

Electric dishwashers for commercial use - Test methods
for measuring the performance

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN IEC 63136:2019 sisaldab Euroopa standardi EN IEC 63136:2019 ingliskeelset teksti.	This Estonian standard EVS-EN IEC 63136:2019 consists of the English text of the European standard EN IEC 63136:2019.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 15.11.2019.	Date of Availability of the European standard is 15.11.2019.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 97.040.40

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:
Koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:

Homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

English Version

**Electric dishwashers for commercial use - Test methods for
measuring the performance
(IEC 63136:2019)**

Lave-vaisselle électriques à usage collectif - Méthodes
d'essai et de mesure de l'aptitude à la fonction
(IEC 63136:2019)

Elektrische Geschirrspüler für den gewerblichen Gebrauch -
Messverfahren für Gebrauchseigenschaften
(IEC 63136:2019)

This European Standard was approved by CENELEC on 2019-10-24. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre 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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 59A/223/CDV, future edition 1 of IEC 63136, prepared by SC 59A "Electric dishwashers" of IEC/TC 59 "Performance of household and similar electrical appliances" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 63136:2019.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2020-07-24
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2022-10-24

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

This document supersedes EN 50593:2017 and all of its amendments and corrigenda (if any).

Endorsement notice

The text of the International Standard IEC 63136:2019 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60335-1	NOTE	Harmonized as EN 60335-1
IEC 60335-2-58	NOTE	Harmonized as EN 60335-2-58
IEC 60734	NOTE	Harmonized as EN 60734
IEC 62053-21	NOTE	Harmonized as EN 62053-21

Annex ZA

(normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
ISO 15510	-	Stainless steels - Chemical composition	-	-

CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references	7
3 Terms and definitions	7
4 List of measurements	10
5 General conditions for measurements.....	10
5.1 General.....	10
5.2 Conditioning of the machine under test and sequence of test procedures	11
5.3 Electricity supply.....	11
5.4 Test programme.....	11
5.5 Ambient conditions	11
5.6 Water supply.....	12
5.6.1 General	12
5.6.2 Water supply – Temperature.....	12
5.6.3 Hardness.....	12
5.6.4 Water Pressure.....	12
5.7 Detergent.....	12
5.8 Rinse aid	12
5.9 Load	12
5.10 Temperature measurement	13
6 Cleaning and resoiling performance test.....	13
6.1 Purpose and general description.....	13
6.2 Description of the cleaning performance test procedure	13
6.2.1 Preparation.....	13
6.2.2 Formulation of test soil	16
6.2.3 Application of test soil.....	17
6.3 Evaluation.....	19
6.3.1 General	19
6.3.2 Calculation of performance results.....	19
7 Energy, water consumption and time measurement	20
7.1 General information	20
7.2 Measurement method	20
7.2.1 General	20
7.2.2 Preparation.....	20
7.2.3 Initial fill and Start-up time	20
7.2.4 Energy, water consumption and programme/cycle time.....	21
7.2.5 Power consumption – Ready-to-use mode	23
8 Data to be reported	24
8.1 Laboratory and test data	24
8.2 Evaluation sheet for cleaning performance calculation	25
Annex A (normative) Test materials for laboratories.....	28
A.1 Reference detergent	28
A.2 Reference rinse aid.....	28
A.3 Basic cleaning detergent.....	29
A.4 Load	29

A.5	Test pipette/dispenser.....	30
A.6	Stainless steel holder and support	31
A.7	Sesame seeds	33
Annex B (informative) Flowchart – Test sequence.....		34
Bibliography.....		35
Figure 1	– Template with dot test pattern	15
Figure 2	– Template – 3D view	15
Figure 3	– Coarse Nigrosin kernels are ground in a chemical mortar.....	17
Figure 4	– Mixed test soil.....	17
Figure 5	– Plate with 33 dots after drying	18
Figure 6	– Time schedule for test procedure	18
Figure 7	– Evaluation example.....	27
Figure A.1	– Pipette	30
Figure A.2	– VWR Dispenser tip 1,25ml	31
Figure A.3	– Holder for stainless steel support.....	32
Figure A.4	– Stainless steel support.....	33
Figure A.5	– Temperature probe positioning	33
Figure B.1	– Flowchart for test sequence	34
Table 1	– Laboratory data	24
Table 2	– Dishwasher data	24
Table 3	– Measured data	25
Table 4	– Evaluation sheet.....	26
Table A.1	– Detergent.....	28
Table A.2	– Rinse aid	29
Table A.3	– Basic cleaning detergent.....	29

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTRIC DISHWASHER FOR COMMERCIAL USE – TEST METHODS FOR MEASURING THE PERFORMANCE

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 63136 has been prepared by subcommittee 59A: Electric dishwashers, of IEC technical committee 59: Performance of household and similar electrical appliances.

EN 50593:2017 has served as a basis for the elaboration of this standard.

The text of this International Standard is based on the following documents:

CDV	Report on voting
59A/223/CDV	59A/226/RVC

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

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

In this standard, the following print types are used:

- terms used throughout this standard which have been defined in Clause 3: **in bold type**

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

This first edition has been developed to provide a globally applicable and agreed method to test the performance of electric dishwashers for commercial use.

This document is a preview generated by EVS