



NSAI
Standards

Irish Standard
I.S. EN 50304:2009

Electric cooking ranges, hobs, ovens
and grills for household use - Methods
for measuring performance (IEC
60350:1999 (MOD) + A1:2005 (MOD) +
A2:2008 (MOD))

© NSAI 2009 No copying without NSAI permission except as permitted by copyright law.

I.S. EN 50304:2009

Incorporating amendments/corrigenda issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation - recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

| | | |
|---|---|---|
| <i>This document replaces:</i> EN 50304:2001 | <i>This document is based on:</i> EN 50304:2009 EN 50304:2001 | <i>Published:</i> 31 March, 2009 14 May, 2001 |
| This document was published under the authority of the NSAI and comes into effect on: 9 July, 2009 | | ICS number: 97.040.20 |
| NSAI 1 Swift Square, Northwood, Santry Dublin 9 | T +353 1 807 3800 F +353 1 807 3838 E standards@nsai.ie W NSAI.ie | Sales: T +353 1 857 6730 F +353 1 857 6729 W standards.ie |
| Údarás um Chaighdeáin Náisiúnta na hÉireann | | |

English version

**Electric cooking ranges, hobs, ovens and grills for household use -
 Methods for measuring performance**
 (IEC 60350:1999 + A1:2005 + A2:2008, modified)

Cuisinières, foyers de cuisson, fours
 électriques et grils à usage domestique -
 Méthodes de mesure de l'aptitude à la
 fonction
 (CEI 60350:1999 + A1:2005 + A2:2008,
 modifiée)

Elektrische Herde, Kochmulden, Backöfen
 und Grillgeräte für den Hausgebrauch -
 Verfahren zur Messung der
 Gebrauchseigenschaften
 (IEC 60350:1999 + A1:2005 + A2:2008,
 modifiziert)

This European Standard was approved by CENELEC on 2008-12-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard 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 European Standard 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, 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

Central Secretariat: avenue Marnix 17, B - 1000 Brussels

Foreword

This European Standard was prepared by the Technical Committee CENELEC TC 59X, Consumer information related to household electrical appliances.

A first draft, based on IEC 60350:1999 + A1:2005, with common modifications prepared by CENELEC TC 59X, was submitted to the Unique Acceptance Procedure.

The text of document 59K/161/FDIS, future amendment A2 to IEC 60350:1999, was submitted the IEC-CENELEC parallel vote procedure. A further draft amendment (prAA), covering the common modifications requested by the National Committees during the parallel vote on IEC 60350:1999/A2 (59K/161/FDIS), was submitted to the formal vote.

The combined texts were approved by CENELEC on 2008-12-01 for publication as a consolidated edition of the double-numbered European Standard EN 50304/EN 60350, consisting of IEC 60350:1999 + A1:2005 + A2:2008 + common modifications + the text of EN 50304:2001.

This European Standard supersedes EN 50304:2001 (+ corrigendum March 2002) and EN 60350:1999 (+ corrigendum February 2000).

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) 2009-12-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2009-12-01

According to the decision of CLC/TC 59X, taken at the meeting in Brussels in January 2006, this European Standard has been drawn up as a document which follows, as far as suitable, the structure of IEC 60350:1999 + A1:2005 + A2:2008.

In this European Standard the common modifications to the International Standard are indicated by a vertical line in the left margin of the text.

This European Standard has been prepared under Mandate M/203 given to CEN and CENELEC by the European Commission.

This European Standard is suitable for direct comparison and is considered sufficiently reproducible within given limits for the purpose of energy labelling according to the Commission Directive 92/75/EEC on "Indication by labelling and standard product information of the consumption of energy and other resources by household appliances". All paragraphs which are relevant for the measuring of energy labelling are listed in Annex ZA.

This European Standard also defines permitted tolerances to values declared by the manufacturer and control procedures for checking these values.

Words in **bold** in the text are defined in Clause 3.

Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 60350:1999 are prefixed "Z".

Contents

| | |
|---|----|
| Foreword | 1 |
| 1 Scope | 6 |
| 2 Normative references | 6 |
| 3 Definitions | 6 |
| 4 List of measurements | 8 |
| 4.1 Dimensions and mass | 8 |
| 4.2 Hotplates and cooking zones | 8 |
| 4.3 Oven | 9 |
| 4.4 Grill | 9 |
| 4.5 Warming compartments | 9 |
| 4.6 Cleaning | 9 |
| 5 General conditions for the measurements | 9 |
| 5.1 Test room | 9 |
| 5.2 Electricity supply | 9 |
| 5.3 Instrumentation | 10 |
| 5.4 Positioning the appliance | 10 |
| 5.5 Preheating | 10 |
| 5.6 Setting of controls | 11 |
| 6 Dimensions and mass | 11 |
| 6.1 Overall dimensions | 11 |
| 6.2 Dimensions of hotplates and cooking zones | 11 |
| 6.3 Usable internal dimensions and usable volume of ovens | 11 |
| 6.4 Overall internal dimensions and overall volume of ovens | 12 |
| 6.5 Dimensions of shelves | 13 |
| 6.6 Dimensions of grill grids | 13 |
| 6.7 Dimensions of warming compartments | 13 |
| 6.8 Level of hotplates | 14 |
| 6.9 Distance between hotplates or cooking zones | 14 |
| 6.10 Level of shelf | 14 |
| 6.11 Mass of the appliance | 14 |
| 7 Hotplates and cooking zones | 15 |
| 7.1 Ability to heat water | 15 |
| 7.2 Ability to control the temperature of a load | 15 |
| 7.2.1 Temperature control | 15 |
| 7.2.2 Temperature overshoot | 16 |
| 7.3 Heat distribution | 16 |
| 7.3.1 Recipe for pancakes | 16 |
| 7.3.2 Procedure | 17 |
| 7.3.3 Assessment | 17 |
| 7.4 Heat performance of hobs | 17 |
| 7.4.1 Test purpose | 17 |
| 7.4.2 Test procedure | 17 |
| 8 Ovens | 19 |
| 8.1 Preheating the empty oven | 19 |
| 8.2 Accuracy of the control | 20 |

| | | |
|-----------------------|--|----|
| 8.3 | Energy consumption and time for heating a load | 20 |
| 8.3.1 | Test load | 20 |
| 8.3.2 | Measurement..... | 21 |
| 8.3.3 | Evaluation and calculation | 24 |
| 8.3.4 | Reporting of test results | 25 |
| 8.4 | Heat distribution | 25 |
| 8.4.1 | Shortbread | 25 |
| 8.4.2 | Small cakes..... | 26 |
| 8.5 | Ability to supply heat | 33 |
| 8.5.1 | Fatless sponge cake..... | 33 |
| 8.5.2 | Apple pie..... | 34 |
| 9 | Grills | 35 |
| 9.1 | Grilling area | 35 |
| 9.1.1 | Procedure..... | 35 |
| 9.1.2 | Assessment..... | 36 |
| 9.2 | Grilling | 36 |
| 9.2.1 | Ingredients | 36 |
| 9.2.2 | Procedure..... | 36 |
| 9.2.3 | Assessment..... | 36 |
| 10 | Warming compartments | 37 |
| 11 | Cleaning..... | 37 |
| 11.1 | Spillage capacity of hobs..... | 37 |
| 11.2 | Pyrolytic self-cleaning ovens | 37 |
| 11.3 | Ovens with catalytic cleaning | 38 |
| 12 | Standby power | 38 |
| Z1 | Tolerances and control procedures..... | 39 |
| Annex A (normative) | Colour measuring instrument | 50 |
| Annex B (normative) | Shade chart | 51 |
| Annex C (informative) | Addresses of suppliers | 53 |
| Annex D (normative) | Description of the test brick..... | 58 |
| Annex E (informative) | Calculation sheet: Energy consumption of electric ovens..... | 60 |
| Annex ZA (normative) | Overview – Clauses required for the Commission Directive on Energy Labelling..... | 63 |
| | Bibliography..... | 64 |
| | Figure 1 – Dimensions of appliances | 41 |
| | Figure 2 – Dimensions of built-in ovens | 42 |
| | Figure 3 – Dimensions of built-in hobs | 43 |
| | Figure 4 – Internal dimensions of ovens..... | 44 |
| | Figure 5 – Device for checking the level of hotplates and shelves..... | 45 |
| | Figure 6 – Saucepan..... | 46 |
| | Figure 7 – Frying pan..... | 47 |
| | Figure 8 – Shape of the nozzle for extruding pastry | 48 |
| | Figure 9 – Position of pastry strips on the baking sheet | 48 |
| | Figure 10 – Position of the thermocouple for measuring ambient temperature..... | 49 |
| | Figure 11 – Example of a method of fixing a thermocouple for the test of 8.3..... | 49 |

