

SLOVENSKI STANDARD
SIST EN 50242:2008/A11:2012
01-november-2012

Električni pomivalni stroji za gospodinjstva - Metode za merjenje lastnosti (IEC 60436:2004/A1:2009, spremenjen + IEC 60436:2004/A2:2012, spremenjen)

Electric dishwashers for household use - Methods for measuring the performance (IEC 60436:2004/A1:2009, modified + IEC 60436:2004/A2:2012, modified)

Elektrische Geschirrspüler für den Hausgebrauch - Messverfahren für Gebrauchseigenschaften (IEC 60436:2004/A1:2009, modifiziert + IEC 60436:2004/A2:2012, modifiziert)

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Lave-vaisselle électriques pour usage domestique - Méthodes de mesures de l'aptitude à la fonction (CEI 60436:2004/A1:2009, modifié + CEI 60436:2004/A2:2012, modifié)

Ta slovenski standard je istoveten z: EN 50242:2008/A11:2012

ICS:

97.040.40 Pomivalni stroji Dishwashers

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 50242/A11

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ICS 97.040.40

English version

**Electric dishwashers for household use -
Methods for measuring the performance**
(IEC 60436:2004/A1:2009, modified + IEC 60436:2004/A2:2012, modified)

Lave-vaisselle électriques pour usage
domestique -
Méthodes de mesures de l'aptitude à la
fonction
(CEI 60436:2004/A1:2009, modifié +
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Elektrische Geschirrspüler für den
Hausgebrauch -
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(IEC 60436:2004/A1:2009, modifiziert +
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This amendment A11 modifies the European Standard EN 50242:2008; it was approved by CENELEC on 2012-08-06. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

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CENELEC

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

Management Centre: Avenue Marnix 17, B - 1000 Brussels

Foreword

This amendment (EN 50242:2008/A11:2012 / EN 60436:2008/A11:2012) includes the texts of IEC 60436:2004/A1:2009 and IEC 60436:2004/A2:2012 prepared by IEC subcommittee 59A "Electric dishwashers" of IEC/TC 59 "Performance of household and similar electrical appliances", together with the common modifications prepared by CLC/TC 59X "Performance of household and similar electrical appliances".

The following dates are fixed:

- latest date by which this document has to be implemented (dop) 2013-08-06
at national level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting (dow) 2015-08-06
with this document have to be withdrawn

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

Clauses, subclauses, notes, tables, figures and annexes which are new common modifications are **written in red letters**.

Clauses, subclauses, notes, tables, figures and annexes which are referring to those in IEC 60436:2004/A1:2009 and IEC 60436:2004/A2:2012 are identified by vertical lines in the left margin.

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

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For the relationship with EU Regulation No 1016/2010, see informative Annex ZZ, which is an integral part of this document.

Endorsement notice

The texts of the International Standards IEC 60436:2004/A1:2009 and IEC 60436:2004/A2:2012 were approved by CENELEC as a European Standard with agreed common modifications.

Introduction

The Technical Subcommittee IEC/SC 59A, Electric dishwashers, of IEC/TC 59, Performance of household and similar electrical appliances, issued an amendment IEC 60436:2004/A2:2012 to the International Standard IEC 60436:2004. IEC 60436:2004 is approved as EN 50242:2008 / EN 60436:2008.

Due to Commission Delegated Regulation (EU) No 1059/2010 of 28 September 2010 supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to energy labelling of household dishwashers, these common modifications became necessary. They also follow Mandate M/481 to CEN, CENELEC and ETSI for standardisation in the field of household dishwashers relating to Directive 2009/125/EC of the European Parliament and of the Council and to Directive 2010/30/EU of the European Parliament and of the Council.

This document submits all common modifications necessary for the application of IEC 60436:2004/A1:2009 and IEC 60436:2004/A2:2012 in Europe.

In addition, this document submits all modifications to EN 50242:2008/EN 60436:2008 which are necessary due to the above mentioned Regulation of the European Union.

