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

GB 24512.1-2009

**Seamless steel tubes and pipes for nuclear power plant -- Part
1: Carbon steel seamless tubes and pipes**

核电站用无缝钢管 第1部分：碳素钢无缝钢管

(English Translation)

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Foreword

5.1.2,5.2.2,5.3.1.2,5.3.2.1,5.5,5.7,6.1.2,6.1.3 this section , 6.2.2.2,6.3.2,6.7,6.14.2, 9.2 are recommended, the rest are mandatory.

GB 24512 and the name of the structure is expected to "seamless steel tubes for nuclear power plants" as follows.

--- Part 1. Carbon steel seamless pipe;

--- Part 2. alloy steel seamless steel tubes;

--- Part 3. stainless steel seamless pipe.

This section GB 24512 "nuclear power plant seamless steel pipe," Part 1. This section referring to EN10216-2:2002 "for pressure purposes Seamless steel pipe Technical delivery conditions - Part 2. Unalloyed and alloyed steel high temperature performance "and" ASME Boiler and Pressure Vessel Code, Vol. II A piece of iron-based materials, "the 2007 edition of the SA-106" high temperature carbon steel seamless pipe specification ", SA-210M "Boiler and Superheater carbon steel seamless steel pipe specifications" to develop.

This section Appendix B, Appendix C are normative appendices, Appendix A is an information appendix.

This part is proposed by the China Iron and Steel Association.

This part of the National Steel Standardization Technical Committee (SAC/TC183) centralized.

This section is drafted. Pangang Group Chengdu Iron & Steel Co., Ltd., Metallurgical Industry Information Standards Institute, Suzhou Institute of Thermal Engineering have Ltd., Shenyang East Tube Power Technology Group Limited.

1 Scope

GB 24512 of the provisions of this part of the nuclear power plant with carbon steel seamless pipe classification, code, size, shape, weight and tolerances, technical Operation requirements, test methods, inspection rules, packaging, labeling and quality report.

This section applies to the manufacture of nuclear power plants 1,2,3 and non-nuclear pressure equipment parts Seamless carbon steel (including carbon manganese steel).

2 Normative references

The following documents contain provisions which, through reference in this Part of GB 24512, constitute provisions of this part. For dated reference documents Member, all subsequent amendments (not including errata content) or revisions do not apply to this section, however, encouraged to reach under this section Parties to research agreement to use the latest versions of these documents. For undated reference documents, the latest versions apply to this section.

GB/T 222 chemical composition of finished steel tolerance GB/T 223.5 steel Determination of total soluble silicon and silicon content reduced silicon molybdate salt spectrophotometric method (GB/T 223.5-2008, ISO 4829-1. 1986, ISO 4829-2. 1988, MOD) GB/T 223.9 steel and aluminum alloys - Determination of chromium content Azure S Spectrophotometry Determination of GB/T 223.11 steel and alloy chromium content of visual titration or potentiometric titration (GB/T 223.11-2008, ISO 4937. 1986, MOD) GB/T 223.12 Methods for chemical analysis of iron, steel and alloys of sodium carbonate separation - diphenyl hydrazine spectrophotometric determination of chromium content GB/T 223.14 Methods for chemical analysis of iron, steel and alloys, tantalum reagent extraction and spectrophotometric determination of vanadium content 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 223.23 steel and alloy - Determination of nickel content dimethylglyoxime spectrophotometry GB/T 223.26 steel and alloy - Determination of molybdenum content -

Thiocyanate spectrophotometric GB/T 223.29 steel and alloys of lead content measured carrier precipitation - xylenol orange spectrophotometric method

