

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety –
Part 3-13: Particular requirements for transportable drills**

**Outils électroportatifs à moteur, outils portables et machines pour jardins et pelouses – Sécurité –
Partie 3-13: Exigences particulières pour les perceuses transportables**



THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2017 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

IEC Catalogue - webstore.iec.ch/catalogue

The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

IEC publications search - www.iec.ch/searchpub

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee,...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and also once a month by email.

Electropedia - www.electropedia.org

The world's leading online dictionary of electronic and electrical terms, containing 20 000 terms and definitions in English and French, with equivalent terms in 16 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary

65 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: csc@iec.ch.

A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Catalogue IEC - webstore.iec.ch/catalogue

Application autonome pour consulter tous les renseignements bibliographiques sur les Normes internationales, Spécifications techniques, Rapports techniques et autres documents de l'IEC. Disponible pour PC, Mac OS, tablettes Android et iPad.

Recherche de publications IEC - www.iec.ch/searchpub

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études,...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et aussi une fois par mois par email.

Electropedia - www.electropedia.org

Le premier dictionnaire en ligne de termes électroniques et électriques. Il contient 20 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans 16 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

Glossaire IEC - std.iec.ch/glossary

65 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: csc@iec.ch.

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety –
Part 3-13: Particular requirements for transportable drills

Outils électroportatifs à moteur, outils portables et machines pour jardins et pelouses – Sécurité –
Partie 3-13: Exigences particulières pour les perceuses transportables

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 25.120.40

ISBN 978-2-8322-3889-9

Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.

CONTENTS

FOREWORD.....	3
1 Scope.....	5
2 Normative references	5
3 Terms and definitions	5
4 General requirements	6
5 General conditions for the tests	6
6 Radiation, toxicity and similar hazards.....	6
7 Classification.....	6
8 Marking and instructions.....	6
9 Protection against access to live parts.....	7
10 Starting	8
11 Input and current	8
12 Heating.....	8
13 Resistance to heat and fire	8
14 Moisture resistance	8
15 Resistance to rusting.....	8
16 Overload protection of transformers and associated circuits	8
17 Endurance.....	8
18 Abnormal operation	8
19 Mechanical hazards.....	9
20 Mechanical strength.....	10
21 Construction	11
22 Internal wiring.....	12
23 Components	12
24 Supply connection and external flexible cords	12
25 Terminals for external conductors.....	12
26 Provision for earthing	12
27 Screws and connections	12
28 Creepage distances, clearances and distances through insulation.....	12
Annexes	15
Annex I (informative) Measurement of noise and vibration emissions.....	15
Annex K (normative) Battery tools and battery packs	16
Bibliography.....	17
Figure 101 – Examples of drill designs.....	13
Figure 102 – Test probe.....	14
Figure 103 – Check of a guard for the drill chuck (plan view from top)	14
Table 4 – Required performance levels	9
Table K.4 – Required performance levels.....	16

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTRIC MOTOR-OPERATED HAND-HELD TOOLS, TRANSPORTABLE TOOLS AND LAWN AND GARDEN MACHINERY – SAFETY –**Part 3-13: Particular requirements for transportable drills**

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 non-governmental 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 62841-3-13 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
116/309/FDIS	116/315/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 3-13 is to be used in conjunction with the first edition of IEC 62841-1 (2014).

This Part 3-13 supplements or modifies the corresponding clauses in IEC 62841-1, so as to convert it into the IEC Standard: Particular requirements for transportable drills.

Where a particular subclause of Part 1 is not mentioned in this Part 3-13, 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 website 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.

ELECTRIC MOTOR-OPERATED HAND-HELD TOOLS, TRANSPORTABLE TOOLS AND LAWN AND GARDEN MACHINERY – SAFETY –

Part 3-13: Particular requirements for transportable drills

1 Scope

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

Addition:

This part of IEC 62841 applies to transportable **drills**, with manually fed axial movement of the spindle, having a maximum chuck capacity of 13 mm.

NOTE 101 Transportable **drills** are also known as bench **drills** or drill presses.

This part of IEC 62841 does not apply to stationary drilling machines.

This part of IEC 62841 does not apply to radial arm drills.

This part of IEC 62841 does not apply to magnetic drill stands and drill motors.

NOTE 102 Magnetic drill stands and drill motors will be covered by a future part of IEC 62841-3.

NOTE 103 In Europe (EN 62841-3-13), the following conditions apply:

Radial arm drills and stationary drilling machines are covered by EN 12717.

2 Normative references

This clause of Part 1 is applicable.

