UL 62841-3-6

STANDARD FOR SAFETY

Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Safety – Part 3-6: Particular Requirements For Transportable Diamond Drills With Liquid System

UL Standard for Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Safety – Part 3-6: Particular Requirements For Transportable Diamond Drills With Liquid System, UL 62841-3-6

First Edition, Dated June 17, 2016

Summary of Topics

The revisions of ANSI/UL 62841-3-6, dated June 22, 2018, were issued to incorporate the following into the standard and to reflect the latest ANSI approval date.

Revision To Table 4, Required Performance Levels, To Align With Changes In IEC Corrigendum 1 Of IEC 62841-3-6

This standard is an adoption of IEC 62841-3-6, Edition 1, published by the IEC May 2014. There are no technical national differences for this standard.

Text that has been changed in any manner or impacted by UL's electronic publishing system is marked with a vertical line in the margin.

The revised requirements are substantially in accordance with Proposal(s) on this subject dated April 13, 2018.

No Text on This Page

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First Edition
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Underwriters Laboratories Inc.
UL 62841-3-6
First Edition

Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Safety – Part 3-6: Particular Requirements For Transportable Diamond Drills With Liquid System

June 17, 2016

(Title Page Reprinted: June 22, 2018)

This national standard is based on publication IEC 62841-3-6, First Edition (2014).

ANSI/UL 62841-3-6-2018

Commitment for Amendments

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

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

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This ANSI/UL Standard for Safety consists of the First Edition including revisions through June 22, 2018. The most recent designation of ANSI/UL 62841-3-6 as an American National Standard (ANSI) occurred on June 22, 2018. 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.

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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 3-6: Particular Requirements For Transportable Diamond Drills With Liquid System. It is the First edition of CAN/CSA-C22.2 No. 62841-3-6 and the First edition of UL 62841-3-6. This harmonized Standard has been jointly revised on June 22, 2018. For this purpose, CSA Group and UL are issuing revision pages June 22, 2018.

This harmonized standard is based on IEC Publication 62841-3-6: First edition Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Safety – Part 3-6: Particular Requirements For Transportable Diamond Drills With Liquid System issued May 2014. IEC publication 62841-3-6 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 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.

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. 62841-3-6, Standard for Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Safety – Part 3-6: Particular Requirements For Transportable Diamond Drills With Liquid System is to be used in conjunction with the First edition of CAN/CSA-C22.2 No. 62841-1. The requirements for transportable diamond drills with liquid system 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 CAN/CSA-C22.2 No. 62841-3-6, the CAN/CSA-C22.2 No. 62841-1 subclause applies.

This UL 62841-3-6 Standard for Safety for Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Safety – Part 3-6: Particular Requirements For Transportable Diamond Drills With Liquid System, is to be used in conjunction with the First edition of UL 62841-1. The requirements for transportable diamond drills with liquid system 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 62841-3-6, 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

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 62841-3-6 Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Safety – Part 3-6: Particular Requirements For Transportable Diamond Drills With Liquid System, copyright 2014, 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 3-6: Particular Requirements For Transportable Diamond Drills With Liquid System, UL 62841-3-6 Standard should be submitted to UL.

NATIONAL DIFFERENCES

National Differences from the text of the International Electrotechnical Commission (IEC) publication 62841-3-6 (Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Safety – Part 3-6: Particular Requirements For Transportable Diamond Drills With Liquid System) copyright 2014 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 3-6: PARTICULAR REQUIREMENTS FOR TRANSPORTABLE DIAMOND DRILLS WITH LIQUID SYSTEM

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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6) All users should ensure that they have the latest edition of this publication.

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

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

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

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

FDIS	Report on voting
116/165/FDIS	116/179/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 3-6 is to be used in conjunction with the first edition of IEC 62841-1:2014.

This Part 3-6 supplements or modifies the corresponding clauses in IEC 62841-1, so as to convert it into the IEC Standard: Particular requirements for transportable diamond drills with liquid system.

Where a particular subclause of Part 1 is not mentioned in this Part 3-6, 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.

ELECTRIC MOTOR-OPERATED HAND-HELD TOOLS, TRANSPORTABLE TOOLS AND LAWN AND GARDEN MACHINERY – SAFETY – PART 3-6: PARTICULAR REQUIREMENTS FOR TRANSPORTABLE DIAMOND DRILLS WITH LIQUID SYSTEM

1 Scope

This clause of Part 1 is applicable except as follows:

Addition:

This part of IEC 62841 applies to transportable **diamond drills**, intended to be connected to a liquid system. Liquid system may include liquid from a pipe or container.

