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# Winding wires - Test methods - Part 2: Determination of dimensions

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| Käesolev Eesti standard EVS-EN 60851-2:2010 sisaldab Euroopa standardi EN 60851-2:2009 ingliskeelset teksti. | This Estonian standard EVS-EN 60851-2:2010 consists of the English text of the European standard EN 60851-2:2009. |
| Standard on kinnitatud Eesti Standardikeskuse 28.02.2010 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas. | This standard is ratified with the order of Estonian Centre for Standardisation dated 28.02.2010 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation. |
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**ICS** 29.060.10

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

# EN 60851-2

December 2009

ICS 29.060.10

Supersedes EN 60851-2:1996 + A1:1997 + A2:2003

English version

# Winding wires - Test methods - Part 2: Determination of dimensions

(IEC 60851-2:2009)

Fils de bobinage - Méthodes d'essai - Partie 2: Détermination des dimensions (CEI 60851-2:2009)

Wickeldrähte - Prüfverfahren - Teil 2: Ermittlung der Maße (IEC 60851-2:2009)

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CENELEC

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

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Ref. No. EN 60851-2:2009 E

## Foreword

The text of document 55/1144/FDIS, future edition 3 of IEC 60851-2, prepared by IEC TC 55, Winding wires, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60851-2 on 2009-11-01.

This European Standard supersedes EN 60851-2:1996 + A1:1997 + A2:2003.

Technical revisions of note include recognition of the use of optical micrometers in determining the dimensions of round and rectangular enamelled wire.

The following dates were fixed:

| | | |
|---|---|---|
| – latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement | (dop) | 2010-08-01 |
| – latest date by which the national standards conflicting with the EN have to be withdrawn | (dow) | 2012-11-01 |

Annex ZA has been added by CENELEC.

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## Endorsement notice

The text of the International Standard IEC 60851-2:2009 was approved by CENELEC as a European Standard without any modification.

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## Annex ZA
(normative)

## Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

| Publication | Year | Title | EN/HD | Year |
|---|---|---|---|---|
| IEC 60851-1 | -[1)] | Winding wires - Test methods - Part 1: General | EN 60851-1 | 1996[2)] |
| IEC 60851-5 | 2008 | Winding wires - Test methods - Part 5: Electrical properties | EN 60851-5 | 2008 |

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[1)] Undated reference.

[2)] Valid edition at date of issue.

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# INTRODUCTION

This part of IEC 60851 forms an element of a series of standards which deals with insulated wires used for windings in electrical equipment. The series has three groups describing

a) methods of test (IEC 60851);

b) specifications (IEC 60317);

c) packaging (IEC 60264).

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# WINDING WIRES – TEST METHODS –

## Part 2: Determination of dimensions

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## 1 Scope

This part of IEC 60851 specifies the following method of test:

– Test 4: Dimensions.

For definitions, general notes on methods of test and the complete series of methods of test for winding wires, see IEC 60851-1.

## 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60851-1, *Winding wires – Test methods – Part 1: General*

IEC 60851-5:2008, *Winding wires – Test methods – Part 5: Electrical properties*

## 3 Test 4: Dimensions

### 3.1 Equipment

#### 3.1.1 Round and rectangular wire

The equipment used shall have a resolution of 2 μm or less for wires over 0,200 mm and for wires up to and including 0,200 mm, a resolution of 1 μm or less. Both mechanical contact and optical non-contact micrometers may be used. If mechanical contact micrometers are used, the ratio of measuring force and anvil diameter shall be in accordance with the range as given in Table 1a and Table 1b. The diameter range of the spindle and anvil is also given in Table 1a and Table 1b. If optical micrometers are used, the average of the readings shall be recorded as the diameter of the conductor. If a specific measuring equipment must be used, it shall be agreed upon between the customer and the supplier.

**Table 1 – Types of winding wires**

**Table 1a – Enamelled round wire**

| **Type of winding wire** | **Nominal conductor diameter** mm | **Anvil diameter** mm | **Measuring force(N)/anvil diameter(mm) = P(N/mm)** |
|---|---|---|---|
| Enamelled round wire | ≤ 0,100 | 2 to 8 | $0,01 \leq P \leq 0,16$ |
| | $0,100 < d \leq 0,45$ | 5 to 8 | $0,16 < P \leq 0,32$ |
| | > 0,45 | 5 to 8 | $0,32 < P \leq 0,80$ |