AS 2027—2007

Australian Standard®

Abrasive-resistant cast irons

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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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- 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

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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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Australian Standard®

Abrasive-resistant cast irons

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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 2027—2002, *Wear-resistant white cast irons.*

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 21988:2006, *Abrasive-resistant cast irons—Classification*.

The objective of this Standard is to specify grades of abrasive-resistant cast irons by chemical composition and hardness.

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

1833 Austenitic cast iron

1982 Methods for the measurement of case depth in steels

2027 Abrasive-resistant cast irons (this Standard)

2074 Cast steels

4314 Founding—Patterns, pattern equipment and coreboxes for the production of sand moulds and sand cores

4738 Metal casting
4738.1 Part 1: Ferrous sand moulds

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 appears on the cover and title page while the international standard number appears only on the cover

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

(c) A full point substitutes for a comma when referring to a decimal marker.

(d) Where the ISO Standard number is shown (i.e. ISO 21988) in an abrasive-resistant cast iron specification, it should be read as 'AS 2027'.

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

Reference to International Standard ISO		*Australian Standard* AS	
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)
TR 15931	Designation system for cast irons and pig irons	4738	Metal castings
		4738.1	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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INTRODUCTION

This International Standard deals with the classification of abrasion-resistant white cast irons in accordance with their chemical composition and hardness. Such cast irons are widely used in the mining, earth moving, milling and manufacturing industries where high resistance to abrading minerals and other abrading solids is required.

The abrasion resistance of these irons depends upon them having the appropriate structure and hardness for the application. These properties are obtained by careful control of the material composition and the processing route.

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AUSTRALIAN STANDARD

Abrasive-resistant cast iron

1 Scope

This International Standard defines the grades of abrasion-resistant white cast irons. It specifies the grades in terms of:

— chemical composition;

— hardness.

The types of abrasion-resistant white cast irons covered by this International Standard are:

a) unalloyed or low alloy cast irons;

b) nickel-chromium cast irons covering two general types:

4 % Ni 2 % Cr cast irons;
9 % Cr 5 % Ni cast irons;

c) high chromium cast irons covering five ranges of chromium content:

$Cr > 11$ % to $\leqslant 14$ %;
$Cr > 14$ % to $\leqslant 18$ %;
$Cr > 18$ % to $\leqslant 23$ %;
$Cr > 23$ % to $\leqslant 30$ %;
$Cr > 30$ % to $\leqslant 40$ %.

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

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

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