

ICS 77.140.80  
J 31



**中华人民共和国国家标准**  
**NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA**

**GB/T 1348-2019**  
Replace GB/T 1348-2009

---

**Spheroidal Graphite Iron Castings**  
**球墨铸铁件**

*(ISO 1083:2018, Spheroidal graphite cast irons - Classification, MOD)*

Issued on 2019-12-31

Implemented on 2020-07-01

---

Jointly Issued by  
State Administration for Market Regulation of the People's Republic of China &  
Standardization Administration of the People's Republic of China

# CONTENTS

Foreword .....	I
1 Scope.....	1
2 Normative References .....	1
3 Terms and Definitions.....	2
4 Designations of Spheroidal Graphite Iron Castings.....	2
5 Order Information.....	3
6 Manufacture Methods and Chemical Composition .....	3
7 Technical Requirements.....	3
8 Preparation of Test Pieces .....	8
9 Test Methods .....	14
10 Inspection Rules .....	15
11 Marking and Quality Certificate.....	17
12 Rust Protection, Packaging and Storage .....	17
Annex A (Informative) Structure deviations between this standard and ISO 1083:2018.....	18
Annex B (Informative) Additional information on solid solution strengthened ferritic spheroidal graphite cast irons ...	19
Annex C (Informative) Guidance values for mechanical properties measured on test pieces cut from the castings..	22
Annex D (Normative) Difference between the elongation values measured when $L_0 = 5d$ and $L_0 = 4d$ ..	24
Annex E (Informative) Classification by hardness .....	25
Annex F (Informative) Nodularity (or spheroidal graphite ratio) .....	28
Annex G (Informative) Mechanical and physical properties of spheroidal graphite cast iron materials....	29
Annex H (Informative) Sectioning procedure for cast samples .....	32
Annex I (Informative) Comparison between grade designations of spheroidal graphite cast irons at home and abroad .....	33

# Spheroidal Graphite Iron Castings

## 1 SCOPE

This standard specifies the designations, order information, manufacture methods and chemical composition, technical requirements, preparation of test pieces, test methods, inspection rules, marking and quality certificate, rust protection, packaging and storage of spheroidal graphite iron castings.

This standard is applicable to the ordinary or low-alloyed ferritic to pearlitic spheroidal graphite iron castings cast in sand molds or molds of comparable thermal conductivity and the solid solution strengthened ferritic spheroidal graphite iron castings, while the spheroidal graphite iron castings produced by special casting methods may also use this standard as a reference.

This standard is not applicable to spheroidal graphite cast iron pipes, fittings, accessories or joints;

This standard is not applicable to austenitic spheroidal graphite cast irons;

This standard is not applicable to ausferritic spheroidal graphite cast irons (austempered spheroidal graphite cast irons).

## 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.

- GB/T 223.3 Methods for chemical analysis of iron, steel and alloy - The diantipyrylmethane phosphomolybdate gravimetric method for the determination of phosphorus content
- GB/T 223.4 Alloyed steel - Determination of manganese content - Potentiometric or visual titration method
- GB/T 223.60 Methods for chemical analysis of iron, steel and alloy - The perchloric acid dehydration gravimetric method for the determination of silicon content
- GB/T 223.72 Iron steel and alloy - Determination of sulfur content - Gravimetric method
- GB/T 223.83 Steel and iron - Determination of high sulfur content - Infrared absorption method after combustion in an induction furnace (GB/T 223.83-2009, ISO 13902:1997, IDT)
- GB/T 223.86 Steel and iron - Determination of total carbon content - Infrared absorption method after combustion in an induction furnace (GB/T 223.86-2009, ISO 9556:1989, IDT)
- GB/T 228.1 Metallic materials - Tensile testing - Part 1: Method of test at room temperature (GB/T 228.1-2010, ISO 6892-1:2009, IDT)
- GB/T 229 Metallic materials - Charpy pendulum impact test method (GB/T 229-2007, ISO 148-1:2006, MOD)
- GB/T 231.1 Metallic materials - Brinell hardness test - Part 1: Test method (GB/T 231.1-2018, ISO 6506-1:2014, MOD)
- GB/T 231.2 Metallic materials - Brinell hardness test - Part 2: Verification and calibration of testing machines (GB/T 231.2-2012, ISO 6506-2:2005, MOD)
- GB/T 231.3 Metallic materials - Brinell hardness test - Part 3: Calibration of reference blocks (GB/T 231.3-2012, ISO 6506-3:2005, MOD)
- GB/T 5611 Foundry terminology
- GB/T 5612 Code for representing cast iron (GB/T 5612-2008, ISO/TR 115931:2004, MOD)
- GB/T 5677 Castings - Radiographic testing (GB/T 5677-2018, ISO 4993:2015, MOD)
- GB/T 6060.1 Surface roughness comparison specimen - Part 1: Casting surface
- GB/T 6414 Castings - System of dimensional tolerances, geometrical tolerancing and

machining allowances (GB/T 6414-2017, ISO 8062-3: 2007, MOD)

- GB/T 9441 Metallographic test for spheroidal graphite cast iron (GB/T 9441-2009, ISO 945-1: 2008, MOD)
- GB/T 9443 Steel and iron castings - Liquid penetrant inspection (GB/T 9443-2007, ISO 4987:1992, IDT)
- GB/T 9444 Magnetic particle testing for steel castings (GB/T 9444-2007, ISO 4986:1992, IDT)
- GB/T 11351 Mass tolerances for castings
- GB/T 24234 Cast iron - Determination of multi-element contents - Spark discharge atomic emission spectrometric method (Routine method)
- GB/T 34904 Spheroidal graphite iron castings - Ultrasonic testing

### **3 TERMS AND DEFINITIONS**

For the purpose of this document, the terms and definitions given in GB/T 5611 and the following apply.

- 3.1 spheroidal graphite cast iron  
cast material, iron, carbon and silicon-based, the carbon being present mainly in the form of spheroidal graphite
- 3.2 ferritic to pearlitic spheroidal graphite cast iron  
spheroidal graphite cast iron with a matrix containing ferrite or pearlite or a combination of both



# ChinaAutoRegs

中国汽车标准译文库

## **The following pages are left blank intentionally.**

- 现成译文，到款即发。
  - 下单前可任取样页验证译文质量。
  - 免费提供正规普通增值税数电发票。
  - 请联系手机/微信: [13306496964](tel:13306496964)/Email: [standardtrans@foxmail.com](mailto:standardtrans@foxmail.com) 获取完整译文。
  - 本英文译本为纯人工专业精翻版本，保证语法术语准确率和专业度！
  - 专业源于专注|ChinaAutoRegs 始终专注于汽车标准翻译领域！
  - 「中国汽车标准译文库」已收录上千个现行汽车国家标准和行业标准的英文版译本，涵盖传统燃油车、新能源汽车和摩托车标准化体系！独家打造千万级汽车专业术语库和记忆库。
  
  - ◆ The English Translation of this document (GB, GB/T, QC/T, CNCA, CQC, CAV, etc.) is readily available, and delivered immediately upon payment.
  - ◆ You may request for sample pages to your preference before placing an order.
  - ◆ Please contact [standardtrans@foxmail.com](mailto:standardtrans@foxmail.com) for the complete PDF version in English.
  - ◆ Almost all of Chinese automotive/automobile standards, regulations and norms in effect have been included in our well-established database, providing one-stop, up-to-date, efficient and professional solution.
-