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Seamless stainless steel tubes for structure

结构用不锈钢无缝钢管

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Seamless stainless steel tubes for structure

1 Scope

This document specifies the classification and codes, ordering details, manufacturing process, technical requirements, test methods, inspection rules, packaging, marking, quality certification for seamless stainless steel tubes for structure.

This document applies to seamless stainless steel tubes for general structures or mechanical structures (hereinafter referred to as tubes).

2 Normative references

The contents of the following documents constitute essential provisions of this document through normative references herein. For referenced documents with dates, only the versions corresponding to those dates apply to this document; for referenced documents without dates, the latest versions (including all amendments) apply to this document.

GB/T 222 Steels and alloys - Permissible deviations of product analyzed chemical composition

GB/T 223.4 Iron, steel and alloy - Determination of manganese content - Potentiometric or visual titration method

GB/T 223.9 Iron, steel and alloy - Determination of aluminium content - Chrome azurol S photometric method

GB/T 223.11 Iron, steel and alloy - Determination of chromium content - Titrimetric method and spectrophotometric method

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

GB/T 223.25 Methods for chemical analysis of iron, steel and alloy - The dimethylglyoxime gravimetric method for the determination of nickel content

4 Classification and codes

4.1 Steel tubes are classified into two categories based on the product processing method. Their classifications and codes are as follows:

- a) Cold-rolled (drawn) steel tubes, code W-C;
- b) Hot-rolled (extruded, forged, expanded) steel tubes, code W-H.

4.2 Steel tubes are classified into two grades based on dimensional accuracy. Their grades and codes are as follows:

- a) Ordinary grade, code PA;
- b) High grade, code PC.

4.3 The following symbols apply to this document.

D: Outer diameter (unless otherwise specified, including nominal outer diameter and/or calculated outer diameter, in millimeters)

D_c : Calculated outer diameter (outer diameter calculated as the sum of nominal inner diameter and nominal wall thickness, in millimeters)

d: Nominal inner diameter (in millimeters)

S: Wall thickness (unless otherwise specified, includes nominal wall thickness and/or average wall thickness, in millimeters)

S_c : Average wall thickness (the average of the maximum and minimum wall thicknesses, as calculated based on the minimum wall thickness and its allowable deviation, in millimeters)

S_{min} : Minimum wall thickness (in millimeters)

5 Ordering details

Contracts or orders for steel tubes in accordance with this document shall include the following:

- a) This document number;
- b) Product name;
- c) Steel designation or unified numerical code;
- d) Dimensions;

- e) Ordered quantity (total weight or total length);
- f) Delivery condition;
- g) Special requirements.

6 Manufacturing process

6.1 Steelmaking method

Steel shall be smelted using an electric arc furnace with external refining, a converter with external refining, or electroslag remelting. Other smelting methods may be used upon agreement between the supplier and the purchaser and as specified in the contract.

6.2 Steel tube manufacturing method

Steel tubes shall be manufactured seamlessly using the cold rolling (drawing) or hot rolling (extrusion, forging, expansion) method. If the purchaser specifies a specific manufacturing method, this shall be specified in the contract.

6.3 Delivery condition

6.3.1 Steel tubes shall be delivered in a heat-treated and pickled state. Steel tubes that have been subjected to integral grinding, boring, or protective atmosphere heat treatment may be delivered without pickling. Recommended heat treatment schedules for steel tubes are shown in Table 1.

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