

ICS 77.140.50
CCS H 46



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

GB/T 2518-2019

Replacing GB/T 2518-2008

**Continuously hot-dip zinc and zinc alloy coated steel sheet and
strip**

连续热镀锌和锌合金镀层钢板及钢带

Issued on: December 10, 2019

Implemented on: July 1, 2020

**Issued by: State Administration for Market Regulation;
Standardization Administration of China**

Table of Contents

1	Scope
2	Normative References
3	Terms and Definitions
4	Designation Representation Methods, Classification and Codes
4.1	Designation Representation Methods
4.3	Designations and Steel Type Characteristics
5	Order Content
6	Dimensions, Shapes and Weights
6.1	Dimensions
7	Technical Requirements
7.4	Mechanical Properties
7.5	Stretcher Strain Marks
7.7	Coating Mass
7.8	Surface Structure of Coating
7.9	Surface Treatment
7.10	Surface Quality
8	Test Methods
9	Inspection Rules
16	Through the negotiation between the

1 Scope

China's national standard for continuously hot-dip zinc and zinc alloy coated steel sheet and strip. It specifies the classification and designation, the order content, the dimensions, the technical requirements, the test methods, the inspection rules and the packaging and marking of galvanized and zinc alloy coated flat steel. Galvanized steel is the largest coated steel product in the world and the reason is electrochemical rather than physical. Zinc is anodic to iron, so the coating does not merely cover the steel - it protects it sacrificially, and a scratch that exposes bare metal does not rust, because the surrounding zinc corrodes preferentially and protects the exposed area. That is why a galvanized panel outlasts a painted one at a cut edge and why the product dominates construction, automotive bodies, appliances and ducting. The standard covers the whole family, which is broader than the name suggests. Pure zinc coatings are the classic product. Zinc-iron alloy, made by annealing the coating after the pot so it converts to a zinc-iron intermetallic, is matt, welds

and paints better and is what car bodies use. Zinc-aluminium and zinc-aluminium-magnesium coatings give several times the corrosion life at the same coating weight, which is why they have displaced pure zinc in demanding outdoor use. Each behaves differently in forming, welding and painting. So the requirements cover the substrate grades and their mechanical properties, the coating type and mass and how the mass is expressed and measured, the surface quality and finish, the spangle, the passivation and oiling, the adhesion of the coating under bending, and the dimensional tolerances referred to GB/T 25052. Issued on 10 December 2019 and in force since 1 July 2020, it replaces GB/T 2518-2008.

This Standard stipulates the terms, definitions, classification, codes, designation representation methods, order content, dimensions, shapes, weights, technical requirements, test methods, inspection rules, packaging, marking and quality certificate of continuously hot-dip zinc, zinc-iron alloy, zinc-aluminum alloy and aluminum-zinc alloy coated steel sheet and strip (hereinafter referred to as steel sheet and strip). This Standard is applicable to steel sheets and strips (with the thickness of

0.20 mm ~

6.0 mm) for the automotive, construction and household appliance industry, etc.

2 Normative References

The following documents are indispensable to the application of this document. In terms of references with a specified date, only versions with a specified date are applicable to this document. In terms of references without a specified date, the latest version (including all the modifications) is applicable to this document.

GB/T 223.5 Steel and Iron - Determination of Acid-soluble Silicon and Total Silicon Content - Reduced Molybdosilicate Spectrophotometric Method

GB/T 223.9 Steel and Iron - Determination of Aluminum Content - Chrome Azurol S Photometric Method

GB/T 223.12 Methods for Chemical Analysis of Iron, Steel and Alloy - The Sodium Carbonate Separation - Diphenyl Carbazide Photometric Method for the Determination of Chromium Content

GB/T 223.14 Methods for Chemical Analysis of Iron, Steel and Alloy - The N-Benzoyl-N-Phenylhydroxylamine Extraction Photometric Method for the Determination of Vanadium Content

GB/T 223.17 Methods for Chemical Analysis of Iron, Steel and Alloy - The Diantipyrylmethane Photometric Method for the Determination of Titanium Content

GB/T 223.26 Iron, Steel and Alloy - Determination of Molybdenum Content - The

Thiocyanate Spectrophotometric Method

GB/T 223.40 Iron, Steel and Alloy - Determination of Niobium Content by the Sulphochlorophenol S 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 223.63 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 223.78 Methods for Chemical Analysis of Iron, Steel and Alloy - Curcumin Spectrophotometric Method for the Determination of Boron Content

3 Terms and Definitions

The following terms and definitions are applicable to this document.

