

ICS 77.140.75

CCS H48



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

GB/T 17396-2022

Replacing GB/T 17396-2009

Seamless hot-rolled steel tubes for hydraulic pillar service

液压支柱用热轧无缝钢管

Issued on: October 14, 2022

Implemented on: May 1, 2023

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

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Foreword

This document was drafted in accordance with the rules given in GB/T 1.1-2020, Directives for standardization - Part

1. Rules for the structure and drafting of standardizing documents. This document replaces GB/T 17396-2009 Hot-rolled seamless steel tubes for hydraulic pillar service; compared with GB/T 17396-2009, in addition to structural adjustments and editorial changes, the main technical changes are as follows:

- a) Change the allowable deviation of outer diameter and wall thickness (see 5.2; 4.2 of the 2009 edition);
- b) Change the usual length requirements (see 5.4.1; 4.4.1 of the 2009 edition);

- c) Change the allowable deviation requirements for specific length and multiple length (see 5.4.2.2;
4.4.2 of the 2009 edition);
- d) Change the requirements for the curvature in total length (see 5.5.2;
4.5.2 of the 2009 edition);
- e) Change the weight requirements (see 5.8;
4.7 of the 2009 edition);
- f) Delete the designation 20, add the designations 27SiMnRE, 30CrMnSi, 30CrMo (see Table 2; Table 2 of the 2009 edition);
- g) Change the P and S composition requirements of all designations, and change the rare earth content requirements of 30MnNbRE (see Table 2; Table 2 of the 2009 edition);

1 Scope

GB/T 17396-2022 is the Chinese national standard on seamless hot-rolled steel tubes for hydraulic pillar service, 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 14 October 2022 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 May 2023. Classification: ICS 77.140.75, CCS H48. 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 order content, size, shape, weight and allowable deviation, technical requirements, test methods, inspection rules, packaging, marking and quality certificates of seamless hot-rolled steel tubes for hydraulic pillar service. This document applies to the seamless hot-rolled steel tubes for cylinders and pillars used in the manufacture of coal mine hydraulic support cylinders and pillars. It also applies, as a reference, to seamless hot-rolled steel tubes for other hydraulic cylinders and pillars.

2 Normative references

The following documents are normatively referenced in this document and are indispensable for its application. For dated references, only the version corresponding to that date is applicable to this document; for undated references, the latest version (including all amendments) is applicable to this document.

GB/T 222, Permissible tolerances for chemical composition of steel products

GB/T 223.5, Steel and iron - Determination of acid-soluble silicon and total silicon content - Reduced molybdosilicate spectrophotometric method

GB/T 223.11, Iron, steel and alloy - Determination of chromium content - Visual titration or potentiometric titration 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 223.19, 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

3 Terms and definitions

Terms and definitions determined by GB/T 30062 are applicable to this document.

4 Order content

A contract or order for ordering steel tubes under this document shall include, but not be limited to, the following.

5 Size, shape, weight and allowable deviation

5.1 Outer diameter and wall thickness The nominal outer diameter (D) and nominal wall thickness (S) of the steel tube shall comply with the provisions of GB/T 17395. According to the requirements of the buyer and after negotiation between the supplier and the buyer, steel tubes of other outer diameters and wall thicknesses can be supplied.

5.3 Inner diameter and wall thickness As required by the buyer, after it is negotiated between the supplier and the buyer, and indicated in the contract, steel tubes can be supplied according to the inner diameter and wall thickness, where the allowable deviation shall be determined by the supplier and the buyer through negotiation.

5.4 Length

5.4.1 Normal length The normal length of the steel tube is 3 000 mm ~ 12 000 mm. According to the requirements of the buyer and after negotiation between the supplier and the buyer, steel tubes of a length other than the normal length can be supplied.

5.4.2 Specific length and multiple length

5.5 Curvature The curvature per meter of the steel tube shall not be greater than the following.

5.5.2 The full-length curvature of the steel tube shall not exceed 0.10% of the length of the steel tube.

5.6 Out-of-roundness and wall unevenness As required by the buyer, after it is negotiated between the supplier and the buyer and indicated in the contract, the out-of-roundness and wall unevenness of the steel tube shall not exceed 80% of the outer diameter tolerance and wall thickness tolerance respectively.

5.7 End shape The end faces of the steel tube shall be perpendicular to the axis of the steel tube; the burrs of the cut shall be removed.

6.1 Steel designation and chemical composition

6.1.1 The steel designation and chemical composition (melting analysis) shall comply with the requirements in Table

2. As required by the buyer, after it is negotiated between the supplier and the buyer, and indicated in the contract, steel tubes of other designations can be supplied.

6.2 Manufacturing method

6.2.1 Smelting method of steels Steels shall be smelted by the method of electric arc furnace plus out-of-furnace refining or oxygen converter plus out-of-furnace refining. After negotiation between the supplier and the buyer, other methods of higher requirements can be used for smelting.

6.3 Delivery state Steel tubes shall be delivered in hot rolled state. As required by the buyer, after it is negotiated between the supplier and the buyer and specified in the contract, the steel tubes can be delivered in the annealed or quenched and tempered state.

6.4.3 Shock

6.4.3.1 For structural alloy steel tubes, when the outer diameter is not less than 70 mm and the wall thickness is not less than

6.5 mm, a longitudinal impact test at room temperature shall be carried out, and the Charpy V-notch impact absorbed energy of the test sample made of the sample blank after heat treatment shall meet the requirements in Table 3.

6.4.3.3 As required by the buyer, after it is negotiated between the supplier and the buyer and specified in the contract, steel tubes of other designations can be subjected to the Charpy V (U) notch impact test, and the test temperature and impact absorbed energy shall