KÄESHOITAVAD ELEKTRIMOOTORIGA TÖÖRIISTAD, TRANSPORDITAVAD TÖÖRIISTAD JA MURU- NING AIATÖÖMASINAD. OHUTUS. OSA 1: ÜLDNÕUDED

Electric Motor-Operated Hand-Held, Transportable Tools and Lawn and Garden Machinery - Safety - Part 1: General requirements (IEC 62841-1:2014 + corrigendum May 2014, modified + IEC 62841-1:2014/AMD1:2025)

EESTI STANDARDIMIS- JA AKREDITEERIMISKESKUS
ESTONIAN CENTRE FOR STANDARDISATION AND ACCREDITATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 62841-1:2015 +A11+A1:2025 sisaldab Euroopa standardi EN 62841-1:2015 ja selle muudatuste A11:2022 ja A1:2025 ning paranduse AC:2015 ingliskeelset teksti.	This Estonian standard EVS-EN 62841-1:2015+A11+A1:2025 consists of the English text of the European standard EN 62841-1:2015 and its amendments A11:2022 and A1:2025 and corrigendum AC:2015.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas. Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 21.08.2015, muudatused A11 22.04.2022, A1 16.05.2025.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation. Date of Availability of the European standard is 21.08.2015, for A11 22.04.2022, A1 16.05.2025.
Muudatusega A11 lisatud või muudetud teksti algus ja lõpp on tekstis tähistatud sümbolitega [A11 A11]. Parandusega AC lisatud või muudetud teksti algus ja lõpp on tekstis tähistatud sümbolitega [AC AC]. Muudatusega A1 lisatud või muudetud teksti algus ja lõpp on tekstis tähistatud sümbolitega [A1 A1]. Selles standardis on rahvusvahelise standardi ühismuudatused tähistatud püstkriipsuga teksti vasakul veerisel. Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	The start and finish of text introduced or altered by amendment A11 is indicated in the text by tags [A11 A11]. The start and finish of text introduced or altered by corrigendum AC is indicated in the text by tags [AC AC]. The start and finish of text introduced or altered by amendment A1 is indicated in the text by tags [A1 A1]. In this document, the common modifications to the International Standard are indicated by a vertical line in the left margin of the text. The standard is available from the Estonian Centre for Standardisation and Accreditation.

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

ICS 25.140.20

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 62841-1 + A11 + A1

August 2015, April 2022, May 2025

ICS 25.140.20

A11 Supersedes EN 60745-1:2009, EN 61029-1:2009 A11

English Version

Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery - Safety - Part 1: General requirements (IEC 62841-1:2014 + corrigendum May 2014, modified + IEC 62841-1:2014/AMD1:2025)

Outils électroportatifs à moteur, outils portables et machines pour jardins et pelouses - Sécurité - Partie 1: Règles générales
(IEC 62841-1:2014 + corrigendum May 2014, modifiée + IEC 62841-1:2014/AMD1:2025)

Elektrische motorbetriebene handgeführte Werkzeuge, transportable Werkzeuge und Rasen- und Gartenmaschinen - Sicherheit - Teil 1: Allgemeine Anforderungen
(IEC 62841-1:2014 + corrigendum May 2014, modifiziert + IEC 62841-1:2014/AMD1:2025)

This European Standard was approved by CENELEC on 2015-06-15. Amendment A11 was approved by CENELEC on 2022-03-14. Amendment A1 was approved by CENELEC on 2025-04-10. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard and its amendments the status of a national standard without any alteration.

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This European Standard and its Amendments A11 and A1 exist in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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

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

Ref. No. EN 62841-1:2015 E + EN 62841-1:2015/A11:2022 E
+ EN 62841-1:2015/A1:2025 E

Foreword

The text of document 116/156/FDIS, future edition 1 of IEC 62841-1, prepared by IEC/TC 116 "Safety of motor-operated electric tools" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62841-1:2015.

A draft amendment, which covers common modifications to IEC 62841-1, was prepared by CLC/TC 116 "Safety of motor-operated electric tools" and approved by CENELEC.