3.1 Hot-dip Zinc Coating Hot-dip zinc coating refers to pure zinc coating obtained by immersing pretreated steel strip in molten zinc solution on continuous hot-dip zinc production line. NOTE. in the molten zinc solution, zinc content is not less than 99%.

3.2 Hot-dip Zinc-iron Alloy Coating Hot-dip zinc-iron alloy coating refers to zinc-iron alloy coating obtained by immersing pretreated steel strip in molten zinc solution on continuous hot-dip zinc production line. NOTE. in the molten zinc solution, zinc content is not less than 99%. Through alloying treatment process, form zinc-iron alloy layer on the entire coating, and iron content in the alloy coating is generally. 8% ~ 15%.

3.3 Hot-dip Zinc-aluminum Alloy Coating Hot-dip zinc-aluminum alloy coating refers to coating obtained by immersing pretreated steel strip in molten zinc-aluminum alloy solution on continuous hot-dip zinc aluminum production line. NOTE. in the molten zinc aluminum alloy solution, the mass fraction of aluminum is approximately 5%; contain a small amount of rare earth; the remaining ingredient is zinc.

3.4 Hot-dip Aluminum-zinc Alloy Coating Hot-dip aluminum-zinc alloy coating refers to coating obtained by immersing pretreated steel strip in molten aluminum-zinc alloy solution on continuous hot-dip aluminum-zinc production line.

3.5 Interstitial Free Steel Interstitial free steel refers to a type of steel, which adds an appropriate amount of titanium or niobium to ultra-low carbon steel, so that the carbon and

nitrogen interstitial atoms in the steel are completely fixed into carbide and nitride, and no interstitial atom exists in the steel.

3.6 High Strength Interstitial Free Steel High strength interstitial free steel refers to steel which adds a certain amount of strengthening elements, such as. phosphorus, manganese and silicon, to interstitial free steel, so that the steel has high strength and can maintain good formability.

3.7 Bake Hardening Steel Bake hardening steel refers to a type of steel, which retains a certain amount of solid dissolved carbon and nitrogen atoms, and can enhance the strength by adding strengthening elements, such as. phosphorus and manganese; after processing and baking at a certain temperature, the yield strength is further enhanced due to age hardening.

4.1 Designation Representation Methods

4.1.1 General The designation of steel sheet and strip is constituted of five parts. product purpose code, steel grade code (or serial number), steel type characteristic (if any), hot-dip code (D) and coating type code. Specifically speaking, hot-dip code (D) and coating type code shall be connected by a plus "+".

4.1.2 Purpose code Purpose codes are as follows:

4.1.3 Steel grade code (or serial number) Steel grade codes are as follows:

4.1.4 Steel type characteristic Generally speaking, steel type characteristic is expressed with 1 ~ 2 letters. Characteristic codes are as follows:

4.1.5 Hot-dip code Hot-dip code is expressed in "D".

4.1.6 Coating type code Pure zinc coating is expressed in "Z"; zinc-iron alloy coating is expressed in "ZF"; zinc- aluminum alloy coating is expressed in "ZA"; aluminum-zinc alloy coating is expressed in "AZ".

4.2 Examples of Designation Example 1.DC57D+ZF It signifies that product purpose is flat steel for cold forming; substrate is stipulated to be cold-rolled substrate; steel grade serial number is 57; hot-dip zinc-iron alloy coated product.

4.3 Designations and Steel Type Characteristics

4.4 Classification and Codes by Surface Quality In accordance with surface quality, the classification and codes of steel sheet and strip shall comply with the stipulations in Table 2.

4.5 Classification and Codes by Type and Surface Structure of Coating, and Surface Treatment

4.5.1 In accordance with the type and surface structure of coating, and surface treatment, the classification and codes of steel sheet and strip shall comply with the Designation Steel