



SLOVENSKI STANDARD
SIST EN 60851-5:2009/A1:2011
01-oktober-2011

Navijalne žice - Preskusne metode - 5. del: Električne lastnosti

Winding wires - test methods - Part 5: Electrical properties

Wickeldrähte - Prüfverfahren - Teil 5: Elektrische Eigenschaften

Fils de bobinage - Méthodes d'essai - Partie 5: Propriétés électriques

Ta slovenski standard je istoveten z: EN 60851-5:2008/A1:2011

[SIST EN 60851-5:2009/A1:2011](https://standards.iteh.ai/catalog/standards/sist/8243e42e-8da5-4f82-ba53-332aeda44396/sist-en-60851-5-2009-a1-2011)

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ICS:

29.060.10 Žice Wires

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 60851-5/A1

July 2011

ICS 29.060.10

English version

**Winding wires -
Test methods -
Part 5: Electrical properties
(IEC 60851-5:2008/A1:2011)**

Fils de bobinage -
Méthodes d'essai -
Partie 5: Propriétés électriques
(CEI 60851-5:2008/A1:2011)

Wickeldrähte -
Prüfverfahren -
Teil 5: Elektrische Eigenschaften
(IEC 60851-5:2008/A1:2011)

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This amendment A1 modifies the European Standard EN 60851-5:2008; it was approved by CENELEC on 2011-07-26. 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, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

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

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Foreword

The text of document 55/1223/FDIS, future amendment 1 to IEC 60851-5:2008, 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 60851-5:2008 on 2011-07-26.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

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) 2012-04-26
- latest date by which the national standards conflicting with the amendment have to be withdrawn (dow) 2014-07-26

Endorsement notice

The text of amendment 1:2011 to the International Standard IEC 60851-5:2008 was approved by CENELEC as an amendment to the European Standard without any modification.

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IEC 60851-5

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

AMENDMENT 1
AMENDEMENT 1

Winding wires – Test methods –
Part 5: Electrical properties

Fils de bobinage – Méthodes d'essai –
Partie 5: Propriétés électriques

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ICS 29.060.10

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FOREWORD

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

This amendment 1 includes

- in Clause 4 the addition of dielectric breakdown requirements for fully insulated (FIW) zero-defect enamelled round copper wires;
- in Clause 5 the addition of continuity requirements for fully insulated (FIW) zero-defect enamelled round copper wires.

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

FDIS	Report on voting
55/1223/FDIS	55/1251/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.

The committee has decided that the contents of this amendment and the base publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
 - withdrawn,
 - replaced by a revised edition, or
 - amended.
- [SIST EN 60851-5:2009/A1:2011](http://standards.iteh.ai/catalog/standards/sist/8243e42e-8da5-4f82-ba53-332aeda44396/sist-en-60851-5-2009-a1-2011)
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4 Test 13: Breakdown voltage

4.2 Equipment

Add the following new dashed text at the end of the list:

- metal mandrel, 80 mm \pm 3 mm in diameter.

4.3 Enamelled round wire with a nominal conductor diameter up to and including 0,100 mm

Replace the existing title of Subclause 4.3 with the following new title:

4.3 Enamelled round wire

Re-designate the text under 4.3 as the new Subclause 4.3.1 and modify the first paragraph as follows:

4.3.1 Grade 1 to grade 3 with a nominal diameter up to and including 0,100 mm

The test is carried out on a cylinder with a diameter of 25 mm \pm 1 mm. A straight piece of wire with the insulation removed at one end shall be connected to the upper terminal as shown in Figure 1 and wound once around the cylinder. A load as specified in Table 2.1 shall be applied to the lower end of the wire to keep the specimen in close contact with the cylinder.

Renumber Table 2 as follows:

Table 2.1 – Loads applied to the wire

Add the following new Subclause 4.3.2 as follows:

4.3.2 Grade of FIW 3 to FIW 9 with a nominal conductor diameter up to and including 1,600 mm

The test is carried out on a cylinder with a diameter as set out in Table 2.2.

