

INTERNATIONAL STANDARD



**Household and similar electrical appliances – Safety –
Part 2-102: Particular requirements for gas, oil and solid-fuel burning appliances
having electrical connections**

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INTERNATIONAL STANDARD



**Household and similar electrical appliances – Safety –
Part 2-102: Particular requirements for gas, oil and solid-fuel burning appliances
having electrical connections**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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CONTENTS

FOREWORD.....	3
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references	8
3 Terms and definitions	8
4 General requirement.....	8
5 General conditions for the tests	9
6 Classification.....	9
7 Marking and instructions.....	9
8 Protection against access to live parts.....	9
9 Starting of motor-operated appliances	10
10 Power input and current.....	10
11 Heating.....	10
12 Void.....	11
13 Leakage current and dielectric electric strength at operating temperature	11
14 Transient overvoltages	11
15 Moisture resistance	11
16 Leakage current and electric strength.....	12
17 Overload protection of transformers and associated circuits	12
18 Endurance	12
19 Abnormal operation	12
20 Stability and mechanical hazards.....	13
21 Mechanical strength	13
22 Construction	13
23 Internal wiring.....	14
24 Components	14
25 Supply connection and external flexible cords	15
26 Terminals for external connections conductors	15
27 Provision for earthing	15
28 Screws and connections	15
29 Clearances, creepage distances and solid insulation	15
30 Resistance to heat and fire	15
31 Resistance to rusting	15
32 Radiation, toxicity and similar hazards.....	15
Annexes	17
Bibliography.....	18
Figure 101 – Pulse waveform.....	16
Table 101 – Accessible spark-ignition circuit limits.....	10

INTERNATIONAL ELECTROTECHNICAL COMMISSION

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-102: Particular requirements for gas, oil and solid-fuel burning appliances having electrical connections

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.
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This redline version of the official IEC Standard allows the user to identify the changes made to the previous edition. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

International Standard IEC 60335-2-102 has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances.

This second edition cancels and replaces the first edition published in 2004 including its Amendment 1 (2008) and its Amendment 2 (2012). This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a spillage test is introduced for appliances that have a flat surface on which a cup may be placed (15.101);
- terms and definitions were renumbered;
- some notes have been converted to normative text or deleted (19.11.2, 22.103).

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

CDV	Report on voting
61/5295/CDV	61/5381A/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.

A list of all parts of the IEC 60335 series, under the general title: *Household and similar electrical appliances – Safety*, can be found on the IEC website.

This part 2 is to be used in conjunction with the latest edition of IEC 60335-1 and its amendments. It was established on the basis of the fifth edition (2010) of that standard.

NOTE 1 When “Part 1” is mentioned in this standard, it refers to IEC 60335-1.

This part 2 supplements or modifies the corresponding clauses in IEC 60335-1, so as to convert that publication into the IEC standard: Safety requirements for gas, oil and solid-fuel burning appliances having electrical connections.

When a particular subclause of Part 1 is not mentioned in this part 2, that subclause applies as far as is reasonable. When this standard states “addition”, “modification” or “replacement”, the relevant text in Part 1 is to be adapted accordingly.

NOTE 2 The following numbering system is used:

- subclauses, tables and figures that are numbered starting from 101 are additional to those in Part 1;
- unless notes are in a new subclause or involve notes in Part 1, they are numbered starting from 101, including those in a replaced clause or subclause;
- additional annexes are lettered AA, BB, etc.

NOTE 3 The following print types are used:

- requirements: in roman type;
- *test specifications: in italic type;*
- notes: in small roman type.

Words in **bold** in the text are defined in Clause 3. When a definition concerns an adjective, the adjective and the associated noun are also in bold.

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.

NOTE 4 The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations may need a transitional period following publication of a new, amended or revised IEC publication in which to make products in accordance with the new requirements and to equip themselves for conducting new or revised tests.

It is the recommendation of the committee that the content of this publication be adopted for implementation nationally not earlier than 12 months or later than 36 months from the date of publication.

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INTRODUCTION

It has been assumed in the drafting of this International Standard that the execution of its provisions is entrusted to appropriately qualified and experienced persons.

This standard recognizes the internationally accepted level of protection against hazards such as electrical, mechanical, thermal, fire and radiation of appliances when operated as in normal use taking into account the manufacturer's instructions. It also covers abnormal situations that can be expected in practice and takes into account the way in which electromagnetic phenomena can affect the safe operation of appliances.

This standard takes into account the requirements of IEC 60364 as far as possible so that there is compatibility with the wiring rules when the appliance is connected to the supply mains. However, national wiring rules may differ.

If an appliance within the scope of this standard also incorporates functions that are covered by another part 2 of IEC 60335, the relevant part 2 is applied to each function separately, as far as is reasonable. If applicable, the influence of one function on the other is taken into account.

When a part 2 standard does not include additional requirements to cover hazards dealt with in Part 1, Part 1 applies.

NOTE 1 This means that the technical committees responsible for the part 2 standards have determined that it is not necessary to specify particular requirements for the appliance in question over and above the general requirements.

This standard is a product family standard dealing with the safety of appliances and takes precedence over horizontal and generic standards covering the same subject.

NOTE 2 Horizontal and generic standards covering a hazard are not applicable since they have been taken into consideration when developing the general and particular requirements for the IEC 60335 series of standards. For example, in the case of temperature requirements for surfaces on many appliances, generic standards, such as ISO 13732-1 for hot surfaces, are not applicable in addition to Part 1 or part 2 standards.

An appliance that complies with the text of this standard will not necessarily be considered to comply with the safety principles of the standard if, when examined and tested, it is found to have other features that impair the level of safety covered by these requirements.

An appliance employing materials or having forms of construction differing from those detailed in the requirements of this standard may be examined and tested according to the intent of the requirements and, if found to be substantially equivalent, may be considered to comply with the standard.

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-102: Particular requirements for gas, oil and solid-fuel burning appliances having electrical connections

1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of gas, oil and solid-fuel burning appliances having electrical connections, for household and similar purposes, their **rated voltage** being not more than 250 V for single-phase appliances and 480 V for other appliances.

This standard covers the electrical safety and some other safety aspects of these appliances. All safety aspects are covered when the appliance also complies with the relevant standard for the fuel-burning appliance. If the appliance incorporates electric heating sources, ~~it also has to comply~~ safety aspects concerning these electric sources are covered when the appliance also complies with the relevant part 2 of IEC 60335.

NOTE 101 Examples of appliances within the scope of this standard are

- central heating boilers;
- commercial catering equipment;
- cooking appliances;
- laundry and cleaning appliances;
- room heaters;
- warm air heaters;
- water heaters.

Appliances not intended for normal household use but which nevertheless may be a source of danger to the public, such as appliances intended to be used by laymen in shops, in light industry and on farms, are within the scope of this standard.

~~As far as is practicable,~~ This standard deals with the ~~common~~ reasonably foreseeable hazards presented by appliances that are encountered by all persons ~~in and around the home.~~

However, in general, it does not take into account

~~— the use of appliances by young children or infirm persons without supervision;~~

- persons (including children) whose
 - physical, sensory or mental capabilities; or
 - lack of experience and knowledge
 prevents them from using the appliance safely without supervision or instruction;
- children playing with the appliance ~~by young children.~~

NOTE 102 Attention is drawn to the fact that

- for appliances intended to be used in vehicles or on board ships or aircraft, additional requirements may be necessary;
- in many countries, additional requirements are specified by the national health authorities, the national authorities responsible for the protection of labour and similar authorities.

