMILAR COMPOSITION

Form	Solution treated and aged at room temperature	Solution treated and precipitation treated	Supplied for solution treatment by the user
Bars and extruded sections (not exceeding 200 mm diameter or minor sectional dimension)	L.102	L.65	—
Forging stock and forgings	L.103	L.77	—
Hexagonal bars for nuts, couplings and hollow machined parts (free from peripheral and asymmetric coarse grain)	—	L.87	—
Sheet and strip	L.70	—	L.106*
Aluminium-coated sheet and strip	L.72	L.73	L.107*
Close toleranced sheet and strip (aluminium-coated)	L.89	L.90	L.108*
Tube (not exceeding 10 mm wall thickness)	L.105	L.63	—
Wire for solid, cold-forged rivets (not exceeding 10 mm diameter)	—	—	L.37
Plate: controlled stretched	—	L.93	—
Plate: not controlled stretched	—	L.94	—

\*In course of preparation.

This British Standard, having been approved by the Aerospace Industry Standards Committee, was published under the authority of the Executive Board of the Institution on 31 August, 1971.

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The Institution desires to call attention to the fact that this British Standard does not purport to include all the necessary provisions of a contract.

*British Standards are revised, when necessary, by the issue either of amendment slips or of revised editions. It is important that users of British Standards should ascertain that they are in possession of the latest amendments or editions.*

The following BSI references relate to the work on this standard:  
Committee reference ACE/24      Draft for comment 69/23023