



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 37601-2019

Hot rolled steel sheet and strip of alloy structure steel

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1 Scope

This Standard specifies the classification and code, order contents, dimension, shape, weight, technical requirements, test methods, inspection rules, packaging, marking and quality certificate of hot rolled steel sheets and strips of alloy structure steel.

This Standard is applicable to hot rolled steel sheets and strips of alloy structure steel with a thickness of not more than 25.4 mm, including continuous hot rolled wide strips, sheared steel sheets and slit steel strips with a width of not less than 600 mm, and continuous hot rolled narrow steel strips and shear steel sheets with a width of less than 600 mm (hereinafter referred to as steel sheets and strips).

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 Permissible tolerances for chemical composition of steel products

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 molybdsilicate spectrophotometric method

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 223.13 Methods for chemical analysis of iron, steel and alloy - The ammonium ferrous sulfate titration method for the determination of vanadium content

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

GB/T 223.18 Methods for chemical analysis of iron, steel and alloy - The sodium thiosulfate separation iodometric 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 223.26 Iron, steel and alloy - Determination of molybdenum content -The thiocyanate spectrophotometric method

GB/T 223.43 Iron, steel and alloy - Determination of tungsten content -Gravimetric method and spectrophotometric method

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 223.67 Iron, steel and alloy - Determination of sulfur content -Methylene blue spectrophotometric method

GB/T 223.69 Iron, steel and alloy - Determination of carbon contents - Gas-volumetric method after combustion in the pipe furnace

GB/T 223.75 Iron, steel and alloy - Determination of boron content - Methanol distillation-curcumin photometric method

GB/T 224 Determination of depth of decarburization of steels

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

GB/T 231.1 Metallic materials - Brinell hardness test - Part 1: Test method

GB/T 247 General rule of package, mark and certification for steel plates (sheets) and

strips

GB/T 709 Dimension, shape, weight and tolerances for hot-rolled steel plates and sheets

GB/T 2975 Steel and steel products - Location and preparation of test pieces for mechanical testing strips shall comply with the provisions of GB/T 709.

5.1.2 The thickness allowable deviation is implemented according to the thickness allowable deviation of steel strips (including continuous rolled steel sheets) with minimum yield strength R_e greater than 360 MPa as specified in

GB/T 709.

5.1.3 The flatness is agreed upon between the supply and demand parties and indicated in the contract.

5.1.4 Agreed upon between the supply and demand parties, steel of other dimensions, shapes and allowable deviations may be supplied.

5.2 Narrow steel strips and shear steel sheets The dimension, shape, weight and allowable deviation of narrow steel strips and shear steel sheets shall comply with the provisions of Annex A.

6 Technical requirements

6.1 Designation and chemical composition

6.1.1 The designation and chemical composition of steel (melting analysis)

shall comply with the provisions of Table 1. See Annex B for the comparison of similar designations with relevant standards.

6.1.2 When Cr, Ni, Cu and Mo in steel are taken as residual elements, the Cr, Ni and Cu contents shall not exceed 0.30 % respectively and the Mo content shall not exceed 0.10 %. If it can be guaranteed by the supply party, the analysis may be exempted.

6.1.3 The P content in steel shall not exceed 0.030 %, and the S content shall not exceed 0.020 %.

6.1.4 The allowable deviation of chemical composition of finished steel sheets and strips shall comply with the provisions of GB/T 222.

6.1.5 Agreed upon between the supply and demand parties, the supply party may provide other designations other than those specified in Table 1. The designations and chemical composition shall comply with the provisions of

GB/T 3077.

the provisions of Table 3. If the demand party has a higher level requirement, the qualification level shall be determined by agreement between the supply and demand

parties.

Table 3 -- Non-metallic inclusions

Class A	Class B	Class C	Class D	Thin series	Thick series	Thin series	Thick series	Thin series	Thick series
2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0

6.8 Surface quality

6.8.1 The surface of steel sheets and strips shall be free of cracks, blisters, folding, inclusions, crusting or obvious scratches. Steel sheets and strips shall not have visible laminations. If the above surface defects are present, the removal is allowed, and the removal depth shall not exceed half the thickness tolerance of steel sheets and strips. Other defects are allowed, but the depth and height shall not exceed half the thickness tolerance of steel sheets and strips, and the minimum thickness of steel sheets and strips shall be guaranteed.

6.8.2 During the continuous production of steel strips, local surface defects are not easily found and removed, thus allowing delivery with defects, but the defective portion shall not exceed 6 % of the total length of each coil of steel strip.

6.8.3 Surface quality characteristics of steel sheets and strips shall comply with the requirements of Table 4.

Table 4 -- Surface quality characteristics of each grade

Grade and code	Applicable surface treatment method	Characteristics	Normal grade surface (FA)
Rolled surface	Pickled surface	The surface is allowed to have slight or local defects such as pitting, concave, scratches with a depth (or height) not exceeding half the thickness tolerance of the steel strip, and the minimum allowable thickness of the steel sheet and strip shall be ensured.	
Higher grade surface (FB)	Pickled surface	The surface is allowed to have local defects that do not affect the formability, such as: slight scratches, slight indentations, slight pitting, slight roll marks and chromatic aberration. The surface is allowed to have slight parking spot that is not obvious after oiling. It is not	