2 Normative references

This clause of Part 1 is applicable.

3 Terms and definitions

This clause of Part 1 is applicable except as follows:

Addition:

3.101 **diamond drill** manually fed tool with liquid system designed to drill stone and concrete by means of diamond core bits. The tool at least consists of a **drill unit** and a **drill stand** to which it is fixed. The **drill stand** is either attached to the workpiece to be drilled by means of fasteners, vacuum or other suitable devices (see Figure 101) or the **drill stand** is secured to an appropriate support such as a scaffolding

3.102 **drill unit** device consisting of a motor and a fitting for the drill bit

3.103 **drill stand** device for supporting the **drill unit** in its operating position

3.104 **liquid collection device** device to collect liquid and slurry when drilling

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:

An auxiliary handle, if provided, and the **drill stand** *are regarded as needed for normal use.*

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:

Diamond drills shall be marked with:

– rated no-load speed.

8.14.1.1 Addition:

101) Diamond drill safety warnings

a) **When performing drilling that requires the use of water, route the water away from the operator's work area or use a liquid collection device.** *Such precautionary measures keep the operator's work area dry and reduce the risk of electrical shock.*

b) **Operate power tool by insulated grasping 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.*

c) **Wear hearing protection when diamond drilling.** *Exposure to noise can cause hearing loss.*

d) **When the bit is jammed, stop applying downward pressure and turn off the tool.** *Investigate and take corrective actions to eliminate the cause of the bit jamming.*

e) **When restarting a diamond drill in the workpiece check that the bit rotates freely before starting.** *If the bit is jammed, it may not start, may overload the tool, or may cause the diamond drill to release from the workpiece.*

f) **When securing the drill stand with anchors and fasteners to the workpiece, ensure that the anchoring used is capable of holding and restraining the machine during use.** *If the workpiece is weak or porous, the anchor may pull out causing the drill stand to release from the workpiece.*

g) **When securing the drill stand with a vacuum pad to the workpiece, install the pad on a smooth, clean, non-porous surface. Do not secure to laminated surfaces such as tiles and composite coating.** *If the workpiece is not smooth, flat or well affixed, the pad may pull away from the workpiece.*

NOTE The above warning applies only if the tool is intended to be used with a vacuum pad.

h) **Ensure there is sufficient vacuum before and during drilling.** *If the vacuum is insufficient, the pad may release from the workpiece.*

The above warning applies only if the tool is intended to be used with a vacuum pad

i) **Never perform drilling with the machine secured by the vacuum pad only, except when drilling downwards.** *If the vacuum is lost, the pad will release from the workpiece.*

NOTE The above warning applies only if the tool is intended to be used with a vacuum pad.

j) **When drilling through walls or ceilings, ensure to protect persons and the work area on the other side.** *The bit may extend through the hole or the core may fall out on the other side.*

k) **Do not use this tool for overhead drilling with water supply.** *Water entering the power tool will increase the risk of electric shock.*

NOTE The above warning is only needed for tools that cannot be used for drilling overhead.

l) **When drilling overhead, always use the liquid collection device specified in the instructions. Do not allow water to flow into the tool.** *Water entering the power tool will increase the risk of electric shock.*

NOTE The above warning is only needed for tools that can be used for drilling overhead.

8.14.2 a) *Addition:*

101) Information about which diamond core bits can be used with the machine;

102) Instruction to and information about how to mount the tool to the **drill stand**;

103) Information about how to install the diamond core bit to the tool and, if applicable, information about diamond core bit assembly;

104) Instruction to and information about how to anchor the **drill stand** in all applicable positions;

105) For tools using vacuum fixing devices:

– Instruction to and information about how to check the surface where the **drill stand** shall be fixed;

– Instruction to additionally secure the **drill stand** when drilling in orientations other than vertically down, by using appropriate accessories or means and information how to achieve this;

– Information regarding minimum vacuum level necessary for safe operation and how to control it during the drilling operation;

– Information regarding the maximum core bit diameter suitable for use with vacuum fixing;

106) For tools that can be used for drilling overhead with a **liquid collection device**:

– Information about the minimum and maximum diamond core bit diameter that can be used with the **liquid collection device**.

