

Founding — Malleable cast irons

The European Standard EN 1562:1997, with the incorporation of amendment A1:2006, has the status of a British Standard

ICS 77.140.80

National foreword

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 11 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.

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English version

Founding — Malleable cast irons

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 190, Foundry technology, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 1997, and conflicting national standards shall be withdrawn at the latest by December 1997.

Within its programme of work, Technical Committee CEN/TC 190 requested CEN/TC 190/WG 2.20, Malleable cast iron, to prepare the following standard:

EN 1562, *Founding — Malleable cast irons*.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Foreword to amendment A1

This document (EN 1562:1997/A1:2006) has been prepared by Technical Committee CEN/TC 190 “Foundry technology”, the secretariat of which is held by DIN.

This Amendment to the European Standard EN 1562:1997 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2006, and conflicting national standards shall be withdrawn at the latest by December 2006.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of a EU Directive.

For relationship with EU Directive, see informative Annex ZA, which is an integral part of this document.

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Contents

	Page
Foreword	2
Introduction	3
1 Scope	3
2 Normative references	3
3 Definitions	4
3.1 whiteheart malleable (decarburized) cast iron	4
3.2 blackheart malleable (non-decarburized) cast iron	4
3.3 primary graphite	4
4 Designation	4
5 Order information	4
6 Manufacture	4
7 Requirements	4
7.1 Mechanical properties of whiteheart malleable cast iron	4
7.2 Mechanical properties of blackheart malleable cast iron	4
8 Sampling	5
8.1 General	5
8.2 Number of test pieces	5
8.3 Size of test pieces	6
8.4 Other conditions	6
9 Test methods	6
9.1 Tensile test	6
9.2 0,2 % proof stress	6
9.3 Brinell hardness	7
9.4 Impact test	7
10 Retests	8
11 Inspection documentation	8
Annex A (normative) Determination of 0,2 % proof stress	9
Annex B (normative) Brinell hardness	9
Annex C (normative) Impact resistance and ductility, especially at low temperatures	9
Annex D (informative) Bibliography	9
Annex E (normative) Material grades suitable for pressure equipment	9
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 97/23/EC	11
Figure 1 — Tensile test piece	6
Figure 2 — Charpy V-notched test piece	7
Figure 3 — Unnotched test piece	8
Table 1 — Mechanical properties of whiteheart malleable cast irons	5
Table 2 — Mechanical properties of blackheart malleable cast irons	6
Table 3 — Dimensions of tensile test pieces	7
Table E.1 — Mechanical properties of whiteheart malleable cast iron at (23 ± 5) °C	10
Table E.2 — Mechanical properties of blackheart malleable cast iron at (23 ± 5) °C	10
Table ZA.1 — Correspondence between this European Standard and Directive 97/23/EC	11

Introduction

This European Standard deals with the classification of malleable cast irons. Malleable cast irons covered by this standard are classified into two groups. The first group is concerned with decarburized irons referred to as whiteheart malleable cast iron. The second group is non-decarburized irons referred to as blackheart malleable cast iron. Both groups, except completely decarburized whiteheart malleable cast iron, contain free carbon as graphite, called temper carbon. Both groups have grades with structures that can range from ferrite to pearlite and/or other transformation products of austenite.

Materials are designated in terms of tensile strength and percentage elongation relative to a 12 mm diameter test piece for whiteheart malleable cast iron and 12 mm or 15 mm diameter test pieces for blackheart malleable cast iron. However, comparative values of tensile strength and percentage elongation after fracture are given for other test piece diameters.

Castings having small wall thicknesses form a significant sector of the market. In order to represent their mechanical properties in this material standard, values for these properties, based on 6 mm diameter test pieces, have been included.

Annex A gives the requirements for the determination of 0,2 % proof stress.

Annex B gives testing methods for the determination of Brinell hardness (HB) of malleable cast iron.

Annex C gives further information on impact resistance and ductility, especially at low temperatures, and recommends restricting the phosphorus content as an aid to improving impact resistance and ductility of the cast material.

A1 Malleable cast iron can be used for pressure equipment, e.g. for

- fittings (threaded, fittings with compression ends) for compressed air, water (hot and cold), oil, steam, gas;
- industrial valves (bodies, bonnets, covers), diaphragm valves.

The suitable material grades for pressure applications and the conditions for their use are given in specific product or application standards.

For the design of pressure equipment, specific design rules apply. **A1**

1 Scope

This European Standard specifies requirements for malleable cast iron used in the manufacture of castings.

This standard specifies two groups of material, namely whiteheart malleable cast iron and blackheart malleable cast iron. Each group is represented by several grades of material.

Classification is given on the basis of mechanical properties determined on separately cast test pieces.

This standard specifies 0,2 % proof stress values determined only when these values are requested by the purchaser.

This standard specifies Brinell hardness values determined only when these values are requested by the purchaser.

This standard does not cover technical delivery conditions for malleable iron castings. Reference should be made to EN 1559-1 and EN 1559-3

This standard does not cover chemical composition, except phosphorus (see annex C).

2 Normative references

This European Standard incorporates, by dated or undated reference, provisions from other publications.

A1 The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies. **A1**

EN 1559-1, *Founding — Technical conditions of delivery — Part 1: General.*

EN 1559-3, *Founding — Technical conditions of delivery — Part 3: Additional requirements for iron castings.*

EN 10002-1, *Metallic materials — Tensile testing — Part 1: Method of test (at ambient temperature).*

EN 10003-1, *Metallic materials — Brinell hardness test — Part 1: Test method.*

A1 EN 10204:2004, *Metallic products — Types of inspection documents.*

EN 10045-1:1990, *Metallic materials — Charpy impact test — Part 1: Test method.* **A1**

NOTE Informative references to documents used in the preparation of this standard, and cited at the appropriate places in the text, are listed in a bibliography: see annex D.