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BRITISH STANDARD: AEROSPACE SERIES  
SPECIFICATION FOR  
BAR FOR MACHINING  
OF TITANIUM-ALUMINIUM-MOLYBDENUM-  
TIN-SILICON-CARBON ALLOY  
(Tensile strength 1250-1420 N/mm<sup>2</sup>)  
(Limiting ruling section 25 mm)

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NOTE. Other forms of material of this composition are covered by the following British Standards:

*Tensile strength 1250-1420 N/mm<sup>2</sup>: limiting ruling section 25 mm*

TA.39 Forging stock

*Tensile strength 1205-1375 N/mm<sup>2</sup>: limiting ruling section over 25 mm up to and including 75 mm*

TA.40 Bar for machining

TA.41 Forging stock

TA.42 Forgings

### 1. INSPECTION AND TESTING PROCEDURE

This British Standard shall be used in conjunction with Sections 1 and 2 of British Standard TA.100.

### 2. MANUFACTURE

The material shall be made from ingots produced by consumable electrode melting.

### 3. CHEMICAL COMPOSITION

The chemical composition of the material shall be:

Element	%	
	min.	max.
Aluminium	3.0	5.0
Molybdenum	3.0	5.0
Tin	3.0	5.0
Silicon	0.3	0.7
Iron	-	0.20
Hydrogen	-	0.0125
Oxygen	-	0.25
Nitrogen	-	0.05
Carbon	0.05	0.20
Titanium	-	Remainder

4. CONDITION

Unless otherwise stated on the order or Inspection Schedule, the material shall be supplied fully heat treated and either centreless ground or machined.

5. HEAT TREATMENT

The material and test samples shall be heat treated as follows:

- (1) heat at a temperature of  $900 \pm 10^\circ\text{C}$  and hold for one hour per 25 mm of section, with a minimum of 20 min;
- (2) cool in air;
- (3) heat at a temperature of  $500 \pm 5^\circ\text{C}$  and hold for 24 h;
- (4) cool in air.

6. MECHANICAL PROPERTIES

6.1 Tensile test. The mechanical properties obtained from test pieces selected, prepared and tested in accordance with the relevant requirements of British Standard TA.100 shall be:

0.2% proof stress	Tensile strength		Elongation	Reduction of area
min.	min.	max.	min.	min.
N/mm <sup>2</sup>	N/mm <sup>2</sup>	N/mm <sup>2</sup>	%	%
1095	1250	1420	8	20

NOTE. 1 N/mm<sup>2</sup> = 1 MN/m<sup>2</sup> = 0.102 kgf/mm<sup>2</sup> = 0.1 hbar = 0.065 tonf/in<sup>2</sup>. Information on SI units is given in BS 3763, 'The International System of units (SI)' and BS 350, 'Conversion factors and tables'.

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 30th September, 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/49      Draft for comment 67/20619

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