SLOVENSKI STANDARD
kSIST FprEN 60312-2:2010

01-februar-2010

Sesalniki za uporabo v gospodinjstvu - Sesalniki za mokro ļ iģļ enje - Metode za merjenje lastnosti

Vacuum cleaners for household use - Wet vacuum cleaner - Methods for measuring the performance

Ta slovenski standard je istoveten z: FprEN 60312-2:2009

ICS:

97.080 Aparati za nego tal Floor treatment appliances

kSIST FprEN 60312-2:2010 **en,fr,de**

59F/192/CDV

COMMITTEE DRAFT FOR VOTE (CDV)
PROJET DE COMITÉ POUR VOTE (CDV)

	Project number Numéro de projet IEC 60312-2 Ed 1.0	
	IEC/TC or SC: **SC59F** CEI/CE ou SC:	Secretariat / Secrétariat **Sweden**
☒ Submitted for parallel voting in CENELEC Soumis au vote parallèle au CENELEC	Date of circulation Date de diffusion **2009-12-18**	Closing date for voting (Voting mandatory for P-members) Date de clôture du vote (Vote obligatoire pour les membres (P)) **2010-05-21**
Also of interest to the following committees Intéresse également les comités suivants	Supersedes document Remplace le document 59F/176/NP and 59F/182/RVN	
Proposed horizontal standard Norme horizontale suggérée ☐ Other TC/SCs are requested to indicate their interest, if any, in this CDV to the TC/SC secretary Les autres CE/SC sont requis d'indiquer leur intérêt, si nécessaire, dans ce CDV à l'intention du secrétaire du CE/SC		
Functions concerned Fonctions concernées ☐ Safety / Sécurité ☐ EMC / CEM ☒ Environment / Environnement ☒ Quality assurance / Assurance qualité		

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Titre :

Title : IEC 60312-2 Ed 1.0: Vacuum cleaners for household use - Part 2: Wet vacuum cleaner - Methods of measuring the performance

Note d'introduction

La version française sera diffusée ultérieurement.

Introductory note

This CDV has been prepared as part of the project to split the present IEC 60312 Ed 4.0 into separate parts for dry and wet cleaning. As the project on updating the dry cleaning part has advanced to CDV stage and is expected to be published as IEC 60312-1 first half next year, this CDV aimed to maintain a standard on methods for testing wet cleaning performance in order to allow for withdrawal of the present IEC 60312. As a consequence of this, except for editorial changes, only minor changes compared with present standard has been introduced.

French version will be circulated later.

ATTENTION VOTE PARALLÈLE CEI – CENELEC	ATTENTION IEC – CENELEC PARALLEL VOTING
L'attention des Comités nationaux de la CEI, membres du CENELEC, est attirée sur le fait que ce projet de comité pour vote (CDV) de Norme internationale est soumis au vote parallèle. Les membres du CENELEC sont invités à voter via le système de vote en ligne du CENELEC.	The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) for an International Standard is submitted for parallel voting. The CENELEC members are invited to vote through the CENELEC online voting system.

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VACUUM CLEANERS FOR HOUSEHOLD USE – PART 2: WET CLEANING APPLIANCES METHODS OF MEASURING THE PERFORMANCE

FOREWORD

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International Standard IEC 60312-1 has been prepared by subcommittee 59F: Floor treatment appliances, of IEC technical committee 59: Performance of household and similar electrical appliances.

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

FDIS	Report on voting
59F/XX/FDIS	59F/XX/RVD

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

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

A list of all the parts in the IEC 60312 series, under the general title *Vacuum cleaners for household use*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date[1)] 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.

1) The National Committees are requested to note that for this publication the maintenance result date is 2013

VACUUM CLEANERS FOR HOUSEHOLD USE – PART 2: WET CLEANING APPLIANCES METHODS OF MEASURING THE PERFORMANCE

1 Scope

This International Standard is applicable to wet cleaning appliances for household use in or under conditions similar to those in households.

The purpose of this standard is to specify essential performance characteristics of wet cleaning appliances being of interest to the users and to describe methods for measuring these characteristics and is complementary to the methods for dry cleaning vacuum cleaner in IEC 60312-1.

NOTE Due to influence of environmental conditions, variations in time, origin of test materials and proficiency of the operator, most of the described test methods will give more reliable results when applied for comparative testing of a number of appliances at the same time, in the same laboratory and by the same operator.

