# NATIONAL STANDARD OF THE

# PEOPLE'S REPUBLIC OF CHINA



# GB/T 41747-2022

## Continuous hot-dip zinc-coated twin-roll cast steel sheet and strip of structural quality and high strength steel

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# Table of Contents





## 1 Scope

This document specifies the dimensions, shape, mass, technical requirements, test methods, inspection rules, classification and code, packaging, marking, quality certificate and order contents of continuous hot-dip zinc-coated steel sheets and strips of structural quality and high strength steel produced by twin-roll casting process.

The products corresponding to this document are applied to inner and outer covering parts and structural parts that require corrosion resistance. This document applies to continuous hot-dip zinc-coated twin-roll cast steel sheets and strips of structural quality and high strength steel with a thickness not greater than 2.0 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 223.12 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-benzoy-N-phenylhydroxylamine extraction photometric method for the determination of vanadium content

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 223.23 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 20123 Steel and iron - Determination of total carbon and sulfur content -Infrared absorption method after combustion in an induction furnace (routine method)

GB/T 20124 Steel and iron - Determination of nitrogen content - Thermal conductimetric method after fusion in a current of inert gas (routine method)

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

GB/T 25052 Continuously hot-dip coated steel sheet and strip - Tolerances on dimensions, shape and mass

## 3 Terms and definitions

For the purpose of this document, the following terms and definitions apply.

3.1 twin-roll cast steel sheet and strip Steel sheet and strip produced by the twin-roll casting process to cast into a cast strip with a thickness near the final thickness directly from the liquid metal, and subsequently hot-rolled with a small reduction.

3.2 continuous hot-dip zinc-coated steel sheet and strip Product obtained by hot-dip coating of descaled twin-roll cast steel sheets and strips (3.1) or subsequent cold-rolled steel sheets and strips on a continuous zinc-coating line.

3.3 normal spangle coating Coating with obvious spangle morphology, formed as a result of unrestricted growth of zinc grains during normal solidification process of zinc layer.

NOTE: Normal spangles have metallic luster and are widely used. It may be supplied as coating condition S or N (see 8.5); however, its appearance may be variable, and it is not suitable for decorative coating.

3.4 minimized spangle coating Fine spangle coating that is formed by artificially restricting the zinc grains formed during solidification process of zinc layer.

NOTE: The surface appearance of this product may have some unevenness in the coating on a single coil or from coil to coil.

3.5 zero spangle coating Fine spangle coating that is invisible to the naked eye, obtained through a special control method.

3.6 differential coating Coating having different specified zinc layer masses on the two surfaces of zinc-coated steel sheet.

3.7 skin pass Process of light cold rolling of zinc-coated steel sheet.

NOTE: The purpose of skin pass is to make the surface smoother to improve the surface appearance.

Skin pass also temporarily reduces the occurrence of stretcher strain (Lüders lines) on the surface during fabrication of finished parts. The skin pass also controls and improves roughness. The skin pass results in an increase in hardness and a decrease in ductility.



**4.1 The thickness of steel sheets and strips shall not exceed 2.0 mm, and width shall not**

exceed 1800 mm.

**4.2 Zinc-coated steel sheets with a width of less than 900 mm may be cut from wide**

sheets.

**4.3 The thickness of steel sheets and strips is the sum of the thickness of substrate and**

coating.

**4.4 The dimensions, shape, mass and allowable deviation of steel sheets and strips shall**

comply with the provisions of GB/T 25052.

7.2 Steel sheets and strips shall be checked and accepted in batches, and each batch shall consist of steel products of the same designation, same furnace number, same specification and same delivery status.

7.3 The re-inspection and determination rules for steel sheets and strips shall comply with the provisions of GB/T 17505.

7.4 The measured values of various inspections and checks of steel sheets and strips shall be rounded off according to the rounding off value comparison method, and the rounding off rules shall comply with the provisions of GB/T 8170.

8 Classification and code

8.1 Designation naming method

8.1.1 General The designation of steel sheets and strips are composed of steel use or characteristic code, steel grade code, steel characteristics, hot-dip code (D) and coating type code, where the hot-dip code (D) and coating type code are connected by "+".

8.1.2 Steel type use code SU: Indicates that it is structural quality steel.

HU: Indicates that it is high strength steel.

8.1.3 Steel grade code 280 ~ 650: 3 digits, used to represent the steel grade code, generally specified as the minimum yield strength, in megapascal (MPa).

8.1.4 Steel type characteristics code G: Indicates that the steel type is uncertain.

LA: Indicates that the steel type is low alloy steel.

8.1.5 Hot-dip code The hot-dip code is D.

8.1.6 Coating type code The zinc-coated coating is denoted as Z.

8.2 Examples of designation naming - Normal spangle, N;

- Normal spangle (skin pass), S;

- Minimized spangle, M;

- Minimized spangle (skin pass), E;

- Zero spangle, F.

8.6 Classification and code of surface treatment The classification and code of surface treatment are as follows:

- Chromium-free passivation, CN;

- Chromic acid passivation, C;

- Phosphating, P;

- Oiling, O;

- Passivation oiling CO.

9 Packaging, marking and quality certificate The packaging, marking and quality certificate of steel sheets and strips shall comply with the provisions of GB/T 247. If the purchaser has special requirements on packaging, it can be negotiated when ordering.