

This is a preview of "ISO 185:2005". [Click here to purchase the full version from the ANSI store.](#)

Second edition  
2005-08-15

---

---

## Grey cast irons — Classification

*Fontes à graphite lamellaire — Classification*



Reference number  
ISO 185:2005(E)

© ISO 2005

This is a preview of "ISO 185:2005". [Click here to purchase the full version from the ANSI store.](#)

**PDF disclaimer**

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

© ISO 2005

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
Web [www.iso.org](http://www.iso.org)

Published in Switzerland

This is a preview of "ISO 185:2005". [Click here to purchase the full version from the ANSI store.](#)

## Contents

Page

Foreword.....	iv
Introduction .....	v
1 Scope .....	1
2 Normative references .....	1
3 Terms and definitions.....	1
4 Designation .....	2
5 Order information .....	2
6 Manufacture.....	2
7 Requirements .....	2
7.1 Mechanical properties .....	2
7.2 Tensile properties .....	2
7.2.1 Test pieces machined from separately cast samples.....	2
7.2.2 Test pieces machined from cast-on samples .....	2
7.2.3 Test pieces cut from a casting .....	2
7.3 Hardness properties .....	4
7.4 Graphite structure.....	6
8 Sampling.....	6
8.1 General.....	6
8.2 Tensile test .....	6
8.2.1 Separately cast samples .....	6
8.2.2 Cast-on samples .....	7
8.2.3 Test pieces cut from a casting .....	8
8.3 Hardness test .....	9
9 Test methods.....	10
9.1 Tensile test .....	10
9.2 Brinell hardness test .....	11
9.3 Graphite structure.....	11
9.4 Alternative test procedures .....	12
10 Retests .....	12
10.1 Need for retests.....	12
10.2 Test validity .....	12
10.3 Non-conforming test results.....	12
Annex A (informative) Additional information on mechanical and physical properties in addition to that given in Tables 1 and 2 .....	13
Annex B (informative) Additional information on the relationship between hardness and tensile strength of grey cast irons .....	15
Annex C (informative) Additional information on the relationship between tensile strength, hardness and wall thickness of grey iron castings .....	18
Annex D (informative) Cross-references of ISO 185 grade designations to other standard grades of grey cast iron .....	20
Bibliography .....	21

This is a preview of "ISO 185:2005". [Click here to purchase the full version from the ANSI store.](#)

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 185 was prepared by Technical Committee ISO/TC 25, *Cast irons and pig irons*, Subcommittee SC 3, *Grey cast irons*.

This second edition cancels and replaces the first edition (ISO 185:1988), which has been technically revised.

This is a preview of "ISO 185:2005". [Click here to purchase the full version from the ANSI store.](#)

## Introduction

This International Standard deals with the classification of grey cast irons, subdivided into two groups, specified by their tensile strength and hardness, respectively.

The properties of grey cast irons depend on the form and distribution of the graphite and the structure of the matrix.

However, for many applications, tensile strength or hardness are not the only interesting or determining properties. Other mechanical or physical properties can be decisive for the use of grey cast iron, for example:

- the thermal capacity and the thermal diffusivity for disc brakes as well as radiators;
- the damping capacity for engine blocks or machine beds;
- the thermocycle fatigue for exhaust manifolds or ingot moulds.

Therefore, Annex A provides additional information of interest to casting designers.

In addition:

- Annex B contains “Additional information on the relationship between hardness and tensile strength”;
- Annex C contains “Additional information on the relationship between tensile strength, hardness and wall thickness of grey iron castings”.

NOTE This International Standard does not cover technical delivery conditions for grey iron castings.