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ICS 77.040.50

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NATIONAL STANDARD OF THE

PEOPLE'S REPUBLIC OF CHINA

GB/T 13237-2013

Replacing GB/T 13237-1991

Cold Rolled Quality Carbon Structural

Steel Sheets and Strips

优质碳素结构钢冷轧钢板和钢带

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Issued on: December 17, 2013

Implemented on: September 1, 2014

Issued by: General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China;

Standardization Administration of the People's Republic of China.

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Foreword

This Standard was drafted according to the rules specified in GB/T 1.1-2009.

This Standard replaces "Cold-rolled Quality Carbon Structural Steel Sheets and Strips" (GB/T 13237-1991) and modifies the following main technical contents:

- CHANGE the standard name;
- REVISE the thickness range TO be no greater than 4 mm;
- ADD the order contents;
- SPECIFY the chemical composition for each designation definitely;
- DELETE the designation of rimmed steel;
- ADD the designation 55, 60, 65 and 70, etc.;
- ADD the supply state and requirements of steel sheets and strips surface oil;
- REVISE the tensile test gauge length TO fixed gauge length;
- CANCEL the drawing grade;
- CANCEL the requirement of cupping test;
- GRADE the surface quality of steel strip; REDUCE the permissible abnormal part FROM 8% TO 6%.

This Standard is proposed by the China Iron and Steel Association.

This Standard is under the jurisdiction of the National Technical Committee on Iron and Steel of Standardization Administration of China (SAC/TC 183).

Main drafting organizations of this Standard: Angang Steel Company Limited, Zhangjiagang Yangtze Cold-rolled Sheet Company Limited, Shougang Group, China Metallurgical Information and Standardization Institute.

Main drafters of this Standard: Guan Jichun, Chen Yue, Ren Cuiying, Li Ran, Tang Mu, Dong Li, Chen Gang, Zhang Zhongzheng.

The previous editions of standard replaced by this Standard are as follows:

- GB/T 710-1988, GB/T 13237-1991.

Cold Rolled Quality Carbon Structural Steel

Sheets and Strips

1 Scope

This Standard specifies the classification and code, order contents, dimensions, appearance, weight and permissible deviation, technical requirements, test method, test rules, packaging, marking and quality certificate, etc. of cold rolled quality carbon structural steel sheets and strips.

This Standard is applicable to the cold rolled quality carbon structural steel sheets and strips (hereinafter referred to as steel sheets and strips) not greater than 4mm in thickness and not less than 600 mm in width.

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) are applicable 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 Diantiprylmethane Phosphomolybdate Gravimetric Method for the Determination of Phosphorus Content

GB/T 223.9 Iron Steel and Alloy - Determination of Aluminium Content - Chrom Azurol S Photometric 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 223.19 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 223.58 Methods for Chemical Analysis of Iron, Steel and Alloy - The Sodium Arsenite-sodium Nitrite Titrimetric Method for the Determination of Manganese 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 223.63 Methods for Chemical Analysis of Iron, Steel and Alloy - The Sodium (Potassium) Periodate Photometric Method for the Determination of Manganese Content

GB/T 223.64 Iron Steel and Alloy - Determination of Manganese Content - Flame Atomic Absorption Spectrometric Method

GB/T 223.68 Methods for Chemical Analysis of Iron, Steel and Alloy - The Potassium Iodate Titration Method after Combustion in the Pipe Furnace for the Determination of Sulfur Content

GB/T 223.71 Methods for Chemical Analysis of Iron, Steel and Alloy - The Gravimetric Method after Combustion in the Pipe Furnace for the Determination of Carbon Content

GB/T 223.72 Iron Steel and Alloy - Determination of Sulfur Content - Gravimetric Method

GB/T 224 Determination of Depth of Decarburization of Steel

GB/T 228.1 Metallic Materials - Tensile Testing - Part 1: Method of Test at Room Temperature

GB/T 232 Metallic Materials - Bend Test

GB/T 247 General Rule of Package Mark and Certification for Steel Plates (Sheets) and Strips

GB/T 708 Dimension Shape Weight and Tolerance for Cold-rolled Steel Plates and Sheets

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

GB/T 4336 Standard Test Method for Spark Discharge Atomic Emission Spectrometric Analysis of Carbon and Low-alloy Steel (Routine Method)