The common modifications to IEC 60436:2004/A2:2012 cover the following issues:

- The “new” Miele Reference Dishwasher (Model G 1222 SC Reference) and the “new” Bosch Microwave oven (HMT742C) added to the actual ones because availability ended. With both new appliances, ring testing has been done and has shown that both the Miele Model G 1222 SC References Dishwasher and the Bosch HMT 742 C Microwave Oven are equivalent regarding their performances to the Miele G590/595 and the Bosch HMT 752 F respectively.
- Revised small bowl specification – the current bowl (named “small serving bowl” as well as “fruit bowl”) is out of production and will become unavailable as the existing stock is depleted. This alternate bowl is necessary. This bowl (“dessert bowl”) has been tested and found to be acceptable. Throughout this document, the names “small serving bowl” and the “fruit bowl” have been changed to “dessert bowl”. This applies to Clause 6 and to Annex A of EN 50242:2008 / EN 60436:2008.
- New cutlery - the current cutlery (WMF series Berlin) is out of production and will become unavailable as the existing stock is depleted. The alternate cutlery (WMF series Signum/Gastro) has been tested and found to be acceptable. Alternative replacement cutlery items for Annex A are described in A.2 and A.3. It is not allowed to mix the two different cutlery series Berlin and Signum/Gastro because with the new version of the standard only the Signum/Gastro cutlery is allowed.
- The inclusion of the relevant low power modes for dishwashers as a new Annex O which references to EN 50564 concerning requirements e.g. measuring instruments or ambient conditions for the measurement of low power. Annex O describes a different procedure than those described in the EN 50564 and is specially developed to measure low power modes of dishwasher. Annex O should be used as an instruction for the measurement procedure regarding e.g. measurement durations, averaging of values etc.
- A more detailed description on how to calibrate and work with the new microwave oven introduced with IEC 60436:2004/A1:2009.
- Annex B “AHAM style load” is deleted because there is no use of this annex on the European level.

COMMON MODIFICATIONS

2 Normative references

Add the following new references:

EN 50564:2011, *Electrical and electronic household and office equipment – Measurement of low power consumption (IEC 62301:2011, modified)*

FprEN ISO 80000-1:2012¹⁾, *Quantities and units – Part 1: General (ISO 80000-1:2009)*

3 Terms and definitions

In 3.16, delete Note 2.

In 3.17, replace the text of the definition by the following:

lowest power consumption mode that may persist for an indefinite time after the completion of the programme, opened and unlatched door without any further intervention of the user

In 3.18, delete the note.

Add the following new definitions:

3.Z1

left on mode duration

time for the dishwasher to revert automatically to off mode after the end of the programme with the door unlatched and opened; mode applies if the dishwasher is equipped with a power management system

Note 1 to entry: The left on mode duration is declared by the manufacturer.

Note 2 to entry: End of programme is reached when end of programme indicator is activated or when all activities ceases if there is no end of programme indicator (according to 3.6 and 3.7).

3.Z2

power management system

system within the dishwasher which allows it to revert automatically to off mode

5.1 General

Replace the last sentence of the second paragraph by:

The reference machine shall be in accordance with the description given in Annex E or Annex ZB.

Add after the last sentence:

Rounding shall only be applied to reported values in Z1, Z2 and Annex L. If numbers have to be rounded, they shall be rounded to the nearest number according to FprEN ISO 80000-1:2012, B.3, Rule B. If the rounding takes place to the right of the comma, the omitted places shall not be filled with zeros.

5.2 Conditioning of the machine under test and sequence of test procedures

Replace the first paragraph by the following:

Before conducting the performance tests, the dishwasher shall be operated for at least three complete cycles using a clean load with reference detergent (specified in 5.7) and without rinse agent. If noise measurements should be done, they should be carried out before any performance measurements and in accordance to Clause 9. No additional cycles shall be carried out on the machine under test between the sequential steps specified in the following procedure.

¹⁾ To be published.

The **performance** tests shall be performed in the following order: cleaning performance (Clause 6) then drying performance (Clause 7).

5.4 Test programme

Replace the first sentence by the following:

The programme to be tested shall be the cycle which cleans normally soiled tableware (standard cleaning cycle) and shall be named “eco”. The name “eco” shall be used once and exclusively for this standard test programme. The only other additional information which could be combined with the term “eco” is temperature.

Replace the note by:

NOTE The formatting of the phrase “eco” is not restricted in terms of font, font size, case sensitivity, colour or accentuations like the usage of italic letter or underlining etc.