NOTE 103 This standard does not apply to

- appliances intended exclusively for industrial purposes;
- appliances intended to be used in locations where special conditions prevail, such as the presence of a corrosive or explosive atmosphere (dust, vapour or gas).

2 Normative references

This clause of Part 1 is applicable except as follows.

Addition:

IEC 61558-2-3, Safety of ~~power~~ transformers, *reactors*, power supply units and ~~similar devices combinations thereof~~ – Part 2-3: Particular requirements and tests for ignition transformers for gas and oil burners

ISO 3808, *Road vehicles – Unscreened high-voltage ignition cables – General specifications, test methods and requirements*

3 Terms and definitions

This clause of Part 1 is applicable except as follows.

3.5.101

spark-ignition circuit

electrical circuit for producing sparks which ignite gaseous or liquid fuel

~~3.102~~

~~**pulse spark ignition**~~

~~ignition by sparks having a pulse with a duration of greater than 0,1 ms but less than 100 ms, the interval between pulses being at least 250 ms~~

~~3.103~~

~~**continuous spark ignition**~~

~~ignition by sparks having a pulse with a duration at least 100 ms, or a duration less than 100 ms with the interval between pulses being less than 250 ms~~

~~3.104~~

~~**pulse repetition ignition**~~

~~ignition by sparks having a pulse with a duration not more than 0,1 ms, the interval between pulses being at least 40 ms~~

~~3.8.106~~101

lock-out

shut-down requiring a manual operation to restart the appliance

~~3.8.105~~102

shut-down

de-energization of a control resulting from the action of a limiting device or detection of a fault in the control system, thus stopping the flow of gaseous or liquid fuel

4 General requirement

This clause of Part 1 is applicable.

5 General conditions for the tests

This clause of Part 1 is applicable except as follows.

5.2 Addition:

A separate appliance may be used for the tests carried out on the fuel-burning appliance, in accordance with its relevant standard.

The tests of this standard may be carried out in conjunction with the tests of another part 2, if applicable.

5.3 Addition:

If a test has been carried out in accordance with the fuel-burning appliance standard, it is not repeated.

5.4 Addition:

When the appliance incorporates electric heating sources, the tests are carried out with all parts of the appliance in operation, as allowed by the construction.

5.101 Appliances are supplied as specified for **motor-operated appliances**.

6 Classification

This clause of Part 1 is applicable.

7 Marking and instructions

This clause of Part 1 is applicable.

8 Protection against access to live parts

This clause of Part 1 is applicable except as follows.

8.1 Addition:

*The requirement does not apply to **accessible parts of spark-ignition circuits**.*

8.101 Parts of the **spark-ignition circuits** shall not be accessible if the ~~following~~ limits in **Table 101** are exceeded, unless they are piezoelectric igniters:

pulse spark ignition discharge	100 µC per pulse
continuous spark ignition	
• current	0,7 mA (peak)
• no load voltage	10 kV (peak)
or	
• discharge	45 µC per pulse
pulse repetition ignition	
• discharge	45 µC per pulse

~~• pulse repetition frequency 25 Hz~~

Table 101 – Accessible spark-ignition circuit limits

Interval between pulses (<i>t</i>)	Pulse duration (<i>d</i>)		
	<i>d</i> ≤ 0,1 ms	0,1 ms < <i>d</i> ≤ 100 ms	<i>d</i> > 100 ms
<i>t</i> < 40 ms	$V_o \leq 10 \text{ kV}$ and $I \leq 0,7 \text{ mA}$	$V_o \leq 10 \text{ kV}$ and $I \leq 0,7 \text{ mA}$	^a
40 ms ≤ <i>t</i> < 250 ms	45 µC/pulse	$V_o \leq 10 \text{ kV}$ and $I \leq 0,7 \text{ mA}$	$V_o \leq 10 \text{ kV}$ and $I \leq 0,7 \text{ mA}$ (only applicable if <i>d</i> < <i>t</i>) ^a
<i>t</i> ≥ 250 ms	100 µC/pulse	100 µC/pulse	$V_o \leq 10 \text{ kV}$ and $I \leq 0,7 \text{ mA}$
NOTE 1 For the pulse duration (<i>d</i>) and the interval between pulses (<i>t</i>), see also Figure 101.			
NOTE 2 V_o is the no-load voltage of the ignition circuit. V_o and <i>I</i> are peak values.			
^a If <i>t</i> < 40 ms and <i>d</i> > 100 ms or if 40 ms ≤ <i>t</i> < 250 ms and <i>d</i> > 100 ms when <i>d</i> < <i>t</i> , then parts of the spark-ignition circuits shall not be accessible.			

Compliance is checked by inspection, by applying test probe B of IEC 61032 as described in 8.1.1 and by the following test.

The **spark-ignition circuit** is operated and the pulse duration measured across the spark gap until it has reduced to 10 % of its peak value, as shown in Figure 101. ~~For pulse repetition ignition, the interval between pulses is also measured. For continuous spark ignition, the no-load peak voltage is measured with the spark electrode removed.~~

A resistor having a nominal non-inductive resistance of 2 000 Ω is connected across the spark gap and the voltage measured. The current flowing through the resistor is calculated from the voltage measured across it.

The quantity of electricity in the discharge is calculated from the current and duration of the pulse.

NOTE The quantity of electricity is calculated from the sum of all areas recorded on the voltage/time graph without taking voltage polarity into account.

9 Starting of motor-operated appliances

This clause of Part 1 is not applicable.

10 Power input and current

This clause of Part 1 is applicable.

11 Heating

This clause of Part 1 is applicable except as follows.

11.8 Addition:

The temperature rises of the walls of the test corner, and the temperature rises of the surfaces of handles, knobs, grips and similar parts, are not measured.

The temperature rise limits for common parts of appliances having electric and fuel-burning heating sources are specified in the relevant part 2.

NOTE 101 Examples of common parts are components in the control panel of a combined gas and electric cooking range.

12 Void

13 Leakage current and ~~dielectric~~ electric strength at operating temperature

This clause of Part 1 is applicable except as follows.

13.2 Modification:

*The limit for **stationary class I motor-operated appliances** is applicable.*

14 Transient overvoltages

This clause of Part 1 is applicable.

15 Moisture resistance

This clause of Part 1 is applicable except as follows.

15.2 Addition:

For cooking ranges, hobs and similar appliances, compliance is checked by the following tests.

*Cooking ranges and hobs are positioned so that the hob surface is horizontal, **detachable burner heads** being in position. A vessel having a diameter approximately 220 mm is completely filled with water containing approximately 1 % NaCl and positioned centrally over the burner. A further quantity of 0,5 l of the solution is poured steadily into the vessel over a period of 15 s.*

This test is made for each burner separately, after removing any residual solution from the appliance.

If controls are mounted below the hob surface, 0,5 l of the saline solution is poured steadily over the top of the hob near the controls over a period of 15 s. If they are mounted in the hob surface, the solution is poured over the controls.

For burners incorporating a temperature sensor, switch or ignition device, 0,02 l of the saline solution is poured over the burner so that it flows over the device.

