UL 60745-2-1:2011 (R2026)

(IEC 60745-2-1:2003+AMD1:2008, MOD)

STANDARD FOR SAFETY

Hand-Held Motor-Operated Electric Tools – Safety – Part 2-1: Particular Requirements for Drills and Impact Drills

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UL Standard for Safety for Hand-Held Motor-Operated Electric Tools – Safety – Part 2-1: Particular Requirements for Drills and Impact Drills, UL 60745-2-1

Second Edition, Dated March 26, 2004

Summary of Topics

This reaffirmation of ANSI/UL 60745-2-1 dated August 5, 2026 is issued to update the title page to reflect the most recent designation as a Reaffirmed American National Standard (ANS). No technical changes have been made.

UL 60745-2-1 is an adoption of IEC 60745-2-1, Second Edition, issued by the IEC (2002) including Amendment 1 (2008). Please note that the National Difference document incorporates all of the U.S. national differences for UL 60745-2-1.

As noted in the Commitment for Amendments statement located on the back side of the title page, ULSE and CSA are committed to updating this harmonized standard jointly. However, the revision pages dated August 5, 2026 will not be jointly issued by ULSE and CSA as these revision pages only address UL ANSI approval dates

Text that has been changed in any manner or impacted by ULSE's electronic publishing system is marked with a vertical line in the margin.

The requirements are substantially in accordance with Proposal(s) on this subject dated June 12, 2026.

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CSA Group
CAN/CSA-C22.2 No. 60745-2-1-04
Second Edition
(IEC 60745-2-1:2003, MOD)

ULSE Inc.
UL 60745-2-1
Second Edition
(IEC 60745-2-1:2003+AMD1:2008, MOD)

Hand-Held Motor-Operated Electric Tools – Safety – Part 2-1: Particular Requirements for Drills and Impact Drills

March 26, 2004

(Title Page Reprinted: August 5, 2026)

This national standard is based on publication IEC 60745-2-1, Edition 2.1 (2008).

ANSI/UL 60745-2-1-2011 (R2026)

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This ANSI/UL Standard for Safety consists of the Second Edition including revisions through August 5, 2026.

The most recent designation of ANSI/UL 60745-2-1 as a Reaffirmed American National Standard (ANS) occurred on August 5, 2026. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page (front and back), or the Preface. The National Difference Page and IEC Foreword are also excluded from the ANSI approval of IEC-based standards.

Comments or proposals for revisions on any part of the Standard may be submitted to ULSE at any time. Proposals should be submitted via a Proposal Request in the Collaborative Standards Development System (CSDS) at https://csds.ul.com.

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Annex K (normative) – Battery tool and battery packs

K.12.2DV Modification: Add the following to this Amendment: 23
K.12.3DV Modification: Replace this clause in the Amendment with the following: 23

Annex L (normative) – Battery tools and battery packs provided with mains connection or non-isolated sources

Annex 1.DVL – List of National Differences

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Annex 1.DVL Addition: Add the following Annex: 25

Bibliography

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Preface

This is the harmonized CSA and ULSE standard for hand-held motor-operated electric tools; drills and impact drills. It is the second edition of CAN/CSA-C22.2 No. 60745-2-1 and the second edition of UL 60745-2-1. This standard is based on IEC 60745-2-1, second edition. This harmonized standard has been jointly revised on October 6, 2010. For this purpose, CSA and ULSE are issuing revision pages dated October 6, 2010.

This harmonized standard was prepared by the Canadian Standards Association (CSA) and ULSE.

This standard was reviewed by the CSA Subcommittee on Portable Electric Tools, under the jurisdiction of the CSA Technical Committee on Consumer and Commercial Products and the CSA Strategic Steering Committee on Requirements for Electrical Safety, and has been formally approved by the CSA Technical Committee. This standard has been developed in compliance with Standards Council of Canada requirements for National Standards of Canada. It has been published as a National Standard of Canada by CSA Group.

Where reference is made to a specific number of samples to be tested, the specified number is considered a minimum quantity.

Note: Although the intended primary application of this standard is stated in its scope, it is important to note that it remains the responsibility of the users of the standard to judge its suitability for their particular purpose.

Level of harmonization

This standard adopts the IEC text with national differences.

This standard is published as an equivalent standard for CSA and ULSE.

An equivalent standard is a standard that is substantially the same in technical content, except as follows: Technical national differences are allowed for codes and governmental regulations as well as those recognized as being in accordance with NAFTA Article 905, for example because of fundamental climatic, geographical, technological, or infrastructural factors, scientific justification, or the level of protection that the country considers appropriate. Presentation is word for word except for editorial changes.

All national differences from the IEC text are included in the CSA and ULSE versions of the standard. While the technical content is the same in each organization’s version, the format and presentation may differ.

Interpretations

The interpretation by the standards development organization of an identical or equivalent standard is based on the literal text to determine compliance with the standard in accordance with the procedural rules of the standards development organization. If more than one literal interpretation has been identified, a revision is to be proposed as soon as possible to each of the standards development organizations to more accurately reflect the intent.

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Electrotechnical Commission. The IEC Foreword are not a part of the requirements of this Standard but are included for information purposes only.

