

Specification for

Austenitic cast iron

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The preparation of this British Standard was entrusted by the Iron and Steel Standards Committee (ISM/-) to Technical Committee ISM/35, upon which the following bodies were represented:

- BCIRA
- British Engine Group of SMMT
- British Foundry Association
- British Gear Manufacturers Association
- British Malleable Tube Fittings Association
- British Steel Industry
- British Valve Manufacturers Association Ltd.
- Energy Industries Council
- Institution of Mechanical Engineers
- Meehanite Institute of Great Britain
- Metal Trades Organizations
- National Association of Malleable Ironfounders
- Society of Motor Manufacturers and Traders Limited

The following bodies were also represented in the drafting of the standard, through sub-committees and panels:

- BEAMA Ltd.
- British Pump Manufacturers' Association
- Institute of British Foundrymen

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Foreword

This British Standard has been prepared under the direction of the Iron and Steel Standards Committee and is a revision of BS 3468:1974 which is withdrawn.

ISO 2892, published by the International Organization for Standardization (ISO), was taken into account in the preparation of BS 3468:1974.

This standard is a major revision of BS 3468:1974. The principal changes are:

- a) The number of grades specified has been reduced from 20 to 11. There are now three grades of flake graphite and eight grades of spheroidal graphite material compared with 9 and 11 grades respectively in the previous edition.
- b) The grades are presented in two groups, the first being engineering grades suitable for corrosion and heat resisting applications and the second special purposes grades for applications such as cryogenic service, low magnetic permeability or use of other specific property.
- c) The designation of the grades has been altered from a graphite structure letter followed by chemical symbols and figures, indicating alloy elements and their approximate mean levels, to a graphite structure letter followed by a single sequential grade number.
- d) Three of the engineering grades and all the special purpose grades specified approximate to grades in BS 3468:1974. Grade S2W is a new grade with improved weldability and grade S5S is a new grade with resistance to growth and scaling up to 850 °C and good thermal shock resistance.
- e) In BS 3468:1974 the impact properties of some grades of spheroidal graphite material were specified as a mandatory requirement. The revised standard provides the option that impact testing will only be carried out if the purchaser specifies this requirement at the time of the enquiry and order.

Additions to the revised standard define the number of test samples in relation to the quantity of castings produced, and define in greater detail procedures for retests. New appendices give guidance on heat treatment for stress relief and high temperature stability and provide information about the new material grade with improved weldability.

Austenitic cast irons are high alloy materials in which the metallic matrix has been rendered austenitic at ambient temperatures by the use of alloying elements and in which the carbon is present predominantly as either flake or spheroidal graphite. Eutectic carbides are often also present, particularly in the high chromium grades. The method of producing austenitic cast iron is left to the discretion of the manufacturer.

Spheroidal graphite grades of austenitic cast iron have mechanical properties superior to those of the flake graphite types. Generally they exhibit superior resistance to heat and corrosion and have other physical properties which differ from those of the flake graphite types of similar basic chemical composition.

Appendix A covers supplementary data on typical mechanical and physical properties of austenitic cast iron (for information only).

Appendix B compares grades in this edition with those of BS 3468:1974 and other national and international (ISO) standards.

Appendix C covers heat treatment of austenitic iron castings.

Appendix D covers austenitic iron with improved weldability.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 12, an inside back cover 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.