3 Terms and definitions

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

3.2 accessory

Addition:

Note 1 to entry: Typical **accessories** for **drills** are bits for drilling and deburring.

3.101 drill

tool equipped with a typical three jaw chuck specifically designed to bore holes in various materials such as metal, plastics, wood, etc., consisting of a **drill unit** and a **drill stand**, see Figure 101

Note 1 to entry: The **drill unit** or the chuck is manually moved up and down by a means such as a hand wheel or lever.

3.102 drill unit

device consisting of a motor and the chuck

3.103**drill stand**

device for supporting the **drill unit** in its operating position, consisting of a base plate, a **workpiece support** and a vertical column to which the **drill unit** is mounted

3.104**rest position**

position of a **drill unit** on the column of the **drill stand** from where it is moved downwards onto the workpiece

Note 1 to entry: Some **drill units** have an adjustable **rest position**.

3.105**workpiece support**

device for supporting the workpiece during drilling that is typically mounted to the column and typically adjustable in height

Note 1 to entry: For some **drills**, the base plate is used as a **workpiece support**.

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:

[IEC 62841-3-13:2017](https://standards.iteh.ai/catalog/standards/sist/e8960503-e640-4d27-a89c-774b9c271181/iec-62841-3-13-2017)

[https://standards.iteh.ai/catalog/standards/sist/e8960503-e640-4d27-a89c-](https://standards.iteh.ai/catalog/standards/sist/e8960503-e640-4d27-a89c-774b9c271181/iec-62841-3-13-2017)

*The mass of the tool shall include the **drill unit** including the drill chuck, even if removable, and the **drill stand** including the **workpiece support**. A fence or a workpiece vice, if any, is not included in the mass of the tool.*

6 Radiation, toxicity and similar hazards

This clause of Part 1 is applicable.

7 Classification

This clause of Part 1 is applicable.

8 Marking and instructions

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

8.1 Addition:

Drills shall be marked with the **rated no-load speed** of the output spindle.

NOTE 101 The **rated no-load speed** is checked by 19.6.

In addition, tools designed for operation at more than one speed setting shall be marked in such a way that it is clear which typical speed corresponds with each of the settings. For variable speed settings, marking of the typical minimum and maximum speed is sufficient.

NOTE 102 The above additional speed markings are not considered to be markings of the **rated no-load speed**.

8.1.1 This subclause is not applicable for speed markings as required by 8.1.

8.3 *Addition:*

Chucks of **drills** shall be marked with the maximum capacity of the chuck.

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 Safety instructions for transportable drills

Drill safety warnings

- a) **The drill must be secured.** *A drill that is not properly secured may move or tip over and may result in personal injury.*
- b) **The workpiece must be clamped or secured to the workpiece support. Do not drill pieces that are too small to be clamped securely.** *Holding the workpiece by hand during operation may result in personal injury.*
- c) **Do not wear gloves.** *Gloves may be entangled by the rotating parts or chips leading to personal injury.*
- d) **Keep your hands out of the drilling area while the tool is running.** *Contact with rotating parts or chips may result in personal injury.*
- e) **Make sure the accessory is rotating before feeding into the workpiece.** *Otherwise the accessory may become jammed in the workpiece causing unexpected movement of the workpiece and personal injury.*
- f) **When the accessory is jammed, stop applying downward pressure and switch off the tool. Investigate and take corrective actions to eliminate the cause of the jam.** *Jamming can cause unexpected movement of the workpiece and personal injury.*
- g) **Avoid generating long chips by regularly interrupting downward pressure.** *Sharp metal chips may cause entanglement and personal injuries.*
- h) **Never remove chips from the drilling area while the tool is running. To remove chips, move the accessory away from the workpiece, switch off the tool and wait for the accessory to stop moving. Use tools such as a brush or hook to remove chips.** *Contact with rotating parts or chips may result in personal injury.*
- i) **Accessories with speed ratings must be rated at least equal to the maximum speed marked on the power tool.** *Accessories running faster than their rated speed can break and fly apart.*

8.14.2 b) *Addition:*

- 101) Information about which **drill** chucks may be used with the tool and instruction on how to fit it;
- 102) Instruction on how to change speed settings;
- 103) Instruction how to secure the workpiece, including additional supports for overhanging workpieces.

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:

12.5 Addition:

The temperature-rise limit specified for the external enclosure does not apply to external surfaces which are unlikely to be inadvertently contacted during use.

External surfaces are regarded as unlikely to be inadvertently contacted if they are located

- a minimum of 300 mm from the chuck and the **power switch**; and
- on the rear of the column of the **drill stand** in relation to the operator.

