

INTERNATIONAL STANDARD



This extended version of IEC 60335-2-16:2022 includes the content of the references made to IEC 60335-1:2020

Household and similar electrical appliances – Safety – Part 2-16: Particular requirements for food waste disposers



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INTERNATIONAL STANDARD



This extended version of IEC 60335-2-16:2022 includes the content of the references made to IEC 60335-1:2020

Household and similar electrical appliances – Safety – Part 2-16: Particular requirements for food waste disposers

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HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 1: General requirements

INTERPRETATION SHEET 1

This interpretation sheet has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances.

The text of this Interpretation Sheet is based on the following documents:

Draft	Report on voting
61/5999/DISH	61/6009/RVDISH

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

INTRODUCTION

Edition 6 of IEC 60335-1:2020 defines and introduces requirements for a detachable power supply part of an appliance. In the document, 24.2 prohibits the use of a power supply in a flexible cord.

QUESTION:

Does Subclause 24.2 prohibit the use of a detachable power supply part?

ANSWER

No, a "detachable power supply part" is a defined term and is not captured by the term "power supply" as used in Subclause 24.2.

NOTE A detachable power supply part is captured by the defined term when the output of the power supply part is detachable from the class III construction part of the appliance at:

- the power supply part, or
- the class III construction part of the appliance.

However, the supply cord (if any) does not have to be detachable from the detachable power supply part.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES –
SAFETY –****Part 2-16: Particular requirements for food waste disposers****FOREWORD**

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This extended version (EXV) of the official IEC Standard provides the user with a comprehensive content of the Standard.

IEC 60335-2-16:2022 EXV includes the content of the references made to IEC 60335-1:2020.

Particular subclauses of IEC 60335-1:2020 are displayed in the content on a blue background.

IEC 60335-2-16 has been prepared by IEC technical committee 61: Safety of household and similar electrical appliances. It is an International Standard.

This sixth edition cancels and replaces the fifth edition published in 2002, Amendment 1:2008 and Amendment 2:2011. This edition constitutes a technical revision.

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

- a) alignment with IEC 60335-1:2020;
- b) some notes have been converted to normative text (Clause 1, 22.104);
- c) addition of temperature rise limits for accessible surface (Clause 11).

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

Draft	Report on voting
61/6442/CDV	61/6532A/RVC

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

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 unless that edition precludes it; in that case, the latest edition that does not preclude it is used. It was established on the basis of the sixth edition (2020) 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: Particular requirements for food waste disposers.

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 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.

The following differences exist in the countries indicated below.

- Clause 1: The installation of food waste disposers is not allowed (Netherlands).
- Clause 1: Permission to install food waste disposers depends upon the local authority responsible for the sewage system (Finland, Japan and Norway).
- 6.1: Class 0I appliances are allowed (Japan).

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

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.

Guidance documents concerning the application of the safety requirements for appliances can be accessed via TC 61 supporting documents on the IEC website

<https://www.iec.ch/tc61/supportingdocuments>

This information is given for the convenience of users of this International Standard and does not constitute a replacement for the normative text in this standard.

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 can 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 publications, basic safety publications and group safety publications 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.

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.

NOTE 3 Standards dealing with non-safety aspects of household appliances are:

- IEC standards published by TC 59 concerning methods of measuring performance;
- CISPR 11, CISPR 14-1 and relevant IEC 61000-3 series standards concerning electromagnetic emissions;
- CISPR 14-2 concerning electromagnetic immunity;
- IEC standards published by TC 111 concerning environmental matters.

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-16: Particular requirements for food waste disposers

1 Scope

This part of IEC 60335 deals with the safety of electric **food waste disposers** for household and similar purposes, their **rated voltage** being not more than 250 V including direct current (DC) supplied appliances and **battery-operated appliances**.

Appliances not intended for normal household use but that nevertheless possibly pose 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 hazards presented by appliances that are encountered by all persons in and around the home. 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.