Figure A.1 – Colour measuring instrument 50

Figure D.1 – Position of the thermocouples..... 59

Table 1 – Quantity of water in the saucepan 15

Table 2 – Ingredients and cooking durations 16

Table 4 – Quantities..... 18

Table 5 – Frying times 18

Table 6 – Oven settings 22

Table 3 – Ingredients 27

Table B.1 – Classification of shade numbers..... 51

Table B.2 – Examples for the shade charts 51

Table C.1 – Ingredient specification 54

1 Scope

This European Standard defines methods for measuring the performance of electric **cooking ranges, hobs, ovens** and **grills** for household use.

NOTE 1 Appliances covered by this standard may be built-in or for placing on a working surface or the floor.

NOTE 2 This standard does not apply to

- microwave **ovens** (EN 60705),
- portable appliances for cooking, grilling and similar functions (EN 61817).

This standard defines the main performance characteristics of these appliances which are of interest to the user and specifies methods for measuring these characteristics.

NOTE 3 Some of the tests which are specified in this standard are not considered to be reproducible since the results may vary between laboratories. They are therefore intended for comparative testing purposes only.

This standard does not specify requirements for performance.

NOTE 4 This standard does not deal with safety requirements (EN 60335-2-6 and EN 60335-2-9).

NOTE 5 For measurement of energy consumption and time for heating a load (see 8.3), this standard is furthermore not applicable to:

- microwave combination **ovens**;
- **small cavity ovens**;
- **ovens** without adjustable temperature control;
- heating functions other than defined in 3.16 to 3.18.

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.

EN 60584-2:1993, *Thermocouples – Part 2: Tolerances* (IEC 60584-2:1982 + A1:1989)

EN 62301:2005, Household electrical appliances – Measurement of standby power (IEC 62301:2005, mod.)

ISO 7724-1:1984, *Paints and varnishes – Colorimetry – Part 1: Principles*

ISO 7724-2:1984, *Paints and varnishes – Colorimetry – Part 2: Colour measurement*

ISO 7724-3:1984, *Paints and varnishes – Colorimetry – Part 3: Calculation of colour differences*

ISO/CIE 10526:1991, *CIE standard colorimetric illuminants*

ISO/CIE 10527:1991, *CIE standard colorimetric observers*

CIE 15.2:1986, *Colorimetry*

3 Definitions

For the purposes of this document the following definitions apply.

3.1

cooking range

appliance having a **hob** and at least one **oven**. It may incorporate a **grill**

This is a free preview. Purchase the entire publication at the link below:

I.S. EN 50304 : 2009 : EN : COMBINED PDF

-
- ⊙ Looking for additional Standards? Visit SAI Global Infostore
 - ⊙ Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation
-

Need to speak with a Customer Service Representative - Contact Us