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.

13 Resistance to heat and fire

This clause of Part 1 is applicable.

14 Moisture resistance

This clause of Part 1 is applicable except as follows:

14.3.101 **Diamond drills** which are intended to be used for drilling overhead in accordance with 8.14.2 a) 104) and using a **liquid collection device** shall prevent electric shock due to excessive liquid spillage.

Compliance is checked by the following test.

*The **drill unit** runs vertically upwards at rated voltage under no-load condition with the **liquid collection device** installed. If the **liquid collection device** is designed to be connected to a liquid vacuum device, then such a device shall be attached. The test is conducted twice, the drill being fitted once with the minimum and once with the maximum diameter of the diamond core bit as specified for the **liquid collection device** in accordance with 8.14.2 a) 106).*

The test arrangement is shown in Figure 102.

The liquid flow of approximately 1,0 % NaCl solution shall be in the range of 1 l/min to 1,5 l/min. The running time shall be 15 min. The measuring time starts when the core bit is filled with liquid.

During the test the leakage current as in Clause C.3 is monitored. The leakage current shall not exceed:

– 2 mA for a class II tool;

– 5 mA for a class I tool.

Following this test, the tool shall meet the electric strength test of Clause D.2 between live parts and accessible parts after being allowed to dry for 24 h at ambient temperature.

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 except as follows:

17.2 *Replacement of the fifth paragraph:*

Diamond drills *are operated for 12 h at a voltage equal to 1,1 times rated voltage or the upper limit of the rated voltage range, and then for 12 h at a supply voltage equal to 0,9 times rated voltage or the lower limit of the rated voltage range. The 12 h of operation need not be continuous. During the test, the tool is placed in three different positions, the operating time, at each test voltage, being approximately 4 h for each position.*

18 Abnormal operation

This clause of Part 1 is applicable except as follows:

18.8 **Table 4** Replacement:

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	b
Provide desired direction of rotation	Not a SCF
Any electronic control to pass the test of 18.3	a
Overspeed prevention to prevent output speed above 130 % of rated (no-load) speed	a
Prevent exceeding thermal limits as in clause 18	a
Limiting device to comply with 19.103	c

19 Mechanical hazards

This clause of Part 1 is applicable except as follows:

19.1 *Addition:*

Rotating elements such as clutches, spindles, extensions, etc., except core bits, shall be:

– without projecting parts and be of round or hexagonal shape;

Compliance is checked by inspection.

or

– protected with a fixed or self-adjusting guard.

Compliance is checked by applying test probe B of IEC 61032:1997 with a force not exceeding 5 N to any guard fitted. It shall not be possible to contact rotating elements with the test probe.

19.7 This subclause of Part 1 is not applicable.

19.8 This subclause of Part 1 is not applicable.

19.101 **Diamond drills** shall be provided with a **drill stand** and a **drill unit**.

The **drill stand** shall have provisions for mounting the **drill stand** to the workpiece to be drilled or to an appropriate support.

The **drill unit** shall have provisions for attaching it to the **drill stand** in all working positions. The machine shall be so designed that unintentional loosening of the **drill unit** from the **drill stand** is prevented.

Compliance is checked by inspection.

19.102 Vacuum devices for fixing the **diamond drill** shall be provided with a means that informs the user of the actual vacuum.

Compliance is checked by inspection.

19.103 Vacuum devices for fixing the **diamond drill** shall be able to withstand the forces during the drilling process including the situation of a jammed drill bit.

Compliance is checked by the following test which simulates the bit becoming jammed in the work piece.

*The **diamond drill** shall be fixed with the vacuum device to a 12 mm steel plate. The vacuum shall be adjusted to the minimum level specified in accordance with 8.14.2 a) 105).The output spindle of the **diamond drill** is coupled to a stalling device. If the tool is equipped with a gear selection, the gear resulting in the highest torque shall be chosen. If the tool is equipped with an adjustable clutch, this shall be adjusted to the highest torque setting. The tool shall come to full speed and then stopped by the stalling device within 45° to 90° of spindle rotation. The stall is maintained for 3 s. Following this test, the tool is maintained in the stalled position and the power switch is then operated on and off 3 times.*

During the test, the operator(s) shall be outside the radius of the tool in case the vacuum system comes loose.