For ovens or grills, 0,5 l of the saline solution is poured over the floor of the oven or grilling compartment.

For appliances having a drip tray or similar receptacle, the receptacle is filled with the saline solution. A further quantity of the solution, equal to 0,01 l per 100 cm² of the area of the top surface of the receptacle, is poured onto the receptacle through openings in the hob surface. However, the total quantity of solution shall not exceed 3 l.

For hobs provided with a lid, 0,5 l of the saline solution is poured uniformly over the closed lid. When the solution has run off, the surface is dried and a further 0,125 l of the solution is poured steadily from a height of approximately 50 mm onto the centre of the lid over a period of 15 s. The lid is then opened as in normal use.

15.101 Appliances, other than those classified at least IPX4, having flat, horizontal external surfaces measuring 75 mm × 75 mm or greater at a height not exceeding 2 m above the floor after the appliance is installed according to the instructions, shall not have their electrical insulation affected by spillage of liquid.

NOTE The intent is to identify surfaces on which a vessel, such as a cup or jug, can be placed and are subject to spillage.

Compliance is checked by the following test using a 0,25 l spillage solution of 15.2.

The solution is poured as quickly as possible over the identified surface.

*The appliance shall then withstand the electric strength test of 16.3 and inspection shall show that there is no trace of water on insulation that could result in a reduction of **clearances** or **creepage distances** below the values specified in Clause 29.*

The test is repeated for each identified surface, the appliance being dried between each test.

16 Leakage current and electric strength

This clause of Part 1 is applicable except as follows.

16.2 Modification:

The limit for **stationary class I motor-operated appliances** is applicable.

16.3 Addition:

The no-load **peak** voltage of **spark-ignition circuits** is measured with the spark electrode removed. The **peak** voltage applied between the **spark-ignition circuit** and metal foil covering the insulation is 1,5 times this value.

NOTE 101 It ~~may~~ **could** be necessary to insulate the spark gap to prevent it flashing over during the test.

17 Overload protection of transformers and associated circuits

This clause of Part 1 is applicable.

18 Endurance

This clause of Part 1 is not applicable.

19 Abnormal operation

This clause of Part 1 is applicable except as follows.

19.4 Addition:

The test is repeated with the supply neutral conductor connected to the protective conductor, however any controls are not short-circuited.

This test is repeated with the polarity of the supply to the appliance reversed and with the neutral conductor connected to the protective conductor.

The additional tests are not carried out on appliances where an all-pole disconnection is used to disconnect all fuel valves.

19.11.2 Addition:

Mechanical blocking of the fuel valves is not taken into account. However, the mechanical or electrical blocking of the acting member (power switching device or relay-contact) of the fuel control is considered as a possible fault.

*In each case the test is also ended if a **shut-down** is performed.*

19.11.4 Addition:

The tests of 19.11.4.1 to 19.11.4.7 are also carried out under **normal operation**, the appliance being supplied at **rated voltage**.

19.13 Addition:

*During and after the tests of 19.11.4, the appliance shall ~~continue to operate normally. In particular, there shall be no loss of flame or incomplete combustion and ignition shall not be affected~~ have reached a **lock-out** condition, unless it continues to operate normally even after a **shut-down**.*

*~~After the tests of 19.11.4 on gas and oil-burning appliances, the appliance shall have reached a **lock-out** condition, unless it continues to operate normally.~~*

NOTE 101 ~~Lock-out may be reached after a number of shut-down operations.~~

20 Stability and mechanical hazards

This clause of Part 1 is applicable except as follows.

20.1 Not applicable.

21 Mechanical strength

This clause of Part 1 is applicable except as follows.

21.1 Modification:

*The blows are only applied to enclosures of **live parts** and enclosures of dangerous moving parts.*

22 Construction

This clause of Part 1 is applicable except as follows.

22.46 Modification:

Software used in **protective electronic circuits** to ensure compliance with this standard for gaseous and liquid fuels shall be software that contains measures to control the fault/error conditions specified in Table R.2.

22.49 Addition:

NOTE 101 A central heating system is an example of an appliance that can start and operate continuously without giving rise to a hazard.

22.51 Addition:

NOTE 101 A central heating system is an example of an appliance that can start and operate continuously without giving rise to a hazard.

22.101 Parts of **spark-ignition circuits** shall be positioned or secured against loosening so that contact between the circuit and other **live parts** is prevented.

Compliance is checked by inspection and by applying a force of approximately 5 N to the wiring.

22.102 If compliance with this standard can be affected by the polarity of the supply in the event of an earth fault, the appliance shall incorporate a polarity-detection device that results in **shut-down** or prevents the appliance from operating if the polarity is reversed.

This requirement does not apply to appliances incorporating a control having **all-pole disconnection**, to appliances intended to be permanently connected to fixed wiring, or to appliances having a **supply cord** fitted with a polarized plug.

NOTE This requirement avoids the uncontrolled opening of a gas valve in the event of an earth fault.

Compliance is checked by inspection.

22.103 If the limits in 8.101 are exceeded, the insulation of the parts of the circuit, where distances to unearthed accessible conductive parts do not comply with **reinforced insulation** according to 29.1 and 29.2, shall be resistant to ageing caused by partial discharge due to the ignition sparks. This requirement is not applicable to the insulation of cables having electrical properties complying with ISO 3808.

Compliance is checked by carrying out the following ageing test.

*The **spark-ignition circuits** are operated for at least 100 h under the following test specification:*

- maximum duration of ignition switch-on repeated for the appropriate number of cycles in order to obtain the total test time (any rest period applied to avoid overheating the transformer or as a result of the normal operation of the ignition circuit is not taken into account when measuring the total test time);*
- maximum value of the spark ignition voltage measured when the appliance is supplied at **rated voltage**;*
- the temperature of the insulation as measured under the conditions of Clause 11.*

There shall be no breakdown of the insulation. In case of doubt, the test of 16.3 is applied between the cable conductor and water with the cable insulation immersed in water.

23 Internal wiring

This clause of Part 1 is applicable.

24 Components

This clause of Part 1 is applicable except as follows.

24.101 Appliance outlets and plug connectors of **interconnection cords** shall not be interchangeable if this could result in a hazard.

Compliance is checked by inspection.

25 Supply connection and external flexible cords

This clause of Part 1 is applicable.

26 Terminals for external ~~connections~~ conductors

This clause of Part 1 is applicable.

27 Provision for earthing

This clause of Part 1 is applicable except as follows.

27.1 Addition:

One pole of a **spark-ignition circuit** supplied through an ignition transformer complying with IEC 61558-2-3 shall be earthed.

28 Screws and connections

This clause of Part 1 is applicable.

29 Clearances, creepage distances and solid insulation

This clause of Part 1 is applicable except as follows.

29.1 Addition:

The requirement is not applicable to **spark-ignition circuits** complying with the values specified in 8.101. For other **spark-ignition circuits**, the requirement is not applicable to the air gap between the electrodes.

30 Resistance to heat and fire

This clause of Part 1 is applicable except as follows.

