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Grey cast irons — Classification

Fontes à graphite lamellaire — Classification



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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	3
7.1 Mechanical properties	3
7.2 Tensile properties	3
7.2.1 General	3
7.2.2 Test pieces machined from cast samples	3
7.2.3 Test pieces cut from a casting	3
7.3 Hardness properties	6
7.4 Graphite structure	7
8 Sampling	7
8.1 General	7
8.2 Types of samples	7
8.3 Samples for tensile test	8
8.3.1 Size of cast samples	8
8.3.2 Frequency and number of test samples	8
8.3.3 Separately cast samples	8
8.3.4 Side-by-side cast samples	8
8.3.5 Cast-on samples	9
8.3.6 Samples cut from a casting	11
8.4 Samples for hardness test	12
9 Test methods	12
9.1 Tensile test	12
9.2 Brinell hardness test	14
9.3 Graphite structure	14
9.4 Alternative test procedures	14
10 Retests	14
10.1 Need for retests	14
10.2 Test validity	14
10.3 Nonconforming test results	15
10.4 Heat treatment of samples and castings	15
Annex A (informative) Information on mechanical and physical properties in addition to that given in Tables 1 and 2	16
Annex B (informative) Additional information on the relationship between hardness and tensile strength of grey cast irons	18
Annex C (informative) Additional information on the relationship between tensile strength, hardness and wall thickness of grey iron castings	21
Annex D (informative) Cross-references of ISO 185 grade designations to other standard grades of grey cast irons	25
Bibliography	27

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 25, *Cast irons and pig irons*.

This fourth edition cancels and replaces the third edition (ISO 185:2019), of which it constitutes a minor revision. The changes to the previous edition are as follows:

- Correction to typographical error for relevant wall thickness of ISO 185/JL/HBW235 in [Table 2](#); corrected from "4" to "40". As a result of this change, the year of publication of ISO 185 in [Annex D, Table D.1](#), column 1, updated from 2019 to 2020 to conform with this new edition.
- Symbols for Brinell hardness and relative hardness updated to H_B and H_R , respectively, in [B.2](#) and Figure B.1.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

This document deals with the classification of grey cast irons, subdivided into two groups:

- materials specified by their tensile strength;
- materials specified by their hardness.

It is also possible to specify grey cast irons by a combination of tensile strength and hardness.

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

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

For many applications, tensile strength and hardness are not the only properties of interest to casting designers. Other mechanical or physical properties can be decisive for the use of grey iron. For example:

- the thermal capacity and the thermal diffusivity for disc brakes;
- 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.

Furthermore:

- [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;
- [Annex D](#) provides cross-references of ISO 185 grade designations to other standard grades of grey cast irons.