The following dates are fixed:

– latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2016-06-15
– latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	-

〚A11〛 The EN 62841 series supersedes the EN 60745 series and the EN 61029 series. 〈A11〉

This European Standard replaces EN 60745-1:2009 and EN 61029-1:2009. However, EN 60745-1:2009 and EN 61029-1:2009 remain valid until all Part 2's which are used in conjunction with them have been withdrawn. No date of withdrawal (dow) has been given pending the updating of all the Part 2's to align with this EN 62841-1:2015 as respective Part 2's and Part 3's. The applicable date of withdrawal is given in each Part 2 and Part 3. It is intended the dow for this Part 1 will be fixed once all the Part 2's and Part 3's have been published.

EN 62841-1:2015 includes the following significant technical changes:

- requirements in various clauses introduced or modified in order to include the requirements for transportable tools and lawn and garden machinery (formerly covered by EN 61029-1 and EN 60335-1);
- leakage current test and electric strength test moved from former Clauses 13 and 15 to Annexes C and D;
- former Clauses 29, 30 and 31 renumbered to become Clauses 6, 13 and 15;
- requirements for electronic safety critical functions added to Clause 18;
- requirements for switches revised and moved from Annex I to Clause 23;
- clarifications in respect to soft materials (elastomers) added to Clauses 9, 19 and 13;
- test finger in Figure 1 of EN 60745-1 and test probe in Figure 2 of EN 60745-1 replaced by references to basic IEC standards;
- requirements for Li-ion battery systems added to Annexes K and L;
- Annex M removed.

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

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

For the relationship with EU Directive(s), see informative Annex ZZ, which is an integral part of this document.

This European Standard is divided into four parts:

Part 1: General requirements which are common to most electric motor operated tools (for the purpose of this standard referred to simply as tools) which could come within the scope of this standard;

Part 2, 3 or 4: Requirements for particular types of tools which either supplement or modify the requirements given in Part 1 to account for the particular hazards and characteristics of these specific tools.

This Part 1 is to be used in conjunction with the appropriate parts of EN 62841-2, EN 62841-3 or EN 62841-4 which contain clauses that supplements or modify the corresponding clauses in Part 1 to provide the relevant requirements for each type of product.

Compliance with the relevant clauses of Part 1 together with a relevant Part 2, 3 or 4 of this standard provides one means of conforming with the essential health and safety requirements of the Directive concerned.

A relevant Part 2, 3 or 4 is one in which the type of the tool or an accessory which is to be used with the tool is within the scope of that Part 2, 3 or 4.

When a relevant Part 2, 3, or 4 does not exist, Part 1 can help to establish the requirements for the tool, but will not by itself provide a means of conforming to the relevant essential health and safety requirements of the Machinery Directive.

Warning: Other requirements and other EU Directives can be applicable to the products falling within the scope of this standard.

CEN Technical Committees have produced a range of standards dealing with a similar range of non-electrically powered tools. Where necessary, normative references are made to these standards in the relevant Part 2, 3 or 4.

This European Standard follows the overall requirements of EN ISO 12100.

NOTE 1 In this standard, the following print types are used:
- requirements proper; in roman type
- *test specifications: in italic type;*
- explanatory matter: in smaller 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.

NOTE 2 In Annexes B, K and L, subclauses which are additional to those in the main body of the text are numbered starting from 201.

NOTE 3 Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62841-1:2014 are prefixed "Z".

Endorsement notice

The text of the International Standard IEC 62841-1:2014 + corrigendum May 2014 was approved by CENELEC as a European Standard with agreed common modifications.

A11 Amendment A11 European foreword

This document (EN 62841-1:2015/A11:2022) has been prepared by CLC/TC 116 ”Safety and environmental aspects of motor-operated electric tools”.

The following dates are fixed:

• latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2023–03–14
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2025–03–14

This document will amend EN 62841-1:2015.

This amendment was developed to correct the determination of the emission sound pressure level for hand-held tools. Since the title of Annex I is “Measurement of noise and vibration emission”, the requirements for noise and vibration reduction are transferred to Clause 21. In addition, the Annex ZZ is replaced with a detailed one. And Annex ZA and Clause 2 are replaced in order to have only dated normative references.

