

National Standard of Canada

CSA C22.2 No. 62841-2-6:22

Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery — Safety — Part 2-6: Particular requirements for hand-held hammers

(IEC 62841-2-6:2020, MOD)

Note: For brevity, this Standard will be referred to as “CSA C22.2 No. 62841-2-6” throughout.

MARCH 28, 2022

This national standard is based on publication IEC 62841-2-6, First Edition (2020).

*Prepared by
International Electrotechnical Commission*



Reviewed by



CSA Group
CSA C22.2 No. 62841-2-6:22
First Edition
(IEC 62841-2-6:2020, MOD)



Underwriters Laboratories Inc.
UL 62841-2-6
First Edition

ICS 25.140.20



ANSI/UL 62841-2-6-2022

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.

ISBN 978-1-4883-4319-3 © 2022 Canadian Standards Association

All rights reserved. No part of this publication may be reproduced in any form whatsoever without the prior permission of the publisher.

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 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 inquiries@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.

To purchase CSA Group Standards and related publications, visit CSA Group’s Online Store at www.csagroup.org/store/ or call toll-free 1-800-463-6727 or 416-747-4044.

Copyright © 2022 Underwriters Laboratories Inc.

UL's Standards for Safety are copyrighted by UL. Neither a printed nor electronic copy of a Standard should be altered in any way. All of UL's Standards and all copyrights, ownerships, and rights regarding those Standards shall remain the sole and exclusive property of UL.

This ANSI/UL Standard for Safety consists of the First Edition. The most recent designation of ANSI/UL 62841-2-6 as an American National Standard (ANSI) occurred on March 28, 2022. 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>.

To purchase UL Standards, visit UL's Standards Sales Site at <http://www.shopulstandards.com/HowToOrder.aspx> or call toll-free 1-888-853-3503.

CONTENTS

PREFACE 5

NATIONAL DIFFERENCES 7

FOREWORD 9

1 Scope 13

2 Normative references 13

3 Terms and definitions 13

4 General requirements 14

5 General conditions for the tests 14

6 Radiation, toxicity and similar hazards 14

7 Classification 14

8 Marking and instructions 14

 8.14.1.101 Hammer safety warnings 14

9 Protection against access to live parts 15

10 Starting 15

11 Input and current 15

12 Heating 15

13 Resistance to heat and fire 16

14 Moisture resistance 16

15 Resistance to rusting 16

16 Overload protection of transformers and associated circuits 16

17 Endurance 16

18 Abnormal operation 19

19 Mechanical hazards 19

 19.102 Handles on rotary hammers 20

20 Mechanical strength 33

21 Construction 34

22 Internal wiring 35

23 Components 35

24 Supply connection and external flexible cords 35

25 Terminals for external conductors 35

26 Provision for earthing 36

27 Screws and connections 36

28 Creepage distances, clearances and distances through insulation 36

Annexes

Annex I (informative) Measurement of noise and vibration emissions

I.2 Noise test code (grade 2) 38

 I.2.2.2 Hand-held power tools 38

 I.2.4 Installation and mounting conditions of the power tools during noise tests 40

 I.2.5 Operating conditions 40

I.3 Vibration 47

 I.3.3.2 Location of measurement 47

 I.3.5.1 General 50

 I.3.5.3 Operating conditions 50

 I.3.6.1 Reported vibration value 51

 I.3.6.2 Declaration of the vibration total value 52

I.3.7 Measurement report.....	52
-------------------------------	----

Annex K (normative) Battery tools and battery packs

K.19.102.1 General.....	54
K.19.102.1DV Modification: Replace the fifth paragraph of Clause K19.102.1 of the Part 2 with the following:	54
K.19.102.2 Test equipment	54
K.19.102.3 Test to determine tool configuration	55
K.19.102.3DV Modification: Replace Clause K19.102.3 of the Part 2 with the following:	55
K.19.102.4 Test procedure.....	56
K.19.102.4DV Modification: Delete the second paragraph of Clause K19.102.4 of the Part 2.	57
K.21 Construction	57

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

L.19.102.1 General	59
L.21 Construction.....	59

Annex AA(informative) Loading device

Bibliography

ULNORM.COM : Click to view the full PDF of UL 62841-2-6 2022

PREFACE

This is the harmonized CSA Group and UL standard for Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 2-6: Particular requirements for hand-held hammers. It is the First edition of CSA C22.2 No. 62841-2-6, and the First edition of UL 62841-2-6.

