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Hot dip coating steel sheet and strip for corrugated pipe

波纹管用热镀层钢板及钢带

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Hot dip coating steel sheet and strip for corrugated pipe

1 Scope

This Standard specifies terms and definitions, classification and codes, dimensions, appearance, weight, technical requirements, test methods, inspection rules, packaging, marks and quality certificates for hot dip coating steel sheet and strip for corrugated pipe (hereinafter referred to as steel sheet and strip).

This Standard is applicable to the hot dip coating steel sheet and strip, with a thickness of 0.7mm~10mm, for corrugated steel structure that is used in the production of pipe networks, culverts, underground water storage tanks, pedestrian walkways, underpasses for automobiles, public pipe corridors and special-shaped structures installed on site.

NOTE: Under various conditions of use, according to the bearing load of various corrugated pipes, reasonably design the corrugation type, steel sheet thickness and strength, foundation and backfill type, factory manufacturing control and installation of the corrugated pipes. For corrugated steel pipes in different use environments, according to the actual environment and service life requirements, reasonably select the coating type and coating weight or thickness.

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 223.5, *Steel and iron - Determination of acid-soluble silicon and total silicon content - Reduced molybdosilicate spectrophotometric method*

GB/T 223.9, *Iron steel and alloy - Determination of aluminium content - Chrome azurol S photometric method*

GB/T 223.59, *Iron, Steel and Alloy - Determination of Phosphorus Content - Bismuth Phosphomolybdate Blue Spectrophotometric Method and Antimony Phosphomolybdate Blue Spectrophotometric Method*

on dimensions shape and weight

3 Terms and definitions

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

3.1 hot-dip zinc coating; Z

a coating that is obtained by immersing the pre-treated steel strip or steel sheet in a molten zinc solution of which the zinc content is not less than 99%

3.2 aluminum-silicon coating; AS

a coating that is obtained by immersing the pretreated steel strip or steel sheet in a plating solution of which the aluminum content is 90%±2% and the silicon content is 10%±2%

3.3 aluminum-zinc alloy coating; AZ

a coating that is obtained by immersing the treated steel strip or steel sheet in a plating solution of which the aluminum content is 55%±3%, the silicon content is 1.6%±0.3%, and the balance is zinc

3.4 base steel thickness

the thickness of steel sheet substrate without metal coating or other coating

3.5 corrugated steel pipe; CSP

a coated steel strip or steel sheet is processed into a corrugated steel pipe

3.6 corrugated steel pipe sheet

a steel sheet or strip that is used to produce corrugated steel pipe (structural corrugated steel pipe, spiral corrugated steel pipe) with coating

3.7 corrugated steel pipe

a large size steel pipe of which the hot-rolled steel sheet is pickled and then rolled into a corrugated sheet, which is hot-dip galvanized or hot-dipped with other coatings by the solvent method, and then assembled with these coated corrugated steel sheets

NOTE: Hot-rolled steel sheet is usually used.

3.8 helical corrugated steel pipe

a steel pipe that is made of coated steel strip through spiral winding process

NOTE: Include various coated helical corrugated steel pipes, corrugated pipes of special material and corrugated pipes of various structures, such as carbon steel corrugated pipes, weather resistant corrugated pipe, stainless steel corrugated pipes.

4 Classification and codes

4.1 Codes

4.1.1 Usage code

The usage code is the initial letter "B" of the Chinese pinyin of the word "Bo" (meaning corrugated in English) in "Bo Wen Guan" (meaning corrugated pipe).

4.1.2 Steel grade code

If the second letter of the steel grade code is C, it represents that the base steel is specified as a cold-rolled base steel. If the second letter is D, it represents that the base steel is specified as a hot-rolled base steel.

4.1.3 Coating type code

The pure zinc coating is expressed as Z. The aluminum-zinc coating is expressed as AZ. The aluminum-silicon coating is expressed as AS.

4.2 Expression method for designation

The designation of steel sheet and strip is composed of four parts: product usage code, steel grade code, specified minimum tensile strength value and coating type code. The specified minimum tensile strength value and the coating type code are connected with a plus sign "+".

Example 1: BC290+Z

It means that the product is steel for corrugated pipes, the base steel is cold-rolled, the minimum tensile strength specified is 290MPa, and is a zinc-coated product.

Example 2: BD380+AZ

It means that the product is steel for corrugated pipes, the base steel is hot-rolled, the minimum specified tensile strength is 380MPa, and is a aluminum-zinc coating product.

4.3 Designation and recommended usage

The designation and usage of steel sheet and strip shall comply with Table 1.

7.8.1 For the coating surface that needs further coating treatment, try to avoid oiling to avoid affecting the effect of subsequent coating. Under normal packaging, transportation, handling and storage conditions, the supplier shall ensure that within 6 months from the date of completion of manufacturing, the steel sheet and strip will not produce black rust on the surface.

NOTE: Usually, the issuance date in the product inspection document is specified as the product's manufacturing completion date.

7.8.2 During the transportation or storage of steel sheet and strip, all surface treatment methods can only provide temporary protection to the product surface. The surface color of the product may change.

7.8.3 The purchaser shall choose the appropriate surface treatment method according to its own product processing technology, coating method and other specific conditions. Try to minimize the storage time of steel sheet and strip.

7.8.4 Choose the right surface treatment. It may reduce the tendency of black rust and friction marks during transportation and storage. At the same time, it can improve the adhesion of the painted layer in the subsequent processing and protect the coating.

7.8.5 If the purchaser requires that the surface is not treated (U), it shall be specified in the contract. For surface defects such as black rust, scratches and friction marks during the handling, storage and use of this type of product, the supplier will not bear the corresponding product quality responsibility.

7.9 Surface treatment method

7.9.1 Chromic acid passivation (C), trivalent chromium passivation (C3) and chromium-free passivation (CN)

The surface treatment can reduce the black rust on the surface of the product during transportation and storage. When using chromic acid passivation treatment, there is a risk of rubbing black spots on the surface. During trivalent chromium passivation treatment, hexavalent chromium substances harmful to human health in the passivation film is restricted. During chromium-free passivation treatment, the passivation film does not contain chromium and chromium ions.

7.9.2 Chromic acid passivation + oiling (CO), trivalent chromium passivation + oiling (CO3) and chromium-free passivation + oiling (CON)

The surface treatment can further reduce the black rust on the surface of the product during transportation and storage. During trivalent chromium passivation treatment, the hexavalent chromium substances harmful to human health in the passivation film is restricted. During chromium-free passivation

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