5.6.2 Water supply – Temperature

Add the following before the last sentence:

The volume of the water pipe after the measurement device for temperature up to the connection point to the water inlet hose of the test dishwasher shall not exceed 250 ml.

If a bypass to drain water is installed at each connection to the water inlet hose(s) of the dishwasher the bypass shall be opened before starting tests until the water inlet temperature is in the required range. If the temperature is measured in the circulation loop, the volume of the spur taking the water from the circulation loop shall not exceed 250 ml.

6.1 General and purpose (standards.iteh.ai)

Replace the first sentence of the second paragraph by the following:

The tests are carried out in parallel with one of the reference machines specified in Annex E or Annex ZB.

6.4.1.2 Conversion

Replace the contents of the subclause by the following:

If the power levels of the microwave oven used are not equal to the rated values (780 W and 150 W) according to Annex G but within the given tolerances the heating times shall be corrected as follows:

Bosch model HMT 752F

$$t_{u,1} = \frac{P_1 \cdot t_1}{P_{u,1}}$$

$$t_{u,2} = \frac{P_2 \cdot t_2}{P_{u,2}}$$

Approved microwave oven for tests

$$t_{u,1} = \frac{P_1 \cdot Z}{P_{u,1}} \quad (Z.1)$$

$$t_{u,2} = \frac{P_2 \cdot t_2}{P_{u,2}} \quad (Z.2)$$

where

- P_1 is 780 W;
- P_2 is 150 W;
- t_1 is 4 min;
- t_2 is 10 min;
- Z is the recommended time setting in min in the attached data sheet which will be delivered together with the microwave oven as described in G.1;
- $P_{u,1}$ is the actual max. power level used in W (measured according to EN 60705);
- $t_{u,1}$ is the corresponding heating time to be used in min;
- $P_{u,2}$ is the actual reduced power level used in W [determined by Formula (Z.3)];
- $t_{u,2}$ is the corresponding actual heating time to be used in min.

$$P_{u,2} = \frac{P_{u,1}}{t_p} (t_{on} - t_{up}) \quad (Z.3)$$

where

- t_p is the time of the elementary period of the magnetron in the microwave oven at the reduced power level in s;
- t_{on} is the time the microwave oven is on within the elementary period in s;
- t_{up} is 1,6 s, which is the magnetron filament heating-up time.

Use levels, which are close to the rated levels.

6.4.1.3 Pre-heating the microwave oven

Replace the content of the subclause by the following:

Before cooking the milk in the glasses, heat up the microwave oven as follows.

- Place six glasses, each filled with 50 ml of water, in the microwave oven;
- Place the glasses symmetrically in a circle of 160 mm diameter (centre of the circle = centre of the glass turntable). See Figure 1.
- Operate the microwave oven for 4 min or respectively Z min depending on the oven type (see above) at a power level of 780 W and then for 10 min at a power level of 150 W, or at the corrected cooking times calculated above for the power level used. The time Z can be found in the technical instructions for the particular microwave.

After pre-cooking, take the water-filled glasses out of the microwave oven.

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6.4.1.5 Cooking process

Replace Figure 1 as follows:

