

Australian/New Zealand Standard™

**Hand-held motor-operated electric
tools—Safety**

**Part 1: General requirements
(IEC 60745-1 Ed 4, MOD)**

STANDARDS
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NEW ZEALAND
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AS/NZS 60745.1:2009

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-002, Safety of Household and Similar Electrical Appliances and Small Power Transformers. It was approved on behalf of the Council of Standards Australia on 17 March 2009 and on behalf of the Council of Standards New Zealand on 13 March 2009.

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The following are represented on Committee EL-002:

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Australian Retailers Association
Business New Zealand
Consumer Electronic Suppliers Association, Australia
Consumers' Federation of Australia
Electrical regulatory authorities, Australia
Electrical Compliance Testing Association
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tools—Safety**

**Part 1: General requirements
(IEC 60745-1 Ed 4, MOD)**

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AUSTRALIA/NEW ZEALAND STANDARD

HAND-HELD MOTOR-OPERATED ELECTRIC TOOLS – SAFETY –

Part 1: General requirements

FOREWORD

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-002 - Safety of Household and Similar Electrical Appliances and Small Power Transformers. It will supersede AS/NZS 60745.1:2003 and its amendments and all of the Parts 2 of that standard have been superseded by the relevant Parts 2 of this standard.

Main changes in this edition include the introduction of requirements for tests with a liquid system, particularly in Clauses 8, 14 and 21; clarification in Clause 8 on the application of safety warnings; adaptation of Annex I to the latest version of IEC 61058-1; addition of requirements for electronic circuits in 18.10; introduction of requirements for supports or working stands in Annex M; and information about routine tests in Annex N.

The objective of this Standard is to provide manufacturers, designers, regulatory authorities, testing laboratories and similar organizations with safety requirements designed to give the user protection against hazards that might occur during normal operation and abnormal operation of the appliance and which may be used as the basis for approval for sale or for connection to the electricity supply mains in Australia and New Zealand.

This Standard is an adoption with national modifications and contains the full text of the fourth edition of IEC 60745-1, Hand-held motor-operated electric tools – Safety – Part 1: General requirements, and has been varied as indicated to take account of Australian and New Zealand conditions.

This part is to be used in conjunction with the appropriate Part 2 of AS/NZS 60745. The Parts 2 contain clauses to supplement or modify the corresponding clauses in this part to provide the relevant requirements for each type of product.

NOTE 1 The following print types are used:

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

Annexes A, B, F, G, I, K and L form an integral part of this standard.

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

The numbering of clauses, subclauses, notes, tables, figures and annexes follows that of IEC 60745-1 Ed 4.0. To allow for the introduction of additional material by the IEC, the numbers 101 to 300 have been reserved. To allow for additional material to be introduced by Australia and New Zealand, the numbers 301 to 400 are used to number further clauses, subclauses, notes, tables and figures in part 1. Additional annexes are lettered ZA, ZB and so on.

This scheme has been introduced to reduce the likelihood of the IEC and Australia and New Zealand using the same identifier for different purposes.

The use of the word VOID indicates that the IEC text is not used in Australia or New Zealand. The use of this word also avoids the need to renumber, clauses, notes, tables and figure if an earlier clause, note, table or figure is not used.

Clause 2 has been reformatted to indicate the Australia/New Zealand standard that is equivalent to the IEC standard or ISO standard to which normative reference is made.

The bibliography has been reformatted to indicate the Australia/New Zealand standard that is equivalent to the IEC standard or ISO standard to which an informative reference is made.

As this Standard is reproduced from an International Standard, the following applies:

- (a) Its number does not appear on each page of text and its identity is shown on the cover and title page only.
- (b) In the source text "this International Standard" should read "this Australian New Zealand Standard".
- (c) A full point substitutes for a comma when referring to a decimal marker.

Variations to IEC 60745-1 Ed 4.0 are indicated at the appropriate places throughout this standard. Strikethrough (~~example~~) identifies IEC tables, figures and passages of text which, for the purposes of this Australian/New Zealand standard, are deleted. Where Australian/New Zealand tables, figures or passages of text are added, each is set in its proper place and identified by shading (example). Added figures are not themselves shaded, but are identified by a shaded border.

Variations made to IEC 60745-1 Ed 4.0 from the New Zealand variations for the purposes of the IECEE scheme for recognition of testing to standards for safety of electrical equipment (the CB scheme). These variations have been incorporated in the body of the standard. They are listed in Annex ZZ for easy reference.

INTRODUCTION

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

The requirements in this Standard maybe applied, so far as is reasonable, to tools not mentioned in part 2, and to tools designed on new principles.

If the functions of a tool are covered by the different parts 2 of AS/NZS 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 motor-operated electric tools are

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

The essential safety requirements in AS/NZS 3820 that could be applicable to hand-held motor operated electric tools are covered by this standard.

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 operation 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.