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NATIONAL DIFFERENCES

In the CSA and UL publications of this standard, National Differences from the text of International Electrotechnical Commission (IEC) Publication 60745-2-1, Safety Requirements for Hand-Held Motor-Operated Electric Tools – Safety – Part 2-1: Particular Requirements for Drills and Impact Drills, copyright 2008, are indicated by notations (differences) and are presented in bold text. The national difference type is included in the body.

There are five types of National Differences as noted below. The difference type is noted on the first line of the National Difference in the standard. The standard may not include all types of these National Differences.

DR – These are National Differences based on the **national regulatory requirements**.

D1 – These are National Differences which are based on **basic safety principles and requirements**, elimination of which would compromise safety for consumers and users of products.

D2 – These are National Differences from IEC requirements based on existing **safety practices**. These requirements reflect national safety practices, where empirical substantiation (for the IEC or national requirement) is not available or the text has not been included in the IEC standard.

DC – These are National Differences based on the **component standards** and will not be deleted until a particular component standard is harmonized with the IEC component standard.

DE – These are National Differences based on **editorial comments or corrections**.

Each national difference contains a description of what the national difference entails. Typically one of the following words is used to explain how the text of the national difference is to be applied to the base IEC text:

Addition / Add - An addition entails adding a complete new numbered clause, subclause, table, figure, or annex. Addition is not meant to include adding select words to the base IEC text.

Modification / Modify - A modification is an altering of the existing base IEC text such as the addition, replacement or deletion of certain words or the replacement of an entire clause, subclause, table, figure, or annex of the base IEC text.

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FOREWORD

INTERNATIONAL ELECTROTECHNICAL COMMISSION

HAND-HELD MOTOR-OPERATED ELECTRIC TOOLS – SAFETY – Part 2-1: Particular requirements for drills and impact drills

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 60745-2-1 has been prepared by subcommittee 61F: Safety of hand-held motor-operated electric tools, of IEC technical committee 61: Safety of household and similar electrical appliances.

This consolidated version of IEC 60745-2-1 consists of the second edition (2003) [documents 61F/451/FDIS and 61F/471/RVD] and its amendment 1 (2008) [documents 61F/731/FDIS and 61F/751/RVD].

The technical content is therefore identical to the base edition and its amendment and has been prepared for user convenience.

It bears the edition number 2.1.

A vertical line in the margin shows where the base publication has been modified by amendment 1.

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

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

This Part 2-1 is to be used in conjunction with the third edition of IEC 60745-1. When this standard states "addition", "modification" or "replacement", the relevant text in Part 1 is to be adapted accordingly.

With amendment 1, this Part 2 is established on the basis of the fourth edition (2006) of IEC 60745-1: *Safety of hand-held motor-operated electric tools – Part 1: General requirements*.

Main changes include editorial modifications to match with the fourth edition of IEC 60745-1, and the addition of a new safety warning to Clause 8: Marking and instructions.

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

– requirements: in roman type;

– *test specifications: in italic type;*

– notes: in small roman type.

IEC 60745 consists of the following parts, under the general title *Hand-held motor-operated electric tools – Safety*:

Part 1: General requirements

Part 2-1: Particular requirements for drills and impact drills

Part 2-2: Particular requirements for screwdrivers and impact wrenches

Part 2-3: Particular requirements for grinders, polishers and disk-type sanders

Part 2-4: Particular requirements for sanders and polishers other than disk type

Part 2-5: Particular requirements for circular saws and circular knives

Part 2-6: Particular requirements for hammers

Part 2-7: Particular requirements for spray guns for non-flammable liquids

Part 2-8: Particular requirements for shears and nibblers

Part 2-9: Particular requirements for tappers

Part 2-11: Particular requirements for reciprocating saws (jig and sabre saws)

Part 2-12: Particular requirements for concrete vibrators

Part 2-13: Particular requirements for chain saws

Part 2-14: Particular requirements for planers

Part 2-15: Particular requirements for hedge trimmers and grass shears

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Part 2-16: Particular requirements for tackers

Part 2-17: Particular requirements for routers and trimmers

Part 2-18: Particular requirements for strapping tools

Part 2-19: Particular requirements for jointers

Part 2-20: Particular requirements for band saws

Part 2-21: Particular requirements for drain cleaners

The committee has decided that the contents of the base publication and its amendments will remain unchanged until the maintenance result 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.

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HAND-HELD MOTOR-OPERATED ELECTRIC TOOLS – SAFETY – PART 2-1: PARTICULAR REQUIREMENTS FOR DRILLS AND IMPACT DRILLS

1 Scope

This clause of part 1 is applicable, except as follows:

Addition:

This standard applies to drills and impact drills.

2 Normative references

This clause of part 1 is applicable.

3 Terms and Definitions

This clause of part 1 is applicable, except as follows:

Additional definitions:

3.101 drill: tool specifically designed to bore holes in various materials such as metal, plastics, wood, etc.

3.102 impact drill: drill specifically designed to bore holes in concrete, stone and other materials. It is similar, in appearance and construction, to a drill, but has a built-in percussion system which gives an axial percussion movement to rotating output spindle

It may have a device for rendering the percussion system inoperative, so that it may be used as a conventional drill.

4 General requirements

This clause of part 1 is applicable.

5 General conditions for the tests

This clause of part 1 is applicable, except as follows:

5.5 *Addition:*

For drills which have both a mechanical means of setting different ranges of speed and an electronic means of setting the speed within a given range, the mechanical device is adjusted to the lowest range possible and the electronic device is adjusted to the highest setting within the given range.

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