Attention is drawn to the fact that

- for appliances intended to be used in vehicles or on board ships or aircraft, additional requirements can be necessary;
- in many countries additional requirements are specified by the national health authorities, the national authorities responsible for the protection of labour, the national water supply authorities and similar authorities, leading to restriction of or prohibition of the installation of **food waste disposers**.

This standard does not apply to

- portable food waste disposers;
- food waste disposers of the incinerator type;
- appliances intended exclusively for industrial or commercial 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

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.

IEC 60034-1, *Rotating electrical machines – Part 1: Rating and performance*

IEC 60061-1, *Lamp caps and holders together with gauges for the control of interchangeability and safety – Part 1: Lamp caps*

IEC 60065:2014, *Audio, video and similar electronic apparatus – Safety requirements*

IEC 60068-2-2, *Environmental testing – Part 2-2: Tests – Test B: Dry heat*

IEC 60068-2-31, *Environmental testing – Part 2-31: Tests – Test Ec: Rough handling shocks, primarily for equipment-type specimens*

IEC 60068-2-75, *Environmental testing – Part 2-75: Tests – Test Eh: Hammer tests*

IEC 60068-2-78, *Environmental testing – Part 2-78: Tests – Test Cab: Damp heat, steady state*

IEC TR 60083, *Plugs and socket-outlets for domestic and similar general use standardized in member countries of IEC*

IEC 60085:2007, *Electrical insulation – Thermal evaluation and designation*

IEC 60112:2003, *Method for the determination of the proof and the comparative tracking indices of solid insulating materials*

IEC 60112:2003/AMD1:2009¹

IEC 60127 (all parts), *Miniature fuses*

IEC 60227 (all parts), *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V*

IEC 60227-5:2011, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V – Part 5: Flexible cables (cords)*

IEC 60238, *Edison screw lampholders*

IEC 60245 (all parts), *Rubber insulated cables – Rated voltages up to and including 450/750 V*

IEC 60252-1:2010, *AC motor capacitors – Part 1: General – Performance, testing and rating – Safety requirements – Guidance for installation and operation*

IEC 60252-1:2010/AMD1:2013²

IEC 60309-2, *Plugs, socket-outlets and couplers for industrial purposes – Part 2: Dimensional interchangeability requirements for pin and contact-tube accessories*

IEC 60320 (all parts), *Appliance couplers for household and similar general purposes*

IEC 60320-1, *Appliance couplers for household and similar general purposes – Part 1: General requirements*

IEC 60320-2-3, *Appliance couplers for household and similar general purposes – Part 2-3: Appliance couplers with a degree of protection higher than IPX0*

¹ There exists a consolidated edition 4.1:2009 that includes edition 4 and its Amendment 1.

² There exists a consolidated edition 2.1:2013 that includes edition 2 and its Amendment 1.

IEC 60320-3, *Appliance couplers for household and similar general purposes – Part 3: Standard sheets and gauges*

IEC 60384-14:2013, *Fixed capacitors for use in electronic equipment – Part 14: Sectional specification – Fixed capacitors for electromagnetic interference suppression and connection to the supply mains*

IEC 60384-14:2013/AMD1:2016³

IEC 60417, *Graphical symbols for use on equipment*

IEC 60445:2017, *Basic and safety principles for man-machine interface, marking and identification – Identification of equipment terminals, conductor terminations and conductors*

IEC 60529:1989, *Degrees of protection provided by enclosures (IP Code)*

IEC 60529:1989/AMD1:1999

IEC 60529:1989/AMD2:2013⁴

IEC 60584-1, *Thermocouples – Part 1: EMF specifications and tolerances*

IEC 60598-1:2014, *Luminaires – Part 1: General requirements and tests*

IEC 60598-1:2014/AMD1:2017⁵

IEC 60603-11, *Connectors for frequencies below 3 MHz for use with printed boards – Part 11: Detail specification for concentric connectors (dimensions for free connectors and fixed connectors)*

