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CCS H57



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

GB/T 14993-2025

Replacing GB/T 14993-2008

Wrought superalloy - Hot-rolled and forged bars

变形高温合金 热轧和锻制棒材

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1. Structure and Drafting Rules of Standardization Documents". Drafting. This document supersedes GB/T 14993-2008 "Hot-rolled Alloy Bars for Rotating Components" and GB/T 25828-2010 "High-Temperature Alloys" "General Technical Requirements for Bar Stock". This document is based on GB/T 14993-2008, and integrates the content of GB/T 25828-2010. Compared with GB/T 14993-2008, apart from structural adjustments and editorial changes, the main technical changes are as follows:

- a) Load-bearing components were added using GH1015, GH1035A, GH1139, GH1140, GH2132, GH2150, GH2150A, and GH2696. GH2901, GH3030, GH3039, GH3044, GH3128, GH3536, GH3600, GH3625, GH4033, GH4099, 21 high-temperature alloy grades, including GH4133B, GH4163, and GH5605, and their related requirements (see Chapter 7);
- b) Two new high-temperature alloy grades, GH2132A and GH4220, for rotating components have been added, along with their related technical requirements (see Chapter 7);
- c) Added categories (see Chapter 4);
- d) The name of the smelting method has been changed (see 6.1, 5.1 in the 2008 edition);
- e) The requirements for low magnification have been changed (see 7.3, 5.5 in the 2008 version);
- f) The requirements for high magnification have been changed (see 7.4, 5.6 in the 2008 version);
- g) The requirements for ultrasound testing have been changed (see 7.5, 5.7 in the 2008 edition);

h) Surface roughness requirements have been added (see 7.6.3);

1 Scope

GB/T 14993-2025 is the Chinese national standard on wrought superalloy - hot-rolled and forged bars, in the field of metallurgy. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 29 August 2025 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 March 2026.

Classification: ICS 77.140.60, CCS H57. 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 issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This document specifies the classification and designation of hot-rolled and forged bars (hereinafter referred to as bars) of wrought high-temperature alloys (hereinafter referred to as alloys). The contents, manufacturing process, technical requirements, inspection rules, packaging, marking and quality certificate describe the corresponding test methods. This document applies to wrought high-temperature alloy hot-rolled bars for manufacturing rotating components (hereinafter referred to as rotating component bars) and wrought high-temperature alloy bars for manufacturing load-bearing components. High-temperature alloy hot-rolled and forged bars (hereinafter referred to as load-bearing bars). Their chemical composition is also applicable to high-temperature alloy ingots and billets. and its products.

2. Standard References The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all and amendments) applies. This document. GB/T 222 Permissible Deviations in Chemical Composition of Finished Steel and Alloy Products GB/T 223 (all parts) Chemical Analysis Methods for Iron and Steel and Alloys GB/T 228.1 Metallic materials - Tensile testing - Part

1. Test method at room temperature GB/T 228.2 Metallic materials - Tensile testing - Part

2. High temperature test method GB/T 229 Metallic materials Charpy impact test method GB/T 231.1 Metallic materials - Brinell hardness test - Part

1. Test method GB/T 702-2017 Dimensions, shape, weight and permissible deviations of hot-rolled steel bars GB/T 908-2019 Dimensions, shape, weight and permissible deviations of forged steel bars GB/T 2039 Metallic materials - Uniaxial tensile creep test method GB/T 2101 General Provisions for Acceptance, Packaging, Marking and Quality Certificate of Section Steel GB/T 4162-2022 Ultrasonic Testing Method for Forged and Rolled Steel Bars

GB/T 6060.2 Surface roughness comparison blocks for surfaces machined by grinding, turning, boring, milling, planing and cutting GB/T 6394 Method for Determination of Average Grain Size of Metals GB/T 11170 Determination of Multi-Element Content in Stainless Steel by Spark Discharge Atomic Emission Spectrometry (Conventional Method) GB/T 14992 Grades and Chemical Compositions of High-Temperature Alloys and Intermetallic Compounds GB/T 14999.1-2025 High-Temperature Alloys - Test Methods - Part

