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

**GB 13788-2024**

Replacing GB/T 13788-2017

**Cold rolled ribbed steel bars**

冷轧带肋钢筋

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## Table of Contents

|     |                                                    |
|-----|----------------------------------------------------|
| 1   | Scope                                              |
| 2   | Normative References                               |
| 3   | Terms and Definitions                              |
| 4   | Designation                                        |
| 5   | Dimensions, Shape, Weight and Allowable Deviations |
| 5.2 | Shape                                              |
| 6   | Raw Materials and Properties...                    |
| 7   | Test Methods...                                    |
| 7.3 | Stress Relaxation Test                             |
| 7.4 | Dimensional Measurements                           |
| 8   | Inspection Rules                                   |
| 9   | Packaging, Marking and Quality Certificate         |

### 1 Scope

GB 13788 is the product standard for cold rolled ribbed steel bar, the reinforcement drawn and ribbed cold from wire rod and used in slabs, precast elements and light concrete work. It sets the grades and designation, the dimensions and the rib geometry, the chemical composition, the mechanical properties in tension and bending, the fatigue and adhesion requirements, and the rules for testing, inspection, marking and delivery. As with several construction materials revised in 2024, the status changed with the edition: the previous text was GB/T 13788-2017, recommended, while this one is a GB without the /T and is therefore mandatory. Issued on 25 June 2024, in force since 25 September 2024. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the edition it replaces are taken from there. The clause text, the tables and the numeric limits are not reproduced on this page - they are in the document itself, which is delivered in full in English translation.

This document specifies the designation, dimensions, shape, weight and allowable deviations, raw materials and properties, test methods, inspection rules, packaging, marking and quality certificate of cold rolled ribbed steel bars (hereinafter referred to as the steel bars). This document is applicable to cold rolled ribbed steel bars for ordinary reinforced concrete, manufacturing welded mesh and prestressing concrete.

### 2 Normative References

The contents of the following documents constitute indispensable clauses of this document through the normative references in the text. 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 222 Permissible Tolerances for Chemical Composition of Steel Products

GB/T 2101 General Requirement of Acceptance, Packaging, Marking and Certification for Section Steel

GB/T 2103 General Requirements for Acceptance, Packaging, Marking and Quality Certification of Steel Wire

GB/T 17505 Steel and Steel Products - General Technical Delivery Requirements

GB/T 21839 Test Methods of Steel for Prestressing Concrete

GB/T 28900 Test Methods of Steel for Reinforcement of Concrete YB/T 081 Rule for Rounding off of Numerical Values and Judgement of Testing Values for Technical Standards of Metallurgy

### 3 Terms and Definitions

The following terms and definitions are applicable to this document.

3.1 cold rolled ribbed steel bars Steel bars with transverse ribs evenly distributed along the length direction on their surface after hot-rolled round wire rods are subjected to cold rolling.

3.4 rib spacing The chord length of the discontinuous part of the transverse rib on the circumference of the steel bars projected on a plane perpendicular to the axis of the steel bars.

### 4 Designation

There are five designations for the steel bars. CRB550, CRB600H, CRB650, CRB800 and CRB800H.

### 5 Dimensions, Shape, Weight and Allowable Deviations

5.1 Nominal Diameter Ranges The nominal diameter range of CRB550 steel bars is 4 mm ~ 12 mm, the nominal diameter range of CRB600H steel bars is 4 mm ~ 16 mm, and the nominal diameters of CRB650 steel bars and above are 4 mm, 5 mm and 6 mm.

#### 5.2 Shape

5.2.1 Shape requirements CRB600H shall have two-sided ribs (see Figure 1), CRB550 and CRB650 shall have three- sided ribs (see Figure 2). Upon negotiation between the supply-side and the demand-side, CRB800 and CRB800H are allowed to adopt other shapes.

5.2.2.6 The specific projected rib area  $f_r$  shall be determined in accordance with Formula (1).

5.3 Dimensions, Weight and Allowable Deviations The dimensions, weight and allowable deviations of the steel bars with two-sided ribs and three- sided ribs shall comply with the stipulations of Table 1. supply-side and the supply-side, it is allowed to be replaced by the inspection data of the same designation continuously produced with the same raw materials and the same process.

7.2 Mechanical Properties The nominal cross-sectional areas listed in Table 1 are used to calculate the strength of the steel bars.

### 7.3 Stress Relaxation Test

7.3.3 The initial test force applied onto the specimen is 70% of the nominal tensile strength of the specimen multiplied by the nominal cross-sectional area of the specimen.

7.3.4 The loading speed is 200 MPa/min 50 MPa/min. The loading of the initial load shall be completed within 3 ~ 5 minutes. After maintaining the load for 2 minutes, start recording the relaxation value.

7.3.5 The length of the specimen is not less than 60 times the nominal diameter.

7.3.6 It is allowed to use test data of at least 120 h to extrapolate the 1,000-h relaxation rate value.

### 7.4 Dimensional Measurements

7.5 Measurement of Weight Deviations When measuring the weight deviations of the steel bars, the length of the specimen shall not be less than 500 mm.

## 8 Inspection Rules

8.1 Inspection and Acceptance The inspection and acceptance of the steel bars shall be carried out by the supply-side's quality supervision department. The demand-side has the right to conduct inspection.

8.3 Sampling Quantity The sampling quantity for steel bar inspection shall comply with the provisions of Table 4.

8.4 Re-inspection and Determination The re-inspection and determination of the steel bars shall comply with the provisions of GB/T 17505.

## **9 Packaging, Marking and Quality Certificate**

9.1 Each plate (bundle) of steel bars shall be evenly tied with no less than 3 tracks, and the ends shall be bent into the plate.

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