IEC 60664-1:2007, *Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests*

IEC 60664-3:2016, *Insulation coordination for equipment within low-voltage systems – Part 3: Use of coating, potting or moulding for protection against pollution*

IEC 60664-4:2005, *Insulation coordination for equipment within low-voltage systems – Part 4: Consideration of high-frequency voltage stress*

IEC 60691, *Thermal-links – Requirements and application guide*

IEC 60695-2-11:2014, *Fire hazard testing – Part 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test method for end-products (GWEPT)*

IEC 60695-2-12, *Fire hazard testing – Part 2-12: Glowing/hot-wire based test methods – Glow-wire flammability index (GWFI) test method for materials*

IEC 60695-2-13, *Fire hazard testing – Part 2-13: Glowing/hot-wire based test methods – Glow-wire ignition temperature (GWIT) test method for materials*

IEC 60695-10-2, *Fire hazard testing – Part 10-2: Abnormal heat – Ball pressure test*

IEC 60695-11-5:2016, *Fire hazard testing – Part 11-5: Test flames – Needle-flame test method – Apparatus, confirmatory test arrangement and guidance*

³ There exists a consolidated edition 4.1:2016 that includes edition 4 and its Amendment 1.

⁴ There exists a consolidated edition 2.2:2013 that includes edition 2 and its Amendment 1 and Amendment 2.

⁵ There exists a consolidated edition 8.1:2017 that includes edition 8 and its Amendment 1.

IEC 60695-11-10, *Fire hazard testing – Part 11-10: Test flames – 50 W horizontal and vertical flame test methods*

IEC 60730-1:2013, *Automatic electrical controls – Part 1: General requirements*
IEC 60730-1:2013/AMD1:2015⁶

IEC 60730-2-8:2018, *Automatic electrical controls – Part 2-8: Particular requirements for electrically operated water valves, including mechanical requirements*

IEC 60730-2-9:2015, *Automatic electrical controls – Part 2-9: Particular requirements for temperature sensing controls*
IEC 60730-2-9:2015/AMD1:2018⁷

IEC 60730-2-10, *Automatic electrical controls for household and similar use – Part 2-10: Particular requirements for motor-starting relays*

IEC 60738-1, *Thermistors – Directly heated positive temperature coefficient – Part 1: Generic specification*

IEC 60799, *Electrical accessories – Cord sets and interconnection cord sets*

IEC 60906-1, *IEC system of plugs and socket-outlets for household and similar purposes – Part 1: Plugs and socket-outlets 16 A 250 V a.c.*

IEC 60934, *Circuit-breakers for equipment (CBE)*

IEC 60990:2016, *Methods of measurement of touch current and protective conductor current*

IEC 60999-1:1999, *Connecting devices – Electrical copper conductors – Safety requirements for screw-type and screwless-type clamping units – Part 1: General requirements and particular requirements for clamping units for conductors from 0,2 mm² up to 35 mm² (included)*

IEC 61000-4-2, *Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test*

IEC 61000-4-3, *Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test*

IEC 61000-4-4, *Electromagnetic compatibility (EMC) – Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test*

IEC 61000-4-5, *Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test*

IEC 61000-4-6, *Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields*

IEC 61000-4-11:2020, *Electromagnetic compatibility (EMC) – Part 4-11: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests for equipment with input current up to 16 A per phase*

⁶ There exists a consolidated edition 5.1:2015 that includes edition 5 and its Amendment 1.

⁷ There exists a consolidated edition 4.1:2018 that includes edition 4 and its Amendment 1.

