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PEOPLE'S REPUBLIC OF CHINA**

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Nitriding steels

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(English Translation)

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Foreword

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

This Standard was modified in accordance with the Law of Redrafting on the basis of ISO 683-5:2017 Heat-treatable Steels, Alloy Steels and Free-cutting Steels - Part 5: Nitriding Steels.

In comparison with ISO 683-5:2017, this Standard has structural adjustments.

Appendix A lists out a table of comparison of Chapter No. between this Standard and ISO 683-5:2017.

In comparison with ISO 683-5:2017, this Standard has technical differences. Clauses blank of the outer margin. Appendix B provides a table of corresponding technical differences and the causes.

For ease of use, this Standard makes the following editorial modifications:

- The title of the Standard is modified from "Heat-treatable Steels, Alloy Steels and Free-cutting Steels - Part 5: Nitriding Steels" to "Nitriding Steels";
- The reference part in ISO 683-5:2017 is deleted.

This Standard was proposed by China Iron and Steel Industry Association.

This Standard shall be under the jurisdiction of National Technical Committee 183 on

Iron and Steel of Standardization Administration of China (SAC/TC 183).

The drafting organizations of this Standard: Fushun Special Steel Shares Co., Ltd.; Jiangyin XINGCHENG Special Steel Works Co., Ltd.; China Metallurgical Information and Standardization Institute.

1 Scope

This Standard stipulates the classification, code, order content, dimensions, shapes, weights, technical requirements, test methods, inspection rules, packaging, marking and quality certificate of nitriding steels.

This Standard is applicable to rolled, forged and cold-drawn nitriding steel bars whose nominal diameter or thickness does not exceed 250 mm (hereinafter referred to as steel bars).

2 Normative References

The following documents are indispensable to the application of this document. In terms of references with a specified date, only versions with a specified date are applicable to this document. In terms of references without a specified date, the latest version (including all the modifications) is applicable to this document.

GB/T 222 Permissible Tolerances for Chemical Composition of Steel Products

GB/T 223.8 Methods for Chemical Analysis of Iron, Steel and Alloy - The Sodium Fluoride Separation - EDTA Titration Method for the Determination of Aluminum Content

GB/T 223.9 Iron, Steel and Alloy - Determination of Aluminum Content - Chrome azurol S Photometric Method

GB/T 223.11 Iron, Steel and Alloy - Determination of Chromium Content - Visual Titration or Potentiometric Titration Method (GB/T 223.11-2008, ISO 4937:1986, MOD)

GB/T 223.14 Methods for Chemical Analysis of Iron, Steel and Alloy - The N-Benzoyl-N-Phenylhydroxylamine Extraction Photometric Method for the Determination of Vanadium Content

GB/T 223.17 Methods for Chemical Analysis of Iron, Steel and Alloy - The

Diantipyrylmethane Photometric Method for the Determination of Titanium 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 223.23 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 223.29 Iron, Steel and Alloy - Determination of Lead Content - Carrier

Precipitation - Xylenol Orange Spectrophotometric Method

GB/T 223.31 Iron, Steel and Alloy - Determination of Arsenic Content - Distillation -

Molybdenum Blue Spectrophotometric Method (GB/T 223.31-2008, ISO 17058:2004, IDT)

GB/T 223.43 Iron, Steel and Alloy - Determination of Tungsten Content - Gravimetric Method and Spectrophotometric Method

GB/T 223.47 Methods for Chemical Analysis of Iron, Steel and Alloy - The Carrier

Precipitation - Molybdenum Blue Photometric Method for the Determination of Antimony Content

GB/T 223.48 Methods for Chemical Analysis of Iron, Steel and Alloy - The Semi-xylenol Orange Photometric Method for the Determination of Bismuth Content

GB/T 223.49 Methods for Chemical Analysis of Iron, Steel and Alloy - Extraction

Separation - Chlorophosphonazo mA Spectrophotometric Method for the Determination of the Total Rare Earth Content

GB/T 223.50 Methods for Chemical Analysis of Iron, Steel and Alloy - The

Phenylfluorone - CTMAB Direct Photometric Method for the Determination of Tin Content

GB/T 223.59 Iron, Steel and Alloy - Determination of Phosphorus Content - Bismuth

Phosphomolybdate Blue Spectrophotometric Method and Antimony

Phosphomolybdate Blue Spectrophotometric Method

GB/T 223.60 Methods for Chemical Analysis of Iron, Steel and Alloy - The Perchloric Acid Dehydration Gravimetric Method for the Determination of Silicon Content

GB/T 223.64 Iron, Steel and Alloy - Determination of Manganese Content - Flame Atomic Absorption Spectrometric Method (GB/T 223.64-2008, ISO 10700:1994, IDT)

GB/T 223.67 Iron, Steel and Alloy - Determination of Sulfur Content - Methylene Blue Spectrophotometric Method (GB/T 223.67-2008, ISO 10701:1994, IDT)

GB/T 223.82 Steel and Iron - Determination of Hydrogen Content - Thermal Conductivity / Infrared Method after Fusion under Inert Gas

GB/T 224 Determination of Depth of Decarburization of Steels (GB/T 224-2008, ISO 3887:2003, MOD)

GB/T 225 Steel - Hardenability Test by End Quenching (Jominy Test) (GB/T 225-2006, ISO 642:1999, IDT)

GB/T 226 Test Method for Macrostructure and Defect of Steel by Etching

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 231.1 Metallic Materials - Brinell Hardness Test - Part 1: Test Method (GB/T 231.1-2018, ISO 6506-1:2014, MOD)

GB/T 702-2017 Hot-rolled Steel Bars - Dimensions, Shape, Weight and Tolerances

GB/T 905-1994 Dimension, Shape, Weight and Tolerance for Cold-drawn Round, Square and Hexagonal Steels

GB/T 908-2019 Forged Bars for Dimensions, Shape, Weight and Tolerances

GB/T 1979 Standard Diagrams for Macrostructure and Defect of Structural Steels

GB/T 2101 General Requirement of Acceptance, Packaging, Marking and Certification for Section Steel

GB/T 2975-2018 Steel and Steel Products - Location and Preparation of Samples and