


BRITISH STANDARDS INSTITUTION
 2 PARK STREET, LONDON W1A 2BS

 INCORPORATED BY ROYAL CHARTER
 Telephone: 01-629 9000
 Telex: 266933

BRITISH STANDARD: AEROSPACE SERIES

SPECIFICATION FOR

TUBE OF ALUMINIUM - 2 $\frac{1}{4}$ % MAGNESIUM ALLOY

(Soft: tested hydraulically)

(Not exceeding 12 mm wall thickness)

NOTE. Other forms of material of similar composition are covered by the following British Standards:
 L.44 Forging stock, bars, extruded sections and forgings
 L.80 Sheet and strip (soft)
 L.81 Sheet and strip (half hard)

1. INSPECTION AND TESTING PROCEDURE

This British Standard shall be used in conjunction with Sections 1 and 10 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	-	0.10
Magnesium	1.7	2.4
Silicon	-	0.5
Iron	-	0.5
Manganese	-	0.5
*Nickel	-	0.2
*Zinc	-	0.2
*Lead	-	0.05
*Tin	-	0.05
*Titanium plus Zirconium	-	0.20
Chromium	-	0.25
Manganese plus Chromium	-	0.5
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.

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(Superseding British Standard 2L.56)

4. CONDITION

The tube shall be supplied softened and suitable for manipulation.

5. HEAT TREATMENT

None.

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:

0.2% proof stress	Tensile strength		Elongation on gauge length of 50 mm
	min.	min.	max.
N/mm ²	N/mm ²	N/mm ²	%
60	160	200	18

NOTE. 1 N/mm² = 1 MN/m² = 0.102 kgf/mm² = 0.1 hbar = 0.065 tonf/in². 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 Single drifting test. The specified percentage of the tubes shall be subjected to the single drifting test.

6.3 Hydraulic test. The tube shall be tested to the appropriate pressure determined from the following formula, subject to a maximum of 27.6 N/mm² and a minimum of 1.4 N/mm²:

$$\text{Pressure (N/mm}^2\text{)} = 130 \times \frac{\text{Nominal wall thickness}}{\text{Nominal outside diameter}}$$

Examples of the application of this formula are given in the following table:

Nominal outside diameter	Nominal wall thickness (mm)							
	0.3	0.4	0.5	0.6	0.8	1.0	1.2	1.6
	Test pressure (N/mm ²)							
mm								
3.2	12.2	16.3	20.3	24.4	27.6	27.6	27.6	
4	9.8	13.0	16.3	19.5	26.0	27.6	27.6	27.6
5	7.8	10.4	13.0	15.6	20.8	26.0	27.6	27.6
10	3.9	5.2	6.5	7.8	10.4	13.0	15.6	20.8
14	2.8	3.7	4.6	5.6	7.4	9.3	11.2	14.9
20	2.0	2.6	3.3	3.9	5.2	6.5	7.8	10.4
25	1.6	2.1	2.6	3.1	4.2	5.2	6.2	8.3
30	1.4	1.7	2.2	2.6	3.5	4.3	5.2	7.0
50	1.4	1.4	1.4	1.6	2.1	2.6	3.1	4.2
100	1.4	1.4	1.4	1.4	1.4	1.4	1.6	2.1

NOTE. 1 N/mm² = 1 MN/m² = 102 gf/mm² = 10 bar = 145 lbf/in².

6.4 Bore test. The tube shall be subjected to the bore test.

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(Superseding British Standard 2L.56)

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 69/27775