IEC 61000-4-13:2002, *Electromagnetic compatibility (EMC) – Part 4-13: Testing and measurement techniques – Harmonics and interharmonics including mains signalling at a.c. power port, low frequency immunity tests*

IEC 61000-4-13:2002/AMD1:2009

IEC 61000-4-13:2002/AMD2:2015⁸

IEC 61000-4-34:2005, *Electromagnetic compatibility (EMC) – Part 4-34: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests for equipment with input current more than 16 A per phase*

IEC 61000-4-34:2005/AMD1:2009⁹

IEC 61032:1997, *Protection of persons and equipment by enclosures – Probes for verification*

IEC 61058-1:2016, *Switches for appliances – Part 1: General requirements*

IEC 61058-1-1:2016, *Switches for appliances – Part 1-1: Requirements for mechanical switches*

IEC 61058-1-2:2016, *Switches for appliances – Part 1-2: Requirements for electronic switches*

IEC 61180, *High-voltage test techniques for low-voltage equipment – Definitions, test and procedure requirements, test equipment*

IEC 61210, *Connecting devices – Flat quick-connect terminations for electrical copper conductors – Safety requirements*

IEC 61558-1:2017, *Safety of transformers, reactors, power supply units and combinations thereof – Part 1: General requirements and tests*

IEC 61558-2-6:2009, *Safety of transformers, reactors, power supply units and similar products for supply voltages up to 1 100 V – Part 2-6: Particular requirements and tests for safety isolating transformers and power supply units incorporating safety isolating transformers*

IEC 61558-2-16:2009, *Safety of transformers, reactors, power supply units and similar products for supply voltages up to 1 100 V – Part 2-16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units*

IEC 61558-2-16:2009/AMD1:2013¹⁰

IEC 61770, *Electric appliances connected to the water mains – Avoidance of backsiphonage and failure of hose-sets*

IEC 62133-1:2017, *Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications – Part 1: Nickel systems*

IEC 62133-2:2017, *Secondary cells and batteries containing alkaline or other non-acid electrolytes – Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications – Part 2: Lithium systems*

IEC 62151, *Safety of equipment electrically connected to a telecommunication network*

⁸ There exists a consolidated edition 1.2:2015 that includes edition 1 and its Amendment 1 and Amendment 2.

⁹ There exists a consolidated edition 1.1:2009 that includes edition 1 and its Amendment 1.

¹⁰ There exists a consolidated edition 1.1:2013 that includes edition 1 and its Amendment 1.

IEC 62471:2006, *Photobiological safety of lamps and lamp systems*

IEC 62477-1, *Safety requirements for power electronic converter systems and equipment – Part 1: General*

IEC 62821 (all parts), *Electric cables – Halogen-free, low smoke, thermoplastic insulated and sheathed cables of rated voltages up to and including 450/750 V*

ISO 178, *Plastics – Determination of flexural properties*

ISO 179-1, *Plastics – Determination of Charpy impact properties – Part 1: Non-instrumented impact test*

ISO 180, *Plastics – Determination of Izod impact strength*

ISO 527 (all parts), *Plastics – Determination of tensile properties*

ISO 1463, *Metallic and oxide coatings – Measurement of coating thickness – Microscopical method*

ISO 2178, *Non-magnetic coatings on magnetic substrates – Measurement of coating thickness – Magnetic method*

ISO 2768-1, *General tolerances – Part 1: Tolerances for linear and angular dimensions without individual tolerance indications*

ISO 4892-1:2016, *Plastics – Methods of exposure to laboratory light sources – Part 1: General guidance*

ISO 4892-2: 2013, *Plastics – Methods of exposure to laboratory light sources – Part 2: Xenon-arc lamps*

ISO 7000, *Graphical symbols for use on equipment – Registered symbols*

ISO 8256, *Plastics – Determination of tensile-impact strength*

ISO 9772, *Cellular plastics – Determination of horizontal burning characteristics of small specimens subjected to a small flame*

ISO 9773, *Plastics – Determination of burning behaviour of thin flexible vertical specimens in contact with a small-flame ignition source*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

When the terms "voltage" and "current" are used, they are RMS values, unless otherwise specified.