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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

中华人民共和国国家标准

GB/T 1220-2007
Replace GB/T 1220-1992

Stainless Steel Bars

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Standardization Administration of the People's Republic of China

Contents

Foreword

This Standard will replace GB/T 1220-1992 *Stainless steel bars.*

In comparison with Standard GB/T 1220—1992, main changes of this Standard include the following points:

- It has added “Technical terms and definitions” and “Contents in order sheet” (See Chapter 3 and Chapter 4 hereof);
- “Dimensions, shape, weight and permissible deviation” is changed to direct quotation of stipulations specified in universal basic standard (Chapter 4 of 1992 edition; Chapter 6 of this edition);
- It has cancelled 6 grades, including 1Cr18Mn10Ni5Mo3N, 1Cr18Mn12Mo2Ti, 0Cr18Ni12Mo2Ti, 1Cr18Ni5Mo12Mo3Ti, 1Cr18Ni9Ti and 0Cr26Ni5Mo2, etc (Table 2 and Table 3 of 1992 Edition);
- It has added 6 grades and their properties, in including 022Cr18Mn22Ni5Mo3N, 022Cr23Ni5Mo3N, 022Cr25Ni6Mo2N, 03Cr25Ni6Mo3Cu2N, 17Cr16Ni2 and 05Cr15Ni5Cu4Nb, etc (See Table 2 and Table 7, Table 4 and Table 9, Table 5 and Table 10 hereof);
- It has adjusted the chemical compositions and phosphonium content of 21 steel grades (serial numbers: 1, 3, 13, 17, 23, 25, 35, 38, 39, 41, 43, 44, 52, 55, 62, 68, 93, 85, 98, 137 and 139) based on universal international steel grade (Table 2 in 1992 Edition and Tables 1 ~ 5 in this Edition);
- It has modified “Smelting method” that it shall apply initial molten steel plus out-of-furnace refining process in priority (Article 5.2 of 1992 edition and Article 7.2 of this edition);
- “Delivery state” is changed from “It may not be treated if it is required by the Buyer” into “It may not be treated through negotiations between the Supplier and the Buyer”, while for precipitation-hardening stainless steel bars it has added that annealing treatment to the delivery can be chosen by steel texture (Article 5.3 of 1992 edition and Article 7.3 of this edition);
- For “Surface quality” it has added that “It may specify to remove scales formed from heat treatment by way of pickling, turning or other methods through negotiations between the Supplier and the Buyer, which should be indicated in contract” (Article 7.8.3 of this edition);
- The heat treatment system for all kinds of stainless steel bars or test pieces is separated from mechanical property table and listed into Annex A (Informative annex) (Table 3 ~ Table 5 of 1992 edition; Table A.1 ~ Table A.5 of this edition);
- The yield strength for martensite and precipitation-hardening stainless steel is changed to necessary inspection indicator (Article 5.4.1.1 of 1992 edition; Table 9 and Table 10 of this edition);
- For 022Cr19Ni5Mo3Si2N(00Cr18Ni5Mo3Si2) steel, it has added that Brinell hardness value HBW shall be no more than 290 (Table 3 of 1992 edition; Table 7 of this edition);
- For 12Cr13(1Cr13) steel it has added that the lower limit of carbon content shall be 0.08%, while its percentage elongation after fracture is adjusted from 25% to 22% (Table 2 and Table 4 of 1992 edition; Table 4 and Table 9 of this edition);

