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

GB/T 3428-2024

Zinc-coated steel wires for overhead electrical conductors

架空导线用镀锌钢线

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Foreword

This document is in accordance with the provisions of GB/T 1:1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting: This document replaces GB/T 3428-2012 "Galvanized steel wire for overhead stranded conductors": Compared with GB/T 3428-2012, in addition to structural adjustments and In addition to editorial changes, the main technical changes are as follows:

- The model and representation method have been changed (see Chapter 4, Appendix C of the:2012 edition);
- Changed the material requirements (see Chapter 5, Chapter 3 of the:2012 edition);
- Changed the elongation requirements for grade 2 and grade 3 strength zinc-coated steel wires, and changed the 1% elongation requirements for grade 4 and grade 5 strength zinc-coated steel wires: Long-term stress and tensile strength requirements (see 6:2, Chapter 6 of the:2012 edition);
- Added grade 6, 7 and 8 strength zinc-coated steel wire and its performance requirements (see Chapter 6);
- Added zinc-aluminum alloy coated steel wire and its performance requirements (see Chapter 6);
- Added coating uniformity requirements and test methods (see 6:4:4 and 7:7:4);
- Added inspection rules (see Chapter 8);
- Added packaging and marking (see Chapter 9);

--- Added the method for determining the aluminum content in zinc-aluminum alloy coating (see Appendix A);

--- Deleted the gas volume method and weight method used to determine the quality of the zinc coating (see Appendix A and Appendix B of the:2012 edition): Please note that some of the contents of this document may involve patents: The issuing organization of this document does not assume the responsibility for identifying patents: This document was proposed by the China Electrical Equipment Industry Association: This document is under the jurisdiction of the National Technical Committee for Standardization of Bare Wires (SAC/TC422): This document was drafted by: Shanghai Cable Research Institute Co., Ltd., Shanghai Guolan Testing Co., Ltd., Zhejiang Guanming Electric Power New Materials Co., Ltd: Co., Ltd., Gongyi Hengxing Metal Products Co., Ltd., Tianjin Huayuan Times Metal Products Co., Ltd., Xianyang Baoshi Steel Pipe and Wire Rope Co., Ltd: Sichuan Donggang New Materials Co., Ltd., State Grid Smart Grid Research Institute Co., Ltd., Aerospace Electric Group Co., Ltd., Hangzhou Cable Co., Ltd: Co., Ltd., Far East Cable Co., Ltd., Jiangsu Zhongtian Technology Co., Ltd., Jiangsu Hengtong Power Intelligent Network Technology Co., Ltd., Yunnan Multi Baosteel Cable Group Co., Ltd., Guangdong Xinyaguang Cable Co., Ltd., Henan Tongda Cable Co., Ltd., Qingdao Hancable Co., Ltd: Co., Ltd., TBEA Shandong Luneng Taishan Cable Co., Ltd., Jiangsu Tongguang Qiangneng Transmission Line Technology Co., Ltd., Wuxi Jiangnan Cable Co., Ltd: Co., Ltd., TBEA Xinjiang Cable Co., Ltd., Kunming Cable Group Kunming Electric Cable Co., Ltd., China Academy of Railway Sciences Group Co., Ltd: Standard Metrology Institute of State Grid Corporation of China, Shaoxing Electric Power Equipment Co., Ltd., and State Grid Liaoning Electric Power Co., Ltd: The main drafters of this document are: Cai Xichuan, Li Guoxing, Wang Hongmei, Tu Guanming, Jiao Zongbao, Yan Lei, He Dong, Zhang Mingliang, Chen Baoan, Yang Minxin, Hu Jianming, Xu Jing, Miao Yaojun, Wu Songmei, Zheng Xiaobin, He Yunping, Wang Junqi, Zhao Xinyuan, Zang Defeng, Gu Yan, Zhang Chuansheng, Zhao Haotan, Song Canfeng, Pan Liko, Wang Jinmiao, Yang Changlong, Miao Xiaolin: The previous versions of this document and the documents it replaces are as follows:

---First published as GB/T 3428-1997 in:1997, first revised in:2002, second revised in:2012;

---This is the third revision: Galvanized steel wire for overhead conductors

1 Scope

GB/T 3428-2024 specifies the zinc-coated steel wire used in the cores of overhead line conductors. In an ACSR conductor the aluminium carries the current and the galvanised steel core carries the load, which means the wire has to hold the span for decades under tension, through ice loads and temperature cycling, while its zinc coating is the only thing preventing corrosion in a joint it is impossible to inspect. The standard sets the models and their designation, the materials, and the technical requirements - surface quality, diameter

and tolerance, mechanical properties, the zinc coating, the joints permitted in the wire, and the calculation of the standard values - together with the test methods for each, the inspection rules and the packaging, marking and delivery documentation. It replaces GB/T 3428-2012 and took effect on 1 November 2024.

This document specifies the model, representation method, material and specifications of galvanized steel wire (including zinc-coated steel wire and zinc-aluminum alloy-coated steel wire) for overhead conductors: Materials, technical requirements, inspection rules, packaging and marking, and describes the corresponding test methods: This document applies to the manufacture, testing and application of galvanized steel wires for overhead conductor structures and/or reinforcement:

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document: For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document: GB/T 470-2008 Zinc ingot

GB/T 1839 Test methods for quality of zinc coating on steel products

GB/T 2972 Test method for copper sulfate on zinc coating of galvanized steel wire

GB/T 40342 Determination of aluminum content in hot-dip galvanized aluminum alloy coating on steel wire

JB/T 8137 (all parts) Delivery trays for wires and cables YS/T 310 Hot-dip zinc alloy ingot

3 Terms and definitions

There are no terms or definitions that require definition in this document:

4 Models and representation methods

1 Model The model of galvanized steel wire for overhead conductors consists of category code, strength grade code and coating level code: The corresponding names are shown in Table 1: Table

1	Code and name	Code	Classification	Code	Name	category
G	Galvanized steel wire	5LG				
zinc-5%	aluminum alloy coated steel wire	10LG				
Zinc-10%	Aluminum Alloy Coated Steel					
Wire power level						