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ENTERPRISE STANDARD OF BAOSTEEL CO., LTD.

Q/BQB 310-2023

Replacing Q/BQB 310-2019

Continuously hot-rolled steel sheet and strip for automobile structural use

汽车结构用热连轧钢板及钢带

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Continuously hot-rolled steel sheet and strip for automobile structural use

1 Scope

This document specifies the size, shape, technical requirements, inspection and testing, packaging, marking and inspection documents of continuously hot-rolled steel sheet and strip for automobile structural use.

This document applies to carbon and micro-alloy steel continuously hot-rolled steel strips, which have good cold forming properties, as well as steel sheets cut crosswise and steel strips cut vertically, as produced by Baoshan Iron & Steel Co., Ltd., hereinafter referred to as steel sheets and strips. The products are used for manufacturing automobile beams, cross beams, wheels, automobile transmission shaft tubes, automobile axle housings and other structures.

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) is applicable to this standard.

GB/T 222-2006 Permissible tolerances for chemical composition of steel products

GB/T 223 Chemical analysis methods for steel and alloys (applicable parts)

GB/T 228.1-2021 Metallic materials - Tensile testing - Part 1: Method of test at room temperature

GB/T 232 Metallic materials - Bend test

GB/T 2975 Steel and steel products - Location and preparation of samples and test pieces for mechanical testing

GB/T 4336 Carbon and low-alloy steel - Determination of multi-element contents - Spark discharge atomic emission spectrometric method (routine method)

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

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

GB/T 13298 Inspection methods of microstructure for metals

GB/T 13299-1991 Steel - Determination of microstructure

GB/T 20123 Steel and iron - Determination of total carbon and sulfur content
Infrared absorption method after combustion in an induction furnace (routine method)

GB/T 20125 Low-alloy steel - Determination of multi-element contents -
Inductively coupled plasma atomic emission spectrometric method

Q/BQB 300 General rules of package mark and inspection document for
continuously hot rolled steel sheet and strip

Q/BQB 301 Hot-rolled steel sheets and strips - Dimensions, shape, weight and
tolerances

3 Terms and definitions

There are no terms or definitions to be defined in this document.

4 Classification and code

4.1 The designation, nominal thickness, uses of steel sheets and strips are as shown in Table 1.

4.2 According to the surface treatment methods, it is divided into:

- a) Pickled surface;
- b) Rolled surface.

4.3 According to the surface quality level, it is divided into:

- a) Ordinary grade surface, FA;
- b) Higher grade surface, FB.

4.4 According to the product category, it is divided into:

- a) Hot rolled steel strip;
- b) Hot rolled steel sheet;
- c) Hot rolled flat steel strip;
- d) Hot rolled slit steel strip;

5.2.1 If the surface treatment method is not specified, the product will be delivered with rolled surface.

5.2.2 For hot-rolled steel sheets and strips, if the dimensional precision is not specified, they will be delivered with ordinary precision, unless otherwise specified in this standard; if the edge state is not specified, the steel strips will be delivered without trimming and the steel sheets will be delivered with trimmed edges.

5.2.3 For hot-rolled pickled steel sheets and strips, if the dimensional precision is not specified, the thickness precision shall be delivered with higher thickness precision, whilst the other dimensions shall be delivered with ordinary precision; if the edge state, surface quality level and whether it is greased or not is not specified, it is delivered in trimmed state, higher-grade surface and greased; if the inner diameter of the steel coil is not specified, it will be delivered at an inner diameter of 610 mm.

6 Dimensions, appearance, weight, allowable deviations

6.1 The thickness tolerance of B440QZR and B480QZR shall comply with the requirements of Q/BQB 301 higher precision (PT.B).

6.2 Other dimensions, appearance, weight, allowable deviations are in accordance with the provisions of Q/BQB 301.

6.3 If the customer has higher requirements for thickness precision, the advanced precision PT.C given in Table 4 of Q/BQB 301 can be selected when ordering.

7 Technical requirements

7.1 Designation and chemical composition

7.1.1 The designation and chemical composition (smelting analysis) of steel shall comply with the requirements in Tables 2 ~ 3.

The steel used for steel sheets and strips is killed steel, which is smelted in an oxygen converter.

7.3 Delivery state

Steel sheets and strips are delivered in hot-rolled or controlled-rolled state.

7.4 Surface treatment methods

7.4.1 The surface treatment methods of steel sheets and strips can be rolling surface and pickling surface.

7.4.2 When steel sheets and strips have hot-rolled pickled surfaces, they are usually supplied with grease. The grease film shall be removable with alkali aqueous solution. Under normal packaging, transportation, loading and unloading, storage conditions, the supplier shall ensure that the surface of the steel sheet and strip will not rust within 3 months from the date of manufacturing completion. After negotiation between the supplier and the buyer, and indicating in the contract, the hot-rolled pickled surface can also be supplied without grease.

Note: For non-greased products required by the purchaser, rust may occur; the surface may be slightly scratched during transportation, loading, unloading, storage, use.

7.5 Mechanical and process properties

7.5.1 The mechanical and process properties of steel sheets and strips shall comply with the requirements in the corresponding Tables 4 ~ 8.

7.5.2 After the bending test, there shall be no visible cracks on the outer surface of the specimen. If the supplier can ensure that the bending test is qualified, the test may be exempted.

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