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

GB/T 37400.4-2019

**Heavy machinery general technical specification - Part 4: Iron
castings**

重型机械通用技术条件 第4部分：铸铁件

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Foreword

GB/T 37400 "General Technical Conditions for Heavy Machinery" is divided into 16 parts.

- Part 1. Product inspection;
- Part 2. Flame cutting parts;
- Part 3. Welded parts;
- Part 4. Cast iron parts;
- Part 5. Non-ferrous metal castings;
- Part 6. Steel castings;
- Part 7. Repair welding of steel castings;
- Part 8. Forgings;
- Part 9. Machining parts;
- Part 10. Assembly;
- Part 11. piping;
- Part 12. Painting;
- Part 13. Packaging;

1 Scope

Part 4 of China's general technical specification for heavy machinery, covering iron castings. It specifies the technical requirements, the test methods, the inspection rules, the marking, the quality certificates and the packaging. Cast iron remains the material of choice for the large static parts of heavy machinery, and the reasons are as good now as they were a century ago. It costs less than steel, it casts into complicated shapes that would be impossible to fabricate, and its graphite structure damps vibration in a way steel does not - which is why machine tool beds and press frames are made of it. Grey iron gives the best

damping and castability; ductile iron gives strength and toughness approaching steel's at the cost of some damping. What the standard has to guarantee for a casting weighing tens of tonnes is soundness and consistency of structure through the section, because the cooling rate differs between a thick boss and a thin web, and so does the iron that results.

This part of GB/T 37400 specifies the technical requirements, test methods, inspection rules, signs, quality certificates and packaging of cast iron parts. This section is applicable to gray iron castings, ductile iron castings, heat-resistant castings in sand molds with similar sand or thermal conductivity and sand type in heavy machinery. Cast iron and wear-resistant cast iron. Other cast iron parts can also be used as reference.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article. Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 1348 ductile iron castings

GB/T 5677 casting radiographic inspection

GB/T 6060.1 Surface roughness comparison sample casting surface

GB/T 6414 casting dimensional tolerances, geometric tolerances and machining allowances

GB/T 7216 gray cast iron metallographic examination

GB/T 7233.1 Ultrasonic testing of steel castings - Part 1. General purpose steel castings

GB/T 8263 anti-wear white cast iron parts

GB/T 9437 heat resistant cast iron parts

GB/T 9439 gray iron castings

GB/T 9441-2009 Ductile iron metallographic examination

GB/T 9444 steel casting magnetic particle testing

GB/T 11351 casting weight tolerance

GB/T 37400.12 General technical conditions for heavy machinery - Part 12. Painting

3.1 Grades, chemical compositions and mechanical properties of cast iron parts

3.1.1 The grade and mechanical properties of gray iron castings shall comply with the provisions of GB/T 9439, and the chemical composition shall be determined by the supplier, but shall be achieved. GB/T 9439 specified grades and corresponding mechanical performance indicators. If the demand side has special requirements for chemical

composition, it should be agreed between the supplier and the buyer.

3.1.2 The grade and mechanical properties of ductile iron castings shall comply with the provisions of GB/T 1348, and the chemical composition shall be determined by the supplier, but shall be achieved. GB/T 1348 grades and corresponding mechanical properties. If the demand side has special requirements for chemical composition, it should be agreed between the supplier and the buyer.

3.1.3 The grade, chemical composition and mechanical properties of heat-resistant cast iron parts are to comply with the provisions of GB/T 9437. If the buyer wants the grade, chemical composition And mechanical properties are otherwise required and should be agreed between the supplier and the buyer.

3.1.4 The grade, chemical composition and hardness of wear-resistant cast iron parts shall comply with the provisions of GB/T 8263. If the buyer wants the grade, chemical composition and hardness