

British Standard: Aerospace Series

Specification for

Nickel-chromium-molybdenum steel castings (1150 - 1300 MPa)

1. Special foundry approval

Manufacture of castings to this specification may be restricted to foundries specially approved in accordance with the requirements of British Standard HC 100, Section 1.

2. 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
Sand castings	Sections 1 and 4
Centrifugal castings	Sections 1 and 5

3. Chemical composition

The re-melting stock and the castings shall contain:

Element	%	
	min.	max.
Carbon	0.22	0.34
Silicon	0.3	0.6
Manganese	0.3	0.8
Phosphorus	—	0.025
Sulphur	—	0.025
Chromium	0.5	1.3
Copper	—	0.4
Molybdenum	0.2	0.7
Nickel	0.5	3.0

4. Condition

Castings shall be supplied finally heat treated.

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5. Heat treatment

The final heat treatment shall be as follows.

5.1 **Annealing.** Heat uniformly at a temperature between 880 °C and 960 °C.

5.2 **Hardening.** Heat uniformly at a temperature between 830 °C and 910 °C and quench in oil.

5.3 **Tempering.** Heat uniformly at a temperature between 450 °C and 560 °C.

6. Mechanical properties

6.1 **Tensile and impact.** The tensile and impact 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	Reduction of area	Izod impact
	min.	max.			
MPa (N/mm ²)	MPa (N/mm ²)	MPa (N/mm ²)	%	%	ft lbf
940	1150	1300	5	14	10

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

6.2 **Hardness.** The hardness of hardened and tempered castings and their representative test samples shall be:

	min.	max.
HB	331	401
HV	335	425
HRC	35	42

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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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