UL 62841-3-12

STANDARD FOR SAFETY

Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Safety – Part 3-12: Particular Requirements For Transportable Threading Machines

UL Standard for Safety for Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Safety – Part 3-12: Particular Requirements For Transportable Threading Machines, UL 62841-3-12

First Edition, Dated April 5, 2019

Summary of Topics

Adoption of the First Edition of IEC 62841-3-12, Standard for Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 3-12: Particular Requirements for Transportable Threading Machines, as the First Edition of ANSI/ UL 62841-3-12.

The new requirements are substantially in accordance with Proposal(s) on this subject dated October 12, 2018.

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Underwriters Laboratories Inc.
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First Edition

Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 3-12: Particular Requirements for Transportable Threading Machines

April 5, 2019

This national standard is based on publication IEC 62841-3-12, First Edition (2017).

ANSI/UL 62841-3-12-2019

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 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 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. The most recent designation of ANSI/UL 62841-3-12 as an American National Standard (ANSI) occurred on April 5, 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 harmonized CSA Group and UL Standard For Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 3-12: Particular Requirements for Transportable Threading Machines. It is the First edition of CSA C22.2 No. 62841-3-12 and the First edition of UL 62841-3-12.

This harmonized standard is based on IEC Publication 62841-3-12: First edition, Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Safety – Part 3-12: Particular Requirements for Transportable Threading Machines, issued August 2017. IEC 62841-3-12 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 UL 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. 62841-3-12 is to be used in conjunction with the First edition of CAN/CSA-C22.2 No. 62841-1. The requirements for transportable threading machines are contained in this Part 3 Standard and CAN/CSA-C22.2 No. 62841-1. Requirements of this Part 3 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. 62841-3-12, the CAN/CSA-C22.2 No. 62841-1 subclause applies.

UL 62841-3-12 is to be used in conjunction with the First edition of UL 62841-1. The requirements for transportable threading machines are contained in this Part 3 Standard and UL 62841-1. Requirements of this Part 3 Standard, where stated, amend the requirements of UL 62841-1. Where a particular subclause of UL 62841-1 is not mentioned in UL 62841-3-12, 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 62841-3-12, Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Safety – Part 3-12: Particular Requirements for Transportable Threading Machines, copyright 2017, 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.

NATIONAL DIFFERENCES

National Differences from the text of International Electrotechnical Commission (IEC) Publication 62841-3-12, Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 3-12: Particular Requirements for Transportable Threading Machines, copyright 2017, 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.

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FOREWORD

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTRIC MOTOR-OPERATED HAND-HELD TOOLS, TRANSPORTABLE TOOLS AND LAWN AND GARDEN MACHINERY – SAFETY – PART 3-12: PARTICULAR REQUIREMENTS FOR TRANSPORTABLE THREADING MACHINES

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 62841-3-12 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
116/338/FDIS	116/343/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 document has been drafted in accordance with the ISO/IEC Directives, Part 2.

This Part 3-12 is to be used in conjunction with the first edition of IEC 62841-1:2014.

This Part 3-12 supplements or modifies the corresponding clauses in IEC 62841-1, so as to convert it into the IEC Standard: Particular requirements for transportable threading machines.

Where a particular subclause of Part 1 is not mentioned in this Part 3-12, 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

– **terms defined in Clause 3: 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 3-12: Particular requirements for transportable threading machines

1 Scope

This clause of Part 1 is applicable except as follows:

Addition:

This part of IEC 62841 applies to transportable **threading machines**.

2 Normative references

This clause of Part 1 is applicable except as follows:

Addition:

IEC 60947-5-1, *Low-voltage switchgear and controlgear – Part 5-1: Control circuit devices and switching elements – Electromechanical control circuit devices*

ISO 7-1:1994, *Pipe threads where pressure-tight joints are made on the threads – Part 1: Dimensions, tolerances and designation*

ANSI/ASME B1.20.2M:2006, *Pipe threads, 60 deg., general purpose*

3 Terms and definitions

This clause of Part 1 is applicable except as follows:

Addition:

3.101 **Threading machine**
tool that is capable of creating an external thread by either rotating the workpiece or the cutting head, by a mechanical process such as cutting or forming.

NOTE 1 to entry: See Figure 101.

3.102 **ISO style thread**
thread according to ISO 7-1:1994: 55 degree pressure-tight taper pipe threads (R)

NOTE 1 to entry: ISO type R threads are also known as BSPT style threads.

3.103 **NPT style thread**
thread according to National Pipe Taper: 60 degree pressure-tight taper pipe threads (NPT) per ANSI/ASME B1.20.2M:2006

4 General requirements

This clause of Part 1 is applicable.

5 General conditions for the tests

This clause of Part 1 is applicable.

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:

8.1 *Addition:*

– maximum diameter of the thread which can be created. The maximum diameter may be specified in SI units or inches.

NOTE According to the International System of Units, only SI Units are to be used. Nevertheless, some pipe diameters and threads are still specified in inches internationally.