1.Low-Magnification Structure GB/T 14999.2-2025 High-Temperature Alloys - Test Methods - Part

2.High-Magnification Structure GB/T 20066 Sampling and Sample Preparation Methods for the Determination of Chemical Composition of Steel and Iron GB/T 20123 Determination of Total Carbon and Sulfur Content in Iron and Steel - Infrared Absorption Method After Combustion in a High-Frequency Induction Furnace (Conventional Method) GB/T 20124 Determination of Nitrogen Content in Iron and Steel - Inert Gas Molten Thermal Conductivity Method (Conventional Method) GB/T 20127 (all parts) Determination of trace elements in iron and steel and alloys GB/T 38939 Determination of Multi-Element Content in Nickel-Based Alloys by Spark Discharge Atomic Emission Spectrometry (Conventional Method) Chemical Analysis Methods for HB5220 (All Parts) High-Temperature Alloy HB20241 (All Parts) High Temperature Alloy Chemical Composition Spectroscopic Analysis Method

3 Terms and Definitions

The terms and definitions defined in GB/T 14992 apply to this document.

4 Classification and Codes

4.1 Bar stock is classified into the following two categories according to its intended use.

- a) For rotating parts;
- b) For load-bearing components.

4.2 Bar stock is divided into two categories according to the processing method used, and the categories and codes are as follows:

- a) UP for pressure processing 1) Hot pressure processing (UHP); 2) Cold pressure processing UCP.
- b) UC for cutting and machining.

5.Order details Contracts or orders placed in accordance with this document should include the following.

- a) This document number;

- b) Product Name;
- c) Alloy grade (or unified numerical designation);
- d) Weight (or quantity);
- e) Intended purpose (for rotating parts or load-bearing parts, see 4.1);
- f) Use the processing method (see 4.2);
- g) Smelting methods (see 6.1);

6 Manufacturing process

6.1 Smelting Method The alloy grades and smelting methods for rotating parts shall conform to the provisions of Table 1, and the alloy grades and smelting methods for load-bearing parts shall conform to the provisions of Table 2. Alternatively, other smelting methods that meet the requirements of this document may be used, as agreed upon by both the supplier and the buyer. The smelting method adopted shall be specified in the contract and quality agreement. The quantity certificate states this. Table

1. Alloy smelting methods for rotating parts

Brand electric arc furnace	Electroslag remelting	electric arc furnace	Vacuum arc remelting	Non-vacuum induction	Electroslag remelting	Vacuum induction	Electroslag remelting	Vacuum induction	Vacuum arc remelting	GH2130 -
- - - -	GH2132A - - - -	- - - -	GH2150A - - - -	- - - -	GH4033 - - - -	- - - -	GH4037 - - - -	- - - -	GH4049 - - - -	- - - -
GH4133B - - - -	GH4220 - - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -

Note. - indicates the smelting method used. Table

2 Alloy Smelting Methods for Load-Bearing Components

Grades of electric arc furnace	electroslag remelting,	non-vacuum induction	electroslag remelting,	vacuum induction	electroslag remelting,	vacuum induction	vacuum arc remelting	GH1015 - - - -	GH1035A - - - -
- GH1139 - - - -	GH1140 - - - -	GH2132 - - - -	GH2150 - - - -	GH2150A - - - -	GH2696 - - - -	- - - -	- - - -	- - - -	- - - -
GH2901 - - - -	GH3030 - - - -	GH3039 - - - -	GH3044 - - - -	GH3128 - - - -	GH3536 - - - -	- - - -	- - - -	- - - -	- - - -
GH3600 - - - -	GH3625 - - - -	GH4033 - - - -	GH4099 - - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -