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

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**Welded austenitic stainless steel tubes and pipes for nuclear
power plant**

核电站用奥氏体不锈钢焊接钢管

(English Translation)

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Foreword

This standard 5.1.2,5.4,5.5,6.1,6.4.1.2,6.4.2,6.5,6.9, Chapter 7, Chapter 8, Chapter 9 is mandatory, the rest are Recommended.

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

The standard reference to EN10217-7:2005 "Pressure welded steel tubes - Part 7 - Technical delivery conditions. stainless steel tube" to develop.

The standard proposed by China Iron and Steel Association.

This standard by the National Steel Standardization Technical Committee (SAC/TC183) centralized.

This standard was drafted. Zhejiang Jiuli Special Materials Technology Co., Ltd., Jiangsu Wujin Stainless Steel Co., Ltd., metallurgical industry-standard information Associate Research Institute, Suzhou Thermal Power Research Institute Co., Ltd., Shanxi Taigang Stainless Steel Co., Ltd..

1 Scope

This standard specifies the classification of nuclear power plants with austenitic stainless steel welded pipe, code, size, shape, weight and tolerances, to technology Requirements, test methods, inspection rules, packaging, marking and documentation.

This standard applies to nuclear power plant nuclear safety and non-nuclear Class 2,3 safety device level pressure parts made of austenitic stainless steel welded pipe.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

GB/T 222 chemical composition of finished steel tolerance Determination of GB/T 223.11 steel and alloy chromium content of visual titration or potentiometric titration Spectrophotometric determination of titanium content GB/T 223.16 Methods for chemical analysis of iron, steel and alloy The chromotropic acid GB/T 223.18 Methods for chemical analysis of iron, steel and alloy The sodium thiosulfate separation - determination of copper content Iodometry GB/T 223.19 Methods for chemical analysis of iron, steel and alloy neocuproine - chloroform extraction spectrophotometric determination of copper content GB/T 223.21 Methods for chemical analysis of iron, steel and alloy 5-Cl-PADAB spectrophotometric determination of cobalt content GB/T 223.22 Methods for chemical analysis of iron, steel and alloy nitroso R salt spectrophotometric determination of cobalt content GB/T 223.23 steel and alloy - Determination of nickel content dimethylglyoxime spectrophotometry Determination of nickel content GB/T 223.25 Methods for chemical analysis of iron, steel and alloy dimethylglyoxime gravimetric method GB/T 223.26 steel and alloy - Determination of molybdenum content - Thiocyanate spectrophotometric GB/T 223.28 Determination of molybdenum steel and alloy chemical analysis method alpha-benzoin gravimetric method GB/T 223.36 Methods for chemical analysis of iron, steel and alloy distillation - neutralization titration method for the determination of nitrogen GB/T 223.37 Methods for chemical analysis of iron, steel and alloy distillation - indophenol blue photometric method for the determination of nitrogen GB/T 223.58 Methods for chemical analysis of iron, steel and alloys of sodium arsenite - sodium nitrite determination of manganese content titration GB/T 223.59 Steel and Alloy Determination of phosphorus content by bismuth phosphomolybdate blue spectrophotometric method and antimony phosphomolybdate blue spectrophotometry GB/T 223.60 Methods for chemical analysis of iron, steel and alloy perchloric acid dehydration gravimetric method for the determination of silicon content GB/T 223.62 Methods for chemical analysis of iron, steel and alloy butyl acetate extraction spectrophotometric determination of phosphorus content GB/T 223.63 Methods for chemical analysis of iron, steel and alloy The sodium (potassium) for Determination of amount GB/T 223.64 steel and alloy manganese content - Flame Atomic Absorption Spectrometry Determination of sulfur content of potassium iodate titration method after GB/T 223.68 Methods for chemical analysis of iron, steel and alloy tube furnace combustion GB/T 223.69 after carbon and alloy steel - Determination of the pipe furnace combustion gas volumetric method GB/T 223.72 steel and alloy sulfur content - Gravimetric method GB/T 223.75 Determination of methanol distillation steel and alloy of

