



62841-2-9

STANDARD FOR SAFETY

Electric Motor-Operated Hand-Held Tools,
Transportable Tools And Lawn And Garden
Machinery – Safety – Part 2-9: Particular
Requirements For Hand-Held Tappers And
Threaders

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UL Standard for Safety for Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Safety – Part 2-9: Particular Requirements For Hand-Held Tappers And Threaders, UL 62841-2-9

First Edition, Dated February 26, 2016

Summary of Topics

1. The revisions dated October 10, 2017 incorporate changes to Table 4 In Clause 18 And Table 4 in Clause K.18 To Align With Changes In IEC Corrigendum 1 Of IEC 62841-2-9 and to reflect the latest ANSI approval date for the Standard.

This standard is an adoption of IEC 62841-2-9, Edition 1, published by the IEC January 2015. There are no technical national differences for this standard.

The new requirements are substantially in accordance with Proposal(s) on this subject dated May 5, 2017 and July 14, 2017.

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CAN/CSA-C22.2 No. 62841-2-9:16
First Edition
(IEC 62841-2-9:2015, MOD)



Underwriters Laboratories Inc.
UL 62841-2-9
First Edition

Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Safety – Part 2-9: Particular Requirements For Hand-Held Tappers And Threaders

February 26, 2016

(Title Page Reprinted October 10, 2017)

This national standard is based on publication IEC 62841-2-9, First Edition (2015).



ANSI/UL 62841-2-9-2017

Approved by



Standards Council of Canada
Conseil canadien des normes

Commitment for Amendments

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This Standard is subject to review five years from the date of publication, and suggestions for its improvement will be referred to the appropriate committee. 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 October 10, 2017. The most recent designation of ANSI/UL 62841-2-9 as an American National Standard (ANSI) occurred on October 10, 2017. The ANSI approval for this standard does not include the Cover Page, Transmittal Pages, Title Page, Preface Page, National Difference Page or IEC Foreword.

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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 2-9: Particular Requirements For Hand-Held Tappers And Threaders. It is the First edition of CAN/CSA-C22.2 No. 62841-2-9 and the First edition of UL 62841-2-9. This harmonized Standard has been jointly revised on October 10, 2017. For this purpose, CSA Group and UL are issuing revision pages dated October 10, 2017.

This harmonized standard is based on IEC Publication 62841-2-9: First edition Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Safety – Part 2-9: Particular Requirements For Hand-Held Tappers And Threaders issued January 2015. IEC publication 62841-2-9 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 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. 62841-2-9, Standard for Standard for Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Safety – Part 2-9: Particular Requirements For Hand-Held Tappers And Threaders is to be used in conjunction with the First edition of CAN/CSA-C22.2 No. 62841-1. The requirements for hand-held tappers and threaders 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. 62841-2-9, the CAN/CSA-C22.2 No. 62841-1 subclause applies.

This UL 62841-2-9 Standard for Safety for Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Safety – Part 2-9: Particular Requirements For Hand-Held Tappers And Threaders, is to be used in conjunction with the First edition of UL 62841-1. The requirements for

hand-held tappers and threaders 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 62841-2-9, 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 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 62841-2-9 Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Safety – Part 2-9: Particular Requirements For Hand-Held Tappers And Threaders, copyright 2015, 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.

For UL, the text, figures and tables of IEC publication IEC 62841-2-9, Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Safety – Part 2-9: Particular Requirements For Hand-Held Tappers And Threaders, copyright 2015 are used in this standard with the consent of the IEC and the American National Standards Institute (ANSI). The IEC copyrighted material has been reproduced with permission from ANSI. ANSI should be contacted regarding the reproduction of any portion of the IEC material. The IEC Foreword is not a part of the requirements of this standard but is included for information purposes only. Copies of IEC Publication IEC 62841-2-9 may be purchased from ANSI, 25 West 43rd Street, 4th Floor, New York, New York, 10036, (212) 642- 4900.

NATIONAL DIFFERENCES

National Differences from the text of the International Electrotechnical Commission (IEC) publication 62841-2-9 (Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Safety – Part 2-9: Particular Requirements For Hand-Held Tappers And Threaders) copyright 2015 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 2-9: PARTICULAR REQUIREMENTS FOR HAND-HELD TAPPERS AND THREADERS

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 62841-2-9 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
116/199/FDIS	116/212/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 2-9 is to be used in conjunction with the first edition of IEC 62841-1 (2014).

This Part 2-9 supplements or modifies the corresponding clauses in IEC 62841-1, so as to convert it into the IEC Standard: Particular requirements for hand-held tappers and threaders.

Where a particular subclause of Part 1 is not mentioned in this Part 2-9, that subclause applies as far as reasonable. 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 SMALLER 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 2-9: PARTICULAR REQUIREMENTS FOR HAND- HELD TAPPERS AND THREADERS

1 Scope

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

Addition:

This standard applies to hand-held **tappers** and **threaders**.