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 **Threading machine safety warnings**

a) **Keep floor dry and free of slippery materials such as oil.** *Slippery floors invite accidents.*

b) **Restrict access or barricade the area from bystanders when the workpiece extends beyond the machine to provide a minimum of one metre clearance from the workpiece.** *Restricting access or barricading the work area around the workpiece will reduce the risk of entanglement.*

c) **Do not wear gloves.** *Gloves may be entangled by the rotating pipe or machine parts leading to personal injury.*

d) **Do not use the machine for other purposes such as drilling holes or turning winches.** *Other uses or modifying this machine for other applications may increase the risk of serious injury.*

e) **Secure the machine to a bench or stand. Support long heavy pipe with pipe supports.** *This practice will prevent the machine from tipping.*

f) **While operating the machine, stand on the side where the operator control switch is located.** *Operating the machine from this side eliminates need to reach over the machine.*

g) **Keep hands away from rotating pipe and fittings. Stop the machine before wiping pipe threads or screwing on fittings. Allow the machine to come to a complete stop before touching the pipe.** *This practice will reduce the risk of entanglement in rotating parts.*

h) **Do not use this machine to install or remove fittings.** *This practice could lead to trapping, entanglement and loss of control.*

NOTE Replacing "install or remove" with "make or break" is possible.

i) **Do not operate the machine without all covers properly installed.** *Exposing moving parts increases the probability of entanglement.*

j) **Do not use this machine if the foot switch is broken or missing.** *The foot switch provides safe control of the machine, such as emergency shutoff in case of entanglement.*

8.14.2 b) *Additional items:*

101) Instruction on the proper location of the operator while operating the machine;

102) For **threading machines** with multiple gear box settings: information about which gear box setting is to be used for each thread diameter and style.

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, except as follows:

Replacement:

The **rated input** or **rated current** shall be at least 100 % of the highest measured input or current after applying a minimum torque as specified in Table 101 for the largest recommended thread size for each speed setting in accordance with 8.1 and 8.14.2 b) 102).

Compliance is checked by measuring the power input or current of the tool when stabilized while all circuits which can operate simultaneously are in operation.

*For tools marked with one or more **rated voltages**, the test is made at each of the **rated voltages**. For tools marked with one or more **rated voltage ranges**, the test is made at both the upper and lower limits of the ranges. For tools with multiple gear box settings, the test is made at each specified gear box setting in accordance with 8.14.2 b). The highest value of input or current is applicable.*

Table 101
Load torque

Thread size	Torque Nm	
	ISO style thread	NPT style thread
1"	108	108
1 1/4"	149	149
1 1/2"	163	163
2"	217	217
2 1/2"	217	380
3"	244	542
4"	386	583

12 Heating

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

12.2.1 *Replacement:*

Threading machines *are operated for 30 s at load followed by 30 s no load and then switched off for a rest period of 60 s. This cycle is continued until thermal equilibrium is reached, or for 30 cycles, whichever is achieved first. The tool is loaded during the periods of operation by means of a brake adjusted to attain the highest input or current as determined in Clause 11. The brake load may be ramped up over a period of time not to exceed 5 s. This ramp up time is added to the 30 s cycle at load. Temperatures are measured at the end of the last load period.*

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/foot switch – prevent unwanted switch-on	b
Power switch/foot switch − provide desired switch-off	c
Provide desired direction of rotation	Not a **SCF**
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 dangerous parts other than the chuck(s), cutting head or workpiece shall be so positioned or enclosed to provide adequate protection against personal injury.

19.6 This subclause is not applicable.

19.8 This subclause is applicable for **threading machines**, if provided with:

– wheels; or

– a cart with wheels.

19.101 **Run-down**

The run-down of the tool spindle after switching off the motor shall be limited.

Compliance is checked by the following test, which is performed ten times.

The tool motor is switched on under no-load for a minimum of 30 s, then switched off. For each test, the run-down of the spindle shall not exceed two revolutions.

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:

21.17 *Replacement:*

Threading machines shall be fitted with a **power switch** which is not a **momentary power switch**. The actuating member of this switch shall be easily visible and accessible from the operator's position designated in 8.14.2 b) 101).

The machine shall also be fitted with a foot switch which is a **momentary power switch** without a lock-on device.

It shall be necessary that both the **power switch** and the foot switch are in the "on" position in order to operate the machine.

Compliance is checked by inspection.

21.18.2.1 *Addition:*

After voltage recovery, following an interruption of the supply, the tool shall not automatically restart. The foot switch as required in 21.17 is regarded as a **momentary power switch**.

21.18.2.3 *Replacement:*

The foot switch required in 21.17 shall be shielded so that unintentional movement to the "on" position is unlikely and the shield shall have sufficient strength.

Compliance is checked by the test of 20.3.2 and by the following test.

With the foot switch placed on a horizontal surface, it shall not be possible to activate the foot switch with a 12 mm diameter rod held perpendicular to the horizontal surface and applied in a perpendicular motion with a force of 50 N.

21.30 This subclause is not applicable.

22 Internal wiring

This clause of Part 1 is applicable.

23 Components

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

23.1.10 *Addition:*

Alternatively, foot switches, if separately tested and found to comply with IEC 60947-5-1, shall meet the rating and endurance requirements specified in 23.1.10.1.

23.2 *Replacement of the first dash:*

– switches or automatic controls in flexible cords, however the foot switch required in 21.17 and **protective devices** such as **RCD**s may be fitted in flexible cords;

24 Supply connection and external flexible cords

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

24.4 *Addition:*

If rubber insulated cables are used, they shall be polychloroprene or other equivalent synthetic elastomer sheathed cables (code designation 60245 IEC 57 or 60245 IEC 66).

NOTE 101 In the United States of America, the following conditions apply:

Supply cords shall be not lighter than Junior Hard service (SJO) cord in accordance with the National Electrical Code, NFPA 70.

Attachment plugs and cords shall be equal to or greater than the rating of the tool.

NOTE 102 In Canada, the following conditions apply:

Supply cords shall be not lighter than Hard Usage cord (SJO) in accordance with the Canadian Electrical Code, Part 1.

Attachment plugs and cords shall be equal to or greater than the rating of the tool.

24.20 *Addition:*

The cord for the foot switch required by 21.17 is regarded as an **interconnection cord**, except that the test of 24.11 is not applicable.

24.21 *Addition:*

The cord for the foot switch required by 21.17 shall not be detachable at either end without the aid of a tool.

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.