30.2 Addition:

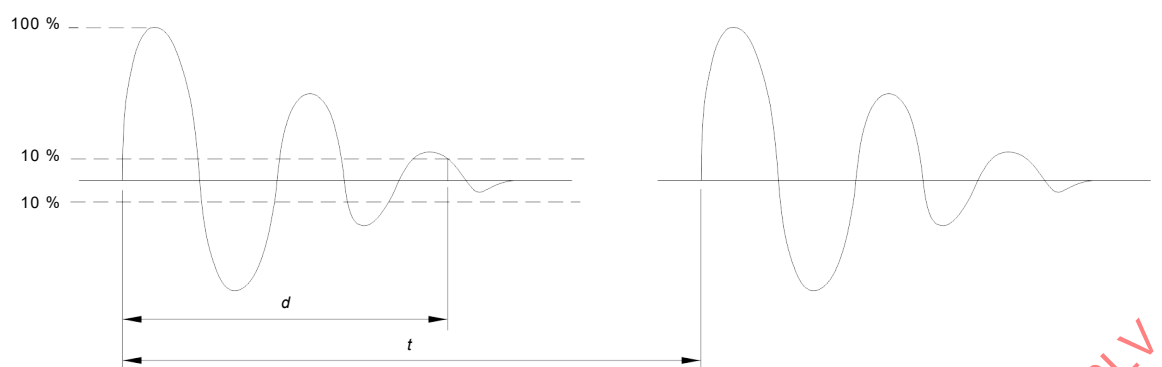
*The test of 30.2.2 is applicable to manually operated **spark-ignition circuits**. The test of 30.2.3 is applicable to other circuits.*

31 Resistance to rusting

This clause of Part 1 is applicable.

32 Radiation, toxicity and similar hazards

This clause of Part 1 is applicable.



Key

d pulse duration

t interval between pulses

Figure 101 – Pulse waveform

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Annexes

The annexes of Part 1 are applicable.

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Household and similar electrical appliances – safety –
Part 2-102: Particular requirements for gas, oil and solid-fuel burning appliances
having electrical connections**

**Appareils électrodomestiques et analogues – sécurité –
Partie 2-102: Exigences particulières pour les appareils à combustion au gaz, au
mazout et à combustible solide comportant des raccordements électriques**

CONTENTS

FOREWORD.....	3
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references	8
3 Terms and definitions	8
4 General requirement.....	8
5 General conditions for the tests	8
6 Classification.....	9
7 Marking and instructions.....	9
8 Protection against access to live parts.....	9
9 Starting of motor-operated appliances	10
10 Power input and current.....	10
11 Heating.....	10
12 Void.....	10
13 Leakage current and electric strength at operating temperature.....	10
14 Transient overvoltages	10
15 Moisture resistance	10
16 Leakage current and electric strength.....	11
17 Overload protection of transformers and associated circuits	12
18 Endurance.....	12
19 Abnormal operation	12
20 Stability and mechanical hazards.....	12
21 Mechanical strength	12
22 Construction	13
23 Internal wiring.....	14
24 Components	14
25 Supply connection and external flexible cords	14
26 Terminals for external connections	14
27 Provision for earthing	14
28 Screws and connections	14
29 Clearances, creepage distances and solid insulation	14
30 Resistance to heat and fire.....	15
31 Resistance to rusting.....	15
32 Radiation, toxicity and similar hazards.....	15
Annexes	16
Bibliography.....	17
Figure 101 – Pulse waveform.....	15
Table 101 – Accessible spark-ignition circuit limits.....	9

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –
SAFETY –****Part 2-102: Particular requirements for gas, oil and solid-fuel
burning appliances having electrical connections**

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.
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International Standard IEC 60335-2-102 has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances.

This bilingual version (2018-11) corresponds to the monolingual English version, published in 2017-12.

This second edition cancels and replaces the first edition published in 2004 including its Amendment 1 (2008) and its Amendment 2 (2012). This edition constitutes constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a spillage test is introduced for appliances that have a flat surface on which a cup may be placed (15.101);
- terms and definitions were renumbered;
- some notes have been converted to normative text or deleted (19.11.2, 22.103).

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

CDV	Report on voting
61/5295/CDV	61/5381A/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.

The French version of this standard has not been voted upon.

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

A list of all parts of the IEC 60335 series, under the general title: *Household and similar electrical appliances – Safety*, can be found on the IEC website.

This part 2 is to be used in conjunction with the latest edition of IEC 60335-1 and its amendments. It was established on the basis of the fifth edition (2010) of that standard.

NOTE 1 When “Part 1” is mentioned in this standard, it refers to IEC 60335-1.

This part 2 supplements or modifies the corresponding clauses in IEC 60335-1, so as to convert that publication into the IEC standard: Safety requirements for gas, oil and solid-fuel burning appliances having electrical connections.

When a particular subclause of Part 1 is not mentioned in this part 2, that subclause applies as far as is reasonable. When this standard states “addition”, “modification” or “replacement”, the relevant text in Part 1 is to be adapted accordingly.

NOTE 2 The following numbering system is used:

- subclauses, tables and figures that are numbered starting from 101 are additional to those in Part 1;
- unless notes are in a new subclause or involve notes in Part 1, they are numbered starting from 101, including those in a replaced clause or subclause;
- additional annexes are lettered AA, BB, etc.

NOTE 3 The following print types are used:

- requirements: in roman type;
- *test specifications: in italic type*;
- notes: in small roman type.

Words in **bold** in the text are defined in Clause 3. When a definition concerns an adjective, the adjective and the associated noun are also in bold.

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.

NOTE 4 The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations may need a transitional period following publication of a new, amended or revised IEC publication in which to make products in accordance with the new requirements and to equip themselves for conducting new or revised tests.

It is the recommendation of the committee that the content of this publication be adopted for implementation nationally not earlier than 12 months or later than 36 months from the date of publication.

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INTRODUCTION

It has been assumed in the drafting of this International Standard that the execution of its provisions is entrusted to appropriately qualified and experienced persons.

This standard recognizes the internationally accepted level of protection against hazards such as electrical, mechanical, thermal, fire and radiation of appliances when operated as in normal use taking into account the manufacturer's instructions. It also covers abnormal situations that can be expected in practice and takes into account the way in which electromagnetic phenomena can affect the safe operation of appliances.

This standard takes into account the requirements of IEC 60364 as far as possible so that there is compatibility with the wiring rules when the appliance is connected to the supply mains. However, national wiring rules may differ.

If an appliance within the scope of this standard also incorporates functions that are covered by another part 2 of IEC 60335, the relevant part 2 is applied to each function separately, as far as is reasonable. If applicable, the influence of one function on the other is taken into account.

When a part 2 standard does not include additional requirements to cover hazards dealt with in Part 1, Part 1 applies.

NOTE 1 This means that the technical committees responsible for the part 2 standards have determined that it is not necessary to specify particular requirements for the appliance in question over and above the general requirements.

This standard is a product family standard dealing with the safety of appliances and takes precedence over horizontal and generic standards covering the same subject.

NOTE 2 Horizontal and generic standards covering a hazard are not applicable since they have been taken into consideration when developing the general and particular requirements for the IEC 60335 series of standards. For example, in the case of temperature requirements for surfaces on many appliances, generic standards, such as ISO 13732-1 for hot surfaces, are not applicable in addition to Part 1 or part 2 standards.

An appliance that complies with the text of this standard will not necessarily be considered to comply with the safety principles of the standard if, when examined and tested, it is found to have other features that impair the level of safety covered by these requirements.

An appliance employing materials or having forms of construction differing from those detailed in the requirements of this standard may be examined and tested according to the intent of the requirements and, if found to be substantially equivalent, may be considered to comply with the standard.