*During the test, the **drill stand** shall not come loose and shall not rotate by more than 10°.*

20 Mechanical strength

This clause of Part 1 is applicable except as follows:

20.5 This subclause of Part 1 is not applicable.

21 Construction

This clause of Part 1 is applicable except as follows:

21.18.2.1 This subclause of Part 1 is not applicable.

21.30 *Replacement:*

If handles or grasping surfaces as specified in the instruction manual are provided for manual feeding, they shall be insulated between the grasping areas used in normal use and the accessible parts that become live due to contact with the output shaft.

Compliance is checked by inspection and a test in accordance with 20.3.2 on the handles and grasping surfaces, followed by an electric strength test in accordance with Clause D.2 using 1 250 V a.c. between the handles and grasping surfaces in contact with foil and the output shaft of the tool.

22 Internal wiring

This clause of Part 1 is applicable.

23 Components

This clause of Part 1 is applicable.

24 Supply connection and external flexible cords

This clause of Part 1 is applicable except as follows:

24.4 *Replacement of the first paragraph:*

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

25 Terminals for external conductors

This clause of Part 1 is applicable.

26 Provision for earthing

This clause of Part 1 is applicable.

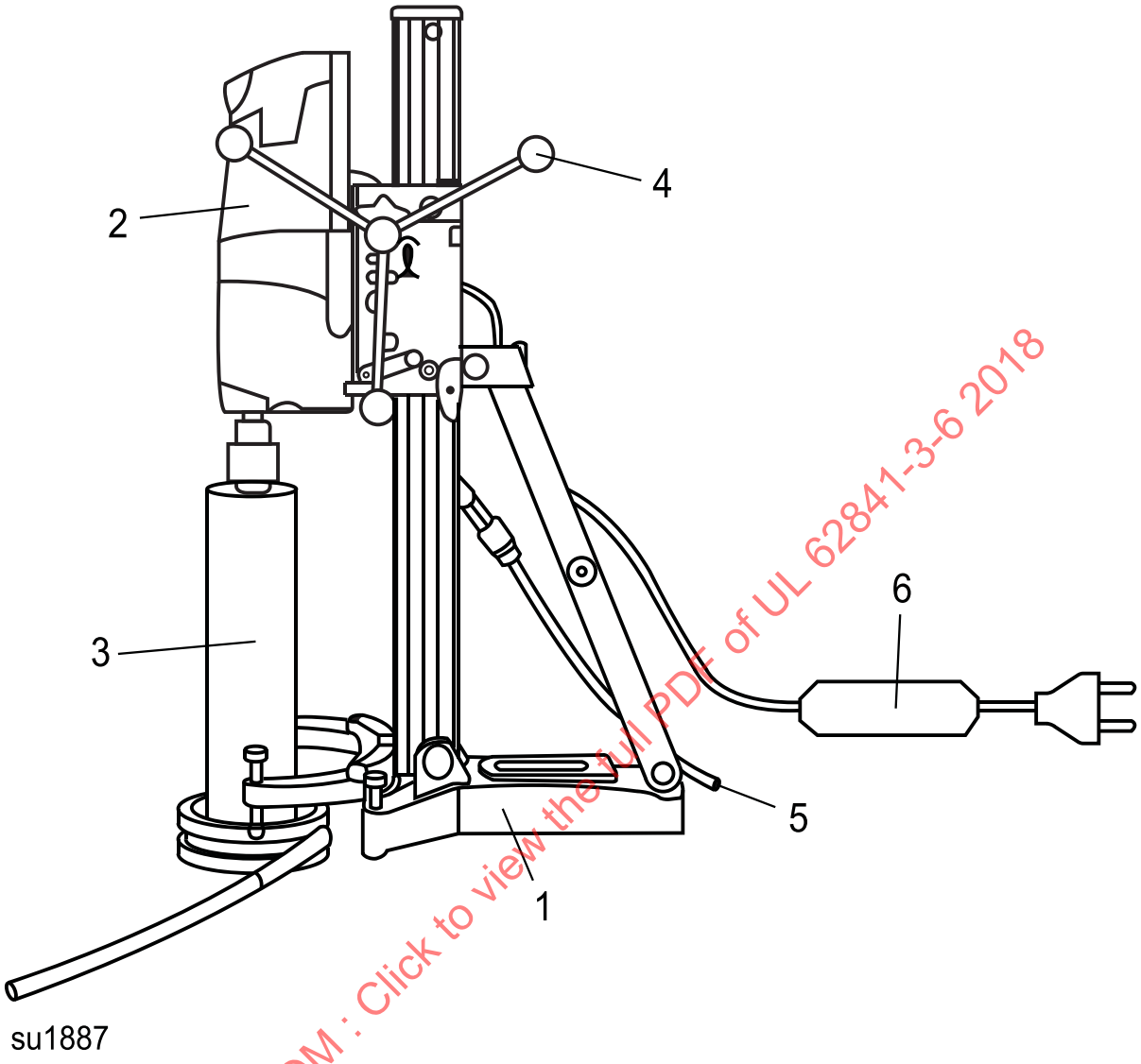
27 Screws and connections

This clause of Part 1 is applicable.

28 Creepage distances, clearances and distances through insulation

This clause of Part 1 is applicable.

Figure 101 – Example of a diamond drill with liquid system



Key

1 **drill stand**

2 **drill unit**

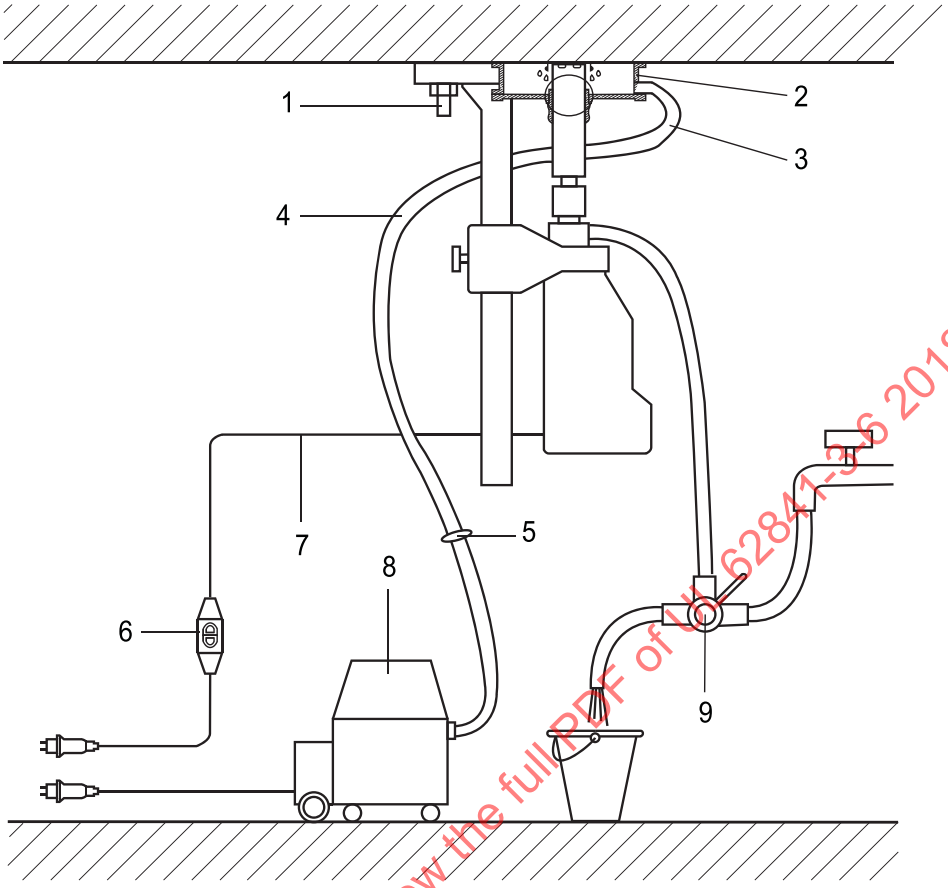
3 diamond core bit

4 headstock spindle to move the **drill unit** up and down

5 liquid system

6 RCD (residual current device), if any

Figure 102 – Test arrangement to check efficiency of the liquid collection device



Key

1 **drill stand** fixed with bolts

2 **liquid collection device**

3 connection to liquid aspirator

4 liquid outlet hose

5 adapter for wet vacuum cleaner

6 RCD (Residual Current Device), if any

7 supply cord

8 vacuum cleaner for wet operations

9 liquid supply with three way outlet valve

Annexes

The annexes of Part 1 are applicable except as follows.