2 Normative references

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

Addition:

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

ISO 65:1981, Carbon steel tubes suitable for screwing in accordance with ISO 7-1

3 Terms and definitions

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

Addition:

3.101 **tapper**: tool intended for cutting internal screw threads

3.102 **threader**: tool intended for cutting external threads

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 **tapper/threader** includes the auxiliary handle, if any. Any support device as illustrated in Figure 101 for a **threader** is not regarded as part 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:

8.1 Addition:

In addition the tool shall have the following marking:

- maximum diameter, in millimetres (for **tappers**) or in inches (for **threaders**), of the thread which can be cut.

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

For **tappers**, the diameter shall refer to a unified ISO thread to be cut into steel having a tensile strength of 390 N/mm² and a thickness of twice the thread diameter, unless otherwise indicated on the tool.

For **threaders**, the diameter shall refer to a taper style thread in accordance with ISO 7-1 to be cut on steel tubes in accordance with ISO 65, unless otherwise indicated on the tool.

8.14.1 Addition:

For **threaders**, 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 Threader safety warnings

- a) **Always use the support device provided with the tool.** *Loss of control during operation can result in personal injury.*
- b) **Keep sleeves and jackets buttoned while operating the tool. Do not reach across the tool or pipe.** *Clothing can be caught by the pipe or the tool resulting in entanglement.*
- c) **Only one person must control the work process and tool operation.** *Additional people involved in the process may result in unintended operation and personal injury.*
- d) **Keep floors dry and free of slippery materials such as oil.** *Slippery floors invite accidents.*

8.14.2 a) *Addition:*

101) for **threaders**: instructions for mounting and use of the support device.

8.14.2 b) *Addition:*

101) for **threaders**: instructions to always use the support device supplied with the tool;

102) for **threaders** with multiple gear box settings: information about which gear box setting is to be used for each pipe diameter.

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:

Modification:

For **threaders**, the requirements of this clause are replaced by the following:

The **rated input** or **rated current** shall be at least 100 % of the measured input or current applying the torque in Table 101.

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.*

12 Heating

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

12.2.1 Replacement:

Tappers are operated intermittently for 30 cycles or until thermal equilibrium is reached, whichever is achieved first, each cycle comprising a period of continuous operation of 30 s and a rest period of 90 s with the tool switched off, the tool being loaded during the periods of operation by means of a brake adjusted so as to attain **rated input** or **rated current**. The temperature rises are measured at the end of the last "on" period.

Threaders 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 torque specified in Table 101. The brake load may be ramped up to the specified torque over a period of time not to exceed 5 s. This ramp up time is added to the 30 s cycle at load. The temperature rises are measured at the end of the last load period.

The above test cycle may, at the manufacturer's option, be replaced by continuous operation of the tool until thermal equilibrium is reached.

NOTE Continuous operation is not typical for these tools and is regarded as a more severe test. Therefore, this is an option for the cycle test in order to simplify the testing.

Table 101 – Load torque

Maximum diameter of thread inch	Torque Nm
1	125
1,25	150
1,5	160
2	180

12.5 Addition:

For **threaders**, the temperature-rise limit specified for the external enclosure does not apply to the enclosure of the gear box. However, the above exemption does not apply to handles adjacent to the gear box.

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 for tappers	a
Power switch – prevent unwanted switch-on for threaders	a
Power switch – provide desired switch-off for tappers	b
Power switch – provide desired switch-off for threaders	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:

19.6 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.

20.101 The device to support the threader shall withstand the torque output generated by the tool while cutting a thread in either direction.

Compliance is checked by the following test:

The tool is set with the largest die head in accordance with 8.1 on to a pipe as specified in 8.1. The point of contact with the support device and tool is determined. The support device is mounted in accordance with 8.14.2 a) so there is an 8 mm minimum clearance between the device and the point of contact. See Figure 102.

A thread is cut until one of the following occurs:

- *the tool stalls;*
- *the thread is destroyed allowing the die head to continue rotating;*
- *the die head stops rotating due to failure of the tool or by means of a mechanical or electrical/electronic device.*

As a result of the test, none of the following shall occur:

- *ejection of parts from the tool or from the die head;*
- *rotation of the support device exceeding 30° or lateral movement exceeding 25 mm;*
- *cracked or broken parts of the support device, however bending is allowed.*

21 Construction

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

21.18.1.1 Addition:

Threaders are regarded as tools with a risk associated with continued locked-on operation.

21.32 This subclause is not applicable.

21.101 **Threaders** shall be supplied with a device to support the tool while cutting a thread.

Figure 101 shows an example of a **threader** with a support device.

Compliance is checked by inspection.