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-102: Particular requirements for gas, oil and solid-fuel burning appliances having electrical connections

1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of gas, oil and solid-fuel burning appliances having electrical connections, for household and similar purposes, their **rated voltage** being not more than 250 V for single-phase appliances and 480 V for other appliances.

This standard covers the electrical safety and some other safety aspects of these appliances. All safety aspects are covered when the appliance also complies with the relevant standard for the fuel-burning appliance. If the appliance incorporates electric heating sources, safety aspects concerning these electric sources are covered when the appliance also complies with the relevant part 2 of IEC 60335.

NOTE 101 Examples of appliances within the scope of this standard are

- central heating boilers;
- commercial catering equipment;
- cooking appliances;
- laundry and cleaning appliances;
- room heaters;
- warm air heaters;
- water heaters.

Appliances not intended for normal household use but which nevertheless may be a source of danger to the public, such as appliances intended to be used by laymen in shops, in light industry and on farms, are within the scope of this standard.

This standard deals with the reasonably foreseeable hazards presented by appliances that are encountered by all persons.

However, in general, it does not take into account

- persons (including children) whose
 - physical, sensory or mental capabilities; or
 - lack of experience and knowledgeprevents them from using the appliance safely without supervision or instruction;
- children playing with the appliance.

NOTE 102 Attention is drawn to the fact that

- for appliances intended to be used in vehicles or on board ships or aircraft, additional requirements may be necessary;
- in many countries, additional requirements are specified by the national health authorities, the national authorities responsible for the protection of labour and similar authorities.

NOTE 103 This standard does not apply to

- appliances intended exclusively for industrial purposes;

- appliances intended to be used in locations where special conditions prevail, such as the presence of a corrosive or explosive atmosphere (dust, vapour or gas).

2 Normative references

This clause of Part 1 is applicable except as follows.

Addition:

IEC 61558-2-3, *Safety of transformers, reactors, power supply units and combinations thereof – Part 2-3: Particular requirements and tests for ignition transformers for gas and oil burners*

ISO 3808, *Road vehicles – Unscreened high-voltage ignition cables – General specifications, test methods and requirements*

3 Terms and definitions

This clause of Part 1 is applicable except as follows.

3.5.101

spark-ignition circuit

electrical circuit for producing sparks which ignite gaseous or liquid fuel

3.8.101

lock-out

shut-down requiring a manual operation to restart the appliance

3.8.102

shut-down

de-energization of a control resulting from the action of a limiting device or detection of a fault in the control system, thus stopping the flow of gaseous or liquid fuel

4 General requirement

This clause of Part 1 is applicable.

5 General conditions for the tests

This clause of Part 1 is applicable except as follows.

5.2 *Addition:*

A separate appliance may be used for the tests carried out on the fuel-burning appliance, in accordance with its relevant standard.

The tests of this standard may be carried out in conjunction with the tests of another part 2, if applicable.

5.3 *Addition:*

If a test has been carried out in accordance with the fuel-burning appliance standard, it is not repeated.

5.4 *Addition:*

When the appliance incorporates electric heating sources, the tests are carried out with all parts of the appliance in operation, as allowed by the construction.

5.101 Appliances are supplied as specified for **motor-operated appliances**.

6 Classification

This clause of Part 1 is applicable.

7 Marking and instructions

This clause of Part 1 is applicable.

8 Protection against access to live parts

This clause of Part 1 is applicable except as follows.

8.1 Addition:

The requirement does not apply to **accessible parts** of **spark-ignition circuits**.

8.101 Parts of the **spark-ignition circuits** shall not be accessible if the limits in Table 101 are exceeded, unless they are piezoelectric igniters:

Table 101 – Accessible spark-ignition circuit limits

Interval between pulses (<i>t</i>)	Pulse duration (<i>d</i>)		
	<i>d</i> ≤ 0,1 ms	0,1 ms < <i>d</i> ≤ 100 ms	<i>d</i> > 100 ms
<i>t</i> < 40 ms	$V_o \leq 10 \text{ kV}$ and $I \leq 0,7 \text{ mA}$	$V_o \leq 10 \text{ kV}$ and $I \leq 0,7 \text{ mA}$	^a
40 ms ≤ <i>t</i> < 250 ms	45 µC/pulse	$V_o \leq 10 \text{ kV}$ and $I \leq 0,7 \text{ mA}$	$V_o \leq 10 \text{ kV}$ and $I \leq 0,7 \text{ mA}$ (only applicable if <i>d</i> < <i>t</i>) ^a
<i>t</i> ≥ 250 ms	100 µC/pulse	100 µC/pulse	$V_o \leq 10 \text{ kV}$ and $I \leq 0,7 \text{ mA}$
NOTE 1 For the pulse duration (<i>d</i>) and the interval between pulses (<i>t</i>), see also Figure 101.			
NOTE 2 V_o is the no-load voltage of the ignition circuit. V_o and I are peak values.			
^a If <i>t</i> < 40 ms and <i>d</i> > 100 ms or if 40 ms ≤ <i>t</i> < 250 ms and <i>d</i> > 100 ms when <i>d</i> < <i>t</i> , then parts of the spark-ignition circuits shall not be accessible.			

Compliance is checked by inspection, by applying test probe B of IEC 61032 as described in 8.1.1 and by the following test.

The **spark-ignition circuit** is operated and the pulse duration measured across the spark gap until it has reduced to 10 % of its peak value, as shown in Figure 101.

A resistor having a nominal non-inductive resistance of 2 000 Ω is connected across the spark gap and the voltage measured. The current flowing through the resistor is calculated from the voltage measured across it.

The quantity of electricity in the discharge is calculated from the current and duration of the pulse.

NOTE The quantity of electricity is calculated from the sum of all areas recorded on the voltage/time graph without taking voltage polarity into account.

9 Starting of motor-operated appliances

This clause of Part 1 is not applicable.

10 Power input and current

This clause of Part 1 is applicable.

11 Heating

This clause of Part 1 is applicable except as follows.

11.8 Addition:

The temperature rises of the walls of the test corner, and the temperature rises of the surfaces of handles, knobs, grips and similar parts, are not measured.

The temperature rise limits for common parts of appliances having electric and fuel-burning heating sources are specified in the relevant part 2.

NOTE 101 Examples of common parts are components in the control panel of a combined gas and electric cooking range.

12 Void

13 Leakage current and electric strength at operating temperature

This clause of Part 1 is applicable except as follows.

13.2 Modification:

*The limit for **stationary class I motor-operated appliances** is applicable.*

14 Transient overvoltages

This clause of Part 1 is applicable.

15 Moisture resistance

This clause of Part 1 is applicable except as follows.

15.2 Addition:

For cooking ranges, hobs and similar appliances, compliance is checked by the following tests.

*Cooking ranges and hobs are positioned so that the hob surface is horizontal, **detachable burner heads** being in position. A vessel having a diameter approximately 220 mm is completely filled with water containing approximately 1 % NaCl and positioned centrally over the burner. A further quantity of 0,5 l of the solution is poured steadily into the vessel over a period of 15 s.*

This test is made for each burner separately, after removing any residual solution from the appliance.

If controls are mounted below the hob surface, 0,5 l of the saline solution is poured steadily over the top of the hob near the controls over a period of 15 s. If they are mounted in the hob surface, the solution is poured over the controls.

