



UL 60745-2-21

STANDARD FOR SAFETY

Hand-Held Motor-Operated Electric
Tools – Safety – Part 2-21: Particular
Requirements For Drain Cleaners

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UL Standard for Safety for Hand-Held Motor-Operated Electric Tools – Safety – Part 2-21: Particular Requirements For Drain Cleaners, UL 60745-2-21

First Edition, Dated March 21, 2005

Summary of Topics

The revision of ANSI/UL 60745-2-21 dated September 4, 2019 is being 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.

As noted in the Commitment for Amendments statement located on the back side of the title page, UL and CSA are committed to updating this harmonized standard jointly. However, the revision pages dated September 4, 2019 will not be jointly issued by UL and CSA as these revision pages address UL ANSI approval dates only.

Text that has been changed in any manner or impacted by UL'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 28, 2019.

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First Edition
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Underwriters Laboratories Inc.
UL 60745-2-21
First Edition

Hand-Held Motor-Operated Electric Tools – Safety – Part 2-21: Particular Requirements For Drain Cleaners

March 21, 2005

(Title Page Reprinted: September 4, 2019)

This standard is based on IEC 60745-2-21, First Edition (2002).

This amendment is an adoption of IEC Amendment 1(2008), First Edition (2002).



ANSI/UL 60745-2-21-2009 (R2019)



Commitment for Amendments

This standard is issued jointly by the Canadian Standards Association (operating as "CSA Group") and Underwriters Laboratories Inc. (UL). Comments or proposals for revisions on any part of the standard may be submitted to CSA Group or UL at anytime. Revisions to this standard will be made only after processing according to the standards development procedures of CSA Group and UL. CSA Group and UL will issue revisions to this standard by means of a new edition or revised or additional pages bearing their date of issue.

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This Standard is subject to review within five years from the date of publication, and suggestions for its improvement will be referred to the appropriate committee. The technical content of the IEC and ISO publications is kept under constant review by IEC and ISO. To submit a proposal for change, please send the following information to inquires@csagroup.org and include "Proposal for change" in the subject line: Standard designation (number); relevant clause, table, and/or figure number; wording of the proposed change; and rationale for the change.

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This ANSI/UL Standard for Safety consists of the First Edition including revisions through September 4, 2019.

The most recent designation of ANSI/UL 60745-2-21 as a Reaffirmed American National Standard (ANS) occurred on September 4, 2019. 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 UL at any time. Proposals should be submitted via a Proposal Request in UL's On-Line Collaborative Standards Development System (CSDS) at <https://csds.ul.com>.

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Preface

This is the common CSA and UL standard for *Hand-Held Motor-Operated Electric Tools – Safety – Part 2-21: Particular Requirements For Drain Cleaners*. It is the first edition of CAN/CSA-C22.2 No. 60745-2-21 and the first edition of UL 60745-2-21. This standard is an adoption of IEC 60745-2-21, first edition.

This Standard CAN/CSA-C22.2 No. 60745-2-21/UL 60745-2-21, first edition, supersedes:

- a) the first edition of CAN/CSA-C22.2 No. 745-2-35/UL 745-2-35 published in 1995; and
- b) CAN/CSA-C22.2 No. 745-4-35/UL 745-4-35, published in 1995 (requirements for battery tools and battery packs are now incorporated into the requirements of CAN/CSA-C22.2 No. 60745-2-21, first edition, and UL 60745-2-21, first edition).

The standard number has been aligned to correspond with the equivalent IEC 60745-2-21 standard.

This common standard was prepared by the Canadian Standards Association (CSA) and Underwriters Laboratories Inc. (UL).

This standard was reviewed by the CSA Subcommittee on Safety of Hand-Held Motor-Operated 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 approved as a National Standard of Canada by the Standards Council of Canada (SCC).

This standard has been approved by the American National Standards Institute (ANSI) as an American National Standard.

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.

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

Level of Harmonization

This standard adopts the IEC text with no national differences. This standard is published as an identical standard for CSA and UL. An identical standard is a standard that is exactly the same in technical content except for national differences resulting from conflicts in codes and governmental regulations. Presentation is word for word except for editorial changes.

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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FOREWORD

INTERNATIONAL ELECTROTECHNICAL COMMISSION

HAND-HELD MOTOR-OPERATED ELECTRIC TOOLS – SAFETY – PART 2-21: PARTICULAR REQUIREMENTS FOR DRAIN CLEANERS

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 nongovernmental 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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8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.

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

This part of International Standard IEC 60745 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 60745-2-21 consists of the first edition (2003) [documents 61F/483/FDIS and 61F/504/RVD] and its amendment 1 (2008) [documents 61F/739/FDIS and 61F/759/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 1.1.

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

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 is to be used in conjunction with the latest edition of IEC 60745-1, Hand-held motor-operated electric tools – Safety – Part 1: General requirements, and its amendments. It was established on the basis of the third edition (2001) of that standard.

NOTE 1 When "Part 1" is mentioned in this standard, it refers to IEC 60745-1.

This part 2 supplements or modifies the corresponding clauses of IEC 60745-1, so as to convert that publication into the IEC standard: Safety requirements for band saws.

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;
- additional annexes are lettered AA, BB, etc.

NOTE 3 In this standard, the following print types are used:

- requirements: in roman type;
- *test specifications: 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.

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

Main changes include editorial modifications to match with the fourth edition of IEC 60745-1 and clarifications in Annex K.

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.

HAND-HELD MOTOR-OPERATED ELECTRIC TOOLS – SAFETY – PART 2-21: PARTICULAR REQUIREMENTS FOR DRAIN CLEANERS

1 Scope

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

Addition:

This standard applies to drain cleaners.

2 Normative references

This clause of part 1 is applicable.

3 Terms and definitions

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

3.101 drain cleaner: tool for cleaning out blocked drains

4 General requirements

This clause of part 1 is applicable.

5 General conditions for the tests

This clause of part 1 is applicable.

6 Void

7 Classification

This clause of part 1 is applicable.

8 Marking and instructions

This clause of part 1 is applicable.

9 Protection against access to live parts

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

9.101 The drain cleaner cable is not considered a grasping surface.

10 Starting

This clause of part 1 is applicable.

11 Input and current

This clause of part 1 is applicable.

12 Heating

This clause of part 1 is applicable.

13 Leakage current

This clause of part 1 is applicable.

14 Moisture resistance

This clause of part 1 is applicable.

15 Electric strength

This clause of part 1 is applicable.

16 Overload protection of transformers and associated circuits

This clause of part 1 is applicable.

17 Endurance

This clause of part 1 is applicable.

18 Abnormal operation

This clause of part 1 is applicable.

19 Mechanical hazards

This clause of part 1 is applicable.

19.4 Addition:

Drain cleaners shall be designed so that they can be supported by two hands during normal use.

20 Mechanical strength

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

20.5 This subclause is not applicable.

21 Construction

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

21.32 This subclause is not applicable

22 Internal wiring

This clause of part 1 is applicable.

23 Components

This clause of part 1 is applicable.

24 Supply connection and external flexible cords

This clause of part 1 is applicable.

25 Terminals for external conductors

This clause of part 1 is applicable.

26 Provision for earthing

This clause of part 1 is applicable.

27 Screws and connections

This clause of part 1 is applicable.

28 Creepage distances, clearances and distances through insulation

This clause of part 1 is applicable.

29 Resistance to heat, fire and tracking

This clause of part 1 is applicable.

30 Resistance to rusting

This clause of part 1 is applicable.

31 Radiation, toxicity and similar hazards

This clause of part 1 is applicable.

Annexes

The annexes of part 1 are applicable, except as follows:

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