



62841-2-8

STANDARD FOR SAFETY

Electric Motor-Operated Hand-Held Tools,
Transportable Tools And Lawn And Garden
Machinery – Safety – Part 2-8: Particular
Requirements For Hand-Held Shears and Nibblers

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UL Standard for Safety for Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Part 2-8: Particular Requirements For Hand-Held Shears and Nibblers, UL 62841-2-8

First Edition, Dated December 23, 2016

Summary of Topics

Adoption Of The First Edition Of IEC 62841-2-8, Standard For Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Safety – Part 2-8: Particular Requirements for Hand-Held Shears and Nibblers, As The First Edition Of UL 62841-2-8

This standard is an adoption of IEC 62841-2-8, Edition 1, published by the IEC April 2016. There are no technical national differences for this standard.

The new requirements are substantially in accordance with Proposal(s) on this subject dated August 5, 2016.

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(IEC 62841-2-8:2016 MOD)



Underwriters Laboratories Inc.
UL 62841-2-8
First Edition

Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Safety – Part 2-8: Particular Requirements For Hand-Held Shears and Nibblers

December 23, 2016

This national standard is based on publication IEC 62841-2-8 First Edition (2016).



ANSI/UL 62841-2-8-2016

Approved by



Standards Council of Canada
Conseil canadien des normes

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 any time. 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 ANSI/UL Standard for Safety consists of the First Edition. The most recent designation of ANSI/UL 62841-2-8 as an American National Standard (ANSI) occurred on December 23, 2016. The ANSI approval for this standard does not include the Cover Page, Transmittal Pages, Title Page, Preface Page, National Difference Page or IEC Foreword.

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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CONTENTS

Preface	4
NATIONAL DIFFERENCES	6
FOREWORD	7
1 Scope	10
2 Normative references	10
3 Terms and definitions	10
4 General requirements	10
5 General conditions for the tests	10
6 Radiation, toxicity and similar hazards	10
7 Classification	10
8 Marking and instructions	11
9 Protection against access to live parts	11
10 Starting	11
11 Input and current	11
12 Heating	11
13 Resistance to heat and fire	11
14 Moisture resistance	11
15 Resistance to rusting	11
16 Overload protection of transformers and associated circuits	11
17 Endurance	11
18 Abnormal operation	12
19 Mechanical hazards	12
20 Mechanical strength	12
21 Construction	12
22 Internal wiring	12
23 Components	12
24 Supply connection and external flexible cables and cords	13
25 Terminals for external conductors	13
26 Provision for earthing	13
27 Screws and connections	13
28 Creepage distances, clearances and distances through insulation	13

Annexes

Annex I (informative) Measurement of noise and vibration emissions

I.2 Noise test code (grade 2)	15
I.3 Vibration	16

Annex K (normative) Battery tools and battery packs

Bibliography

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 2-8: Particular Requirements for Hand-Held Shears and Nibblers. It is the First edition of CAN/CSA-C22.2 No. 62841-2-8 and the First edition of UL 62841-2-8.

This harmonized standard is based on IEC Publication 62841-2-8: First edition Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Safety – Part 2-8: Particular Requirements for Hand-Held Shears and Nibblers issued April 2016. IEC 62841-2-8 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 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.

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.

This CAN/CSA-C22.2 No. 62841-2-8, Standard For Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Safety – Part 2-8: Particular Requirements for Hand-Held Shears and Nibblers is to be used in conjunction with the First edition of CAN/CSA-C22.2 No. 62841-1. The requirements for hand-held shears and nibblers are contained in this Part 2 Standard and CAN/CSA-C22.2 No. 62841-1. Requirements of this Part 2 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 CAN/CSA-C22.2 No. 62841-2-8, the CAN/CSA-C22.2 No. 62841-1 subclause applies.

This UL 62841-2-8 Standard For Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Safety – Part 2-8: Particular Requirements for Hand-Held Shears and Nibblers, is to be used in conjunction with the First edition of UL 62841-1. The requirements for hand-held

shears and nibblers are contained in this Part 2 Standard and UL 62841-1. Requirements of this Part 2 Standard, where stated, amend the requirements of UL 62841-1. Where a particular subclause of UL 62841-1 is not mentioned in UL 62841-2-8, 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

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

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 IEC 62841-2-8 Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Safety – Part 2-8: Particular Requirements for Hand-Held Shears and Nibblers, copyright 2016, 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 Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Safety – Part 2-8: Particular Requirements for Hand-Held Shears and Nibblers UL 62841-2-8 Standard should be submitted to UL.

NATIONAL DIFFERENCES

National Differences from the text of International Electrotechnical Commission (IEC) Publication IEC 62841-2-8, Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Safety – Part 2-8: Particular Requirements for Hand-Held Shears and Nibblers, copyright 2016 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.

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTRIC MOTOR-OPERATED HAND-HELD TOOLS, TRANSPORTABLE TOOLS AND LAWN AND GARDEN MACHINERY – SAFETY – PART 2-8: PARTICULAR REQUIREMENTS FOR HAND-HELD SHEARS AND NIBBLERS

FOREWORD

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.

International Standard IEC 62841-2-8 has been prepared by IEC technical committee 116: Safety of motor-operated electric tools.