For burners incorporating a temperature sensor, switch or ignition device, 0,02 l of the saline solution is poured over the burner so that it flows over the device.

For ovens or grills, 0,5 l of the saline solution is poured over the floor of the oven or grilling compartment.

For appliances having a drip tray or similar receptacle, the receptacle is filled with the saline solution. A further quantity of the solution, equal to 0,01 l per 100 cm² of the area of the top surface of the receptacle, is poured onto the receptacle through openings in the hob surface. However, the total quantity of solution shall not exceed 3 l.

For hobs provided with a lid, 0,5 l of the saline solution is poured uniformly over the closed lid. When the solution has run off, the surface is dried and a further 0,125 l of the solution is poured steadily from a height of approximately 50 mm onto the centre of the lid over a period of 15 s. The lid is then opened as in normal use.

15.101 Appliances, other than those classified at least IPX4, having flat, horizontal external surfaces measuring 75 mm × 75 mm or greater at a height not exceeding 2 m above the floor after the appliance is installed according to the instructions, shall not have their electrical insulation affected by spillage of liquid.

NOTE The intent is to identify surfaces on which a vessel, such as a cup or jug, can be placed and are subject to spillage.

Compliance is checked by the following test using a 0,25 l spillage solution of 15.2.

The solution is poured as quickly as possible over the identified surface.

*The appliance shall then withstand the electric strength test of 16.3 and inspection shall show that there is no trace of water on insulation that could result in a reduction of **clearances** or **creepage distances** below the values specified in Clause 29.*

The test is repeated for each identified surface, the appliance being dried between each test.

16 Leakage current and electric strength

This clause of Part 1 is applicable except as follows.

16.2 Modification:

*The limit for **stationary class I motor-operated appliances** is applicable.*

16.3 Addition:

*The no-load peak voltage of **spark-ignition circuits** is measured with the spark electrode removed. The peak voltage applied between the **spark-ignition circuit** and metal foil covering the insulation is 1,5 times this value.*

NOTE 101 It could be necessary to insulate the spark gap to prevent it flashing over during the test.

17 Overload protection of transformers and associated circuits

This clause of Part 1 is applicable.

18 Endurance

This clause of Part 1 is not applicable.

19 Abnormal operation

This clause of Part 1 is applicable except as follows.

19.4 Addition:

The test is repeated with the supply neutral conductor connected to the protective conductor, however any controls are not short-circuited.

This test is repeated with the polarity of the supply to the appliance reversed and with the neutral conductor connected to the protective conductor.

The additional tests are not carried out on appliances where an all-pole disconnection is used to disconnect all fuel valves.

19.11.2 Addition:

Mechanical blocking of the fuel valves is not taken into account. However, the mechanical or electrical blocking of the acting member (power switching device or relay-contact) of the fuel control is considered as a possible fault.

*In each case the test is also ended if a **shut-down** is performed.*

19.11.4 Addition:

*The tests of 19.11.4.1 to 19.11.4.7 are also carried out under **normal operation**, the appliance being supplied at **rated voltage**.*

19.13 Addition:

*During and after the tests of 19.11.4, the appliance shall have reached a **lock-out** condition, unless it continues to operate normally even after a **shut-down**.*

20 Stability and mechanical hazards

This clause of Part 1 is applicable except as follows.

20.1 Not applicable.

21 Mechanical strength

This clause of Part 1 is applicable except as follows.

21.1 Modification:

*The blows are only applied to enclosures of **live parts** and enclosures of dangerous moving parts.*

22 Construction

This clause of Part 1 is applicable except as follows.

22.46 Modification:

Software used in **protective electronic circuits** to ensure compliance with this standard for gaseous and liquid fuels shall be software that contains measures to control the fault/error conditions specified in Table R.2.

22.49 Addition:

NOTE 101 A central heating system is an example of an appliance that can start and operate continuously without giving rise to a hazard.

22.51 Addition:

NOTE 101 A central heating system is an example of an appliance that can start and operate continuously without giving rise to a hazard.

22.101 Parts of **spark-ignition circuits** shall be positioned or secured against loosening so that contact between the circuit and other **live parts** is prevented.

Compliance is checked by inspection and by applying a force of approximately 5 N to the wiring.

22.102 If compliance with this standard can be affected by the polarity of the supply in the event of an earth fault, the appliance shall incorporate a polarity-detection device that results in **shut-down** or prevents the appliance from operating if the polarity is reversed.

This requirement does not apply to appliances incorporating a control having **all-pole disconnection**, to appliances intended to be permanently connected to fixed wiring, or to appliances having a **supply cord** fitted with a polarized plug.

NOTE This requirement avoids the uncontrolled opening of a gas valve in the event of an earth fault.

Compliance is checked by inspection.

22.103 If the limits in 8.101 are exceeded, the insulation of the parts of the circuit, where distances to unearthed accessible conductive parts do not comply with **reinforced insulation** according to 29.1 and 29.2, shall be resistant to ageing caused by partial discharge due to the ignition sparks. This requirement is not applicable to the insulation of cables having electrical properties complying with ISO 3808.

Compliance is checked by carrying out the following ageing test.

*The **spark-ignition circuits** are operated for at least 100 h under the following test specification:*

- *maximum duration of ignition switch-on repeated for the appropriate number of cycles in order to obtain the total test time (any rest period applied to avoid overheating the transformer or as a result of the normal operation of the ignition circuit is not taken into account when measuring the total test time);*

- *maximum value of the spark ignition voltage measured when the appliance is supplied at **rated voltage**;*
- *the temperature of the insulation as measured under the conditions of Clause 11.*

There shall be no breakdown of the insulation. In case of doubt, the test of 16.3 is applied between the cable conductor and water with the cable insulation immersed in water.

23 Internal wiring

This clause of Part 1 is applicable.

24 Components

This clause of Part 1 is applicable except as follows.

24.101 Appliance outlets and plug connectors of **interconnection cords** shall not be interchangeable if this could result in a hazard.

Compliance is checked by inspection.

25 Supply connection and external flexible cords

This clause of Part 1 is applicable.

26 Terminals for external conductors

This clause of Part 1 is applicable.

27 Provision for earthing

This clause of Part 1 is applicable except as follows.

27.1 Addition:

One pole of a **spark-ignition circuit** supplied through an ignition transformer complying with IEC 61558-2-3 shall be earthed.

28 Screws and connections

This clause of Part 1 is applicable.

29 Clearances, creepage distances and solid insulation

This clause of Part 1 is applicable except as follows.

29.1 Addition:

The requirement is not applicable to **spark-ignition circuits** complying with the values specified in 8.101. For other **spark-ignition circuits**, the requirement is not applicable to the air gap between the electrodes.

30 Resistance to heat and fire

This clause of Part 1 is applicable except as follows.

