



**SLOVENSKI STANDARD**  
**SIST EN 60172:2001/A1:2001**  
**01-september-2001**

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**Test procedure for the determination of the temperature index of enamelled winding wires**

Test procedure for the determination of the temperature index of enamelled winding wires

Prüfverfahren zur Bestimmung des Temperaturindex von Lackdrähten

**iTeh STANDARD PREVIEW**

Méthode d'essai pour la détermination de l'indice de température des fils de bobinage émaillés

[SIST EN 60172:2001/A1:2001](https://standards.iteh.ai/catalog/standards/sist/a61f6564-ac11-42f1-b85b-d649c427400/sist-en-60172-2001-a1-2001)

**Ta slovenski standard je istoveten z: EN 60172:1994/A1:1998**

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**ICS:**

29.060.10      Žice      Wires

**SIST EN 60172:2001/A1:2001      en**

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EUROPEAN STANDARD

EN 60172/A1

NORME EUROPÉENNE

EUROPÄISCHE NORM

January 1998

UDC 621.315.33  
ICS 29.060.10

Descriptors: Electrical wire, winding, enamelled wire, thermal endurance test, temperature

English version

**Test procedure for the determination of the temperature index of  
enamelled winding wires  
(IEC 60172:1987/A1:1997)**

Méthode d'essai pour la détermination  
de l'indice de température des fils de  
bobinage émaillés  
(CEI 60172:1987/A1:1997)

Prüfverfahren zur Bestimmung des  
Temperaturindex von Lackdrähten  
(IEC 60172:1987/A1:1997)

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This amendment A1 modifies the European Standard EN 60172:1994; it was approved by CENELEC on 1998-01-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This amendment exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

## CENELEC

European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

### Foreword

The text of document 55/615/FDIS, future amendment 1 to IEC 60172:1987, prepared by IEC TC 55, Winding wires, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as amendment A1 to EN 60172:1994 on 1998-01-01.

The following dates were fixed:

- latest date by which the amendment has to be implemented  
at national level by publication of an identical  
national standard or by endorsement (dop) 1998-10-01
- latest date by which the national standards conflicting  
with the amendment have to be withdrawn (dow) 1998-10-01

Annexes designated "normative" are part of the body of the standard.  
In this standard, annexes A, B and ZA are normative.  
Annex ZA has been added by CENELEC.

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### Endorsement notice

The text of amendment 1:1997 to the International Standard IEC 60172:1987 was approved by CENELEC as an amendment to the European Standard without any modification.

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## Annex ZA (normative)

Normative references to international publications  
with their corresponding European publications

Addition:

| <u>Publication</u> | <u>Year</u> | <u>Title</u>   | <u>EN/HD</u>  | <u>Year</u> |
|--------------------|-------------|--|---------------|-------------|
| IEC 60317          | series      | Specifications for particular types of winding wires   | EN 60317      | series      |
| IEC 60455-3-5      | 1989        | Specification for solventless polymerisable resinous compounds used for electrical insulation<br>Part 3: Specifications for individual materials<br>Sheet 5: Unsaturated polyester impregnating resins | HD 307.3.5 S1 | 1991        |
| IEC 60464-3-2      | 1989        | Specification for insulating varnishes containing solvent<br>Part 3: Specifications for individual materials<br>Sheet 2: Requirements for hot curing impregnating varnishes                            | -             | -           |

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NORME  
INTERNATIONALE  
INTERNATIONAL  
STANDARD

CEI  
IEC

60172

1987

AMENDEMENT 1  
AMENDMENT 1

1997-12

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Amendement 1

**Méthode d'essai pour la détermination  
de l'indice de température des fils  
de bobinage émaillés**

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Amendment 1

**Test procedure for the determination  
of the temperature index of enamelled  
winding wires**

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Commission Electrotechnique Internationale  
International Electrotechnical Commission  
Международная Электротехническая Комиссия

CODE PRIX  
PRICE CODE

H

*Pour prix, voir catalogue en vigueur  
For price, see current catalogue*

## FOREWORD

This amendment has been prepared by IEC technical committee 55: Winding wires.