This harmonized standard is based on IEC Publication 62841-2-6: First edition, Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 2-6: Particular requirements for hand-held hammers, issued July 2020. IEC publication 62841-2-6 is copyrighted by the IEC.

This harmonized standard was prepared by CSA Group and Underwriters Laboratories Inc. (UL). The efforts and support of the International Harmonization Committee (IHC) for the adoption of the IEC series of Standards for Hand-Held, Motor-Operated, and Transportable Tools and Lawn and Garden Machinery are gratefully acknowledged.

This standard is considered suitable for use for conformity assessment within the stated scope of the standard.

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 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.

Application of Standard

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

CSA C22.2 No. 62841-2-6 is to be used in conjunction with the first edition of CAN/CSA-C22.2 No. 62841-1. The requirements for hand-held hammers are contained in this Part 2-6 Standard and CAN/CSA-C22.2 No. 62841-1. Requirements of this Part 2-6 Standard, where stated, amend the requirements of CAN/CSA-C22.2 No. 62841-1. Where a particular subclause of CAN/CSA-C22.2 No. 62841-1 is not mentioned in CSA C22.2 No. 62841-2-6, the CAN/CSA-C22.2 No. 62841-1 subclause applies.

UL 62841-2-6 is to be used in conjunction with the first edition of UL 62841-1. The requirements for hand-held hammers are contained in this Part 2-6 Standard and UL 62841-1. Requirements of this Part 2-6 Standard, where stated, amend the requirements of UL 62841-1. Where a particular subclause of UL 62841-1 is not mentioned in UL 62841-2-6, the UL 62841-1 subclause applies.

Level of Harmonization

This standard adopts the IEC text with editorial national differences.

This standard is published as an equivalent standard for CSA Group and UL.

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 Group and UL versions of the standard. While the technical content is the same in each organization's version, the format and presentation may differ.

Reasons for Differences From IEC

Differences from the IEC are being added in order to address safety and regulatory situations present in Canada and the U.S.

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 interpretation of the literal text 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.

IEC Copyright

For CSA Group, the text, figures, and tables of International Electrotechnical Commission Publication 62841-2-6, Standard for Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 2-6: Particular requirements for hand-held hammers, copyright 2020, are used in this standard with the consent of the International Electrotechnical Commission. The IEC Foreword is not a part of the requirements of this standard but is included for information purposes only.

These materials are subject to copyright claims of IEC and UL. No part of this publication may be reproduced in any form, including an electronic retrieval system, without the prior written permission of UL. All requests pertaining to the Standard for Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 2-6: Particular requirements for hand-held hammers, UL 62841-2-6 Standard should be submitted to UL.

NATIONAL DIFFERENCES

National Differences from the text of International Electrotechnical Commission (IEC) Publication 62841-2-6, Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 2-6: Particular requirements for hand-held hammers, copyright 2020, 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.

Deletion / Delete - A deletion entails complete deletion of an entire numbered clause, subclause, table, figure, or annex without any replacement text.

No Text on This Page

[ULNORM.COM](https://www.ulnorm.com) : Click to view the full PDF of UL 62841-2-6 2022

FOREWORD

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTRIC MOTOR-OPERATED HAND-HELD TOOLS, TRANSPORTABLE TOOLS AND LAWN AND GARDEN MACHINERY – SAFETY – Part 2-6: Particular requirements for hand-held hammers

- 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.
- 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.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 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.

International Standard IEC 62841-2-6 has been prepared by IEC technical committee 116: Safety of motor-operated electric tools.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
116/459/FDIS	116/466/RVD

Full information on the voting for the approval of this International 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 2-6 is to be used in conjunction with IEC 62841-1:2014.