- For 30Cr13(Y3Cr13) steel, its percentage elongation after fracture is adjusted from 12% and 40% to 8% and 35% (Table 4 of 1992 edition; Table 9 of this edition);
- The original yield strength $\sigma_{0.2}$ value for some martensite steels (No. 18, 22, 26, 39, 46, 50 and 52) and 06Cr13Al(0Cr13Al) is adjusted from 177Mpa to proof strength at non-proportional extension $R_{P0.2}$ value to be 175 N/mm^2 (Table 3 of 1992 edition; Table 6 and Table 8 of this edition);
- The yield strength $\sigma_{0.2}$ value for 022Cr12(00Cr12) steels is adjusted from 196MPa to proof strength at non-proportional extension $R_{P0.2}$ value to be 195 N/mm^2, while tensile strength is adjusted from 365MPa to 360N/mm^2 (Table 3 of 1992 edition; Table 8 of this edition);
- The tensile strengths R_m for 20Cr13 (2Cr13) and 13Cr13 (1Cr13Mo) are adjusted respectively from 635MPa and 685MPa to 640N/mm^2 and 690N/mm^2 (Table 4 of 1992 edition; Table 9 of this edition);
- It has cancelled the stipulations on section shrinkage rate of flat steel (Table 3 ~ Table 5 of 1992 edition; notes of Table 6 to Table 10 of this edition);
- "Corrosion resistance" is changed to an item in agreement, where it has cancelled the two test methods contained in GB/T 4334.4 and GB/T 4334.6, while for the test condition of 06Cr19Ni13Mo3 (0Cr19Ni13Mo3) it has added "Sensitizing treatment" (Article 5.5 of 1992 edition; Article 7.5 of this edition);
- For "Surface quality" it has added that "It may specify to remove scales formed from heat treatment by way of pickling, turning or other methods through negotiations between the Supplier and the Buyer, which should be indicated in contract" (Article 5.8 of 1992 edition; Article 7.8 of this edition);
- It has clearly specified the sampling positions in "Macro strcture" and "Tower shape" for inspection of continuous casting steel and the sampling quantity for "Corrosion resistance" test (Article 12 of 1992 edition; Article 16 of this edition);
- It has cancelled "Check list for stainless steel grades of this Standard and stainless steel grades of each country" and changed to direct quotation of GB/T 20878: *Stainless steel and heat-resisting steel –Grade and chemical compositions* (Annex B of 1992 edition; Table 1 ~ Table 5 of this edition).

The Annex A and Annex B of this Standard are informative annexes.

This Standard is proposed by China Iron and Steel Association.

This Standard is under jurisdiction of the National Technical Committee of Standardization for Iron and Steel.

The main drafting units of this Standard include China Metallurgical Information and Standardization Institute and Liaoning Dongbei Special Steel Group Co., Ltd..

The major drafters of this Standard include Luan Yan, Dai Qiang, Gu Qiang, Zeng Wentao and Liu Baoshi.

Versions issued in history to be substituted by this Standard include:

---------GB/T 1220—1975, GB/T 1220—1984, GB/T 1220—1992.

Stainless steel bars

1. Scope

This Standard has stipulated the dimensions, shape, technical requirements , test methods, inspection rules, packing marks and certificate quality, etc, of stainless steel bars (generic terms of round steel, square steel, flat steel, hexagonal steel and octagonal steel, hereinafter refer to as “Steel bar”).

This Standard is applicable to the hot rolled and forged steel bars that the dimension (diameter, side length, thickness or subtense distance, hereinafter refer to as “Dimension”) is no more than 250mm. Through negotiations of both the Supplier and Buyer, it may also supply the hot rolled and forged steel bars that the dimension is more than 250mm.

2. Normative References

Articles contained in the following documents have become articles of this Standard after they are quoted. For the dated documents so quoted, all their modifications made thereafter (excluding corrections) or revised versions shall not be applicable to this Standard, but all parties who have reached agreements on the basis of this Standard are encouraged to study on the implementation of the latest versions of these document. For the undated documents so quoted, their latest versions shall be applicable to this Standard.

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

GB/T 223.3 Methods for chemical analysis of iron, steel and alloy - The Diantipyrylmethane Phosphomolybdate Gravimetric Method for the Determination of phosphonium content

GB/T 223.4 Methods for chemical analysis of iron, steel and alloy - The volumetric method for determination of manganese content by ammonium nitrate oxidation

GB/T 223.5 Methods for chemical analysis of iron, steel and alloy – The reduction type silicomolybdic acid spectrophotometric method for the determination of acid-soluble silicon content

GB/T 223.8 Methods for chemical analysis of iron, steel and alloy –The sodium fluoride separation-EDTA titration method for the determination of aluminium content

GB/T 223.9 Methods for chemical analysis of iron, steel and alloy –The chromazurine S spectrophotometric method for the determination of aluminium content

GB/T 223.11 Methods for chemical analysis of iron, steel and alloy –The ammonium persulphate oxidation volumetric method for the determination of chrome content

GB/T 223.14 Methods for chemical analysis of iron, steel and alloy –The tantalum reagent extraction spectrophotometric method for the determination of vanadium content

GB/T 223.16 Methods for chemical analysis of iron, steel and alloy –The chromotropic acid spectrophotometric method for the determination of titanium content

GB/T 223.17 Methods for chemical analysis of iron, steel and alloy –The diantipyrylmethane spectrophotometric method for the determination of titanium content

GB/T 223.18 Methods for chemical analysis of iron, steel and alloy – The sodium thiosulfate separation - iodine volumetric method for the determination of cuprum content

GB/T 223.23 Methods for chemical analysis of iron, steel and alloy – The dimethyl glyoxime spectrophotometric method for the determination of nickel content

GB/T 223.25 Methods for chemical analysis of iron, steel and alloy – The dimethyl glyoxime

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