The text of this amendment is based on the following documents:

|             |                  |
|-------------|------------------|
| FDIS        | Report on voting |
| 55/615/FDIS | 55/641/RVD       |

Full information on the voting for the approval of this amendment can be found in the report on voting indicated in the above table.

Page 3

## CONTENTS

Replace the title of appendix A by the following:

Annex A – Method for calculation of the regression line

Page 5

[SIST EN 60172:2001/A1:2001  
https://standards.iteh.ai/catalog/standards/sist/a61f6564-ac11-42f4-b85b-f9649c427400/sist-en-60172-2001-a1-2001](https://standards.iteh.ai/catalog/standards/sist/a61f6564-ac11-42f4-b85b-f9649c427400/sist-en-60172-2001-a1-2001)

## PREFACE

Add, after the IEC publications mentioned, the following new references:

60317: *Specification for particular types of winding wires*

60455-3-5 (1989): *Specification for solventless polymerisable resinous compounds used for electrical insulation – Part 3: Specifications for individual materials – Sheet 5: Unsaturated polyester impregnating resins*

60464-3-2 (1989): *Specification for insulating varnishes containing solvent – Part 3: Specifications for individual materials – Sheet 2: Requirements for hot curing impregnating varnishes*

Page 7

**1 Scope**

Replace the text of this clause by the following:

This test procedure specifies, in accordance with the provisions of IEC 60216-1, a method for evaluating the temperature index of enamelled and of tape wrapped round and rectangular wire. It does not include fibre-insulated wire or wire covered with tapes containing inorganic fibres.



## 2 Object

*Replace the text of this clause by the following:*

This test procedure is to determine the temperature index of enamelled and of tape-wrapped bare or enamelled, round and rectangular wire in air at atmospheric pressure by change in electric strength. The definition of the temperature index is in accordance with IEC 60216-1. The specimen is unvarnished or varnished with an impregnating agent. Testing varnished specimens will also evaluate the compatibility of the wire insulation with an impregnating agent. Thus the temperature indices of different combinations can be compared.

NOTE – The data obtained according to this test procedure provide the designer and development engineer with information for the selection of winding wire for further evaluation in insulation systems and equipment tests.

Page 9

## 3 Definitions of terms

*Replace the first definition of this clause by the following:*

*Temperature index*

The temperature index is a measure of relative thermal life and is the number, which corresponds to the temperature in degrees Celsius (°C) derived from the thermal endurance graph at 20 000 h, as calculated by equation 6 of annex A.

### 5.1 Preparation

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[f9649c427400/sist-en-60172-2001-a1-2001](https://standards.iteh.ai/catalog/standards/sist/a61f6564-ac11-42f4-b85b-f9649c427400/sist-en-60172-2001-a1-2001)

*Add, between the title and text of this subclause, the following title and note:*

#### 5.1.1 Enamelled round wire with a nominal conductor diameter of 0,800 mm up to and including 1,500 mm

NOTE – For round enamelled wire, in order to avoid undue fragility of the test specimen, experience has shown that nominal conductor diameters of 0,800 mm up to and including 1,500 mm are generally found convenient to handle and test.

Page 11

*Add the following new subclause:*

#### 5.1.2 Tape wrapped round wire and enamelled or tape wrapped rectangular wire

NOTE – Any convenient dimension of round or rectangular wire may be used. However, for ease of forming, it is recommended that the dimensions be such that small bending forces can be used to shape the pieces required to prepare the specimen. Wire with high stiffness will yield specimens with poor wire-to-wire contact areas.

- a) Two straight pieces of wire each of 250 mm length shall be cut from the supply spool.
- b) 10 mm to 15 mm of the insulation shall be removed from one end of each piece of wire to provide for electrical connection.
- c) Each piece shall be formed in a jig, as shown in figure 9. This produces a straight centre section of about 150 mm with bent ends, which provide the necessary flare at both ends of the final specimen.