The text of this standard is based on the following documents:

FDIS	Report on voting
116/277/FDIS	116/285/RVD

Full information on the voting for the approval of this 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 2-8 is to be used in conjunction with the first edition of IEC 62841-1:2014.

This Part 2-8 supplements or modifies the corresponding clauses in IEC 62841-1, so as to convert it into the IEC Standard: Particular requirements for hand-held shears and nibblers.

Where a particular subclause of Part 1 is not mentioned in this Part 2-8, 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 of 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.

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.

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ELECTRIC MOTOR-OPERATED HAND-HELD TOOLS, TRANSPORTABLE TOOLS AND LAWN AND GARDEN MACHINERY – SAFETY – PART 2-8: PARTICULAR REQUIREMENTS FOR HAND- HELD SHEARS AND NIBBLERS

1 Scope

This clause of Part 1 is applicable except as follows:

Addition:

This part of IEC 62841 applies to hand-held **shears** and **nibblers**.

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 **shear**: tool intended for shearing of metal sheets, plates and strips

3.102 **nibbler**: tool intended for punching of metal sheets, plates and strips

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 a **shear** includes the shear blade.*

*The mass of a **nibbler** includes the die holder and the punch.*

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:

8.14.2 b) *Addition:*

101) Information on the maximum thickness of sheet metal(s) that can be cut.

9 Protection against access to live parts

This clause of Part 1 is applicable.

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, except as follows:

12.2.1 *Addition:*

The tool is operated continuously for a period of 30 min. The temperature rises are measured at the end of the 30 min.

13 Resistance to heat and fire

This clause of Part 1 is applicable.

14 Moisture resistance

This clause of Part 1 is applicable.

15 Resistance to rusting

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 except as follows:

18.8 Replacement of Table 4:

Table 4 – Required performance levels

Type and purpose of SCF	Minimum Performance Level (PL)
Power switch – prevent unwanted switch-on	a
Power switch – provide desired switch-off	a
Any electronic control to pass the test of 18.3	Not a SCF
Any speed limiting device	Not a SCF
Prevent exceeding thermal limits as in Clause 18	a

19 Mechanical hazards

This clause of Part 1 is applicable except as follows:

19.1 Replacement of the first paragraph:

Moving and other dangerous parts of the tool other than the working element shall be so positioned or enclosed to provide adequate protection against personal injury.

19.6 This subclause is not applicable.

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:

21.18.1 Addition:

For **shears** and **nibblers**, **power switches** other than **momentary power switches** are permitted.

21.30 This subclause is not applicable.

21.35 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 cables and cords

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

24.4 Replacement of the first paragraph:

Supply cords shall be not lighter than heavy polychloroprene sheathed flexible cable (60245 IEC 66).

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.

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Annexes

The annexes of Part 1 are applicable except as follows.

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Annex I
(informative)
Measurement of noise and vibration emissions

NOTE In Europe (EN 62841-2-8), Annex I is normative

I.2 Noise test code (grade 2)

This clause of Part 1 is applicable except as follows:

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

Addition:

Shears are suspended, the orientation of the tool to be as for cutting a horizontal sheet of metal.

Nibblers are held and used as specified in I.2.5.

I.2.5 Operating conditions

Addition:

Shears are tested at no-load.

NOTE The operating conditions of Table I.101 for shears only apply for vibration testing.

Nibblers are tested under load observing the conditions specified in Table I.101.

The temperature requirements of 5.6 are not applicable.

Table I.101 – Operating conditions for shears and nibblers

Orientation	Cutting a horizontal strip of sheet metal with a tensile strength of approximately 390 N/mm², a minimum length of 400 mm and a minimum width of 400 mm. The metal sheet shall have the maximum thickness specified in 8.14.2b) 101). The metal sheet used in the test shall be firmly secured to a test bench using resilient material. It shall be mounted so that it does not have any significant resonance in the frequency range that can influence the test result. A typical test bench is shown in Figure I.102. Each cut strip of 50 mm wide for the width of 400 mm shall be as near as possible to the support. During the test, the tool shall be arranged so that the operator can have an upright or almost upright posture and work the nibbler or shear cutting horizontally. The operator shall be able to hold the tool comfortably during the test.
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Table I.101 – Operating conditions for shears and nibblers Continued on Next Page

Table I.101 – Operating conditions for shears and nibblers Continued

Tool bit	Nibblers are operated with a punch and die of the size specified for the sheet metal used in the test. Shears are operated with shear blades of the size specified for the sheet metal used in the test. They shall be sharp and in good condition.
Feed force	Suitable feed force shall be applied to ensure a stable and smooth operation.
Test cycle	Cutting off one 50 mm wide strip across the 400 mm width of the sheet metal. The measurement starts when the blade enters the sheet metal and stops when the blade leaves the sheet metal.

I.3 Vibration

This clause of Part 1 is not applicable except as follows:

I.3.3.2 Location of measurement

Addition:

Figure I.101 shows the positions for different **shears** and **nibblers**.

I.3.5.3 Operating conditions

Addition:

Shears and **nibblers** are tested under load observing the conditions shown in Table I.101.

I.3.6.2 Declaration of the vibration total value

Addition:

The vibration total value a_h of the handle with the highest emission and the uncertainty K shall be declared.