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

GB/T 45859-2025

Abrasion-resistant cast irons - Classification

耐磨铸铁 分类

(English Translation)

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting.

This document is modified to adopt ISO 21988:2006 "Classification of wear-resistant cast irons".

Compared with ISO 21988:2006, this document has more structural adjustments. The structural number changes between the two documents are shown in the table below. See

Appendix A for the table. This document has many technical differences compared to ISO 21988:2006.

A list of these technical differences and their reasons is given in Appendix B. The following editorial changes have been made to this document.

--- Replaced ISO /T R15931 with the informative reference GB/T 5612.

1 Scope

This document specifies the grades, ordering requirements, manufacturing, technical requirements, sampling, and describes the test methods and retesting of wear-resistant white cast iron.

This document applies to the manufacture of wear-resistant white cast iron.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

GB/T 223.11 Determination of chromium content in steel and alloys - Visual titration or potentiometric titration method

GB/T 223.18 Methods for chemical analysis of iron, steel and alloys - Sodium thiosulfate separation-iodine titration method for the determination of copper content

GB/T 223.23 Iron, steel and alloys - Determination of nickel content - Dimethylglyoxime spectrophotometric method

GB/T 223.26 Iron, steel and alloys - Determination of molybdenum content - Thiocyanate spectrophotometric method

GB/T 223.59 Iron, steel and alloys - Determination of phosphorus content - Bismuth phosphomolybdenum blue spectrophotometric method and antimony phosphomolybdenum blue spectrophotometric method

GB/T 223.60 Iron, steel and alloys - Determination of silicon content - Gravimetric method

GB/T 223.63 Iron, steel and alloys - Determination of manganese content - Sodium (potassium) periodate spectrophotometric method

GB/T 223.72 Iron, steel and alloys - Determination of sulfur content - Gravimetric method

GB/T 223.86 Iron, steel and alloys - Determination of total carbon content - Infrared

absorption method after combustion in an induction furnace

GB/T 231.1 Metallic materials Brinell hardness test Part 1: Test method (GB/T 231.1-2018, ISO 6506-1. 2014, MOD)

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1

Cast iron with pearlite as matrix and containing eutectic metal carbides

3.2 Nickel-chromiumabrasion-resistantcastiron

Cast iron containing one of the following two structures.

--- Mainly martensitic matrix, containing a single eutectic carbide M_3C (M is Fe, Cr), such as Ni_4Cr_2 cast iron;

---Mainly a martensitic matrix containing complex eutectic carbides (M_7C_3 and M_3C), such as Cr_9Ni_5 cast iron.

Note 1: The matrix of these two materials may contain small amounts of bainite and retained austenite.

Note 2: The matrix of these two materials does not contain pearlite.

3.3

The Cr content is 11%~40%, and the matrix structure is mainly hardened martensite, containing complex carbides, and the matrix may also contain a small amount of austenite.

Cast iron that is a transformation product of iron or austenite.