

ICS 77.140.15

CCS H 44



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

GB/T 33953-2025

Replacing GB/T 33953-2017

Corrosion resistance bars for the reinforcement of concrete

钢筋混凝土用耐蚀钢筋

Issued on: August 29, 2025

Implemented on: March 1, 2026

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

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1 Scope

This document specifies the classification, grades, ordering details, manufacturing process, technical requirements, inspection rules, packaging, marking and quality certificates for corrosion resistance bars for reinforced concrete (hereinafter referred to as steel bars), and descriptions of the corresponding test methods.

This document applies to hot-rolled or controlled-rolled and cooled corrosion- resistance ribbed bars for the reinforcement of concrete (hereinafter referred to as corrosion resistance bars) and (marine) high corrosion resistance alloy ribbed bars (hereinafter referred to as high corrosion resistance bars) that meet durability design requirements.

2 Normative references

GB/T 222

GB/T 223.5

GB/T 223.11

GB/T 223.12

GB/T 223.14

GB/T 223.17

3 Terms and definitions

The terms and definitions defined in GB/T 38937 apply to this document.

4 Classification and grade

4.1 Steel bars are classified into grade 400 and grade 500 according to their yield strength characteristics. Based on the difference in corrosion resistance strength, steel bars are classified into corrosion resistance bars and high corrosion resistance bars.

4.2 The composition and meaning of steel bar grades are shown in Table 1.

Table 1 -- Composition and meaning of steel bar grades

5 Order details

Contracts for orders placed in accordance with this document shall include at least the following.

- a) this document number;
- b) product name;
- c) steel bar grade;
- d) the nominal diameter, length, and weight (or quantity, or coil weight) of the steel bar;
- e) special requirements.

6.1 Smelting method

Steel shall be smelted in a converter or electric arc furnace and shall be secondarily refined.

6.2.1 Steel bars are usually delivered in a hot-rolled condition. High corrosion

resistance bars can be delivered in hot-rolled and pickled condition, while corrosion resistance bars can be delivered in controlled-rolled and controlled-cooled condition.

6.2.2 The delivery type of steel bars shall comply with the provisions of GB 1499.2.

7.1 Chemical composition

7.1.1 The chemical composition (cast analysis) of the steel bar shall conform to the specifications in Table 2. Elements such as Nb, Ti, and RE may be added to the steel.

Table 2 -- Chemical composition of steel bars (cast analysis) 7.1.2 The nitrogen content of

the steel shall not exceed 0.012%, and the supplier is permitted not to conduct analysis. A higher nitrogen content is permissible if the steel contains a sufficient amount of nitrogen-binding elements.

7.1.3 The permissible deviation of the chemical composition of finished steel bars shall

comply with the provisions of GB/T 222.

7.2.1 The mechanical property characteristics of steel bars, such as lower yield strength

ReL, tensile strength Rm, percentage elongation after fracture A, and percentage total elongation at maximum force Agt, shall conform to the provisions of Table 3. Among the mechanical property characteristics listed in Table 3, R^eL/ReL is the maximum guaranteed value, and the others are the minimum guaranteed values.

7.2.2 For steel bars with a nominal diameter of 28 mm~40 mm, the percentage elongation after fracture (A) of each grade is allowed to be reduced by 1%; for steel bars with a nominal diameter greater than 40 mm, the percentage elongation after fracture (A) of each grade is allowed to be reduced by 2%.

Table 3 -- Mechanical properties of steel bars

7.3.1 Bending performance

After bending the steel bar 180° according to the bending indenter diameter specified in Table 4, no cracks shall appear on the surface of the bent part.