

Specification for

**3 % chromium-
molybdenum steel
castings
(1150 – 1300 MPa)**

ICS 49.025.10

Foreword

Supersession

BS HC 8:1974+A2:2012 supersedes BS HC 8:1974 (incorporating Amendment No. 1:1982), which is withdrawn.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

© The British Standards Institution 2012
Published by BSI Standards Limited 2012

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

Committee reference ACE/60
Drafts for comment
72/35126 DC
12/30269126 DC

ISBN 978 0 580 80266 9

Amendments issued since publication

Amd. No.	Date	Comments
3849	May 1982	
A2	December 2012	See Foreword.

Contents

	Page	
1	Special foundry approval	1
2	Inspection and testing procedure	1
3	Chemical composition	1
4	Condition	1
5	Heat treatment	1
6	Mechanical properties	1
7	Rectification of defects	2

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 castings shall contain:

Element	%	
	min.	max.
Carbon	0.22	0.32
Silicon	0.3	0.75
Manganese	0.3	0.8
Phosphorus	—	0.025
Sulphur	—	0.025
Chromium	2.5	3.5
Copper	—	0.4
Molybdenum	0.4	0.7
Nickel	—	0.4
Tin	—	0.03
Vanadium	—	0.02

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 850 °C and 950 °C.

5.2 Hardening. Heat uniformly at a temperature between 880 °C and 920 °C and quench in oil.

5.3 Tempering. Heat uniformly at a temperature between 500 °C and 600 °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.	max.			
MPa (N/mm ²)	MPa (N/mm ²)	MPa (N/mm ²)	%	%	ft lbf
940	1 150	1 300	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

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.

BSI — British Standards Institution

BSI is the independent national body responsible for preparing British Standards. It presents the UK view on standards in Europe and at the international level. It is incorporated by Royal Charter.

Revisions

British Standards are updated by amendment or revision. Users of British Standards should make sure that they possess the latest amendments or editions.

It is the constant aim of BSI to improve the quality of our products and services. We would be grateful if anyone finding an inaccuracy or ambiguity while using this British Standard would inform the Secretary of the technical committee responsible, the identity of which can be found on the inside front cover. Tel: 020 8996 9000. Fax: 020 8996 7400.

BSI offers members an individual updating service called PLUS which ensures that subscribers automatically receive the latest editions of standards.

Buying standards

Orders for all BSI, international and foreign standards publications should be addressed to Customer Services. Tel: 020 8996 9001. Fax: 020 8996 7001.

In response to orders for international standards, it is BSI policy to supply the BSI implementation of those that have been published as British Standards, unless otherwise requested.

Information on standards

BSI provides a wide range of information on national, European and international standards through its Library and its Technical Help to Exporters Service. Various BSI electronic information services are also available which give details on all its products and services. Contact the Information Centre. Tel: 020 8996 7111. Fax: 020 8996 7048.

Subscribing members of BSI are kept up to date with standards developments and receive substantial discounts on the purchase price of standards. For details of these and other benefits contact Membership Administration. Tel: 020 8996 7002. Fax: 020 8996 7001.

Copyright

Copyright subsists in all BSI publications. BSI also holds the copyright, in the UK, of the publications of the international standardization bodies. Except as permitted under the Copyright, Designs and Patents Act 1988 no extract may be reproduced, stored in a retrieval system or transmitted in any form or by any means – electronic, photocopying, recording or otherwise – without prior written permission from BSI.

This does not preclude the free use, in the course of implementing the standard, of necessary details such as symbols, and size, type or grade designations. If these details are to be used for any other purpose than implementation then the prior written permission of BSI must be obtained.

If permission is granted, the terms may include royalty payments or a licensing agreement. Details and advice can be obtained from the Copyright Manager. Tel: 020 8996 7070.