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

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

For relationship with EU Directive(s) / Regulation(s), see informative Annex ZZ, which is an integral part of this document.

Any feedback and questions on this document should be directed to the users’ national committee. A complete listing of these bodies can be found on the CENELEC website. A11

A1 Amendment A1 European foreword

The text of document 116/863/FDIS, future edition 1 of IEC 62841-1/AMD1, prepared by TC 116 "Safety of motor-operated electric tools" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62841-1:2015/A1:2025.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2026-05-31
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2028-05-31

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Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 62841-1:2014/AMD1:2025 was approved by CENELEC as a European Standard without any modification.

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

IEC 60335-2-69	NOTE	Approved as EN 60335-2-69
IEC 61784-3:2021	NOTE	Approved as EN IEC 61784-3:2021 (not modified)
ISO/TR 11690-3	NOTE	Approved as EN ISO 11690-3

A1

IEC 62841-1

Edition 1.1 2025-03
CONSOLIDATED VERSION

INTERNATIONAL STANDARD

Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety –
Part 1: General requirements

IEC 62841-1:2014-03+AMD1:2025-03 CSV(en)

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The world's leading online dictionary on electrotechnology, containing more than 22 500 terminological entries in English and French, with equivalent terms in 25 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC 62841-1

Edition 1.1 2025-03
CONSOLIDATED VERSION

INTERNATIONAL STANDARD

Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 1: General requirements

INTERNATIONAL
ELECTROTECHNICAL
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CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTRIC MOTOR-OPERATED HAND-HELD TOOLS, TRANSPORTABLE TOOLS AND LAWN AND GARDEN MACHINERY – SAFETY –

Part 1: General requirements

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 62841-1 has been prepared by IEC technical committee 116: Safety of motor-operated electric tools.

This standard is scheduled to cancel and replace the fourth edition of IEC 60745-1, published in 2006, the first edition of IEC 61029-1, published in 1990, and the fifth edition of IEC 60335-1, published in 2010, only with respect to requirements concerning lawn and garden machinery. The latter publications remain valid until they are withdrawn. This standard constitutes a technical revision.

This edition includes the following significant technical changes with respect to the fourth edition of IEC 60745-1:

– requirements in various clauses introduced or modified in order to include the requirements for transportable tools and lawn and garden machinery (formerly covered by IEC 61029-1 and IEC 60335-1);

– leakage current test and electric strength test moved from former Clauses 13 and 15 to Annexes C and D;
– former Clauses 29, 30 and 31 renumbered to become Clauses 6, 13 and 15;
– requirements for electronic **safety critical functions** added to Clause 18;
– requirements for switches revised and moved from Annex I to Clause 23;
– clarifications in respect to soft materials (elastomers) added to Clauses 9, 19 and 13;
– test finger in Figure 1 of IEC 60745-1 and test probe in Figure 2 of IEC 60745-1 replaced by references to basic IEC standards;
– requirements for Li-Ion battery systems added to Annexes K and L;
– Annex M removed.

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

FDIS	Report on voting
116/156/FDIS	116/163/RVD

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

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

This Part 1 is to be used in conjunction with the appropriate parts of IEC 62841-2, IEC 62841-3 or IEC 62841-4 which contain clauses that supplement or modify the corresponding clauses in Part 1 to provide the relevant requirements for each type of product.

NOTE 1 In this standard, the following print types are used:

– requirements: in roman type
– *test specification: in italic type*
– Notes: in smaller 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.

NOTE 2 In Annexes B, K and L, subclauses which are additional to those in the main body of the text are numbered starting from 201.

A list of all parts of the IEC 62841 series, under the general title: *Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety*, can be found on the IEC website.

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

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

NOTE 3 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 36 months from the date of publication.

The contents of the corrigenda 1 (May 2014) and 2 (October 2015) have been included in this copy.

Rationale for corrigendum 2

The maximum parallel capacitance for instruments for measuring voltage was increased from 25 pF to 150 pF. A 25 pF maximum parallel capacitance is not typical for voltage measuring equipment, and would require highly specialized and expensive equipment. This was not the intention of TC 116. A maximum value of 150 pF will allow the continued use of voltage measuring equipment currently being used by testing laboratories.

