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

GB/T 6109.23-2025

Replacing GB/T 6109.23-2008

**Enamelled round winding wire - Part 23: Solderable
polyurethane enamelled round copper wire, class 180**

(English Translation)

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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 23 of GB/T 6109 "Enamelled Round Winding Wire". GB/T 6109 has already published the following parts.

---Part 1: General Provisions;

---Part 2: Grade 155 Polyester Enameled Copper Round Wire;

---Part 3: Grade 120 acetal enameled copper round wire;

- Part 4: Grade 130 direct-welding polyurethane enameled copper round wire;
- Part 5: Grade 180 Polyesterimide Enameled Copper Round Wire;
- Part 6: Grade 220 polyimide enameled copper round wire;
- Part 7.130L grade polyester enameled copper round wire;
- Part 9: Grade 130 Polyamide Composite Direct Soldering Polyurethane Enameled Copper Round Wire;
- Part 10: Grade 155 direct-welding polyurethane enameled copper round wire;
- Part 11: Grade 155 Polyamide Composite Direct Soldering Polyurethane Enameled Copper Round Wire;
- Part 12: Grade 180 polyamide composite polyester or polyesterimide enameled copper round wire;
- Part 13: Grade 180 direct-welding polyesterimide enameled copper round wire;
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- Part 15: Grade 130 self-adhesive direct-soldering polyurethane enameled copper round wire;
- Part 16: Grade 155 self-adhesive direct-soldering polyurethane enameled copper round wire;
- Part 17: Grade 180 self-adhesive direct-soldering polyesterimide enameled copper round wire;
- Part 18: Grade 180 self-adhesive polyesterimide enameled copper round wire;
- Part 19: Grade.200 self-adhesive polyamide-imide composite polyester or polyesterimide enameled copper round wire;
- Part 20: Grade.200 polyamide-imide composite polyester or polyesterimide enameled copper round wire;
- Part 21: Grade.200 Polyester-Amide-Imine Enameled Copper Round Wire;
- Part 22: Grade 240 Aromatic Polyimide Enameled Copper Round Wire;
- Part 23: Grade 180 direct-welding polyurethane enameled copper round wire.

This document replaces GB/T 6109.23-2008 "Enamelled Round Winding Wire Part 23: Grade 180 Straight-Welded Polyurethane Enamelled Copper Round Wire", and is consistent with...

Compared with GB/T 6109.23-2008, apart from structural adjustments and editorial changes, the main technical changes are as follows.

---Added the "Method for Representing Winding Wire Products" to the general rules (see 3.2.2);

---The nominal conductor diameter range and maximum immersion time in "Straight Solderability" have been changed (see Chapter 17, Chapter 17 in the 2008 edition);

---A "General Guidelines for Direct Weldability Testing" has been added (see 17.1);

---The requirements for the "pinhole test" have been changed (see Chapter 23, Chapter 23 of the 2008 edition).

This document is equivalent to IEC 60317-51:2014 "Special winding wire product standard Part 51: Grade 180 direct solder polyurethane enameled copper".

Circular line.

The following minimal editorial changes have been made to this document.

---To harmonize with existing standards, the standard name has been changed to "Enameled Circular Winding Wire Part 23: Grade 180 Direct-Solder Polyurethane Enameled Copper".

Circular line.

Please note that some content in this document may involve patents. The issuing organization of this document assumes no 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 on Standardization of Wires and Cables (SAC/TC213).

Introduction

Enamelled round winding wire is a major supporting raw material in the fields of power, motors, electrical appliances, home appliances, electronics, communications, transportation, power grids, and aviation.

First, it has a wide range of applications and covers many fields, and has become an important mechanical industrial product.

GB/T 6109 "Enamelled Round Winding Wire" is the basic standard for enamelled round winding wire products, and it is proposed to consist of the following 22 parts.

---Part 1: General Requirements. This section specifies the performance requirements for self-adhesive or non-self-adhesive enameled copper round windings.

---Part 2: Grade 155 Polyester Enameled Copper Round Wire. The purpose is to specify Grade 155 enameled copper wire with a single enamel layer based on polyester resin.

Performance requirements for circular wires.

---Part 3: Grade 120 Acetal Enameled Copper Round Wire. The purpose is to specify Grade 120 for single-layer enamel coatings based on polyvinyl acetal resin.

Performance requirements for enameled copper round wire.

---Part 4: Grade 130 direct-soldering polyurethane enameled copper round wire. The purpose is to specify Grade 130 single-layer polyurethane resin-based enamel coatings.

Performance requirements for direct-welded enameled copper round wire.

---Part 5: Grade 180 Polyesterimide Enameled Copper Round Wire. The purpose is to specify Grade 180 for single-layer polyesterimide enamel coatings.

Performance requirements for enameled copper round wire.

---Part 6: Grade 220 Polyimide Enameled Copper Round Wire. The purpose is to specify Grade 220 for single-layer polyimide enamel coatings.

Performance requirements for enameled copper round wire.

---Part 7.130L Grade Polyester Enameled Copper Round Wire. The purpose is to specify 130L grade enameled wire with a single enamel coating based on polyester resin.

Performance requirements for copper round wire.

---Part 9: Grade 130 Polyamide Composite Direct Soldering Polyurethane Enameled Copper Round Wire. The purpose is to specify the Grade 130 direct soldering enamel wire with a double-layer coating.

The performance requirements for copper-clad round wires include a primer layer based on polyurethane resin and a topcoat layer based on polyamide resin.

---Part 10: Grade 155 direct-soldering polyurethane enameled copper round wire. The purpose is to specify Grade 155 single-coat polyurethane resin-based wires.

Performance requirements for direct-welded enameled copper round wire.

---Part 11: Grade 155 Polyamide Composite Direct Soldering Polyurethane Enameled Copper Round Wire. The purpose is to specify the grade 155 direct soldering enamel wire with a double-layer coating.

The performance requirements for copper-clad round wires include a primer layer based on polyurethane resin and a topcoat layer based on polyamide resin.

---Part 12: Grade 180 polyamide composite polyester or polyesterimide enameled copper round wire. The purpose is to specify a Grade 180 enameled wire with double coatings.

The performance requirements for copper-clad round wires include a primer layer based on polyester or polyesterimide resin and a topcoat layer based on polyamide resin.