For safety requirements, reference is made to IEC 60335-1 and IEC 60335-2-2.

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 60312-1 *Vacuum Cleaners for household use – dry vacuum cleaners, Methods of measuring the performance*

IEC 60704-1, *Test code for the determination of airborne acoustical noise emitted by household and similar electrical appliances – Part 1: General requirements*

IEC 60704-2-1, *Test code for the determination of airborne acoustical noise emitted by household and similar electrical appliances – Part 2: Particular requirements for vacuum cleaners*

ISO 554, *Standard atmospheres for conditioning and/or testing – Specifications*

ISO 679, *Methods of testing cements – Determination of strength*

CIE 15.2, *Colorimetry*

3 Terms and definitions

For the purpose of this International Standard, the following definitions apply:

3.1
cleaning head

plain nozzle or a brush attached to a connecting tube, or a power nozzle, separate or part of the appliance housing, and that part of a vacuum cleaner which is applied to a surface to be cleaned.

3.2
active nozzle
cleaning head provided with an agitation device to assist dirt removal.

NOTE The agitation device may be driven by an incorporated electric motor (motorized nozzle), an incorporated turbine powered by the air flow (air-turbine nozzle) or an incorporated friction or gear mechanism actuated by moving the cleaning head over the surface to be cleaned (mechanical nozzle)

3.3
self-propelled cleaning head
cleaning head provided with a propulsion mechanism

3.4
Extractor
Wet cleaning appliance with the cleaning head forming an integral part of or directly connected to the cleaner housing, the cleaning head may be provided with an agitation device to assist dirt removal and the complete cleaner housing being moved over the surface to be cleaned by means of an attached handle

3.5
forward stroke
forward movement of a stroke pattern

NOTE On test carpets, forward strokes are normally carried out in the direction of the carpet pile (direction of manufacture) unless otherwise indicated.

3.6
return stroke
backward movement of a stroke pattern

3.7
stroke speed
speed of the cleaning head, moved as uniformly as possible, during a forward or a return stroke

3.8
stroke length
distance between the two parallel lines defining the limits of a stroke pattern

3.9
stroke pattern
arrangement of the forward and return strokes on the surface to be cleaned

3.10
cleaning cycle
for a given measurement, the sequence of forward and return strokes to be carried out at a specified stroke speed over the test area according to the appropriate stroke pattern

3.11
wet cleaning appliance
electrically operated appliance that applies cleaning solution and removes soil together with solution from the surface to be cleaned by an airflow created by a vacuum developed within the unit. The material and solution thus removed is separated in the appliance and the cleaned dry suction air is returned to the ambient

3.12
passive nozzle
cleaning head without any agitation devices

3.13
cleaning head width
the external maximum width of the cleaning head in mm

4 General conditions for testing

4.1 Atmospheric conditions

Unless otherwise specified, the test procedures and measurements shall be carried out under the following conditions (in accordance with ISO 554):

Standard atmosphere 23/50

Temperature:	(23 ± 2) °C
Relative humidity:	(50 ± 5) %
Air pressure:	86 kPa to 106 kPa

NOTE Temperature and humidity conditions within the specified ranges are required for good repeatability and reproducibility. Care should be taken to avoid changes during a test.

For test procedures and measurements which may be carried out at other than standard atmospheric conditions, the ambient temperature shall be maintained at (23 ± 5) °C.

4.2 Test equipment and materials

Measurements on carpets shall be carried out on a flat floor consisting of a smooth untreated pine plywood or equivalent panel, at least 15 mm thick and of a size appropriate for the test.

Equipment and materials for measurements (devices, test carpets, soil, test dust etc.) to be used in a test shall, prior to the test, be kept for at least 16 h at standard atmospheric conditions according to 4.1.

NOTE It is recommended that carpets that are already being used shall be stored unbeaten at standard atmospheric conditions according to 4.1. When not in use they should be hanging free, not lying or rolled.

4.3 Voltage and frequency

Measurements shall be carried out at rated voltage with a tolerance of ±1 % and, if applicable, at rated frequency.

Wet cleaning appliances designed for d.c. only shall be operated at d.c. Wet cleaning appliances designed for both a.c. and d.c. shall be operated at a.c. Wet cleaning appliances not marked with rated frequency shall be operated at either 50 Hz or 60 Hz, as is common in the country of use.