〈A1〉 NOTE 4 In Europe (EN 62841-1), the following additional paragraph applies:

When a relevant Part 2, 3, or 4 does not exist, this document can be used to support the risk assessment process in order to establish requirements for the tool. 〈A1〉

A1 Amendment A1 FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
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9) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at https://patents.iec.ch. IEC shall not be held responsible for identifying any or all such patent rights.

Amendment 1 to IEC 62841-1:2014 has been prepared by IEC technical committee 116: Safety of motor-operated electric tools.

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

Draft	Report on voting
116/863/FDIS	116/883/RVD

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 Amendment 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/publications/.

A list of all parts of the IEC 62841 series, published under the general title *Electric motor-operated handheld tools, transportable tools and lawn and garden machinery – Safety*, can be found on the IEC website.

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, or
- revised.

NOTE 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 36 months from the date of publication.

A1

INTRODUCTION

Individual countries may wish to consider the application of this Part 1 of IEC 62841, so far as is reasonable, to tools not mentioned in an individual part of IEC 62841-2, IEC 62841-3 or IEC 62841-4 and to tools designed on new principles.

Examples of standards dealing with non-safety aspects of **hand-held tools, transportable tools and lawn and garden machinery** are

– standards dealing with EMC aspects;

– standards dealing with environmental aspects.

ELECTRIC MOTOR-OPERATED HAND-HELD TOOLS, TRANSPORTABLE TOOLS AND LAWN AND GARDEN MACHINERY – SAFETY –

Part 1: General requirements

1 Scope

This International Standard deals with the safety of electric motor-operated or magnetically driven:

– **hand-held tools** (IEC 62841-2);
– **transportable tools** (IEC 62841-3);
– **lawn and garden machinery** (IEC 62841-4).

The above listed categories are hereinafter referred to as “tools” or “machines”.

The **rated voltage** is not more than 250 V for single-phase a.c. or d.c. tools, and 480 V for three-phase a.c. tools. The **rated input** is not more than 3 700 W.

The limits for the applicability of this standard for battery tools are given in K.1 and L.1.

This standard deals with the hazards presented by tools which are encountered by all persons in the **normal use** and reasonably foreseeable misuse of the tools.

Tools with electric heating elements are within the scope of this standard.

Requirements for motors not isolated from the supply, and having **basic insulation** not designed for the **rated voltage** of the tools, are given in Annex B. Requirements for rechargeable battery-powered motor-operated or magnetically driven tools and the battery packs for such tools are given in Annex K. Requirements for such tools that are also operated and/or charged directly from the mains or a non-isolated source are given in Annex L.

Hand-held electric tools, which can be mounted on a support or working stand for use as fixed tools without any alteration of the tool itself, are within the scope of this standard and such combination of a **hand-held tool** and a support is considered to be a **transportable tool** and thus covered by the relevant Part 3.

This standard does not apply to:

– tools intended to be used in the presence of explosive atmosphere (dust, vapour or gas);
– tools used for preparing and processing food;
– tools for medical purposes;

NOTE 1 IEC 60601 series covers a variety of tools for medical purposes.

– tools intended to be used with cosmetics or pharmaceutical products;
– heating tools;

NOTE 2 IEC 60335-2-45 covers a variety of heating tools.

– electric motor-operated household and similar electrical appliances;

NOTE 3 IEC 60335 series covers a variety of electric motor-operated household and similar electrical appliances.

– electrical equipment for industrial machine-tools;

NOTE 4 IEC 60204 series deals with electrical safety of machinery.

– small low voltage transformer operated bench tools intended for model making, e.g. the making of radio controlled model aircraft or cars, etc.

NOTE 5 In the United States of America, the following conditions apply:

This standard deals with tools used in non-hazardous locations in accordance with the National Electrical Code, NFPA 70.

