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GB/T 11253-2019

Replacing GB/T 11253-2007, GB/T 716-1991

Cold-rolled sheet and strip of carbon structural steels

碳素结构钢冷轧钢板及钢带

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Issued by: State Administration for Market Regulation;
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 11253-2007, Cold-rolled sheets and strips of carbon structural steels and GB/T 716-1991, Cold-rolled carbon structural steel strips. This Standard combines GB/T 11253-2007, Cold-rolled sheets and strips of carbon structural steels and GB/T 716-1991, Cold-rolled carbon structural steel strips. Compared with GB/T 11253-2007 and GB/T 716-1991, the major technical changes of this Standard are as follows:

-- Modify the thickness range of steel plates and strips and the width range of cold-rolled narrow steel plates and strips (see Chapter 1, Chapter 1 of GB/T 11253-2007);

-- Modify the surface structure classification and code (see 3.2, 3.2 of GB/T 11253-2007);

-- Modify the order content, and add the surface structure type and oiling regulations (see Chapter 4, Chapter 4 of GB/T 11253-2007);

-- Modify the size, shape, weight and tolerance of cold-rolled narrow steel plates and steel strips (see Table 1, Table 1 of GB/T 716-1991);

-- Add designation-Q325 and corresponding chemical composition, mechanical property and process property (see Table 2, Table 3, Table 4);

-- Modify the technical requirements for cold-rolled narrow steel plates and steel strips (see Table 3, Table 3 of GB/T 716-1991);

-- Add surface structure requirements (see Table 6);

-- Add requirements of rounding off of numerical values (see 8.4);

-- Delete the quality certificate type regulations for steel plates and strips (see Chapter 9 of GB/T 11253-2007).

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: Angang Steel Company Limited, China Metallurgical Information and Standardization Institute, Shougang Group Co., Ltd., Hunan Valin Lianyuan Iron and Steel Co., Ltd., Guangxi Liuzhou Iron and Steel Group Company Limited.

Cold-rolled sheet and strip of carbon structural steels

1 Scope

This Standard specifies the order content, size, shape, weight, technical requirements, test methods, inspection rules, packaging, marking and quality certificates of cold-rolled sheet and strip of carbon structural steels.

This Standard applies to cold-rolled sheet and strip of carbon structural steels with a thickness of not more than 4 mm, including cold-rolled wide strip and shear steel strip, slit steel strip (referred to as wide steel plate and steel strip) with a width of not less than 600 mm AND cold-rolled narrow steel strip and shear steel plate (referred to as narrow steel plate and steel strip) with a width range of 250mm ~ <600mm. A single cold-rolled steel sheet of which the width is not less than 600 mm can also refer to it to perform.

2 Normative references

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

GB/T 222, Permissible tolerances 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 phosphorus content

GB/T 223.9, Iron, steel and alloy. Determination of aluminium 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 223.18, Methods for chemical analysis of iron steel and alloy. The sodium thiosulfate separation iodimetric method for the determination of cupper 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 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 8170, Rules of rounding off for numerical values & expression and judgment of limiting values

GB/T 15391, Dimension, shape and tolerances for cold-rolled steel strips with a width less than 600 mm

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

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 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

3 Classification and code

3.1 Steel plates and strips are divided according to surface quality:

-- Higher level surface FB;

-- High level surface FC.

3.2 Steel plates and strips are divided according to their surface structure:

-- Ultra smooth b;

-- Bright surface B;

-- Pitted surface D.

Note: The ultra smooth is only suitable for narrow steel strips and their shear steel plates.

of each designation may not be used as delivery conditions; however, the content shall be indicated in the quality certificate.

6.1.6 The allowable deviation of chemical composition of the finished steel product shall comply with the provisions of GB/T 222.

6.2 Smelting method

Steels are smelted by oxygen converter or electric furnace. Unless the buyer has special requirements and it is specified in the contract, the smelting method is generally determined by the supplier.

6.3 Delivery status

6.3.1 Steel plates and strips are delivered in a flat state after annealing. After the agreement between the supplier and the buyer, it can also be delivered in rigid or semi-rigid and other states.

At this time, the mechanical properties are determined by both the supplier and the buyer.

6.3.2 Steel plates and steel strips are usually supplied after oiling. The applied oil film shall be removed by alkaline or other commonly used degreasing liquid. Under normal conditions of packaging, transportation, loading and unloading and storage, the supplier shall ensure that the oiled product does not rust within 6 months from the date of delivery. If the supplier asks not to supply oil, it shall be negotiated at the time of ordering.

Note: For non-oiled products which are required by the purchaser, the surface is prone to slight scratches and rust during transportation, loading and unloading, storage and use.

6.4 Mechanical property

6.4.1 The horizontal tensile test of steel plates and strips that are delivered in a flat state after annealing shall comply with the requirements of Table 3. If the horizontal sample cannot be taken on the narrow steel plate and steel strip due to the width, the vertical sample is taken for tensile test; the mechanical property qualification value is determined by the supplier and the buyer.

Table 3 -- Mechanical property

Designation	Lower yield strength R_{eL}[a]/MPa	Tensile strength R_m/MPa	Elongation after break [b]/%	
			$A_{50\ mm}$[c]	$A_{80\ mm}$[d]
Q195	≥195	315~430	≥26	≥24
Q215	≥215	335~450	≥24	≥22
Q235	≥235	370~500	≥22	≥20
Q275	≥275	410~540	≥20	≥18

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