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

GB/T 12971.1-2023

Replacing GB/T 12971.1-2008

**Trolley and contact wires for electric traction - Part 1: Copper
and copper-alloy contact wires**

电力牵引用接触线 第1部分：铜及铜合金接触线

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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 is Part 1 of GB/T 12971 "Contact Wires for Electric Traction". GB/T 12971 has released the following parts.

1. Copper and copper alloy contact wires;

2. Steel-aluminum composite contact wire. This document replaces GB/T 12971.1-2008 "Contact wires for electric traction - Part

1. Copper and copper alloy contact wires" and is consistent with Compared with GB/T 12971.1-2008, in addition to structural adjustments and editorial changes, the main technical changes are as follows:

---Changed the code name and product representation method of the contact line (see Chapter 4, Chapter 3 of the.2008 edition);

---Changed the copper-silver, copper-tin and copper-magnesium alloy contact wire models (see Chapter 4, Chapter 3 of the.2008 edition);

---Added the models and electromechanical properties of copper-chromium-zirconium alloy contact wires and flat bottom double-groove contact wires (see

4.1 and Table 6);

---Changed the material requirements for contact wires (see Chapter 5, Chapter 5 of the.2008 edition);

---Deleted the specification 85 (T) for double-groove copper and copper alloy contact wires, and added specifications for flat-bottom double-groove contact wires (see 6.1, Chapter 4 of the.2008 edition);

---Changed the electromechanical properties of copper-silver, copper-tin and copper-magnesium alloy contact wires (see Table 6, Table 4 and Table 5 of the.2008 version);

---Added winding performance requirements and test methods (see Tables 6 and 7.7);

---Added straightness requirements and test methods (see

1 Scope

GB/T 12971.1-2023 is the Chinese national standard on trolley and contact wires for electric traction - part 1: copper and copper-alloy contact wires, 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 6 August 2023 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 March 2024. Classification: ICS 29.060.10, CCS K11. 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 models and product representation methods, materials, technical requirements, testing and acceptance regulations of copper and copper alloy contact wires for electric traction. Rules and result determination, packaging and marking, storage and transportation, etc. This document applies to the manufacturing, testing and application of copper and copper alloy contact wires for electric traction such as railways, urban transportation, industrial mining and hoisting systems. Use wait.

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 467-2010 Copper cathode

GB/T 3048.2 Test methods for electrical properties of wires and cables Part

3 Terms and definitions

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

4 Torsion test

GB/T 4909.5 Test methods for bare wires Part

5 Bend test

---repeated bending

GB/T 4909.7 Test methods for bare wires Part

6 Determination of bismuth content

GB/T 5121.8 Methods for chemical analysis of copper and copper alloys Part

7 Winding test

GB/T 5121.2 Methods for chemical analysis of copper and copper alloys Part

8 Determination of oxygen content

GB/T 5121.10 Methods for chemical analysis of copper and copper alloys Part

10 Determination of tin content

GB/T 5121.16 Methods for chemical analysis of copper and copper alloys Part

16 Determination of chromium content

GB/T 5121.18 Methods for chemical analysis of copper and copper alloys Part

18 Determination of magnesium content

GB/T 5121.19 Methods for chemical analysis of copper and copper alloys Part

19 Determination of silver content

GB/T 5121.20 Methods for chemical analysis of copper and copper alloys Part

20 Determination of zirconium content

GB/T 5121.27 Methods for chemical analysis of copper and copper alloys Part

27. Inductively coupled plasma atomic emission spectrometry

JB/T 8137.2 Wire and cable delivery pallet Part

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