This Part 2-6 supplements or modifies the corresponding clauses in IEC 62841-1, so as to convert it into the IEC Standard: Particular requirements for hand-held hammers.

Where a particular subclause of Part 1 is not mentioned in this Part 2-6, that subclause applies as far as relevant. Where this standard states "addition", "modification" or "replacement", the relevant text in Part 1 is to be adapted accordingly.

The following print types are used:

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

The terms defined in Clause 3 are printed in **bold typeface**.

Subclauses, notes and figures which are additional to those in Part 1 are numbered starting from 101.

A list of all parts in 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 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.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

101DV DE Modification: Add the following to the IEC Foreword:

The numbering system in the standard uses a space instead of a comma to indicate thousands and uses a comma instead of a period to indicate a decimal point. For example, 1 000 means 1,000 and 1,01 means 1.01.

102DV DE Modification: Add the following to the IEC Foreword:

For this Standard, all references to “Part 1” refer to CAN/CSA-C22.2 No. 62841-1 and UL 62841-1.

ULNORM.COM : Click to view the full PDF of UL 62841-2-6 2022

No Text on This Page

[ULNORM.COM](https://ulnorm.com) : Click to view the full PDF of UL 62841-2-6 2022

ELECTRIC MOTOR-OPERATED HAND-HELD TOOLS, TRANSPORTABLE TOOLS AND LAWN AND GARDEN MACHINERY – SAFETY – Part 2-6: Particular requirements for hand-held hammers

1 Scope

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

Addition:

This part of IEC 62841 applies to hand-held hammers.

Tools covered by this document include **percussion hammers** and **rotary hammers**, including **rotary hammers** with the capability to rotate only with the percussion system disengaged (drill only mode).

This document does not apply to drills and impact drills.

NOTE 101 Drills and impact drills are covered by IEC 62841-2-1.

This document does not apply to tools that are designed exclusively for driving fasteners, such as palm nailers.

2 Normative references

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

Addition:

EN 206:2013, *Concrete. Specification, performance, production and conformity*
EN 206:2013/AMD1:2016

3 Terms and definitions

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

Addition:

3.101

percussion hammer

tool equipped with a built-in percussion system where the impact energy is not dependent on the feed force applied by the operator and has no capability of rotational motion

Note 1 to entry: **Percussion hammers** are also known as chisel hammers, hammers, breakers, concrete breakers and picks.

3.102

rotary hammer

tool capable of rotational motion and equipped with a built-in percussion system where the impact energy is not dependent on the feed force applied by the operator (**rotary hammer mode**) and additionally, may have one or more of the following modes:

- a) with rotational motion disengaged (percussion only mode)
- b) with the percussion system disengaged (drill only mode)

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:

5.17 Addition:

The mass of the tool includes the auxiliary handle and all parts of an integrated (i.e. nondetachable) dust extraction device, if any. A detachable dust extraction device is not included in the mass of the tool.

6 Radiation, toxicity and similar hazards

This clause of Part 1 is applicable.

7 Classification

This clause of Part 1 is applicable.

8 Marking and instructions

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

8.14.1 Addition:

The additional safety instructions as specified in [8.14.1.101](#) shall be given. This part may be printed separately from the "General Power Tool Safety Warnings".

8.14.1.101 Hammer safety warnings

1) Safety instructions for all operations

- a) **Wear ear protectors.** *Exposure to noise can cause hearing loss.*
- b) **Use auxiliary handle(s), if supplied with the tool.** *Loss of control can cause personal injury.*
- c) **Brace the tool properly before use.** *This tool produces a high output torque and without properly bracing the tool during operation, loss of control may occur resulting in personal injury.*

NOTE 101 The above warning applies only for rotary hammers with a maximum output torque greater than 100 Nm measured in accordance with [19.102](#).

- d) **Hold the power tool by insulated gripping surfaces, when performing an operation where the cutting accessory may contact hidden wiring or its own cord.** *Cutting accessory contacting a "live" wire may make exposed metal parts of the power tool "live" and could give the operator an electric shock.*