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**General specification for super austenitic stainless
steels**

超级奥氏体不锈钢通用技术条件

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General specification for super austenitic stainless steels

1 Scope

This Standard specifies terms and definitions, classification, order content, dimensions, shape, weight, technical requirements, test methods, inspection rules, packaging, marks and quality certificates of super austenitic stainless steels.

This Standard is applicable to hot rolled or forged super austenitic stainless steel bars of which the nominal diameter or side length is not more than 550mm (hereinafter referred to as steel bars).

2 Normative references

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

GB/T 222, *Method of sampling steel for determination of chemical composition and permissible variations for product analysis*

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 molybdenosilicate spectrophotometric method*

GB/T 223.11, *Iron, Steel and Alloy - Determination of Chromium Content - Visual Titration or Potentiometric Titration Method*

GB/T 223.18, *Methods for Chemical Analysis of Iron, Steel and Alloy - The Sodium Thiosulfate Separation Iodimetric Method for the Determination of Copper Content*

GB/T 223.25, *Methods for chemical analysis of iron, steel and alloy - The dimethylglyoxime gravimetric method for the determination of nickel content*

GB/T 223.28, *Methods for chemical analysis of iron, steel and alloy - The α -*

steels

GB/T 2101, General requirement of acceptance packaging marking and certification for section steel

GB/T 2975, Steel and Steel Products - Location and Preparation of Test Pieces for Mechanical Testing

GB/T 4162, Forged and Rolled Steel Bars - Method for Ultrasonic Testing

GB/T 4334-2020, Corrosion of metals and alloys - Test methods for intergranular corrosion of austenitic and ferritic-austenitic (duplex) stainless steels

GB/T 6394, Metal - Methods for estimating the average grain size

GB/T 6402, Steel Forgings - Method for Ultrasonic Testing

GB/T 7736, Ultrasonic Inspecting Method for Macro-structure and Imperfection of Steel

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

GB/T 10127, Ferric chloride crevice corrosion test of stainless steels

GB/T 10561-2005, Steel - Determination of Content of Nonmetallic Inclusions - Micrographic Method Using Standards Diagrams

GB/T 11170, Stainless steel - Determination of multi-element contents - Spark discharge atomic emission spectrometric method (Routine method)

GB/T 13305, Micrographic method for determining area content of the α -phases in stainless steels

GB/T 15970.2, Corrosion of metals and alloys - Stress corrosion testing - Part 2: Preparation and use of bent-beam specimens

GB/T 17505, Steel and steel products General technical delivery requirements

GB/T 17897, Corrosion of metals and alloys - Corrosion test for pitting corrosion resistance of stainless steels in the ferric chloride solution

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

GB/T 20123, Steel and iron - Determination of total carbon and sulfur content

- c) Designation or unified digital code;
- d) Delivery status;
- e) Dimensions and allowable deviation;
- f) Weight or quantity;
- g) The items or indicators in the standard that shall be negotiated between the supplier and the purchaser and indicated in the contract. If not indicated, the supplier shall choose;
- h) Other special requirements.

6 Dimensions, shape and weight

6.1 The dimensions, shape and allowable deviation of hot-rolled round steel and square steel shall meet the requirements of GB/T 702-2017. Specific requirements shall be specified in the contract. If it is not specified, it shall be executed according to group 2 in Table 1 of GB/T 702-2017.

6.2 The dimensions, shape and allowable deviation of forged round steel and square steel shall meet the requirements of GB/T 908-2019. Specific requirements shall be specified in the contract. If it is not specified, it shall be executed according to group 2 in Table 1 of GB/T 908-2019.

6.3 Agreed by the supplier and the purchaser through negotiation and indicated in the contract, steel bars of other dimensions, shapes and allowable deviations can be supplied.

6.4 Steel bars are delivered according to actual weight.

7 Technical requirements

7.1 Designation and chemical composition

7.1.1 The unified digital code, designation and chemical composition (melting analysis) of steel shall meet the requirements of Table 1.

13	alpha phase	1 piece / lot	Any steel bar	GB/T 13305
14	Dimensions, shape	Piece by piece	--	Caliper or micrometer
15	Surface quality	Piece by piece	--	Visual inspection
^a Except for ultrasonic testing, size and surface of electroslag steel, the number of samples for other inspection items is one. When the batch is set by the smelting master furnace number, except for the chemical composition, one for each electroslag furnace number, the sampling quantity for other inspection items is the same as that specified in the table. ^b Each group has 3 samples.				

9 Inspection rules

9.1 Inspection and acceptance

The inspection and acceptance of steel bars are carried out by the supplier's technical quality supervision department.

9.2 Batching rules

Steel bars shall be submitted in batches for inspection and acceptance. Each batch shall be composed of steel bars of the same designation, the same heat number, the same specification, the same processing method, and the same heat treatment furnace. For steel smelted by electroslag remelting, under the condition that the process is stable and the technical requirements of this Standard can be guaranteed, the batch delivery of the electrode smelting master furnace number is allowed, and it shall be indicated in the quality certificate.

9.3 Sample quantity and location

The sampling number and sampling location of steel bars shall meet the requirements of Table 7.

9.4 Rules for reinspection and determination

9.4.1 The rules for reinspection and determination of steel bars shall be in accordance with the provisions of GB/T 17505.

9.4.2 If the supplier can guarantee that when the steel bar is qualified, the mechanical properties, macrostructure, non-metallic inclusions and other inspection items of the steel bar of the same furnace number are allowed to replace the material with billet and the bigger one.

9.4.3 The test and inspection results of steel bars shall be rounded to the same digit identified by the standard number by the rounding value comparison

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