223.31 Steel Determination GB/T and alloy distillation of arsenic content - Molybdenum blue spectrophotometric method (GB/T 223.31-2008, ISO 17058:2004, IDT) GB/T 223.40 Determination of steel and alloy niobium content sulphochlorophenol S spectrophotometry GB/T 223.50 Methods for chemical analysis of iron, steel and alloy Phenylfluorone - Direct spectrophotometric determination of cetyl trimethyl ammonium bromide Tin GB/T 223.53 Methods for chemical analysis of iron, steel and alloys by flame atomic absorption spectrophotometric method for determination of copper content (GB/T 223.53-1987, eqv ISO/DIS4943. 1986) GB/T 223.54 Methods for chemical analysis of iron, steel and alloys by flame atomic absorption spectrophotometric method for determination of nickel content (GB/T 223.54-1987, eqv ISO/DIS4940. 1986) 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 spectrometric method (GB/T 223.64-2008, ISO 10700:1994, IDT) GB/T 223.67 steel and alloy sulfur content - Methylene blue spectrophotometric method (GB/T 223.67-2008, ISO 10701:1994, IDT) 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 After the determination of carbon content - Gravimetric method GB/T 223.71 Methods for chemical analysis of iron, steel and alloy tube furnace combustion GB/T 223.72 steel and alloy sulfur content - Gravimetric method GB/T 223.76 Methods for chemical analysis of iron, steel and alloys by flame atomic absorption spectrometry of vanadium content GB/T 223.78 Methods for chemical analysis of iron, steel and alloy Curcumin spectrophotometric determination of boron content directly (GB/T 223.78-2000, idt ISO 10153:1997) GB/T 224 Determination of depth of decarburization of steel method (GB/T 224-2008, ISO 3887:2003, MOD) GB/T 226 steel macrostructure and defect etching test method (GB/T 226-1991, neq ISO 4969. 1980) GB/T 228 metal materials at room temperature tensile test method (GB/T 228-2002, eqv ISO 6892:1998) GB/T 229 metal Charpy pendulum impact test method (GB/T 229-2007, ISO 148-1:2006, MOD) GB/T 232 metallic materials - Bend test (GB/T 232-1999, eqv ISO 7438. 1985) GB/T 241 metal pipe Hydrostatic pressure testing GB/T 242 Test Method metal tube expansion port (GB/T 242-2007, ISO 8493:1998, IDT) GB/T 246 metal pipe flattening test method

(GB/T 246-2007, ISO 8492:1998, IDT) GB/T 1979 structure steel macrostructure and defect rating FIG.

GB/T 2102 Acceptance, packing, marking and quality certification GB/T 2975 Steel and steel products for mechanical testing location and sample preparation (GB/T 2975-1998, eqv ISO 377.

1997)

GB/T 4336 carbon steel and low alloy steel spark source atomic emission spectrometry method (conventional method) GB/T 4338 high-temperature metallic materials - Tensile testing (GB/T 4338-2006, ISO 783:1999, MOD) GB/T 5777-2008 Seamless Steel ultrasonic testing method (ISO 9303. 1989, Seamless and welded (except submerged arc-welded) steel tubes for pressure purposes - full peripheral ultrasonic testing for the detection of longitudinal imperfections, MOD) GB/T 6394 Determination of average grain size of metal (GB/T 6394-2002, ASTM E112:1996, MOD) GB/T 7735 steel pipe eddy current testing method (GB/T 7735-2004, ISO 9304. 1989, MOD) GB/T 10561 Steel - Determination of content of nonmetallic inclusions standards diagrams microscopic examination method (GB/T 10561-2005, ISO 4967:1998, IDT) GB/T 12606 pipe magnetic flux leakage inspection method (GB/T 12606-1999, eqv ISO 9402. 1989; ISO 9598. 1989) GB/T 13298 metal microstructure inspection method GB/T 15822 (all parts), non-destructive testing magnetic particle testing GB/T 17395 seamless steel pipe size, shape, weight and tolerances (GB/T 17395-2008, ISO 4200:1991, ISO 5252:1991, ISO 1127:1992, NEQ) GB/T 17505 Steel and steel products General technical delivery requirements (GB/T 17505-1998, eqv ISO 404:1992) GB/T 20066 Steel and iron - Sampling and determination of the chemical composition of the sample with a sample preparation method (GB/T 20066-2006, ISO 14284.

1996, IDT)

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 20123-2006, ISO 15350:2000, IDT) Inductively coupled plasma atomic GB/T 20125 low-alloy steel multi-element emission spectrometry GB/T 20490 Seamless and welded (except submerged arc welded) steel tubes layered ultrasonic testing (GB/T 20490-2006, ISO 10124:1994, MOD) JB/T 4730.5 Non-destructive testing of pressure equipments - Part 5. penetrant testing YB/T 4149 casting tube round YB/T 5137 high-pressure hot-rolled and forged seamless steel tube round

3 Classification and designation

3.1

part by seamless steel pipe manufacturing is divided into two categories, their category and code are as follows.