30.2 Addition:

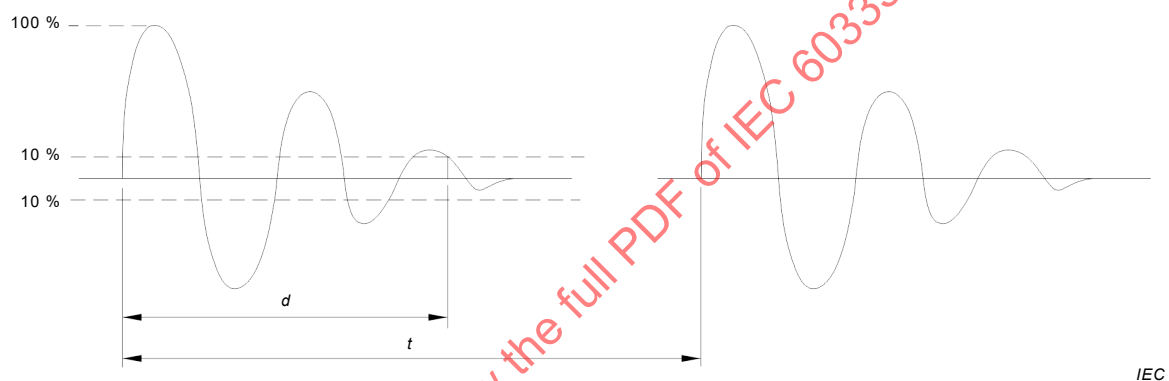
*The test of 30.2.2 is applicable to manually operated **spark-ignition circuits**. The test of 30.2.3 is applicable to other circuits.*

31 Resistance to rusting

This clause of Part 1 is applicable.

32 Radiation, toxicity and similar hazards

This clause of Part 1 is applicable.



Key

d pulse duration

t interval between pulses

Figure 101 – Pulse waveform

Annexes

The annexes of Part 1 are applicable.

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Bibliography

The bibliography of Part 1 is applicable.

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SOMMAIRE

AVANT-PROPOS	19
INTRODUCTION.....	22
1 Domaine d'application	23
2 Références normatives	24
3 Termes et définitions	24
4 Exigences générales	24
5 Conditions générales d'essais	24
6 Classification	25
7 Marquage et instructions	25
8 Protection contre l'accès aux parties actives.....	25
9 Démarrage des appareils à moteur	26
10 Puissance et courant	26
11 Échauffements.....	26
12 Vide.....	26
13 Courant de fuite et rigidité diélectrique à la température de régime	26
14 Surtensions transitoires	26
15 Résistance à l'humidité.....	27
16 Courant de fuite et rigidité diélectrique	28
17 Protection contre la surcharge des transformateurs et des circuits associés	28
18 Endurance	28
19 Fonctionnement anormal	28
20 Stabilité et dangers mécaniques	29
21 Résistance mécanique.....	29
22 Construction	29
23 Conducteurs internes.....	30
24 Composants	30
25 Raccordement au réseau et câbles souples extérieurs	30
26 Bornes pour conducteurs externes	30
27 Dispositions en vue de la mise à la terre	30
28 Vis et connexions	31
29 Distances dans l'air, lignes de fuite et isolation solide.....	31
30 Résistance à la chaleur et au feu.....	31
31 Protection contre la rouille	31
32 Rayonnement, toxicité et dangers analogues	31
Annexes	33
Bibliographie.....	34
Figure 101 – Forme d'onde d'impulsion.....	32
Tableau 101 – Limites d'accessibilité aux circuits d'allumage par étincelles	25

COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

**APPAREILS ÉLECTRODOMESTIQUES ET ANALOGUES –
SÉCURITÉ –****Partie 2-102: Exigences particulières pour les appareils
à combustion au gaz, au mazout et à combustible solide
comportant des raccordements électriques****AVANT-PROPOS**

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- 8) L'attention est attirée sur les références normatives citées dans cette publication. L'utilisation de publications référencées est obligatoire pour une application correcte de la présente publication.
- 9) L'attention est attirée sur le fait que certains des éléments de la présente Publication de l'IEC peuvent faire l'objet de droits de brevet. L'IEC ne saurait être tenue pour responsable de ne pas avoir identifié de tels droits de brevets et de ne pas avoir signalé leur existence.

La Norme internationale IEC 60335-2-102 a été établie par le comité d'études 61 de l'IEC: Sécurité des appareils électrodomestiques et analogues.

La présente version bilingue (2018-11) correspond à la version anglaise monolingue publiée en 2017-12.

Cette deuxième édition annule et remplace la première édition parue en 2004, son Amendement 1 (2008) et son Amendement 2 (2012). Cette édition constitue une révision technique.

Cette édition inclut les modifications techniques majeures suivantes par rapport à l'édition précédente:

- un essai de débordement est introduit pour les appareils comportant une surface plane sur laquelle une tasse peut être placée (15.101);
- les termes et définitions ont été renumérotés;
- certaines notes ont été transformées en texte normatif ou supprimées (19.11.2, 22.103).

Le texte anglais de cette norme est issu des documents 61/5295/CDV et 61/5381A/RVC.

Le rapport de vote 61/5381A/RVC donne toute information sur le vote ayant abouti à l'approbation de cette norme.

La version française de cette norme n'a pas été soumise au vote.

Ce document a été rédigé selon les Directives ISO/IEC, Partie 2.

Une liste de toutes les parties de la série IEC 60335, publiées sous le titre général: *Appareils électrodomestiques et analogues – Sécurité*, est disponible sur le site web de l'IEC.

La présente partie 2 doit être utilisée conjointement avec la dernière édition de l'IEC 60335-1 et ses amendements. Elle a été établie sur la base de la cinquième édition (2010) de cette norme.

NOTE 1 L'expression "Partie 1" utilisée dans la présente norme fait référence à l'IEC 60335-1.

La présente partie 2 complète ou modifie les articles correspondants de l'IEC 60335-1, de façon à transformer cette publication en norme IEC: Exigences de sécurité pour les appareils à combustion au gaz, au mazout et à combustible solide comportant des raccordements électriques.

Lorsqu'un paragraphe particulier de la Partie 1 n'est pas mentionné dans cette partie 2, ce paragraphe s'applique pour autant qu'il est raisonnable. Lorsque la présente norme spécifie "addition", "modification" ou "remplacement", le texte correspondant de la Partie 1 doit être adapté en conséquence.

NOTE 2 Le système de numérotation suivant est utilisé:

- les paragraphes, tableaux et figures qui sont numérotés à partir de 101 sont complémentaires à ceux de la Partie 1;
- notes: à l'exception de celles qui sont dans un nouveau paragraphe ou de celles qui concernent des notes de la Partie 1, les notes sont numérotées à partir de 101, y compris celles des articles ou paragraphes qui sont modifiés ou remplacés;
- les annexes complémentaires sont appelées AA, BB, etc.

NOTE 3 Les caractères d'imprimerie suivants sont utilisés:

- exigences: caractères romains;
- *modalités d'essais: caractères italiques;*
- notes: petits caractères romains.

Les termes figurant en caractères **gras** dans le texte sont définis à l'Article 3. Lorsqu'une définition concerne un adjectif, l'adjectif et le nom associé figurent également en gras.

Le comité a décidé que le contenu de ce document ne sera pas modifié avant la date de stabilité indiquée sur le site web de l'IEC sous "<http://webstore.iec.ch>" dans les données relatives au document recherché. À cette date, le document sera

- reconduit,
- supprimé,
- remplacé par une édition révisée, ou
- amendé.

NOTE 4 L'attention des Comités Nationaux est attirée sur le fait que les fabricants d'appareils et les organismes d'essai peuvent avoir besoin d'une période transitoire après la publication d'une nouvelle publication IEC, ou d'une publication amendée ou révisée, pour fabriquer des produits conformes aux nouvelles exigences et pour adapter leurs équipements aux nouveaux essais ou aux essais révisés.

