

Specification for

**Nickel-chromium-  
molybdenum steel  
castings  
(880 – 1080 MPa)**

ICS 49.025.10

# Foreword

## Supersession

BS HC 9:1974+A2:2012 supersedes BS HC 9:1974 (incorporating amendment No. 1:1982), which is withdrawn.

## Information about this document

The start and finish of text introduced or altered by Amendment No. 2 is indicated in the text by tags  $\boxed{A2}$   $\boxed{A2}$ . Minor editorial changes are not tagged. Previous amendments are not indicated.

Amendment No. 2 introduces the following principal change:

The text of Clause 1 has been deleted.

## Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

**Compliance with a British Standard cannot confer immunity from legal obligations.**

## Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 and 2 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

This British Standard, having been approved by the Aerospace Industry Standards Committee, was published under the authority of the Executive Board on 10 May 1974

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The following BSI references relate to the work on this standard:

Committee reference ACE/60  
Drafts for comment  
72/35126 DC  
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## Amendments issued since publication

Amd. No.	Date	Comments
3848	May 1982	
A2	December 2012	See Foreword.

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## 1 Special foundry approval

$\sqrt{A_2}$  Text deleted.  $\sqrt{A_2}$

## 2 Inspection and testing procedure

This British Standard shall be used in conjunction with the relevant sections of the latest issue of BS 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.

## 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 or water.

**5.3 Tempering.** Heat uniformly at a temperature between 510 °C and 610 °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 BS HC 100, shall be:

0.2 % proof stress	Tensile strength		Elongation	Reduction of area	Izod impact
	min.	min. max.			
MPa (N/mm <sup>2</sup> )	MPa (N/mm <sup>2</sup> )	MPa (N/mm <sup>2</sup> )	%	%	ft lbf
700	880	1 080	8	30	30

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	262	321
HV	265	330
HRC	27	34

## 7 Rectification of defects

**7.1 Correction of distortion.** When permitted in accordance with BS HC 100, distortion shall be corrected after annealing and castings shall subsequently be hardened and tempered.

**7.2 Repair of castings by welding.** When repair by welding is permitted in accordance with BS HC 100, this shall be carried out after annealing and castings shall subsequently be hardened and tempered.



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