For wet cleaning appliances with a rated voltage range, measurements shall be carried out at the mean value of the voltage range if the difference between the limits of the range does not exceed 10 % of the mean value. If the difference exceeds 10 % of the mean value, measurements shall be carried out both at the upper and lower limits of the voltage range.

If the rated voltage differs from the nominal system voltage of the country concerned, measurements carried out at rated voltage may give test results misleading for the consumer and additional measurements may be required. If the test voltage differs from the rated voltage, this shall be reported.

4.4 Running-in of wet cleaning appliance and attachments

Prior to the initial test, the wet cleaning appliances and their attachments, if any, shall be kept running with unrestricted air flow for at least 2 h to ensure adequate running-in. For extractors with agitation or power nozzles, the agitation device shall be running but not in contact with the floor.

NOTE: clean water should be flushed through unit prior to testing (pump does not need to be run-in other than when flushing the unit with clean water.

4.5 Equipment of the wet cleaning appliance

If the wet cleaning appliance is provided with a permanent dirt receptacle, plastic receptacles may be washed and dried thoroughly.

4.6 Operation of the wet cleaning appliance

The wet cleaning appliance and its accessories shall be used and adjusted in accordance with the manufacturer's instructions for normal operation for the test to be carried out.

The tube grip of cleaners with suction hose or the handle of other cleaners shall be held as for normal operation at a height of (800 ± 50) mm above the test floor.

4.7 Conditioning prior to tests

The wet cleaning appliance and attachments to be used shall then be kept running for at least 2 min under the provisions given in 4.4 to allow them to stabilise.

All measurements of performance shall be carried out on the same sample(s) of the vacuum cleaner with its accessories and attachments, if any.

NOTE It is recommended that a minimum of three should be used to achieve statistically significant results.

Tests carried out to simulate stresses that a vacuum cleaner may be exposed to during normal use, possibly causing impairment of the cleaner's performance, may require additional samples of replaceable parts. Such tests shall be carried out at the end of the test programme.

4.8 In-house reference cleaner system(s)

It is required that in-house reference cleaner system(s) be used to regularly check the carpet conditions as a verification of the test results obtained and being recorded (new carpet batch)

5 Cleaning tests

5.1 Dry cleaning Tests

For combined dry and wet cleaning appliances the performance related to dry cleaning shall be measured by applying the methods in IEC 60312-1

Where appropriate dry cleaning tests are required, methods included in IEC 60312-1 section 5 shall be used

5.2 Wet Cleaning Tests

5.2.1 Wet cleaning effectiveness on carpet

NB: A new test is under active consideration

The purpose of this test is to evaluate the cleaning action of a wet cleaning appliance and detergent and the wet cleaning functions of combined dry and wet cleaning appliances.

The cleaning effectiveness is determined from measurements of the brightness change in identically treated carpet samples.

In addition, cleaned carpet samples may be assessed visually in respect of fabric appearance, streaks and blotches.

5.2.1.1 Test carpet samples

At least five carpet samples, in accordance with 7.1.1, shall be used for a wet cleaning appliance test. The carpet samples shall be from the same production batch.

Prior to the test, the carpet samples shall be kept at standard atmospheric conditions for at least 24 h and then be vacuum cleaned using an electric power nozzle with horizontal brush roll. The whole surface of each sample shall be covered with 20 double strokes with the forward strokes in the direction of the pile and at a stroke speed of 0,5 m/s. The weight after vacuum cleaning of each of the unsoiled carpet samples shall be recorded.

For each of the unsoiled carpet samples the brightness values at five fixed measuring points shall be recorded in accordance with 5.2.1.8.1.

Each carpet sample shall then be artificially soiled according to 5.2.1.2 and undergo the cleaning procedure described in 5.2.1.3.

5.2.1.2 Soiling of carpet sample

5.2.1.2.1 Distribution and embedding of soil

Test soil, in accordance with 7.1.2, shall be distributed with a mean coverage of 145 g/m^2 as uniformly as possible over the carpet sample.

NOTE For uniform distribution of the soil a device similar to the one described in 7.1.3 may be used.

The soil shall then be embedded into the carpet pile by carrying out five double strokes along the direction of the warp with a roller, in accordance with 7.1.4 at a stroke speed of 0,2 m/s.

The test soil is worked in by carrying out 30 double strokes with a locked roller, according to 7.1.4, at a stroke speed of 0,2 m/s, the forward strokes being in the direction of the pile.