NOTE 6 In Canada, the following conditions apply:

This standard deals with tools used in non-hazardous locations in accordance with the Canadian Electric Code, Part 1, CSA C22.1, and General Requirements – Canadian Electrical Code, Part II, CAN/CSA-C22.2 No. 0.

2 Normative references

〈A11〉 ***Replace*** *the normative reference IEC 60127 (all parts) with the following in Clause 2 and throughout the text:*

EN 60127-1:2006,[1] *Miniature fuses – Part 1: Definitions for miniature fuses and general requirements for miniature fuse-links*

EN 60127-2:2014, *Miniature fuses - Part 2: Cartridge fuse-links*

EN 60127-3:2015, *Miniature fuses - Part 3: Sub-miniature fuse-links*

EN 60127-4:2005,[2] *Miniature fuses – Part 4: Universal modular fuse-links (UMF) - Through-hole and surface mount types*

EN 60127-5:2017, *Miniature fuses - Part 5: Guidelines for quality assessment of miniature fuse-links*

EN 60127-6:2014, *Miniature fuses - Part 6: Fuse-holders for miniature fuse-links*

EN 60127-7:2016, *Miniature fuses - Part 7: Miniature fuse-links for special applications*

EN IEC 60127-8:2018, *Miniature fuses - Part 8: Fuse resistors with particular overcurrent protection*

Replace *the normative reference IEC 60227 (all parts) with the following in Clause 2 and throughout the text:*

IEC 60227-1:2007, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V – Part 1: General requirements*

IEC 60227-2:1997,[3] *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V – Part 2: Test methods*

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

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[1] As impacted by EN 60127-1/2006/A1:2011 and EN 60127-1:2006/A2:2015

[2] As impacted by EN 60127-4:2005/A1:2009 and EN 60127-4-:2005/A2:2013

[3] As impacted by IEC 60227-2:1997/A1:2003

IEC 60227-6:2001, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V – Part 6: Lift cables and cables for flexible connections*

IEC 60227-7:1995, *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V – Part 7: Flexible cables screened and unscreened with two or more conductors*

***Replace** the normative reference IEC 60245 (all parts) with the following in Clause 2 and throughout the text:*

IEC 60245-1:2003, *Rubber insulated cables - Rated voltages up to and including 450/750 V – Part 1: General requirements*

IEC 60245-2:1994, *Rubber insulated cables - Rated voltages up to and including 450/750 V – Part 2: Test methods*

IEC 60245-3:1994,[4] *Rubber insulated cables - Rated voltages up to and including 450/750 V – Part 3: Heat resistant silicone insulated cables*

IEC 60245-4:2011, *Rubber insulated cables - Rated voltages up to and including 450/750 V – Part 4: Cords and flexible cables*

IEC 60245-7:1994, *Rubber insulated cables - Rated voltages up to and including 450/750 V – Part 7: Heat resistant ethylene-vinyl acetate rubber insulated cables*

IEC 60245-8:1998, *Rubber insulated cables - Rated voltages up to and including 450/750 V – Part 8: Cords for applications requiring high flexibility*

***Replace** the normative reference IEC 60320 (all parts) with the following in Clause 2 and throughout the text:*

EN 60320-1:2015,[5] *Appliance couplers for household and similar general purposes – Part 1: General requirements*

EN 60320-2-2:1998, *Appliance couplers for household and similar general purposes - Part 2-2: Interconnection couplers for household and similar equipment*

EN 60320-2-3:1998,[6] *Appliance couplers for household and similar general purposes – Part 2-3: Appliance couplers with a degree of protection higher than IPX0*

EN 60320-2-4:2006,[7] *Appliance couplers for household and similar general purposes – Part 2-4: Appliance couplers dependent on appliance weight for engagement*

EN 60320-3:2014,[8] *Appliance couplers for household and similar general purposes – Part 3: Standard sheets and gauges*

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[4] As impacted by IEC 60245-3:1994/A1:1997 and IEC 60245-3:1994/A2:2011.

[5] As impacted by EN 60320-1:2015/AC:2016.

[6] As impacted by EN 60320-2-3:1998/A1:2005.

[7] As impacted by EN 60320-2-4:1998/A1:2009.

