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

YB/T 4146-2016

**High-carbon chromium bearing steel seamless steel tubes
(English Translation)**

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Foreword

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

This standard replaces YB/T 4146-2006 "High-carbon chromium bearing steel seamless steel tubes". As compared with YB/T 4146-2006, the main technical changes are as follows.

- MODIFY the size specifications of the steel tube;
- MODIFY the allowable deviations of size;
- MODIFY the requirements for length;
- MODIFY the delivery weight;
- MODIFY the requirements for delivery state;
- ADD new designations;
- MODIFY the requirements for the grades of carbide mesh, carbide ribbon, carbide liquation;
- MODIFY the requirements for decarburization depth;
- MODIFY the requirements for surface quality;
- MODIFY the requirements for non-destructive testing;
- MODIFY the inspection rules.

This standard was proposed by the China Iron and Steel Association.

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

Drafting organizations of this standard. Zhejiang Jianli Co., Ltd., Metallurgical Industry Information Standards Institute, Luoyang Bearing Research Institute Co., Ltd., Jiangsu Huacheng Industrial Pipe Manufacturing Co., Ltd.

1 Scope

This standard specifies the order content, size, shape, weight, technical requirements, test methods, inspection rules, packaging, marking and quality certificate of high carbon-chromium bearing steel seamless steel tube.

This standard applies to the hot-rolled and cold-drawn (rolling) high-carbon chromium bearing steel seamless steel tube (hereinafter referred to as steel tube) which is used to manufacture the rolling bearing parts and other mechanical parts.

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this standard.

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 aluminum content - Chrome-azurol S photometric method

GB/T 223.11 Iron, steel and alloy - Determination of chromium content - Visual titration or potentiometric titration method

GB/T 223.19 Methods for chemical analysis of iron, steel and alloy - The neocuproine-chloroform extraction photometric 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 223.47 Methods for chemical analysis of iron, steel and alloy - The carrier precipitation-molybdenum blue photometric method for the determination of antimony content

GB/T 223.50 Methods for chemical analysis of iron, steel and alloy - The phenylfluorone-CTMAB direct photometric method for the determination of tin content

GB/T 223.58 Methods for chemical analysis of iron, steel and alloy - The sodium arsenite-sodium nitrite titrimetric method for the determination of manganese content

GB/T 223.59 Iron, steel and alloy - Determination of phosphorus content - Bismuth phosphomolybdate blue spectrophotometric method and antimony phosphomolybdate blue spectrophotometric method

GB/T 223.71 Methods for chemical analysis of iron, steel and alloy - The gravimetric method after combustion in the pipe furnace for the determination of carbon content

GB/T 223.72 Iron, steel and alloy - Determination of sulfur content. Gravimetric method

GB/T 224 Iron, steel and alloy - Determination of sulfur content. Gravimetric method

3 Order content

Contracts or orders for ordering steel tubes in accordance with this standard shall include the following.

4.2.1 The allowable deviation of the outer diameter and wall thickness of the steel tube shall comply with the requirements of Table 1. The accuracy grades shall be indicated in the contract. When not indicated, it will be supplied at the ordinary grade.

4.3.1.1 The normal length of hot-rolled steel tubes is 3000 mm ~ 12000 mm.

The normal length of cold-drawn (rolled) steel tubes is 3000 mm ~ 9000 mm.

4.3.2 Length of fixed-length

According to the requirements of the purchaser, through negotiation between the supplier and the purchaser, as indicated in the contract, it may supply the

4.4 Curvature

The curvature of the steel tube shall not exceed the following provisions.

4.5 Out-of-roundness and nonuniformity of wall thickness

The out-of-roundness of the steel tube shall not exceed 60% of the tolerance of outer diameter as specified in Table 1. The nonuniformity of wall thickness of the steel tube shall not exceed 80% of the tolerance of wall thickness as specified in Table 1.

4.7 Delivery weight

Steel tubes are delivered in actual weight.

5.1.1 The designation and chemical composition (melting composition) of the steel, the content of residual elements in the steel, the allowable deviation of the finished product's composition shall comply with the requirements for G8Cr15, GCr15, GCr15SiMn, GCr15SiMo, GCr18Mo in Tables 4 ~ 6 of GB/T 18254-2016, respectively.