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Elektriska handverktyg – Säkerhet – Del 1: Allmänna fordringar

*Hand-held motor-operated electric tools –
Safety –
Part 1: General requirements*

Som svensk standard gäller europastandarden EN 60745-1:2009. Den svenska standarden innehåller den officiella engelska språkversionen av EN 60745-1:2009.

Nationellt förord

Europastandarden EN 60745-1:2009

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 60745-1, Fourth edition, 2006 - Hand-held motor-operated electric tools - Safety - Part 1: General requirements**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 60745-1, utgåva 2, 2006, gäller ej fr o m 2009-12-29.

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English version

**Hand-held motor-operated electric tools -
Safety -
Part 1: General requirements
(IEC 60745-1:2006, modified)**

Outils électroportatifs à moteur -
Sécurité -
Partie 1: Règles générales
(CEI 60745-1:2006, modifiée)

Handgeführte motorbetriebene
Elektrowerkzeuge -
Sicherheit -
Teil 1: Allgemeine Anforderungen
(IEC 60745-1:2006, modifiziert)

This European Standard was approved by CENELEC on 2009-03-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

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

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Foreword

The text of document 61F/632/FDIS, future edition 4 of IEC 60745-1, prepared by SC 61F, Safety of hand-held motor-operated electric tools, of IEC TC 61, Safety of household and similar electrical appliances, was submitted to the IEC-CENELEC parallel vote.

A draft amendment, prepared by the Technical Committee CENELEC TC 61F, Safety of hand-held and transportable motor-operated electric tools, was submitted to the formal vote.

The combined texts were approved by CENELEC as EN 60745-1 on 2006-06-01.

Two draft amendments (prAB and prAC), prepared by the Technical Committee CENELEC TC 61F (transformed into CENELEC TC 116, Safety of hand-held motor-operated electric tools), were submitted to the Unique Acceptance Procedure.

The text of EN 60745-1:2006 together with that of the draft amendments prAB and prAC were approved by CENELEC as a new edition of EN 60745-1 on 2009-03-01.

This European Standard supersedes EN 60745-1:2006.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2009-12-29
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2009-12-29

This European Standard has been prepared under a mandate given to CEN and CENELEC by the European Commission and the European Free Trade Association and supports the essential health and safety requirements of the Machinery Directive 2006/42/EC.

This European Standard is divided into two parts:

Part 1: General requirements which are common to most hand-held 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: 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.

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

A relevant Part 2 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.

When a relevant Part 2 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.

Other standards referred to in this European Standard are also listed in Annex ZA, which gives the valid edition of those documents at the time of issue of this EN.

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.

This European Standard follows the overall requirements of EN ISO 12100-1 and EN ISO 12100-2.

Subclauses, tables and figures which are additional to those in IEC 60745-1 are prefixed "Z".

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.

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

The text of the International Standard IEC 60745-1:2006 was approved by CENELEC as a European Standard with agreed common modifications as given below.

[illegible]

Add the following annexes:

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60061 (mod)	Series	Lamp caps and holders together with gauges for the control of interchangeability and safety	EN 60061	Series
IEC 60065 (mod)	2001	Audio, video and similar electronic apparatus - Safety requirements	EN 60065 + corr. August + A11	2002 2007 2008
IEC 60068-2-75	1997	Environmental testing - Part 2-75: Tests - Test Eh: Hammer tests	EN 60068-2-75	1997
IEC 60085	- ¹⁾	Electrical insulation - Thermal evaluation and designation	EN 60085	2007 ²⁾
IEC 60112	2003	Method for the determination of the proof and the comparative tracking indices of solid insulating materials	EN 60112	2003
IEC 60127-3	- ¹⁾	Miniature fuses - Part 3: Sub-miniature fuse-links	EN 60127-3 + corr. June	1996 ²⁾ 1996
IEC 60227 (mod)	Series	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V	- ³⁾	-
IEC 60245 (mod)	Series	Rubber insulated cables - Rated voltages up to and including 450/750 V	- ⁴⁾	-
IEC 60309 (mod)	Series	Plugs, socket-outlets and couplers for industrial purposes	EN 60309	Series
IEC 60320	Series	Appliance couplers for household and similar general purposes	EN 60320	Series
IEC 60335-1 (mod)	2001	Household and similar electrical appliances - Safety -	EN 60335-1 + A11	2002 2004
+ A1	2004	Part 1: General requirements	+ A1 + corr. January + A12	2004 2007 2006
+ A2	2006		+ A2	2006
+ corr. August	2006		+ A13	2008

¹⁾ Undated reference.

