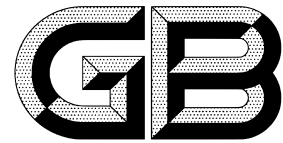


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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 8162-2018

Replacing GB/T 8162-2008

Seamless Steel Tubes for Structural Purpose

结构用无缝钢管

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Standardization Administration of the People's Republic of China..**

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Foreword

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

This Standard replaces GB/T 8162-2008 "Seamless Steel Tubes for Structural Purposes".

Compared with GB/T 8162-2008, the main technical changes are as follows:

- Modified the requirements for steel tube's usual length range and specified length's deviation (see 4.3.1 and 4.3.3.2; for the edition of 2008, see 4.3.1 and 4.3.3.2);
- 12Cr1MoV AND related technical requirements (see 5.1.2, 5.1.3 and 5.4.1; for the edition of 2008, see 5.1.1 and 5.4.1);
- Added the designation and chemical composition of low-alloy high-strength structural steel AND carbon equivalent table (see 5.1.2);
- Added the designation of Q500, Q550, Q620 and Q690 low-alloy high-strength structural steel and related technical requirements (see 5.1.2 and 5.4.1);
- Deleted steel tube's hot extruded manufacturing method (for the edition of 2008, see 5.2.3);
- Added requirements for Q390 designation's flattening test (see 5.5.1);
- Added requirements for galvanized coatings and related technology (see 5.8 and Appendix A).

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

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

Product) AND China Metallurgical Information and Standardization Institute.

1 Scope

This Standard specifies the order content, dimension, shape, weight, technical requirements, test methods, inspection rules, packaging and quality certification for seamless steel tube.

This standard applies to the seamless steel tubes for mechanical structural purposes and general engineering structural purposes.

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.

3 Order Contents

- c) Designation of the steel. If any, quality grade shall be included;
- e) Quantity of order (total weight or total length);

4 Dimensions, Shape and Weight

4.1 Outside Diameter and Wall Thickness

Steel tube's nominal outside diameter (D) and nominal wall thickness (S) shall comply with the provisions of GB/T 17395. According to the requirements of the requester, after the negotiation of both supply-demand parties, steel tubes in other outside diameters and wall thickness can be supplied.

4.2.1 Allowable deviation of steel tube's outside diameter shall comply with the requirements of Unit: mm Type of Steel Tube Allowable Deviation Hot Rolled (Expanding) Steel Tube $\pm 1\%D$ OR ± 0.5 ; Take the larger one Cold Drawn (Rolled) Steel Tube $\pm 0.75\%D$ OR ± 0.3 ; Take the larger one

4.2.2 Allowable deviation of hot rolled (expanding) steel tube's wall thickness shall comply with the requirements of Table 2.

4.2.3 Allowable deviation of cold drawn (rolled) steel tube's wall thickness shall comply with the requirements of Table 3.

4.2.4 According to the requirements of the requester, which shall be indicated in the contract, deviation is outside the scope of the dimension in Table 1, Table 2 and Table 3, it can be supplied.

4.3 Length

4.3.1 Usual Length

Usual length of steel tube is 3000mm~12000mm. According to the requirements of the requester, after the negotiation of both supply-demand parties, for the steel tube which is outside the scope of usual length, it can be supplied.

4.3.2 Range Length

According to the requirements of the requester, which shall be indicated in the contract, after the negotiation of both supply-demand parties, steel tubes can be delivered according to range length.

4.3.3 Specified Length and Multiple-length

4.4 Bending Degree

4.5 Out-of-roundness and Uneven Wall Thickness

According to the requirements of the requester, which shall be indicated in the contract, after the negotiation of both supply-demand parties, steel tube's out-of-roundness and uneven wall thickness shall respectively not exceed 80% of the nominal outside diameter's tolerance and nominal wall thickness's tolerance.

4.6 Shape of End

4.6.1 For the steel tube whose nominal outside diameter is not more than 60 mm, tube end's cut-oblique shall not exceed 1.5mm; for the steel tube whose nominal outside diameter is greater than 60mm, tube end's cut-oblique shall not exceed 2.5% of tube end's outside's diameter, however, its maximum value shall not exceed 6mm. Steel tube's cut-oblique is shown in Figure 1.

4.6.2 Burrs on steel tube's end notch shall be removed.

4.7 Weight

4.7.1 Steel tubes shall be delivered according to the actual weight and can also be delivered according to the theoretical weight. Steel tube's theoretical weight shall be calculated according to 4.7.

5 Technical Requirements

5.1 Steel's Designation and Chemical Composition

structural steel shall comply with the provisions of GB/T 699. structural steel shall comply with the requirements of Table 5. Except that the quality grade is A, carbon equivalent of each designation shall comply with the requirements of Table 6. Carbon equivalent (CEV) shall be calculated, based on smelting analysis component, according to formula (1). 5.1.3 Designation and chemical composition (smelting analysis) of alloy structural steel shall comply with the provisions of GB/T 3077. 5.1.4 According to the requirements of the requester, after the negotiation of both supply- demand parties, for the steel which has other designation and chemical composition, it can be supplied. 5.1.5 When the requester requests to conduct the finished-product analysis, it shall be indicated with the provisions of GB/T 222. a Except for the designation - Q345A and Q345B, steel shall at least contain one of the refined grain elements - Al, Nb, V and Ti.

5.2 Manufacturing Methods