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Replacing GB/T 28417-2012

Carbon bearing steel

碳素轴承钢

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Foreword

This document was drafted in accordance with the provisions of GB/T 1.1-2020 “*Directives for standardization - Part 1: Rules for the structure and drafting of standardizing documents*”.

This document replaces GB/T 28417-2012 “*Carbon bearing steel*”. Compared with GB/T 28417-2012, in addition to structural adjustments and editorial changes, the main technical changes are as follows:

- a) ADD the classification (see Clause 4);
- b) MODIFY the requirements for dimensions and shape (see 6.1 and 6.2 of this document, 4.1 and 4.2 of the 2012 edition);
- c) ADD the requirements for weight (see 6.3 of this document);
- d) MODIFY the chemical composition (see 7.1 of this document, 5.1 of the 2012 edition);
- e) ADD the requirements for mechanical properties (see 7.4 of this document);
- f) DELETE the requirement for macrostructure rating according to ASTM standards (see 5.4.3 of the 2012 edition);
- g) MODIFY the qualified level of non-metallic inclusions (see 7.7 of this document, 5.5 of the 2012 edition);
- h) MODIFY the requirements for decarburized layer (see 7.8 of this document, 5.6 of the 2012 edition);
- i) MODIFY the internal quality to ultrasonic testing (see 7.10 of this document, 5.9.2 of the 2012 edition);
- j) ADD the surface quality test requirements for high-grade high-quality steel (see 7.11.2 of this document);
- k) MODIFY the test methods (see Clause 8 of this document, Clause 6 of the 2012 edition);
- l) MODIFY the batching rules (see 9.2 of this document, 7.2 of the 2012 edition).

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This document was proposed by China Iron and Steel Association.

Carbon bearing steel

1 Scope

This document specifies the classification, ordering content, dimensions, shape, weight, technical requirements, test methods, inspection rules, packaging, marking and quality certificate of carbon bearing steel.

This document applies to hot-rolled steel bars (hereinafter referred to as steel bars) with a nominal diameter of 20 mm ~ 150 mm for manufacturing automobile hub bearing units. Steel bars for other purposes can refer to this document.

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 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 - Chromazurol S photometric method

GB/T 223.12 Methods for chemical analysis of iron, steel and alloy - The sodium carbonate separation-diphenyl carbazide photometric method for the determination of chromium content

GB/T 223.18 Methods for chemical analysis of iron, steel and alloy - The sodium thiosulfate separation iodimetric method for the determination of copper content

GB/T 223.23 Iron, steel and alloy - Determination of nickel content - The dimethylglyoxime spectrophotometric method

GB/T 223.26 Iron, steel and alloy - Determination of molybdenum content - The thiocyanate spectrophotometric method

GB/T 223.29 Iron, steel and alloy - Determination of lead content - Carrier precipitation-xylene orange spectrophotometric method

GB/T 223.31 Iron, steel and alloy - Determination of arsenic content - Distillation-molybdenum blue spectrophotometric method

GB/T 4336 Carbon and low-alloy steel - Determination of multi-element contents - Spark discharge atomic emission spectrometric method (routine method)

GB/T 6394 Determination of estimating the average grain size of metal

GB/T 8170-2008 Rules of rounding off for numerical values & expression and judgement of limiting values

GB/T 10561 Determination of content of nonmetallic inclusions in steel - Micrographic method using standard diagrams

GB/T 11261 Steel and iron - Determination of oxygen content - The pulse heating inert gas fusion-infra-red absorption method

GB/T 20066 Steel and iron - Sampling and preparation of samples for the determination of chemical composition

GB/T 20123 Steel and iron - Determination of total carbon and sulfur content - Infrared absorption method after combustion in an induction furnace (routine method)

GB/T 32547 Method for magnetic flux leakage testing of round steel

GB/T 38683-2020 Method of ultrasonic testing for large inclusions in bearing steel

3 Terms and definitions

There are no terms or definitions to be defined in this document.

4 Classification

Steel bars are classified into the following two categories according to metallurgical quality:

- a) High-quality steel;
- b) High-grade high-quality steel (with “A” added after the designation).

5 Ordering content

The contract or order for ordering according to this document shall include the following contents:

- a) serial number of this document;
- b) designation;

- c) product name;
- d) specification;
- e) weight (or quantity);
- f) delivery status;
- g) special requirements.

6 Dimensions, shape, weight

6.1 Dimensions

6.1.1 Dimensions and allowable deviations

The dimensions and allowable deviations of steel bars shall comply with the provisions of Group 2 in GB/T 702-2017. Upon request of the purchaser, after negotiation between the supplier and purchaser and indicated in the contract, steel bars with other dimensions and allowable deviations can be provided.

6.1.2 Length

6.1.2.1 The usual length of steel bars is 4000 mm ~ 9000 mm.

6.1.2.2 Steel bars shall be delivered in full length within the specified length range, and the difference between the longest and shortest steel bars in each bundle shall not exceed 1500 mm.

6.1.2.3 The length tolerance of steel bars delivered in fixed length or multiple lengths is $\begin{matrix} +50 \\ 0 \end{matrix}$ mm.

6.2 Appearance

6.2.1 Out-of-roundness

The out-of-roundness of steel bars shall comply with the provisions of GB/T 702-2017. Upon request of the purchaser, after negotiation between the supplier and purchaser and indicated in the contract, steel bars with other out-of-roundness can be provided.

6.2.2 Curvature

The curvature of steel bars shall comply with the provisions of Group 2 in GB/T 702-2017. Upon request of the purchaser, after negotiation between the supplier and purchaser and indicated in the contract, steel bars with other curvatures can be provided.

6.2.3 Torsion

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