A straight piece of wire with the insulation removed at one end shall be connected to the upper terminal as shown in Figure 1 and wound once around the cylinder. A load as specified in Table 2.2 shall be applied to the lower end of the wire to keep the specimen in close contact with the cylinder.

The test voltage shall be applied according to 4.1 between the conductor of the wire and the cylinder. The test shall be carried out at room temperature. Five specimens shall be tested. The five single values shall be reported.

Table 2.2 – Loads and diameters of test cylinders applied to wire

Nominal diameter mm	Nominal diameter mm	Load N	Diameter of test cylinder mm
Over	Up to and including		
-	0,040	0,080	25 ± 1
0,040	0,045	0,100	25 ± 1
0,045	0,050	0,130	25 ± 1
0,050	0,056	0,160	25 ± 1
0,056	0,063	0,200	25 ± 1
0,063	0,071	0,260	25 ± 1
0,071	0,080	0,330	25 ± 1
0,080	0,090	0,400	25 ± 1
0,090	0,100	0,500	25 ± 1
0,100	0,160	0,600	25 ± 1
0,160	0,250	0,850	25 ± 1
0,250	0,355	1,700	25 ± 1
0,355	0,500	3,400	25 ± 1
0,500	0,710	7,000	50 ± 2
0,710	1,060	13,500	50 ± 2
1,060	1,400	27,000	80 ± 3
1,400	1,600	54,000	80 ± 3

4.4 Enamelled round wire with a nominal conductor diameter over 0,100 mm up to and including 2,500 mm

Replace the existing title of Subclause 4.4 with the following new title:

4.4 Enamelled round wire with a nominal conductor diameter over 0,100 mm up to and including 2,500 mm, grade 1 to grade 3

5 Test 14: Continuity of insulation (applicable to enamelled round and tape wrapped round wire)

5.2 Low-voltage continuity (nominal conductor diameter up to and including 0,050 mm)

Replace the title of Subclause 5.2 with the following new title:

5.2 Low-voltage continuity (nominal conductor diameter up to and including 0,050 mm, grade 1 to grade 3)

5.3 High-voltage continuity (nominal conductor diameter over 0,050 mm up to and including 1,600 mm, grade 1 to grade 3, and over 0,035 mm, up to and including 1,600 mm, grade 3 of FIW 3 to FIW 9)

Replace the title of Subclause 5.3 with the following new title:

5.3 Off-line high-voltage continuity (nominal conductor diameter over 0,050 mm up to and including 1,600 mm)

5.3.2 Equipment

Replace the first dashed item in the list with the following new text:

- high voltage power supply providing a smooth filtered d.c. voltage with a ripple content less than 5 %, with an open circuit test voltage adjustable from 350 V to 3000 V with a short circuit current limited by internal series resistance to $25 \mu\text{A} \pm 5 \mu\text{A}$ at any test voltage with not more than 75 % drop in voltage in case of a 50 M Ω fault resistance;

Table 4 – Fault currents

Replace the existing Table 4 with the following new Table 4:

Table 4 – Off-line HVC fault currents

Test voltage (d.c.) V	Fault current μA
3 000	16
2 500	14
2 000	12
1 500	10
1 000	8
750	7
500	6
350	5

5.3.3 Procedure

Replace this existing text in Subclause 5.3.3 with the following new text:

A wire specimen of $30 \text{ m} \pm 1 \text{ m}$ shall be pulled with a speed of $(275 \pm 25) \text{ mm/s}$ over the high-voltage electrode pulley or through the graphite brush electrode mounted between the earthed guide pulleys with the conductor of the wire and the electrode connected to the electrical circuit, with the open-circuit d.c. test voltage adjusted according to Table 5.1 or Table 5.2, whichever applies, with a tolerance of $\pm 5 \%$ and with a positive polarity with respect to the earthed conductor of the wire.