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GB/T 8492-2014

Replacing GB/T 8492-2002

Heat-resistant Steel and Alloy Castings for General Applications

一般用途耐热钢和合金铸件

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This Standard replaces GB/T 8492-2002, *Heat-resistant steel and alloy castings for general applications*; compared with GB/T 8492-2002, the main changes of technical content are as follows:

- it modifies the specifications of samples for tensile test;
- it modifies the method for the evaluation of surface quality;
- it modifies the technical requirements for major welding repairs; and
- it adds the rounding-off for test results.

This Standard was proposed by and shall be under the jurisdiction of the National Technical Committee 54 on Foundry of Standardization Administration of China (SAC/TC 54).

The responsible drafting organizations of this Standard: Tianrun Crankshaft Co., Ltd. and Anhui Province Mechanical Science Institute.

The contributory drafting organizations of this Standard: Zhejiang Mayang Industries Co., Ltd., Anhui Ningguo Wear-resistance Fittings Factory, Anhui Ningguo-Xinning Industries Co., Ltd., Lanzhou Lanshi Foundry Co., Ltd., Jiangxi Copper Corporation (Dexing) Foundry Co., Ltd. and Beijing University of Technology.

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The previous editions replaced by this Standard are as follows:

- GB/T 8492-1987 and GB/T 8492-2002.

Heat-resistant Steel and Alloy Castings for General Applications

1 Application Scope

This Standard specifies the technical requirements, test methods, inspection rules and marking, packaging and storage of heat-resistant steel and alloy castings for general applications.

This Standard applies to heat-resistant steel and alloy castings for general engineering applications. Their designation stands for the type of casting heat-resistant steel and heat-resistant alloy castings widely used under different heat-resistant conditions in general engineering. Those which are not specified in this Standard can be specified in purchase contract.

2 Normative References

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

GB/T 223.3, *Methods for Chemical Analysis of Iron, Steel and Alloy – The Diantipyrylmethane Spectrophotometric Method for the Determination of Phosphoric Content*

GB/T 223.4, *Alloyed Steel – Determination of Manganese Content – Potentiometric or Visual Titration Method*

GB/T 223.5, *Steel and Iron – Determination of Acid-soluble Silicon and Total Silicon Content - Reduced Molybdosilicate Spectrophotometric Method*

GB/T 223.12, *Methods for chemical analysis of iron, steel and alloy – The sodium carbonate separation – Diphenyl carbazide photometric method for the determination of chromium content*

GB/T 223.22, *Methods for Chemical Analysis of Iron, Steel and Alloy – The Nitroso-R-Salt Spectrophotometric Method for the Determination of Cobalt Content*

GB/T 223.23, *Iron, Steel and Alloy – Determination of Nickel Content – The Dimethylglyoxime Spectrophotometric Method*

GB/T 223.26, *Iron, Steel and Alloy – Determination of Molybdenum Content – The*

Thiocyanate Spectrophotometric Method

GB/T 223.37, *Methods for Chemical Analysis of Iron, Steel and Alloy – The Indophenol Blue Photometric Method for the Determination of Nitrogen Content after Distillation Separation*

GB/T 223.40, *Iron, Steel and Alloy - Determination of Niobium Content by the Sulphochlorophenol S Spectrophotometric Method*

GB/T 223.66, *Methods for Chemical Analysis of Iron, Steel and Alloy – The Thiocyanate-Chlorpromazine Hydrochloride-Chloroform Extraction Photometric Method for the Determination of Tungsten Content*

GB/T 223.71, *Methods for Chemical Analysis of Iron, Steel and Alloy – the Gravimetric Method after Combustion in the Pipe Furnace for the Determination of Carbon Content*

GB/T 223.72, *Iron, Steel and Alloy – Determination of Sulfur Content – Gravimetric Method*

GB/T 228.1-2010, *Metallic Materials – Tensile Testing – Part 1: Method of Test at Room Temperature*