Centre of the beakers to lie on a circle of 160 mm

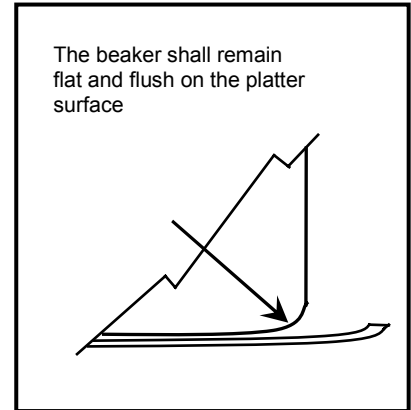
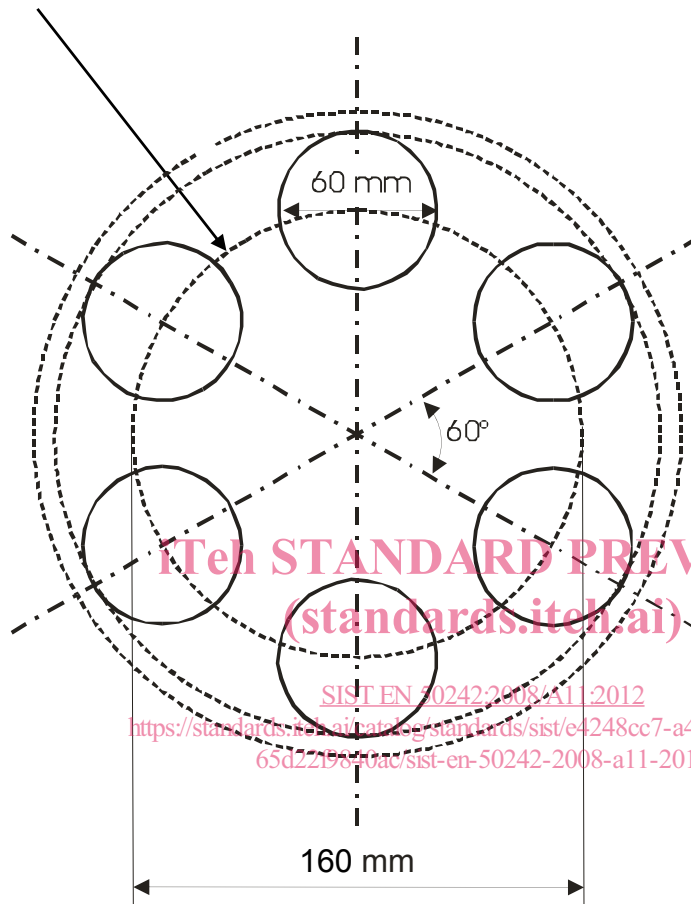


Figure 1 – Position of the glasses on the microwave turntable

6.4.5.1 Preparation

Replace the second sentence by the following:

Make porridge by bringing the mixture to the boiling point and allow simmering for 10 min, stirring continuously from the very beginning and using a wooden spoon.

6.4.5.2 Application

In the bullet “soup spoons”, replace the word “porridge” by “hot porridge”.

6.4.6.2 Application

In the first bullet point “Items to be soiled”, replace the wording “and the small and medium serving bowls” by “the dessert bowl and medium serving bowl”.

In the first bullet point, delete the text in brackets.

*In the third bullet point “Method of soiling”, **replace the wording** “The small and medium serving bowls” by “The dessert bowl and medium serving bowl”.*

6.5.1 Oven drying method

Replace the last two sentences by:

During this time, all items shall be placed inside the baskets, which remain on the opened door of the dishwasher or are pulled out of the dishwasher. Then the machines are closed and the test run is started immediately.

6.7.1 Assessing the cleaning

*In Table 2, row 14, **replace the wording** “small serving bowl” by “dessert bowl”.*

*In Table 2, last row, **delete the first sentence.***

6.7.2 Calculation of the cleaning index

Delete the following sentence:

“The total number of load items for the Annex B load is:

$$N = \text{Number of place settings} \times 11 + 6.”$$

Replace the term “P_C” (Cleaning Index) by the term “I_C”.

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6.7.2.1 Assessing In WC (standards.iteh.ai)

Replace the term “P_C” (Cleaning Index) by the term “I_C”.

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6.8.1 Expressing results

Replace the term “P_C” (Cleaning Index) by the term “I_C”.

7.3.1 Loading

Replace the last sentence by:

The reference dishwasher shall be loaded in accordance with E.4 or ZB.4.

7.3.2 Operating

Modify the 1st paragraph as follows:

At the completion of the programme (see definitions), the dishwasher (reference machine and test machine) shall be disconnected from the supply, the door or cover is left ~~closed~~ **undisturbed** and latched until commencing the evaluation procedure according to 7.4.

7.4.1 Assessing the drying

Replace the second sentence by:

After completing each test program, the dishwasher is left undisturbed for 30 min.

*In Table 4, row 14, **replace the wording** “small serving bowl” by “dessert bowl”.*

*In Table 4, last row, **delete the first sentence.***

7.4.2 Calculation of the drying index

Replace the term “ P_C ” (Cleaning Index) by the term “ I_C ”.

Replace the term “ P_D ” (drying performance index) by the term “ I_D ”.

7.5 Expressing results

Replace the term “ P_D ” (drying performance index) by the term “ I_D ”.

Z1 Data to be reported

Replace the whole clause by the following:

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