²⁾ Valid edition at date of issue.

³⁾ The HD 21 series, which is related to, but not directly equivalent with the IEC 60227 series, applies instead.

⁴⁾ The HD 22 series, which is related to, but not directly equivalent with the IEC 60245 series, applies instead.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60384-14	- ¹⁾	Fixed capacitors for use in electronic equipment - Part 14: Sectional specification - Fixed capacitors for electromagnetic interference suppression and connection to the supply mains	EN 60384-14	2005 ²⁾
IEC 60417	Data-base	Graphical symbols for use on equipment	-	-
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529	1991
+ A1	1999		+ corr. May + A1	1993 2000
IEC 60695-2-11	- ¹⁾	Fire hazard testing - Part 2-11: Glowing/hot-wire based test methods - Glow-wire flammability test method for end-products	EN 60695-2-11	2001 ²⁾
IEC 60695-11-5	2004	Fire hazard testing - Part 11-5: Test flames - Needle-flame test method - Apparatus, confirmatory test arrangement and guidance	EN 60695-11-5	2005
IEC 60695-11-10	- ¹⁾	Fire hazard testing - Part 11-10: Test flames - 50 W horizontal and vertical flame test methods	EN 60695-11-10	1999 ²⁾
IEC 60730-1 (mod)	1999	Automatic electrical controls for household and similar use - Part 1: General requirements	EN 60730-1 + corr. August + A11 + A12	2000 2007 2002 2003
+ A1 (mod)	2003		+ A1 + A13 + A14 + A15 + A16	2004 2004 2005 2007 2007
+ A2 (mod)	2007		+ A2	2008
IEC 60760	- ¹⁾	Flat, quick-connect terminations	-	-
IEC 60825-1	- ¹⁾	Safety of laser products - Part 1: Equipment classification and requirements	EN 60825-1	2007 ²⁾
IEC 60884	Series	Plugs and socket-outlets for household and similar purposes	-	-
IEC 60998-2-1 (mod)	- ¹⁾	Connecting devices for low-voltage circuits for household and similar purposes - Part 2-1: Particular requirements for connecting devices as separate entities with screw-type clamping units	EN 60998-2-1	2004 ²⁾
IEC 60998-2-2 (mod)	- ¹⁾	Connecting devices for low-voltage circuits for household and similar purposes - Part 2-2: Particular requirements for connecting devices as separate entities with screwless-type clamping units	EN 60998-2-2	2004 ²⁾
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 mm ² up to 35 mm ² (included)	EN 60999-1	2000

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61058-1 (mod) + A1 + A2	2000 2001 2007	Switches for appliances - Part 1: General requirements	EN 61058-1 + A2	2002 2008
IEC 61540 (mod) + A1 (mod)	1997 1998	Electrical accessories - Portable residual current devices without integral overcurrent protection for household and similar use (PRCDs)	HD 639 S1 + corr. July + A1	2002 2003 2003
IEC 61558-1	- ¹⁾	Safety of power transformers, power supplies, reactors and similar products - Part 1: General requirements and tests	EN 61558-1 + corr. August	2005 ²⁾ 2006
-	-	Mechanical vibration - Declaration and verification of vibration emission values	EN 12096	1997
CR 1030-1	1995	Hand-arm vibration - Guidelines for vibration hazards reduction - Part 1: Engineering methods by design of machinery	-	-
ISO 1463	- ¹⁾	Metallic and oxide coatings - Measurement of coating thickness - Microscopical method	EN ISO 1463	2004 ²⁾
ISO 2178	- ¹⁾	Non-magnetic coatings on magnetic substrates - Measurement of coating thickness - Magnetic method	EN ISO 2178	1995 ²⁾
ISO 3744	1994	Acoustics - Determination of sound power levels of noise sources using sound pressure - Engineering method in an essentially free field over a reflecting plane	EN ISO 3744	1995
ISO 3864-2	- ¹⁾	Graphical symbols - Safety colours and safety signs - Part 2: Design principles for product safety labels	-	-
ISO 4871	1996	Acoustics - Declaration and verification of noise emission values of machinery and equipment	EN ISO 4871	1996
ISO 5347	Series	Methods for the calibration of vibration and shock pick-ups	-	-
ISO 5349	Series	Mechanical vibration - Measurement and evaluation of human exposure to hand-transmitted vibration	EN ISO 5349	Series
ISO 7010	- ¹⁾	Graphical symbols - Safety signs in workplaces and public areas	-	-
ISO 7574-4	1985	Acoustics - Statistical methods for determining and verifying stated noise emission values of machinery and equipment - Part 4: Methods for stated values fro batches of machines	EN 27574-4	1988
ISO 8041	2005	Human response to vibration - Measuring instrumentation	EN ISO 8041	2005
ISO 9772	- ¹⁾	Cellular plastics - Determination of horizontal burning characteristics of small specimens subjected to a small flame	-	-