GB/T 231.1, *Metallic Materials – Brinell Hardness Test – Part 1: Test Method*

GB/T 4336, *Carbon and Low-Alloy Steel – Determination of Multi-Element Contents – Spark Discharge Atomic Emission Spectrometric Method (Routine Method)*

GB/T 5613, *Designation for Cast Steels*

GB/T 6060.1, *Roughness Comparison Specimens – Cast Surfaces*

GB/T 6414, *Castings – System of Dimensional Tolerances and Machining Allowances*

GB/T 8063, *Designation of Cast Nonferrous Metals and Their Alloys*

GB/T 8170, *Rules of Rounding Off for Numerical Values & Expression and Judgement of Limiting Values*

GB/T 15056, *Evaluation Method on Cast Surface Roughness*

GB/T 20066, *Steel and Iron-sampling and Preparation of Samples for the Determination of Chemical Composition*

Use R4 samples specified in GB/T 228.1-2010 for tensile test; carry out the test in accordance with GB/T 228.1.

4.2.3 Brinell hardness test

Brinell hardness test shall be carried out as specified in GB/T 231.1.

4.3 Surface examination

Casting surface roughness examination shall be carried out as specified in GB/T 15056.

4.4 Geometrical shape and dimension examination

The testing tools, measuring gauges and templates of proper accuracy shall be selected for the examination of geometrical shapes and dimensions of castings; coordinate measuring machine or scribing examination can also be used.

4.5 Nondestructive testing

When penetrant testing, magnetic particle testing, radiographic testing or ultrasonic testing needs to be carried out for castings, the testing positions and methods shall be agreed by both sides.

5 Inspection Rules

5.1 Inspection procedure

Unless specified otherwise, the inspection of casings shall be carried out by supplier.

5.2 Inspection site

5.2.1 Unless the inspection is agreed by both sides to be carried out on the site of supplier, the final inspection shall be carried out on the site of supplier.

5.2.2 When supplier does not have necessary means or both sides have any dispute on the quality of castings, the inspection shall be carried out by a competent third-party institution which is agreed by both sides.

5.3 Batch division

5.3.1 In accordance with furnaces: castings poured with the same furnace of molten metal are deemed a batch for heat treatment.

5.3.2 In accordance with quantity or weight: after materials of the same designation are poured for several furnaces and pass heat treatment for several furnaces of the same process under the conditions of a stable melting process, a certain quantity or a certain weight of castings are deemed a batch. The specific requirements shall be

number of re-heat treatments shall not be more than 2 (except tempering).

5.8 Surface quality and casting defect inspection

5.8.1 The surface quality of castings shall be inspected piece by piece in accordance with 3.6.

5.8.2 The defects of castings shall be inspected piece by piece in accordance with 3.7.

5.9 Geometrical shape and dimension inspection

The geometrical shapes, dimensional tolerances and mechanical machining allowances of castings can be inspected piece by piece in accordance with 3.8, or casual inspection can be carried out based on the quantity agreed by both sides.

5.10 Rounding off for test results

The test results of mechanical properties and chemical compositions can be rounded off in accordance with the principles specified in GB/T 8170.

6 Marking, certification, storage and transportation

6.1 Marking and certification

6.1.1 The non-working face of castings shall be cast with emblem mark or any other mark as required by purchaser. When it is incapable of casting the mark, mark it on the label of castings.

6.1.2 Manufactured castings shall be accompanied with certificate of conformity, which shall include the following information:

- a) manufacturer name;
- b) name and drawing number of castings;
- c) designation, smelting furnace number and batch number;
- d) chemical composition and heat treatment condition;
- e) delivery condition; and
- f) inspection results of other acceptance items specified in purchase contract.

6.2 Packaging and transportation

Castings shall be protected or packaged after they pass the inspection.

The surface protection, transportation and storage of castings shall be as specified in

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