[8] As impacted by EN 60320-3:2014/A1:2021.

Replace *the normative reference IEC 60884 (all parts) with the following in Clause 2 and throughout the text:*

IEC 60884-1:2002,[9] *Plugs and socket-outlets for household and similar purposes – Part 1: General requirements*

IEC 60884-2-1:2006, *Plugs and socket-outlets for household and similar purposes – Part 2-1: Particular requirements for fused plugs*

IEC 60884-2-2:2006, *Plugs and socket-outlets for household and similar purposes – Part 2-2: Particular requirements for socket-outlets for appliances*

IEC 60884-2-5:2017, *Plugs and socket-outlets for household and similar purposes – Part 2-5: Particular requirements for adaptors*

IEC 60884-2-7:2011,[10] *Plugs and socket-outlets for household and similar purposes – Part 2-7: Particular requirements for cord extension sets*

Replace *the normative reference ISO 5347 (all parts) with the following in Clause 2 and throughout the text:*

ISO 5347-8:1993, *Methods for the calibration of vibration and shock pick-ups — Part 8: Primary calibration by dual centrifuge*

ISO 5347-12:1993, *Methods for the calibration of vibration and shock pick-ups — Part 12: Testing of transverse shock sensitivity*

ISO 5347-13:1993, *Methods for the calibration of vibration and shock pick-ups — Part 13: Testing of base strain sensitivity*

ISO 5347-15:1993, *Methods for the calibration of vibration and shock pick-ups — Part 15: Testing of acoustic sensitivity*

ISO 5347-16:1993, *Methods for the calibration of vibration and shock pick-ups — Part 16: Testing of mounting torque sensitivity*

ISO 5347-18:1993, *Methods for the calibration of vibration and shock pick-ups — Part 18: Testing of transient temperature sensitivity*

ISO 5347-22:1997, *Methods for the calibration of vibration and shock pick-ups — Part 22: Accelerometer resonance testing — General methods*

Add *the following normative references:*

CR 1030-1:1995, *Hand-arm vibration - Guidelines for vibration hazards reduction - Part 1: Engineering methods by design of machinery*

EN ISO 11688-1:2009, *Acoustics - Recommended practice for the design of low-noise machinery and equipment - Part 1: Planning (ISO/TR 11688-1:1995)*

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[9] As impacted by IEC 60884-1:2002/A1:2006 and IEC 60884-1:2002/A2:2013.

[10] As impacted by IEC 60884-2-7:2011/A1:2013.

Delete *the normative references ASTM B 258 and UL 969.* 〈A11〉

3 Terms and definitions

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

Where the terms voltage and current are used, they imply the r.m.s. values, unless otherwise specified.

Where in this standard the expressions “with the aid of a tool”, “without the aid of a tool”, and “requires the use of a tool”, are used, the word “tool” means a hand tool, for example a screwdriver, which may be used to operate a screw or other fixing means.

3.1
accessible part
conductive part or surface of insulating materials that can be touched by means of the test probe B of IEC 61032:1997

3.2
accessory
device that is attached only to the output mechanism of the tool

3.3
adjustable guard
guard which is adjustable as a whole or which incorporates adjustable part(s). For manually adjustable guards, the adjustment remains fixed during a particular operation

3.4
all-pole disconnection
disconnection of all supply conductors except the protective earthing (grounding) conductor by a single initiating action

3.5
attachment
device attached to the housing or other component of the tool and which may or may not be attached to the output mechanism and does not modify the **normal use** of the tool within the scope of this standard

3.6
basic insulation
insulation applied to **live parts** to provide protection against electric shock. Insulation applied to **live parts** not intended to provide electric shock protection is considered to be insulation for functional purposes, such as magnet wire insulation

3.7
battery
assembly of one or more **cells** intended to provide electrical current to the tool

3.8
class I tool
tool in which protection against electric shock does not rely on basic, double or **reinforced insulation** only, but which includes an additional safety precaution in that conductive **accessible parts** are connected to the protective earthing conductor in the fixed wiring of the installation in such a way that conductive **accessible parts** cannot become live in the event of a failure of the **basic insulation**