

ICS 77.140.80

CCS J 31



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 8263-2025

Replacing GB/T 8263-2010

Abrasion-resistant white iron castings

耐磨白口铸铁件

Issued on: May 30, 2025

Implemented on: December 1, 2025

**Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC**

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1 Scope

This document specifies the designation, manufacturing, technical requirements, inspection rules as well as marking, certification, packaging, transportation and storage of abrasion-resistant white iron castings (hereinafter referred to as "castings"), and describes the corresponding test methods.

This document is applicable to the production, testing, application, procurement and delivery acceptance of abrasion-resistant white iron castings subject to abrasive wear in the mining, metallurgy, building materials, electric power, construction, shipbuilding, chemical and machinery industries. It serves as a reference for the implementation of abrasion-resistant white iron castings for other working conditions.

2 Normative references

GB/T 223.3

GB/T 223.4

GB/T 223.11

GB/T 223.18

GB/T 223.23

GB/T 223.25

GB/T 223.26

GB/T 11351-2017

GB/T 13298

GB/T 15056

GB/T 20066

GB/T 24234

GB/T 39428-2020

GB/T 39638

3 Terms and definitions

For the purposes of this document, the following terms and definitions, as well as those given in GB/T 5611, apply.

3.1 abrasion-resistant white cast iron

White cast iron with good abrasion resistance, whose microstructure consists of a metal matrix and carbides.

Note. Abrasion-resistant white cast iron is also called wear-resistant white cast iron.

3.2 nickel-chromium abrasion-resistant white cast iron

Abrasion-resistant white cast iron with nickel and chromium as the main alloying elements.

Note. Nickel-chromium abrasion-resistant white cast iron is also called nickel-hard cast iron.

3.3 chromium abrasion-resistant white cast iron

Abrasion-resistant white cast iron with chromium as the main alloying element.

3.4 chromium-manganese-tungsten abrasion-resistant white cast iron

Abrasion-resistant white cast iron with chromium, manganese and tungsten as the main alloying elements.

4 Designation

The designation method of abrasion-resistant white cast iron and its castings shall comply with the provisions of GB/T 5612. Abrasion-resistant white cast iron and its castings shall be divided into 3 categories and 17 designations according to the types and contents of the

main alloying elements, as shown in Table 1.

5.1 Casting

Unless otherwise agreed upon by the supplier and the buyer, the smelting method and casting process shall be determined by the supplier.

5.2 Heat treatment

5.2.1 Castings can be supplied in the following conditions.

- a) As-cast;
- b) As-cast destressing;
- c) Hardened state;
- d) Tempering treatment in hardened state;
- e) Softened annealed state.

5.2.2 The heat treatment process of castings is shown in Appendix A.

5.2.3 Unless otherwise agreed between the supplier and the buyer, the delivery status

shall be determined by the supplier.

5.3 Casting cleaning

When cleaning castings and treating casting defects, flame cutting, arc gouging cutting, electric welding cutting and welding repair shall not be used.

6.1 Chemical composition

The chemical composition of abrasion-resistant white cast iron and its castings shall comply with the requirements of Table 1.

6.2 Microstructure

Unless otherwise agreed upon by the supplier and the buyer, microstructure shall not be used as the basis for product acceptance. The microstructure of the casting is shown in Appendix B.

6.3 Hardness

The hardness of abrasion-resistant white cast iron and its castings at room temperature shall comply with the requirements of Table 2. If the buyer has special requirements for hardness, it shall be determined by negotiation between the supplier and the buyer.

6.5.3 The casting surface grinding (mechanical) treatment level, surface non-metallic

inclusion level, and surface porosity level may be agreed upon by the supplier and the buyer in accordance with the provisions of GB/T 39428-2020.

6.5.4 The surface roughness grade of castings shall comply with the requirements of

the drawings or order contracts. If not specified in the drawings or order contract, the supplier shall select the surface roughness. The surface roughness parameters of castings weighing less than 1 000 kg shall comply with the requirements of $Ra \leq 25 \mu m$ in GB/T 1031-2009, or meet the requirements of BM2 in GB/T 39428-2020. The surface roughness parameters of castings weighing 1 000 kg or more shall comply with the requirements of $Ra \leq 100 \mu m$ in GB/T 1031-2009, or meet the requirements of BM3 in GB/T 39428-2020.

6.6.1 The geometric shape and dimensional deviation of the casting shall comply with

the requirements of the drawing or order contract.

6.6.2 Unless otherwise specified in the drawing and order contract, the dimensional

deviation of the casting shall meet the requirements of grade DCTG12 in GB/T 6414- 2017, and the geometric deviation shall comply with the requirements of grade GCTG7 in GB/T 6414-2017.

6.7 Weight

The weight deviation grade of castings shall comply with the requirements of the drawing or order contract. If there is no stipulation in the drawing and order contract, the casting weight deviation grade selection shall comply with the requirements for grade MT11 in GB/T 11351-2017.

7.1.1 The sampling and preparation of samples for the determination of chemical

composition shall be carried out in accordance with the provisions of GB/T 20066.

When multiple packages of molten iron are used to cast a casting, each package of molten iron shall be chemically analyzed and shall meet the corresponding technical requirements.

7.1.2 The analytical method of chemical composition shall be carried out in accordance