

British Standard: Aerospace Series
 Specification for
**Precipitation hardening nickel base
 chromium-cobalt-molybdenum-titanium
 alloy castings**
 (Cr 20, Co 20, Mo 6, Ti 2)

1. Inspection and testing procedure

This British Standard shall be used in conjunction with the relevant sections of British Standard HC 100 as follows:

Re-melting stock	Sections 1 and 2
Precision castings	Sections 1 and 3
Centrifugal castings	Sections 1 and 5

2. Chemical composition

The re-melting stock and castings shall contain:

Element	%	
	min.	max.
Carbon	0.04	0.08
Silicon	—	0.4
Manganese	—	0.6
Sulphur	—	0.007
Silver	—	0.0005 (5 p.p.m.)
Aluminium	0.3	0.6
Cobalt	19.5	21.0
Chromium	19.5	21.0
Copper	—	0.2
Iron	—	0.7
Molybdenum	5.6	6.1
Lead	—	0.0020 (20 p.p.m.)
Titanium	2.0	2.4
Aluminium + Titanium	2.4	2.8
Nickel	Remainder	

NOTE. Attention is drawn to the fact that this alloy composition is the subject of a patent. Re-melting stock can only be manufactured under licence.

3. Condition

Castings shall be supplied solution treated in accordance with 4.1.

Gr 1

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4. Heat treatment

The final heat treatment shall be as follows.

4.1 Solution treatment. Heat uniformly at a temperature of 1150 ± 10 °C for 2 h in a protective atmosphere and cool to room temperature.

4.2 Precipitation treatment. Heat uniformly at a temperature of 800 ± 10 °C for 8 h and cool in air to room temperature.

5. Mechanical properties

5.1 Tensile. The room temperature tensile properties obtained from test pieces representing castings, selected, prepared and tested in accordance with the relevant requirements of British Standard HC 100, shall be:

0.2 % proof stress	Tensile strength	Elongation
min.	min.	min.
MPa (N/mm ²)	MPa (N/mm ²)	%
430	620	12

NOTE. Information on SI units is given in BS 3763, 'The International System of units (SI)', and BS 350, 'Conversion factors and tables'.

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Contract requirements

Attention is drawn to the fact that this British Standard does not purport to include all the necessary provisions of a contract.

Revision of British Standards

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/60 Draft for comment 72/35126 DC.

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