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
ISO 11203	1995	Acoustics - Noise emitted by machinery and equipment - Determination of emission sound pressure levels at a work station and at other specified positions from the sound power level	EN ISO 11203	1995
ISO/TR 11688-1	1995	Acoustics - Recommended practice for the design of low noise machinery and equipment - Part 1: Planning	EN ISO 11688-1	1998
ISO/TR 11690-3	1997	Acoustics - Recommended practice for the design of low noise workplaces containing machinery - Part 3: Sound propagation and noise prediction in workrooms	EN ISO 11690-3	1998
ISO 16063-1	1998	Methods for the calibration of vibration and shock transducers - Part 1: Basic concepts	-	-

Bibliography

EN 60335-2-29, *Household and similar electrical appliances - Safety - Part 2-29: Particular requirements for battery chargers* (IEC 60335-2-29)

EN 60335-2-45, *Household and similar electrical appliances - Safety - Part 2-45: Particular requirements for portable heating tools and similar appliances* (IEC 60335-2-45)

EN 60601 series, *Medical electrical equipment* (IEC 60601 series)

EN 61000-3-2, *Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A per phase)* (IEC 61000-3-2)

EN 61000-3-3, *Electromagnetic compatibility (EMC) - Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection* (IEC 61000-3-3)

EN 55011, *Industrial, scientific and medical (ISM) radio-frequency equipment - Electromagnetic disturbance characteristics - Limits and methods of measurement* (CISPR 11, mod.)

EN 55014-1, *Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 1: Emission* (CISPR 14-1)

EN 55014-2, *Electromagnetic compatibility - Requirements for household appliances, electric tools and similar apparatus - Part 2: Immunity - Product family standard* (CISPR 14-2)

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INTRODUCTION

Individual countries may wish to consider the application of this Part 1 of IEC 60745, so far as is reasonable, to tools not mentioned in an individual part 2 and to tools designed on new principles.

If the functions of a tool are covered by the different parts 2 of IEC 60745, the relevant part 2 is applied to each function separately, so far as is reasonable. If applicable, the influence of one function on the other is taken into account.

A product 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 intention of the requirements and, if found to be substantially equivalent, may be judged to comply with the standard.

Standards dealing with non-safety aspects of hand-held tools are:

- IEC standards published by TC 59 on methods of measuring performance;
- CISPR 11 and 14 on radio interference suppression;
- IEC 61000-3-2 and IEC 61000-3-3 on electromagnetic compatibility.

HAND-HELD MOTOR-OPERATED ELECTRIC TOOLS – SAFETY –

Part 1: General requirements

1 Scope

This part of IEC 60745 deals with the safety of hand-held motor-operated or magnetically driven electric tools, the rated voltage of the tools being not more than 250 V for single-phase a.c. or d.c. tools, and 440 V for three-phase a.c. tools.

So far as is practicable, this standard deals with the common hazards presented by hand-held tools which are encountered by all persons in the normal use and reasonably foreseeable misuse of the tools.

Tools with an electric heating element are within the scope of this standard. They should also comply with relevant parts of IEC 60335.

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. Those 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, hereinafter referred to as 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. Requirements for such supports or working stands are given in Annex M.

This standard does not apply to:

- hand-held tools intended to be used in the presence of explosive atmosphere (dust, vapour or gas);
- hand-held tools used for preparing and processing food;
- hand-held tools for medical purposes (IEC 60601);
- heating tools which are covered by IEC 60335-2-45.

For hand-held tools intended to be used in vehicles or on board ships or aircraft, additional requirements may be necessary.

For hand-held tools intended to be used in tropical countries, special requirements may be necessary.

NOTE Attention is drawn to the fact that 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, etc.