AS 1832—2007
ISO 5922:2005
Reconfirmed 2017

Australian Standard®

Malleable cast iron

This Australian Standard® was prepared by Committee MT-001, Iron and Steel. It was approved on behalf of the Council of Standards Australia on 8 December 2006.
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The following are represented on Committee MT-001:

- Australian Railway Association
- Australian Building Codes Board
- Australian Foundry Institute
- Australian Industry Group
- Australian Steel Industry
- Bureau of Steel Manufacturers of Australia
- Institute of Materials Engineering Research Association
- New Zealand Heavy Engineering Research Association

This Standard was issued in draft form for comment as DR 06613.

Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through public comment period.

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STANDARDS AUSTRALIA

RECONFIRMATION

OF
AS 1832—2007
Malleable cast iron

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Technical Committee MT-001 has reviewed the content of this publication and in accordance with Standards Australia procedures for reconfirmation, it has been determined that the publication is still valid and does not require change.

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NOTES

Australian Standard®

Malleable cast iron

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee MT-001, Iron and Steel, to supersede AS 1832—2002, *Malleable cast iron*

After consultation with stakeholders in both countries, Standard Australia and Standards New Zealand decided to develop this Standard as an Australian, rather than an Australian/New Zealand Standard.

This Standard is identical with, and has been reproduced from ISO 5922:2005, *Malleable cast iron*.

The objective of this Standard is to specify grades of malleable cast irons which have been classified by mechanical properties.

This Standard is one of a series of Standards covering the range of tensile testing methods. The series comprises the following:

AS	
1830	Grey cast iron
1831	Ductile cast iron
1832	Malleable cast iron (this Standard)
1833	Austenitic cast iron
1982	Methods for the measurement of case depth in steels
2027	Abrasive-resistant cast irons
2074	Cast steels
4314	Founding—Patterns, pattern equipment and coreboxes for the production of sand moulds and sand cores
4738	Metal castings
4738.1	Part 1: Ferrous sand moulded
5049	Cast iron—Designation of microstructure of graphite
5052	Compacted (vermicular) graphite cast irons—Classification
5054	Ausferritic spheroidal graphite cast irons—Classification
5080	Ferrous materials—Heat treatment—Glossary of terms

As this Standard is reproduced from an International Standard, the following applies:

(a) Its number does not appear on each page of text and its identity is shown only on the cover and title page.

(b) In the source text ‘this International Standard should read ‘this Australian Standard’.

(c) A full point should be substituted for a comma when referring to a decimal marker.

(d) Where the ISO Standard number is shown (i.e. ISO 5922) in a malleable cast iron specification, it should be read as ‘AS 1832’.

References to International Standards should be replaced by references to Australian Standards as follows:

Reference to International Standard ISO		*Australian Standard* AS	
148	Steel—Charpy pendulum impact test (V-notch)	1544	Methods for impact tests on metals
148-1	Part 1: Test method	1544.2	Method 2: Charpy V-notch test
148-2	Part 2:Verification of test machines		
148-3	Part 3:Preparation and characterization of Charpy V reference test pieces for verification of test machines		
6506	Metallic materials—Brinell hardness test	1816	Metallic materials—Brinell hardness test
6506-1	Part 1: Test method	1816.1	Part 1: Test method (ISO 6506-1:1997, MOD)
6892	Metallic materials—Tensile testing at ambient temperature	1394	Metallic materials—Tensile testing at ambient temperature
TR 15931	Designation systems for cast irons and pig irons	4738 4738.1	Metal castings Part 1: Ferrous sand moulded

The term ‘informative’ has been used in this Standard to define the application of the annex to which it applies. An ‘informative’ annex is only for information and guidance.

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AUSTRALIAN STANDARD

Malleable cast iron

1 Scope

This International Standard specifies requirements for two types of malleable cast iron, namely whiteheart malleable cast iron and blackheart malleable cast iron, used in the manufacture of castings.

Classification is given for each type of malleable cast iron on the basis of mechanical properties determined on separately cast test pieces.

This International Standard is applicable only to malleable cast iron cast into sand moulds or moulds of comparable thermal diffusivity.

2 Normative references

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.

ISO 148, *Steel — Charpy impact test (V-notch)*

ISO 6506-1, *Metallic materials — Brinell hardness test — Part 1: Test method*

ISO 6892, *Metallic materials — Tensile testing at ambient temperature*

ISO/TR 15931, *Designation system for cast irons and pig irons*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
malleable cast iron
heat-treated iron-carbon alloy, which solidifies in the as-cast condition with a graphite-free structure, referred to as white cast iron, the total carbon content being present in the combined form as cementite (Fe_3C)

3.2
whiteheart malleable cast iron
white cast iron given a heat treatment in a decarburizing atmosphere to produce a material which is partially or entirely decarburized

NOTE The microstructure of whiteheart malleable cast iron is dependent on section size, as described below. Figure 1 shows the microstructural changes depending on the thickness of the material. For the definition of temper carbon, see ISO 945 (graphite form IV).

a) Small section size = ferrite (+ pearlite + temper carbon);

b) Large section size, see Figure 1.

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