Le comité recommande que le contenu de cette publication soit entériné au niveau national au plus tôt 12 mois et au plus tard 36 mois après la date de publication.

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INTRODUCTION

Il a été considéré en établissant la présente Norme internationale que l'exécution de ses dispositions était confiée à des personnes expérimentées et ayant une qualification appropriée.

La présente norme reconnaît le niveau de protection internationalement accepté contre les risques électriques, mécaniques, thermiques, liés au feu et au rayonnement des appareils, lorsqu'ils fonctionnent comme en usage normal en tenant compte des instructions du fabricant. Elle couvre également les situations anormales auxquelles on peut s'attendre dans la pratique et prend en considération les phénomènes électromagnétiques qui peuvent affecter le fonctionnement en toute sécurité des appareils.

La présente norme tient compte autant que possible des exigences de l'IEC 60364, de façon à rester compatible avec les règles d'installation quand l'appareil est raccordé au réseau d'alimentation. Cependant, des règles nationales d'installation peuvent être différentes.

Si un appareil compris dans le domaine d'application de la présente norme comporte également des fonctions qui sont couvertes par une autre partie 2 de l'IEC 60335, la partie 2 correspondante est appliquée à chaque fonction séparément, dans la limite du raisonnable. Si cela est applicable, on tient compte de l'influence d'une fonction sur les autres fonctions.

Lorsqu'une partie 2 ne comporte pas d'exigences complémentaires pour couvrir les risques traités dans la Partie 1, la Partie 1 s'applique.

NOTE 1 Cela signifie que les comités d'études responsables pour les parties 2 ont déterminé qu'il n'était pas nécessaire de spécifier des exigences particulières pour l'appareil en question en plus des exigences générales.

La présente norme est une norme de famille de produits traitant de la sécurité d'appareils et a préséance sur les normes horizontales et génériques couvrant le même sujet.

NOTE 2 Les normes horizontales et génériques couvrant un risque ne sont pas applicables parce qu'elles ont été prises en considération lorsque les exigences générales et particulières ont été étudiées pour la série de normes IEC 60335. Par exemple, dans le cas des exigences de température de surface pour de nombreux appareils, les normes génériques, comme l'ISO 13732-1 pour les surfaces chaudes, ne sont pas applicables en complément des normes de la Partie 1 ou de la partie 2.

Un appareil conforme au texte de la présente norme ne sera pas nécessairement jugé conforme aux principes de sécurité de la norme si, lorsqu'il est examiné et soumis aux essais, il apparaît qu'il présente d'autres caractéristiques qui compromettent le niveau de sécurité visé par ces exigences.

Un appareil utilisant des matériaux ou présentant des modes de construction différents de ceux décrits dans les exigences de la présente norme peut être examiné et essayé en fonction de l'objectif poursuivi par ces exigences et, s'il est jugé pratiquement équivalent, il peut être estimé conforme aux principes de sécurité de la norme.

APPAREILS ÉLECTRODOMESTIQUES ET ANALOGUES – SÉCURITÉ –

Partie 2-102: Exigences particulières pour les appareils à combustion au gaz, au mazout et à combustible solide comportant des raccordements électriques

1 Domaine d'application

L'article de la Partie 1 est remplacé par l'article ci-après.

La présente Norme internationale traite de la sécurité des appareils à combustion au gaz, au mazout et à combustible solide comportant des raccordements électriques pour usages domestiques et analogues, dont la **tension assignée** n'est pas supérieure à 250 V pour les appareils monophasés et à 480 V pour les autres appareils.

La présente norme englobe la sécurité électrique et certains autres aspects liés à la sécurité de ces appareils. Tous les aspects liés à la sécurité sont couverts lorsque l'appareil est également conforme à la norme correspondante pour l'appareil de chauffage au combustible. Si l'appareil comporte des sources de chauffage électriques, les aspects liés à la sécurité concernant ces sources électriques sont couverts lorsque l'appareil est également conforme à la partie 2 correspondante de l'IEC 60335.

NOTE 101 Comme exemples d'appareils compris dans le domaine d'application de la présente norme, on peut citer

- les chaudières de chauffage central;
- les équipements de restauration à usage commercial;
- les appareils de cuisson;
- les appareils de nettoyage et de blanchisserie;
- les appareils de chauffage des locaux;
- les appareils de chauffage par air chaud;
- les chauffe-eau.

Les appareils non destinés à un usage domestique normal mais qui néanmoins peuvent constituer une source de danger pour le public, tels que les appareils destinés à être utilisés par des usagers non avertis dans des magasins, chez des artisans et dans des fermes, sont compris dans le domaine d'application de la présente norme.

La présente norme traite des risques raisonnablement prévisibles présentés par les appareils, encourus par tous les individus.

Cependant, cette norme ne tient pas compte en général

- des personnes (y compris des enfants) dont
 - les capacités physiques, sensorielles ou mentales; ou
 - le manque d'expérience et de connaissanceles empêchent d'utiliser l'appareil en toute sécurité sans surveillance ou instruction;
- de l'utilisation de l'appareil comme jouet par des enfants.

NOTE 102 L'attention est attirée sur le fait que

- pour les appareils destinés à être utilisés dans des véhicules ou à bord de navires ou d'avions, des exigences supplémentaires peuvent être nécessaires;

- dans de nombreux pays, des exigences supplémentaires sont spécifiées par les organismes nationaux de la santé, par les organismes nationaux responsables de la protection des travailleurs et par des organismes similaires.

NOTE 103 La présente norme ne s'applique pas

- aux appareils prévus exclusivement pour des usages industriels;
- aux appareils destinés à être utilisés dans des locaux présentant des conditions particulières, telles que la présence d'une atmosphère corrosive ou explosive (poussière, vapeur ou gaz).

2 Références normatives

L'article de la Partie 1 est applicable avec les exceptions suivantes:

Addition:

IEC 61558-2-3, *Sécurité des transformateurs, bobines d'inductance, blocs d'alimentation et des combinaisons de ces éléments – Partie 2-3: Règles particulières et essais pour les transformateurs d'allumage pour brûleurs à gaz et combustibles liquides*

ISO 3808, *Véhicules routiers – Câbles d'allumage haute tension non blindés – Spécifications générales, méthodes d'essai et exigences*

3 Termes et définitions

L'article de la Partie 1 est applicable avec les exceptions suivantes.

3.5.101

circuit d'allumage par étincelles

circuit électrique destiné à enflammer les combustibles gazeux ou liquides au moyen d'étincelles

3.8.101

verrouillage

fermeture exigeant une opération manuelle pour le redémarrage de l'appareil

3.8.102

fermeture

désactivation d'un dispositif de commande par suite de l'action d'un dispositif limiteur ou d'une détection d'un défaut dans le système de commande, arrêtant ainsi l'écoulement de combustible gazeux ou liquide

4 Exigences générales

L'article de la Partie 1 est applicable.

5 Conditions générales d'essais

L'article de la Partie 1 est applicable avec les exceptions suivantes.

5.2 *Addition:*

Un appareil séparé peut être utilisé pour les essais effectués sur l'appareil de chauffage au combustible, conformément à la norme applicable à ce dernier.