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Replacing GB/T 2100-2002

Corrosion-resistant steel castings for general applications

(ISO 11972:2015, Corrosion-resistant cast steels for general applications, MOD)

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Issued by: General Administration of Quality Supervision, Inspection and Quarantine;

Standardization Administration of the People's Republic of China.

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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 2100-2002 “Corrosion-resistant steel castings for general purposes”. As compared with GB/T 2100-2002, the main technical contents are changed as follows:

- CHANGE the standard name into “Corrosion-resistant steel castings for general applications”;

- ADD 9 kinds of material grades including ZG06Cr13Ni4Mo, ZG08Cr12Ni1, ZG05Cr26Ni6Mo2N, ZG03Cr22Ni6Mo3N, ZG03Cr25Ni7Mo4WCuN, ZG03Cr26Ni7Mo4CuN, ZG025Cr20Ni25Mo7Cu1N, ZG025Cr20Ni19Mo7CuN and ZG03Cr26Ni6Mo3N;

- MODIFY the specifications of the tensile test specimen;

- MODIFY the technical requirements for major welding repairs;

- MODIFY the mechanical properties and heat treatment specifications of ZG20Cr13.

This standard uses the redrafting method to modify and adopt ISO 11972:2015 “Corrosion-resistant cast steels for general applications”. As compared with ISO 11972:2015, this standard has made major adjustments to the standard structure. Appendix A lists the clause number comparison between this standard and ISO 11972:2015.

The main technical differences between this standard and ISO 11972:2015 and its causes are as follows:

- With regard to normative references, this standard has made adjustments with technical differences to adapt to China's technical conditions. The adjustments are centrally reflected in clause 2 “Normative references”, with specific adjustments as follows:

  • ADD 28 normative references such as steel and alloy chemical analysis methods.

- From the consideration of standard applicability, ADD clause 4 test methods, clause 5 inspection rules, and clause 6 marking storage packaging and transportation.

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

Corrosion-resistant steel castings for general applications

1 Scope

This standard specifies the technical requirements, test methods, inspection rules and markings, storage, packaging and transportation of corrosion-resistant steel castings for general applications.

This standard applies to corrosion-resistant steel castings for general applications for various corrosion conditions.

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this standard.

GB/T 222 Permissible tolerances for chemical composition of steel products

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 223.13 Methods for chemical analysis of iron, steel and alloy - The ammonium ferrous sulfate titration method for the determination of vanadium content

GB/T 223.19 Methods for chemical analysis of iron, steel and alloy - The neocuproine-chloroform extraction photometric method for the determination of copper content

GB/T 223.24 Methods for chemical analysis of iron, steel and alloy - The extraction separation -The dimethylglyoxime spectrophotometric method for the determination of nickel content

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 223.43 Iron steel and alloy - Determination of tungsten content - Gravimetric method and spectrophotometric method

GB/T 223.61 Methods for chemical analysis of iron, steel and alloy - The ammonium phosphomolybdate volumetric method for the determination of phosphorus content

GB/T 223.69 Iron, steel and alloy - Determination of carbon contents - Gas-volumetric method after combustion in the pipe furnace

GB/T 223.85 Steel and iron - Determination of sulfur content - Infrared absorption method after combustion in an induction furnace (GB/T 223.85-2009, ISO 4935:1989, 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, MOD)

GB/T 229 Metallic materials - Charpy pendulum impact test method (GB/T 229-2007, ISO 148-1:2006, MOD)

GB/T 5677 Radiographic testing for steel castings (GB/T 5677-2077, ISO 4993:1987, IDT)

GB/T 6060.1 Roughness comparison specimens - Cast surfaces

GB/T 6414 Castings - System of dimensional tolerances and machining allowances

GB/T 7233.1 Steel castings - Ultrasonic examination - Part 1: Steel castings for general purposes (GB/T 7233.1-2009, ISO 4992-1:2006, MOD)

GB/T 8170 Rules of rounding off for numerical values & expression and judgement of limiting values

GB/T 9443 Penetrant testing for steel castings (GB/T 9443-2007, ISO 4987:1992, IDT)

GB/T 9444 Magnetic particle testing for steel castings (GB/T 9444-2007, ISO

3.5.2 Castings riser, burrs, sticky sand, etc. shall be cleaned, and the remaining amount of the pouring riser shall meet the standards recognized by both the supplier and the purchaser.

3.5.3 Casting surface roughness is selected in accordance with GB/T 6060.1, and specified in the drawing or ordering contract.

3.6 Geometric tolerances, dimensional tolerances and weight tolerances

3.6.1 Geometric tolerances and dimensional tolerances of castings are to be in accordance with drawings or ordering contracts.

3.6.2 If there is no requirement in the drawings and the ordering contract, the geometric tolerance and dimensional tolerance of castings are selected in accordance with GB/T 6414.

3.6.3 The casting weight tolerance is selected in accordance with GB/T 11351.

3.7 Welding repair

3.7.1 The supplier may carry out welding repairs unless otherwise no welding repairs or major welding repairs are permitted in the order contract.

3.7.2 The definition of major welding repairs for a casting is: except where otherwise agreed between the supplier and the purchaser, the depth of the welding bevel (pit) is more than 22% or 25 mm of the wall thickness (whichever is smaller); or its area exceeds 65 cm^2; or when the hydraulic pressure test of pressure-bearing castings leaks, it is considered as a significant welding repair.

3.7.3 If the casting needs a major welding repair, welding repairs shall be carried out only after the consent of the purchaser, and a welding repair record shall be made. The record shall include the welding position map, welding repair process parameters, welding repair personnel, equipment and batch number of welding consumables.

3.7.4 For major welding repairs, it is also required to provide the welding repair procedure assessment report of the material and the casting defect welding conditions, the welding repair location, and welding repair scope record, and they will be described in the quality certificate.

3.7.5 After the welding repair of castings, stress relief treatment shall be done in time in accordance with the material number and welding repair status.

3.8 Internal quality

The internal quality of the casting shall meet the drawing and technical requirements of the purchaser.

shall not exceed twice (except for tempering).

5.2.9 The mechanical property test results that fail to meet the requirements for the following reasons are considered invalid:

a) Improper specimen installation or abnormal function of the tester;

b) The tensile specimen is broken beyond the gauge;

c) Improper specimen preparation;

d) There is an abnormality in the specimen.

When one of the above conditions occurs, the specimen shall be prepared from the same test block (casting) or another test block (casting) of the same batch, and the test result can replace the test result of the bad specimen.

5.3 Appearance quality inspection

The quality of the appearance of the castings shall be checked visually by 100%.

5.4 Inspection of dimensional tolerance

The dimensional tolerances of the castings are spot checked by the amount agreed by both parties.

5.5 Rounding off of inspection results

Casting size inspection results are rounded off in accordance with the provisions of GB/T 8170.

6 Markings, storage, packaging and transportation

6.1 Markings and certificates

6.1.1 Markings

On the non-machined surface of the casting, the factory mark or other marks required by the purchaser shall be cast; when the mark cannot be made on the casting, it may be marked on the label of the casting.

6.1.2 Quality certificate

The castings exited from the factory shall be accompanied by a certificate of conformity issued by the quality inspection department or a quality certificate. The certificate of quality conformance shall include:

a) Supplier name and address;

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