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

中华人民共和国国家标准

**GB 5310-2008
Replace GB 5310-1995**

**Seamless Steel Tubes and Pipes for High
Pressure Boiler
高压锅炉用无缝钢管**

Issued on October 24, 2008

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Issued by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China (GAQSIQ) and the Standardization Administration of China (SAC)

Foreword

This standard is revised in accordance with EN 10216-2:2002 "Seamless steel tubes for pressure purposes-Technical delivery conditions-Part 2: Non-alloy and alloy steel tubes with specified elevated temperature properties", EN 10216-5:2004 "Seamless steel tubes for pressure purposes-Technical delivery conditions-Part 5: Stainless steel tubes" and SA-106 "Standard Specification for Seamless Carbon Steel Pipe for High-Temperature Service" in the 2004 edition of "ASME boiler and pressure vessel Code Chapter A Volume II-Ferrous Casting", SA-192M "Standard Specification for Seamless Carbon Steel Pipe for High-Temperature Service", SA-209M "Standard Specification for Seamless Carbon-Molybdenum Alloy-Steel Boiler and Superheater Tubes", SA-210M "Standard Specification for Seamless Medium-Carbon Steel Boiler and Superheater Tubes", SA-213M "Standard Specification for Seamless Ferritic and Austenitic Alloy-Steel Boiler, Superheater, and Heat-Exchanger Tubes" and SA-335M "Standard Specification for Seamless Ferritic Alloy-Steel for high pressure".

From the implementation date of this standard, GB 5310-1995 "Seamless Steel Tubes and Pipes for High Pressure Boiler" shall be abolished simultaneously. There have been some significant changes in this national standard over GB5310-1995 in the following aspects:

- Classification and code name are added;
- Dimensions table is cancelled;
- Service type on delivery according to the dimension of minimum wall thickness or nominal inside diameter;
- Allowable deviation of steel tube dimension is modified;
- Mark illustration is deleted;
- 10 steel grades are added; one steel grade is deleted; and steel chemical composition is modified;
- Steel smelting process is modified;
- Heat treatment system of steel tube dimension is modified;
- Mechanical properties of steel tube are modified;
- Method and requirements of flattening test of steel tube are modified;
- Requirements and test methods of bending test are added;
- Requirements of expansion test for steel tube are modified;
- The requirements of non-metallic inclusion, grain size, microscopic structure and decarburized layer of steel tube are modified;
- Intergranular corrosion test requirements of steel tube are added;
- Inspection and acceptance grades of non-destructive inspection of steel tube are modified;
- Specimen requirements of tension test and impact test of steel tube are modified;
- Mechanical property under high temperature of steel tube is modified.

Appendix A, Appendix C and Appendix D in this standard are informative while Appendix B is normative.

Article 5.1, Article 5.2, Article 5.3, Article 5.4, Article 5.6, Article 6.4.4, Article 6.4.5, Article 6.4.6, Article 6.6.3, Article 6.12, Appendix A, Appendix B, Appendix C and Appendix D are voluntary; and the rests are mandatory.

This national standard is proposed by China Iron & Steel Association.

This national standard is under jurisdiction of China Steel Standardization Technical Committee.

Drafting organizations: Panzhihua Steel and Chengdu Steel Co., Ltd. China Metallurgical Information Standardization Research Institute, Baoshan Iron & Steel Co. Ltd., Hengyang Steel Co. Ltd., Shanghai Power Equipment Research Institute, Xi'an Thermal Power Research Institute Co. Ltd., Suzhou Nuclear Research Institute Co. Ltd..

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This national standard replaces the previous versions:

GB 5310-1985, GB 5310-1995.

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Seamless Steel Tubes and Pipes for High Pressure Boiler

1 Scope

This national standard specifies classification, code name, dimension, shape, weight, technical requirements, specimen, test methods, test rules, packaging, mark and quality certificate.

This standard is applicable to seamless tubes for making steam boiler whose pressure is high or higher and seamless tubes used as pipelines.

2 Normative References

The following standards contain provisions which, through reference in this text, constitute provisions of this standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part are encouraged to investigate the possibility of applying the most recent edition of the normative document indicated below. For undated references, the latest edition of the normative document referred to applies.

GB/T 222 *Allowable deviation of steel product analysis*

GB/T 223.5 *Steel: reduced silicomolybdate spectrophotometric method for the determination of the acid soluble silicon and all silicon content*

GB/T 223.10 *Chemical analysis method for steel and alloy: the cupferron separation-chrome azurol S photometric method for the determination of aluminum content*

GB/T 223.11 *Chemical analysis method for steel and alloy: the ammonium persulfate oxidation volumetric method for the determination of chromium content*

GB/T 223.12 *Chemical analysis method for steel and alloy: the sodium carbonate separation-diphenyl carbazide photometric method for the determination of chromium content*

GB/T 223.13 *Chemical analysis method for steel and alloy: the ammonium ferrous sulfate titration method for the determination of vanadium content*

GB/T 223.14 *Chemical analysis method for steel and alloy: the N-benzoyl-N-phenylhydroxylamine extraction photometric method for the determination of vanadium content*

GB/T 223.16 *Chemical analysis method for steel and alloy: the chromotropic acid photometric method for the determination of titanium content*

GB/T 223.17 *Chemical analysis method for steel and alloy: the diantipyryl methane photometric method for the determination of titanium content*

GB/T 223.18 *Chemical analysis method for steel and alloy: sodium thiosulfate separation iodometric method for the determination of copper content*

GB/T 223.23 *Steel and alloy: the dimethylglyoxime spectrophotometric method for the determination of nickel content*

GB/T 223.25 *Chemical analysis method for steel and alloy: the dimethylglyoxime gravimetric method for the determination of nickel content*

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