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

GB/T 4074.3-2008

**Winding wires -- Test methods -- Part 3: Mechanical properties
(English Translation)**

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Foreword

GB/T 4074-2008 "Winding wires - Test methods" consists of 8 parts.

- Part 1.General;
- Part 2.Determination of dimensions;
- Part 3.Mechanical properties;
- Part 4.Chemical properties;
- Part 5.Electrical properties;
- Part 6.Thermal properties;
- Part 7.Test procedure for the determination of the temperature index of enamelled winding wires (under consideration);
- Part 8.Test procedure for the determination of the temperature index of enamelled winding wires - Quick-Test method (under consideration).

This Part is Part 3 of GB/T 4074.

This Part is identical to IEC 60851-3.1997 "Winding wires - Test methods - Part 3. Mechanical properties", Edition 2.1 (English version), and amendment No. 2 (2003).

For ease of use, the following editorial changes have been made to this Part.

- REPLACE the comma "," used as a decimal point WITH a decimal point ".".

This Part replaces GB/T 4074.3-1999 from the date of implementation.

Compared with GB/T 4074.3-1999, the main changes in this Part are as follows.

- LIMIT the adherence test of tape wrapped round and rectangular wires in 5.5.4 TO only applicable to adhesive tape wrapped wire products;
- DELETE the requirements for solvent bonding and the corresponding instructions and NOTE 1 in GB/T 4074.3-1999 in Test method 18;
- MODIFY Figure 10 "Test equipment for bond retention of a helical coil";
- MODIFY suggestive Annex A and suggestive Annex B TO informative Annex A and informative Annex B.

Annex A and Annex B of this Part are informative annexes.

This Part was proposed by China Electrical Equipment Industry Association.

Winding wires - Test methods - Part 3.Mechanical
properties

1 Scope

This Part of GB/T 4074 specifies the following methods of test.

- Test method 6.Elongation;
- Test method 7.Springiness;
- Test method 8.Flexibility and adherence;
- Test method 11.Resistance to abrasion;
- Test method 18.Heat or solvent bonding.

For definitions, general notes on methods of test and the complete series of methods of test for winding wires, see GB/T 4074.1.

2 Normative references

The following documents contain the provisions which, through reference in this Part of GB/T 4074, become the provisions of this Part. For dated references, their subsequent amendments (excluding corrigendum) or revisions do not apply to this Part. However, the parties who enter into agreement based on this Part are encouraged to investigate whether the latest versions of these documents are applicable. For undated reference documents, the latest versions apply to this Part.

GB/T 4074.1 Winding wires - Test methods - Part 1.General (GB/T 4074.1-2008,

IEC 60851-1.1996, IDT)

GB/T 4074.2-200 Winding wires - Test methods - Part 2.Determination of dimensions (IEC 60851-2.1997, IDT)

IEC 61033.1991 Test methods for the determination of bond strength of impregnating agents to an enamelled wire substrate

ISO 178.2001 Plastics - Determination of flexural properties

After peeling and rotating, the specimen shall be examined for loss of adhesion. If the coating can be removed from the wire without difficulty (for example with the thumbnail), it shall be considered to have lost its adhesion even if it has not become completely detached from the wire.

One specimen shall be tested. It shall be reported, if loss of adhesion is observed.

5.5 Adherence test

A straight piece of wire of about 300 mm length, shall be elongated in accordance with clause 3 to the percentage specified in the relevant standard.

5.5.1 Enamelled rectangular wire

Before elongation, the coating shall be cut circumferentially through to the conductor at a point approximately in the centre of the measured length. After elongation, the specimen shall be examined for loss of adhesion.

One specimen shall be tested. It shall be reported, if loss of adhesion is observed, measured longitudinally from the cut. If so, the length of loss of adhesion shall be measured in one direction from the cut. The maximum value observed shall be reported after examining all sides of the specimen.

5.5.2 Impregnated fibre covered round and rectangular wire

Before elongation, the insulation shall be removed from all but the central 100 mm of the wire piece. After elongation, the specimen shall be examined for loss of adhesion.

One specimen shall be tested. It shall be reported, if loss of adhesion is observed with the insulation sliding along the conductor in case of round wire or being detached in

case of rectangular wire.

5.5.3 Fibre covered enamelled round and rectangular wire

Before elongation, the insulation shall be cut circumferentially at two places 100 mm apart in the centre of the wire piece through to the conductor. After elongation, the specimen shall be examined for loss of adhesion.

One specimen shall be tested. It shall be reported, if loss of adhesion is observed.

5.5.4 Tape wrapped round and rectangular wire (only applicable to adhesive tape)

Before elongation, the insulation shall be cut circumferentially through to the conductor at a point approximately in the centre of the measured length. After elongation, the specimen shall be examined for loss of adhesion.

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