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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 12940-2023

Replacing GB/T 12940-2008

Technical specification for silver-graphite electrical contacts

银石墨电触头技术条件

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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: This document replaces GB/T 12940-2008 "Technical Conditions for Silver Graphite Electrical Contacts": Compared with GB/T 12940-2008, except for structural adjustments In addition to general and editorial changes, the main technical changes are as follows:

a) The symbols, codes and labeling methods have been changed (see Chapter 4, Chapter 3 of the:2008 edition);

b) The chemical composition and mechanical and physical properties have been changed (see 5:3, 4:3 of the:2008 edition);

c) The standard number of the metallographic structure legend has been changed (see 5:4, 4:4 of the:2008 edition);

d) Changed the technical requirements for soldering silver layer (see 5:5, 4:5 of the:2008 edition);

e) The test method requirements for chemical components have been changed (see 6:3:1, 5:3:1 of the:2008 edition);

f) The test method for resistivity has been changed (see 6:3:2:2, 5:3:2:2 of the:2008 edition);

g) Changed the sampling plan and determination rules for chemical components (see 7:4:3:1, 6:4:3:1:1 of the:2008 edition);

h) Changed the sample size code and normal inspection secondary sampling plan (see 7:5, 6:5 in the:2008 version);

i) Changed transportation requirements (see 8:3, 7:3 of the:2008 edition);

j) The storage requirements have been changed (see 8:4, 7:4 of the:2008 edition): 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 Electrical Equipment Industry Association: This document is under the jurisdiction

of the National Electrical Alloys Standardization Technical Committee (SAC/TC228): This document was drafted by: Wenzhou Zhongxi Electrical Alloy Co:, Ltd:, Anhui Xinrui New Materials Co:, Ltd:, Hebei University of Technology, Zhejiang Songfa Composite New Materials Co:, Ltd:, Zhejiang Fuda Alloy Materials Technology Co:, Ltd:, Guilin Jinge Electrical and Electronic Materials Technology Co:, Ltd:, Suzhou City Silver New Materials Co:, Ltd:, Wenzhou Juxing Technology Co:, Ltd:, Zhejiang Metallurgical Research Institute Co:, Ltd:, Guilin Electrical Science Research Institute Co:, Ltd:, Wenzhou Hongfeng Electrical Alloy Co:, Ltd:, Shaanxi Rui New Materials Co:, Ltd:, Henan Kefeng New Materials Co:, Ltd: Co:, Ltd:, Sanyou Lianzhong Group Co:, Ltd:, Wenzhou Yinyu Alloy Co:, Ltd:, China Southern Power Grid Co:, Ltd: Ultra-high voltage transmission Company, Ningbo Electrical Alloy Materials Co:, Ltd:, Zhengzhou Haonuo Welding Materials Co:, Ltd:, Foshan Nuopu Material Technology Co:, Ltd:, State Grid Smart Grid Research Institute Co:, Ltd:, Zhejiang Zhixin New Materials Co:, Ltd:, Ruian Yintong Electric Co:, Ltd:, Yueqing Changhong Electrician Alloy Materials Co:, Ltd:, Metalor Electrical (Suzhou) Co:, Ltd:, Kunming University of Science and Technology: The main drafters of this document: Feng Ruxin, Zhang Xiaohui, Wang Jingqin, Zhao Chengwei, Bai Xiaoping, Jiang Dezhi, Yang Yucai, Huang Guanglin, Yu Xianwang, Zhao Haorong, Cui Defeng, Wu Xinhe, Zhang Hang, Zhang Guoshun, Kang Ruxi, Zheng Caiwei, Fang Su, Zhang Shunle, Wang Haibin, Wang Yongye, Ding Yi, Lou Wenlang, Dai Zhong, Zhou Yong, Yang Hao, Zhou Xiaolong, Jiang Yibin, Yan Lin, Liu Han, Wang Xiaojun, Wei Mingyi: The previous versions of this document and the documents it replaces are as follows:

---First published as GB 12940-1991 in:1991, first revised in:2008;

---This is the second revision: Silver graphite electrical contacts technical conditions

1 Scope

GB/T 12940-2023 is the Chinese national standard on technical specification for silver-graphite electrical contacts, in the field of electrical engineering. The /T suffix marks it as a recommended standard: it is not compulsory by itself, but it becomes binding as soon as a contract, a tender or a customer specification calls it up - which in practice is how most foreign buyers meet it. It was issued on 27 November 2023 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 June 2024. Classification: ICS 29.120.99, CCS K14. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This document specifies the technical requirements, inspection rules, marking, packaging and storage of silver graphite electrical contacts, and describes the test methods: This document applies to the manufacture of silver graphite electrical contacts using

sintering-extrusion or sintering-repressing processes:

Note: In the absence of confusion, "silver graphite electrical contacts" in this document are simply referred to as electrical contacts:

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 2828:1-2012 Enumeration sampling inspection procedures Part 1: Batch-by-batch inspection sampling retrieved by acceptance quality limit (AQL) plan

GB/T 5163 Density, oil content and porosity of permeable sintered metal materials (excluding cemented carbide) Determination

GB/T 5586 Test methods for basic properties of electrical contact materials

GB/T 5587 Basic shapes, dimensions, symbols and markings of silver-based electrical contacts

GB/T 26871 Metallographic test methods for electrical contact materials JB/T 4107:

3 Chemical analysis methods for electrical contact materials Part 3: Determination of carbon content in silver graphite

3 Terms and definitions

There are no terms or definitions to be defined in this document:

4 Symbols, codes and marking methods Silver graphite electrical contacts are coded using a combined coding method: Silver is represented by the two English letters Ag: Graphite uses the English letter C express: The mass fraction of the graphite component is represented by an Arabic numeral: Graphite orientation is represented by two English letters, Pw means no orientation, Qc is the vertical orientation, and Qp is the parallel orientation: If necessary, the soldering silver layer is represented by an English letter, H means with soldering silver layer, N means without soldering: Connect the silver layer: If necessary, the hardness state of the material is represented by an English letter, R is the soft state and Y is the hard state: The coding structure diagram is shown in Figure 1: Ag C () / Hardness state of material (R, Y) Solder silver layer (H, N) Graphite orientation (Pw, Qc, Qp) Mass fraction of graphite component (numeric code) Graphite (letter code) Silver (letter code) Figure

1 Coding structure diagram of silver graphite electrical contacts Example: AgC(3)Qc/HR

represents a vertically oriented silver-graphite electrical contact containing 3% graphite with a welded silver layer in a soft state: