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GB/T 43107-2023

**Seamless stainless steel tubes for instrumentation pressure
connections in nuclear power plants**

核电站仪表引压用不锈钢无缝钢管

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1. Structure and Drafting Rules of Standardization Documents" Drafting. Please note that some content in this document may be subject to patents. The publisher of this document assumes no responsibility for identifying patents. This document is proposed by the China Iron and Steel Industry Association. This document is under the jurisdiction of the National Steel Standardization Technical Committee (SAC/TC183). This document was drafted by: Zhejiang Zhongda New Materials Co., Ltd., Jiangsu Wujin Stainless Steel Co., Ltd., Jiangsu Yinhuan Precision Steel Pipe Co., Ltd., China Nuclear Power Engineering Co., Ltd., Baofeng Steel Group Co., Ltd., Yongxing Special Materials Technology Co., Ltd., Shanghai Nuclear Engineering Co., Ltd. Cheng Research and Design Institute Co., Ltd., Shanxi Taigang Stainless Steel Pipe Co., Ltd., Changshu Huaxin Special Steel Co., Ltd., Zhejiang Yongshang Special Materials Co., Ltd. Company, Changzhou Lianyi Special Stainless Steel Pipe Co., Ltd., and Metallurgical Industry Information Standards Research Institute. The main drafters of this document. Wu Liyang, Chen Xiaofu, Ding Jinxian, Zhuang Jianxin, Tan Yue, Han Shifeng, Chen Genbao, Xia Shuan, Wang Bowen, Sun Peiyuan, Fang Dewei, Chen Limin, Dong Li, Sun Li, Ji Xiang, Gao Pei, Lu Xiaohui, Zhang Fei, Ding Binhua, Zhang Lijin, Shi Feifei, Xue Jianzhong, Xu Yaosong, Dai Weixing. Stainless steel seamless steel pipe for instrument pressure induction in nuclear power plants

1 Scope

China's national standard for the seamless stainless steel tube used in nuclear power plant instrumentation pressure connections. Impulse lines are the small-bore tubes that carry pressure from a process connection to a transmitter, and in a nuclear plant they are safety-related in a way their size belies: the reactor protection system acts on what those transmitters read, and a line that leaks, blocks or freezes gives a false reading to a system designed to trip the reactor. They also breach the pressure boundary at every connection, in lines too small to inspect internally and too numerous to replace easily. The requirements are accordingly severe for a tube of a few millimetres bore - full traceability, dimensional consistency so that compression fittings seal reliably, freedom from inclusions and surface defects, and a composition and delivery condition that resists the chloride stress corrosion cracking that has caused such failures elsewhere.

This document stipulates the ordering content, size, shape, weight and allowable deviations, and technical requirements of stainless steel seamless steel pipes for instrument pressure induction in nuclear power plants. requirements, test methods, inspection rules, cleaning, packaging, marking and quality certificates. This document applies to stainless steel seamless steel pipes (hereinafter referred to as "steel pipes") used for pressure induction in nuclear power plants with nuclear safety level 2, 3 and non-nuclear level instruments. Others Purpose The stainless steel seamless steel pipe used for instrument pressure induction can be used as a reference.

2 Normative reference documents

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, the dated quotations For undated referenced documents, only the version corresponding to that date applies to this document; for undated referenced documents, the latest version (including all amendments) applies to this document.

GB/T 223.11 Determination of chromium content in steel and alloys by visual titration or potentiometric titration method

GB/T 223.21 Methods for chemical analysis of steel and alloys - Determination of cobalt content by 5-Cl-PADAB spectrophotometry

GB/T 223.25 Chemical analysis methods for steel and alloys - Determination of nickel content by diacetyl oxime gravimetric method

GB/T 223.28 Methods for chemical analysis of steel and alloys - Determination of molybdenum content by alpha-benzoxime gravimetric method

GB/T 223.58 Methods for chemical analysis of steel and alloys - Determination of manganese content by sodium arsenite-sodium nitrite titration method

GB/T 223.59 Determination of phosphorus content in steel and alloys bismuth phosphorus molybdenum blue spectrophotometry and antimony phosphorus molybdenum blue spectrophotometry

GB/T 223.78 Methods for chemical analysis of steel and alloys - Curcumin direct photometric method for determination of boron content

GB/T 223.85 Determination of sulfur content in steel and alloys - Infrared absorption method after combustion in induction furnace

GB/T 223.86 Determination of total carbon content of steel and alloys - Infrared absorption method after combustion in induction furnace

GB/T 223.90 Determination of silicon content in steel and alloys by inductively coupled plasma atomic emission spectrometry

GB/T 223.91 Determination of copper content in steel and alloys by 2,2'-biquinoline spectrophotometry

GB/T 228.1 Tensile testing of metallic materials Part