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:

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[IEC 62841-3-13:2017](https://standards.iteh.ai/catalog/standards/sist/e8960503-e640-4d27-a89c-fd7a9d9ea81f/iec-62841-3-13-2017)

<https://standards.iteh.ai/catalog/standards/sist/e8960503-e640-4d27-a89c-fd7a9d9ea81f/iec-62841-3-13-2017>

Table 4 – Required performance levels

Type and purpose of SCF	Minimum performance level (PL)
Power switch – prevent unwanted switch-on	b
Power switch – provide desired switch-off	b
Any electronic control to pass the test of 18.3	a
Prevent output speed from exceeding 130 % of rated no-load speed without accessories mounted	a
Provide desired direction of rotation	Not an SCF
Prevent exceeding thermal limits as in Clause 18	a
Prevent self-resetting as required in 23.3	b
Provide run-down time as required by 19.103	a
Stopping as required by 19.104	a
Restart prevention as required by 19.104	b

NOTE In Europe (EN 62841-3-13), the following additional requirement applies:

Restart prevention as required by 21.18.2.1	a
---	---

19 Mechanical hazards

ITeH STANDARD PREVIEW
(standards.iteh.ai)

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

19.1 Replacement of the first paragraph

Moving and dangerous parts other than the rotating **drill** chuck and **accessory** shall be so arranged or enclosed that adequate protection against injury is provided. The guarding of the rotating **drill** chuck is covered in 19.101.

19.7.101 Drills shall be provided with means to facilitate the fixing of the tool to a bench, e.g. by providing holes in the base plate of the tool.

Compliance is checked by inspection.

19.101 To minimise the risk of entanglement, **drill** chucks shall either be:

- of substantially round shape free of sharp corners, edges and protrusions that are likely to cause injury in the case of accidental contact with the rotating perimeter of the **drill** chuck. Gripping surfaces on the drill chuck such as knurls or grooves and the teeth provided for chuck key adjustment are not regarded as protrusions;

Compliance is checked by inspection.

or

- protected with a **fixed guard** or a combination of **fixed guard** and **adjustable guard** to prevent accidental contact with the **drill** chuck at least from the front and from the sides.

*Compliance is checked by applying the test probe of Figure 102 while the **guard** is adjusted to cover the **drill** chuck. While the **drill unit** is in its **rest position**, the test probe is held horizontally and approached to the **drill** chuck from the front and the sides over a total angle of 180° (see Figure 103) with a force not exceeding 5 N. It shall not be possible to contact the **drill** chuck with the test probe.*

19.102 The **drill unit**, when released by the operator, shall automatically return to its **rest position**.

Compliance is checked by the following test.

The **drill unit** is fitted with the largest **drill** chuck available in accordance with 8.14.2 b) 101) and a steel rod with a diameter equal to the maximum capacity of the chuck and a length of either:

- 15 times the maximum capacity of the chuck; or
- 0,8 times the maximum length that can be mounted on the **drill unit**,

whichever is smaller.

Drill units with an adjustable **rest position** are adjusted to their uppermost **rest position**.

The **drill unit** is moved from its uppermost **rest position** to its fully down position and released. The **drill unit** shall return to the uppermost **rest position** within 10 s.

19.103 Run-down time

The run-down time of the **drill** spindle shall not exceed 10 s after switching off the motor.

Compliance is checked by inspection and by the following test.

A steel rod as specified in 19.102 is mounted to the **drill unit**. The tool motor is switched on for a minimum of 30 s, then switched off. The run-down time is measured. The test is conducted ten times. For each test, the run-down time shall not exceed 10 s.

19.104 Guards that are required to be opened for the purpose of adjusting speed as identified in 8.14.2 b) 102) shall not require the use of a tool and shall remain attached to the main part of the tool when open.

Hazardous moving parts and the **drill** chuck shall stop within 10 s when the **guard** is opened and shall not restart automatically when the **guard** is closed.

Compliance is checked by inspection and by measurement.

19.105 Chuck keys shall be so designed that they drop easily out of position when released. This requirement does not exclude the provision of clips for holding the key in place when not in use; metal clips fixed to the flexible cable or cord are not allowed.

Compliance is checked by inspection and by manual test.

The key is inserted in the chuck and then released without tightening. The key shall fall out within 10 s.

20 Mechanical strength

This clause of Part 1 is applicable except as follows:

20.3.2 Addition:

*This test is not applicable to the **guard** as required in 19.101.*