boron content - Curcumin spectrophotometric GB/T 223.84 steel and titanium alloys - Determination of two methane antipyrine spectrophotometry After GB/T 223.85 steel and alloy sulfur content induction furnace combustion infrared absorption method After the determination of GB/T 223.86 total carbon content and alloy steel induction furnace combustion infrared absorption method RT Test Method. Test Part 1 GB/T 228.1 metallic materials tensile GB/T 229 metal Charpy pendulum impact test method GB/T 232 metallic materials - Bend test GB/T 241 metal pipe Hydrostatic pressure testing GB/T 246 metal pipe Flattening test methods GB/T 2102 Acceptance, packing, marking and quality certification GB/T 2650 welded joint impact test GB/T 2975 Steel and steel products for mechanical testing and sample preparation position GB/T 3323 metal fusion welded joints radiography Intergranular corrosion of stainless steel crystal GB/T 4334-2008 Corrosion of metals and alloys - Test methods GB/T 4338 high-temperature metallic materials - Tensile testing GB/T 6394 Determination of average grain size of metal GB/T 7735 steel pipe eddy current testing method GB/T 11170 Determination of multi-element stainless steel spark discharge atomic emission spectrometry (Routine method) GB/T 20066 Steel and iron - Sampling and determination of the chemical composition of the sample with a sample preparation method GB/T 20123 Steel - Determination of total carbon and sulfur content of the high-frequency induction furnace combustion infrared absorption method (conventional method) GB/T 20124 Steel - Determination of nitrogen content of inert gas fusion thermal conductivity method (conventional method) GB/T 21835 welded steel pipe size and weight per unit length JB/T 4730.3 Non-destructive testing of pressure equipments - Part 3. Ultrasonic testing JB/T 4730.5 Non-destructive testing of pressure equipments - Part 5. penetrant testing JB/T 7902 NDT radiographic testing linear IQI

3 Classification and designation

3.1

Pipe manufacturing methods fall into two categories by product, category and symbol.

a) the state of welding. H;

b) heat treatment. T.

3.2

The following codes apply to this part.

D. outside diameter (nominal diameter, unless otherwise specified or the calculated diameter, is calculated nominal diameter or outside diameter).

S. Wall thickness (unless otherwise specified nominal wall thickness or wall thickness calculation, the calculation is the nominal wall thickness or wall thickness).

4 Ordering content

Pipe ordered under this standard contract or order should include the following.

- a) the standard number;
- b) the product name;
- c) nuclear safety level;
- d) steel grades;
- e) Dimensions (diameter x wall thickness, in millimeters);
- f) Order number (total weight or length);
- g) Delivery status;
- h) special requirements.

5.1 Diameter and wall thickness

5.1.1

pipe sizes in the range of the outer diameter (D) is not greater than 1219mm, wall thickness (S) is not greater than 50mm, its dimensions should be consistent GB/T 21835 requirements.

According to the requirements, negotiated by both sides, we can supply other than the GB/T 21835 provisions sizes of pipe.

5.1.2

pipe diameter and wall thickness tolerances shall comply with the provisions in Table 1.

Table 1 of the diameter and wall thickness tolerances in millimeters

No.	nominal diameter	Outside diameter tolerance	Wall thickness tolerance	a Non-nuclear
1	≤ 168.3	$\pm 0.5\% D$	$\pm 0.75\% D$	Class 2,3 safety level of nuclear safety non-nuclear security level
2	> 168.3	$\pm 0.5\% D$	$\pm 1\% D$	10% S-0.35 $\pm 10\% S$ in addition to a weld zone thickness.

5.2 Roundness

According to the requirements, negotiated by both sides, and specified in the contract, the roundness of the tubes shall not exceed the outer diameter tolerances.

5.3.1 Usual length

Pipe length is generally 4000mm ~ 12000mm.