22 Internal wiring

This clause of Part 1 is applicable.

23 Components

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

23.1.10.2 Modification:

Power switches for **threaders** are tested for 10 000 cycles.

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).

25 Terminals for external conductors

This clause of Part 1 is applicable.

26 Provision for earthing

This clause of Part 1 is applicable.

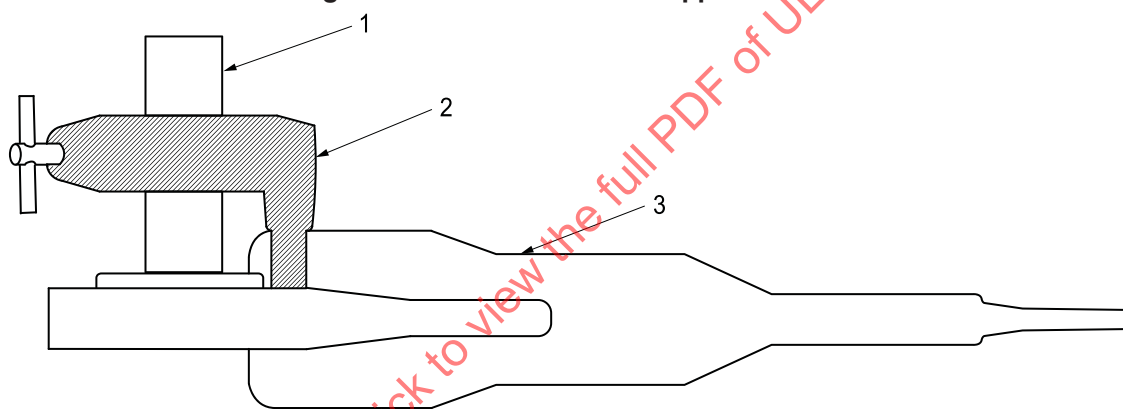
27 Screws and connections

This clause of Part 1 is applicable.

28 Creepage distances, clearances and distances through insulation

This clause of Part 1 is applicable.

Figure 101 – Threader with support device

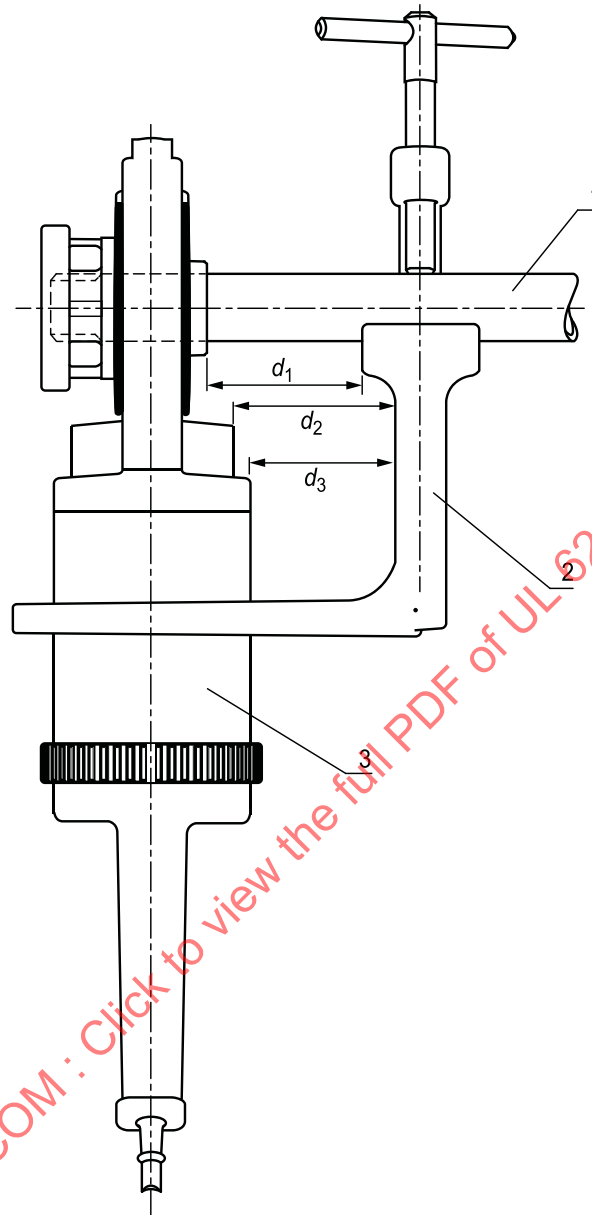


Key

1 pipe

2 support device

3 threader

Figure 102 – Set-up for testing the support device

su2170

Key

d_1 , d_2 , d_3 distance between support device and point of contact, depending on design of the tool

1 pipe

2 support device

3 threader

Annexes

The annexes of Part 1 are applicable except as follows.

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