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Zinc-aluminum Alloy Coated Steel Bars for the Reinforcement of Concrete

钢筋混凝土用锌铝合金镀层钢筋

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Foreword

This Standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This Standard was proposed by China Iron and Steel Association.

This Standard shall be under the jurisdiction of the National Standardization Technical Committee on Steel (SAC/TC 183).

The drafting organizations: Xiamen New Steel Metal Products Co., Ltd., Fujian Sangang (Group) Co., Ltd., Xiamen BFD Roads and Bridges New Technology Co., Ltd., China Metallurgical Information and Standardization Institute, Fujian Haixi Joint Institute of Protective New Materials Co., Ltd., Xiamen Xinning Steel Co., Ltd. and Xiamen Jinhuali Construction Decoration Engineering Co., Ltd.

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Zinc-aluminum Alloy Coated Steel Bars for the Reinforcement of Concrete

1 Scope

This Standard specifies terms and definitions, categories and types, order content, technical requirements, test methods, inspection rules, marking and quality certification of zinc-aluminum alloy coated steel bars for the reinforcement of concrete.

This Standard applies to the continuous hot-dipped zinc-aluminum alloy ribbed steel bars and plain round steel bars for the reinforcement of concrete (hereinafter referred to as steel bars).

2 Normative References

The following referenced documents are indispensable for the application of this document. For dated references, only the edition dated applies to this document. For undated references, the latest edition of the referenced document (including any amendments) applies to this Standard.

GB/T 470 Zinc Ingots

GB 1499.1 Steel for the Reinforcement of Concrete – Part 1: Hot Rolled Plain Bars

GB 1499.2 Steel for the Reinforcement of Concrete – Part 2: Hot Rolled Ribbed Bars

GB/T 2101 General Provisions on Acceptance, Package, Marking and Quality Certificate For Profile Steel

GB/T 3082 Galvanized or Zinc-5% Aluminum-Mixed Mischmetal Alloy-Coated Low Carbon Steel Wire for Armouring Cables

GB/T 4956 Non-magnetic Coatings on Magnetic Substrates – Measurement of Coating Thickness – Magnetic Method

GB/T 6462 Metallic and Oxide Coatings – Measurement of Coating Thickness - Microscopic Method

GB/T 9793 Thermal Spraying – Metallic and Other Inorganic Coatings – Zinc, Aluminium and Their Alloys

GB/T 13825 Metallic Coatings – Hot Dip Galvanized Coatings on Ferrous Materials – Gravimetric Determination of the Mass Per Unit Area

to 1 μm .

6.3.3 Coating bendability

The coating bendability shall be determined by bending test. After bending test, the bending surface of test pieces shall be free from any visible crack or stripping.

6.3.4 Aluminum content

The aluminum content in the zinc-aluminum coatings shall be 0.05% to 0.5% or 4.2% to 6.2%.

6.4 Skipping and repairing

6.4.1 Skipping

The total area of skipping for each meter of steel bar shall not exceed 0.5% of the total area of steel bars; and the number of skipping per meter shall not exceed 3. If the skipping area is more than the above-mentioned value, steel bars shall be re-coated. The skipping areas shall not include the end faces and cutting faces of steel bars.

6.4.2 Repairing

If there are areas needing to be repaired on the surface of steel bars such as skipping or surface damaging, they shall be repaired by applying zinc-rich paint or thermal spraying zinc alloy or other means. Before repairing, remove the oxide skin or other dirt within the repairing area, or take other pretreating measures, in order to ensure the adhesive force between the repairing layer and the base. If they are repaired by thermal spraying, it shall be conducted in accordance with the requirements of GB/T 9793. The coating thickness within the repairing areas is usually more than 30 μm thicker than the coating thickness specified in 6.3.2.

6.5 Technical guide for construction on site

Refer to Annex A for the technical guide for the construction of steel bars on site.

7 Test Method

7.1 Test items

7.1.1 The test items, sampling quantity, sampling methods and test methods for each batch of steel bars shall meet the specifications of Table 2.

Table 2 Test Items, Sampling Quantity, Sampling Methods and Test Methods

S/N	Test item ^a	Sampling quantity/pc(s)	Sampling method	Test method
1	Appearance	3	Take different ones at random	7.2

Annex A

(Informative)

Technical Guide for Construction on Site

A.1 When coated steel bars are handled, abrasion shall be prevented between all bundles of steel bars or between all steel bars.

A.2 When they are handled by machinery, the position in contact with coated steel bars shall be provided with protective measures.

A.3 Coated steel bars shall be unloaded at the location closest to the place where a reinforced concrete structure is laid or closest to the place of a crane in order to facilitate hoisting them into the position of laying.

A.4 When the coated steel bars are piled up, a wood board for separation shall be provided between steel bars and the ground and between the bundles of steel bars. There shall be sufficient supporting points to prevent steel bars from drooping or bending.

A.5 Coated steel bars and ordinary steel bars shall be stored separately.

A.6 When the damaged area of any coated steel bar of 1 m in length exceeds 0.5% of its surface area, the steel bar shall be rejected.

A.7 When the damaged area of any coated steel bar of 1 m in length is less than 0.5% of its surface area, it shall be repaired in accordance with the specifications of 6.4.2.

A.8 Before concreting, the coated steel bars laid shall be checked. If there is any damage, they shall be repaired in accordance with the specifications of 6.4.2.

A.9 The repair materials shall be used in strict accordance with the instructions of the manufacturer. Before repairing, remove all rust of the damaged position with an appropriate method. Before concreting, the repair materials for coated steel bars shall be cured completely.

A.10 When coated steel bars are laid, all supports, base plates and bundling

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