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

GB/T 13298 Metal - Inspection Method of Microstructure

GB/T 13299 Steel - Determination of microstructure

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

YB/T 081 Rule for Rounding Off of Numerical Values and Judgment of Testing Values for Technical Standards of Metallurgy

3 Classification and Code

3.1 The steel sheets and are classified by surface as:

Higher grade surface FB

High-grade surface FC

Super high grade FD

3.2 The steel sheets and strips are classified by edge condition as:

Trimmed EC

Non-trimmed EM

4 Order Contents

4.1 The following information shall be provided in the Contract or the Order by the Demander at the time of order:

a) Product name;

6.2 Delivery condition

6.2.1 Steel sheets and strips shall be delivered as annealed and leveled. For single-rolled plate, it may be delivered as annealed. Through agreement between the Supplier and the Demander, they may also be delivered as other heat treatment conditions, where the mechanical property is subject to negotiation between the Supplier and the Demander.

6.2.2 The steel sheets and strips are usually delivered after oiled, the adopted oil film shall be removed with alkaline solution or other commonly used degreasing solutions. In case of common package, transportation, loading and unloading and storage, the Supplier shall ensure the product to be free from rust within 6 months from the day of completion. Oiled delivery state may not be adopted through agreement between the Supplier and the Demander and indicated in the contract.

Note: for oiled products as the Demander requires, the Supplier is free from product rust risk; in order, the Supplier shall inform the Demander that unoiled products are subject to slight scratch on the surface in the process of transport, loading & unloading, storage and use.

6.3 Mechanical and processing properties

6.3.1 The mechanical properties of steel sheets and strips shall meet those specified in Table

6.3.2 Bending test shall be carried out once the Demander requires. The bending test shall meet those specified in Table 3. After the bending test, the bending external surface of specimen shall be free from visible crack, fracture or deflection.

Table 3

Designation	180° Bending test ^{a, b}	
	Diameter <i>d</i> of bending pressure head with the following nominal thicknesses (mm)	
	≤2	>2
08Al 08 10 15 20 25	0	1a
^a The width of specimen is $b \geq 20\text{mm}$; $b=20\text{mm}$ in case of arbitration.		
^b Transverse specimen is adopted for bending test; <i>a</i> is the specimen thickness.		

6.4 Metallographic structure

6.4.1 Grain size

For Designation 08, 08Al, 10, 15 and 20 steel sheets and strips with a thickness larger than 0.5mm, the grain size shall be Grade 6 or finer, and is allowed to be delivered as thin-pancake grain.

6.4.2 Free cementite

Designation 08, 08Al and 10 steel sheets and strips are allowed to have free cementite tissues and the grade as per 8 series of rating shall not be greater than Grade 3.

6.4.3 Banded structure

The banded structure grades of Designation 15 and 20 steel sheets and strips shall not be greater than Grade 3.

6.4.4 Decarburized layer

As required by the Demander, the surface decarburized layer, depth (counted with actual size) of full decarburized layer shall be inspected for steel sheets and strips with designations 35, 40, 45, 55, 60, 65 and 70; the thickness of a surface shall not be larger than 2.5% actual thickness of steel sheets and strips, and that of two surfaces shall not be larger than 4%.

6.5 Surface quality

6.5.1 Harmful defects such as bubble, crack, scar, fold and inclusion shall be free from the surface of steel sheets and strips. Steel sheets and strips shall be free from

3	Bending test	1/Batch	GB/T 2975	GB/T 232
4	Grain size	1/Batch	GB/T 6394	GB/T 6394
5	Free cementite	1/Batch	GB/T 13298	GB/T 13299
6	Banded structure	1/Batch	GB/T 13298	GB/T 13299
7	Decarburized layer	1/Batch	GB/T 224	GB/T 224

8 Test Rules

8.1 The steel sheets and strips shall be accepted in batches, and each batch shall be composed of steel sheets and strips with same designation, furnace No., specification and heat treating system.

8.2 The re-inspection and judgment of steel sheets and strips shall comply with GB/T 17505.

8.3 Value rounding for each inspection & check result of steel sheets and strips shall meet the requirements of YB/T 081.

9 Packaging, Marking and Quality Certificate

The packaging, marking and quality certificate of steel sheets and strips shall meet the requirements of GB/T 247.

_____ **END** _____

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