

INTERNATIONAL STANDARD



**Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety –
Part 3-14: Particular requirements for transportable drain cleaners**

Document Preview

[IEC 62841-3-14:2017](https://standards.iteh.ai/catalog/standards/iec/c98a1035-e97c-45b5-a808-d288d0189bcb/iec-62841-3-14-2017)

<https://standards.iteh.ai/catalog/standards/iec/c98a1035-e97c-45b5-a808-d288d0189bcb/iec-62841-3-14-2017>



THIS PUBLICATION IS COPYRIGHT PROTECTED
Copyright © 2024 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.

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

Tel.: +41 22 919 02 11
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 corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform

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 It also gives information on projects, replaced and withdrawn publications.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 once a month by email.

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: sales@iec.ch.

IEC Products & Services Portal - products.iec.ch

Discover our powerful search engine and read freely all the publications previews, graphical symbols and the glossary. With a subscription you will always have access to up to date content tailored to your needs.

Electropedia - www.electropedia.org

The world's leading online dictionary on electrotechnology, containing more than 22 500 terminological entries in English and French, with equivalent terms in 25 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

International
Standards
Document Preview
standards.iteh.ai

[IEC 62841-3-14:2017](https://standards.iteh.ai/catalog/standards/iec/c98a1035-e97c-45b5-a808-d288d0189bcb/iec-62841-3-14-2017)

<https://standards.iteh.ai/catalog/standards/iec/c98a1035-e97c-45b5-a808-d288d0189bcb/iec-62841-3-14-2017>



IEC 62841-3-14

Edition 1.1 2024-10
CONSOLIDATED VERSION

INTERNATIONAL STANDARD



Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety –
Part 3-14: Particular requirements for transportable drain cleaners

Document Preview

[IEC 62841-3-14:2017](https://standards.iteh.ai/catalog/standards/iec/c98a1035-e97c-45b5-a808-d288d0189bcb/iec-62841-3-14-2017)

<https://standards.iteh.ai/catalog/standards/iec/c98a1035-e97c-45b5-a808-d288d0189bcb/iec-62841-3-14-2017>

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 25.140.20

ISBN 978-2-8322-9935-7

Warning! Make sure that you obtained this publication from an authorized distributor.

CONTENTS

FOREWORD.....	4
1 Scope.....	6
2 Normative references	6
3 Terms and definitions	6
4 General requirements	7
5 General conditions for the tests	7
6 Radiation, toxicity and similar hazards.....	7
7 Classification.....	7
8 Marking and instructions.....	7
9 Protection against access to live parts.....	9
10 Starting	9
11 Input and current	9
12 Heating.....	9
13 Resistance to heat and fire.....	9
14 Moisture resistance	9
15 Resistance to rusting.....	10
16 Overload protection of transformers and associated circuits	10
17 Endurance.....	10
18 Abnormal operation.....	10
19 Mechanical hazards.....	11
20 Mechanical strength	12
21 Construction	12
22 Internal wiring.....	13
23 Components	14
24 Supply connection and external flexible cords	14
25 Terminals for external conductors.....	14
26 Provision for earthing	14
27 Screws and connections	14
28 Creepage distances, clearances and distances through insulation.....	14
Annexes	20
Annex I (informative) Measurement of noise and vibration emissions.....	20
Annex K (normative) Battery tools and battery packs	21
Annex L (normative) Battery tools and battery packs provided with mains connection or non-isolated sources.....	22
Bibliography.....	23
Figure 101 – Drum machine	15
Figure 102 – Sectional machine.....	16
Figure 103 – Guarding of drum machines	17
Figure 104 – Test probe 'a'	17
Figure 105 – Construction of drum machines (example).....	18
Figure 106 – Locking mechanism for drain cleaner cable (example).....	19

Table 4 – Required performance levels 10

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

[IEC 62841-3-14:2017](https://standards.iteh.ai/catalog/standards/iec/c98a1035-e97c-45b5-a808-d288d0189bcb/iec-62841-3-14-2017)

<https://standards.iteh.ai/catalog/standards/iec/c98a1035-e97c-45b5-a808-d288d0189bcb/iec-62841-3-14-2017>

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTRIC MOTOR-OPERATED HAND-HELD TOOLS, TRANSPORTABLE
TOOLS AND LAWN AND GARDEN MACHINERY – SAFETY –****Part 3-14: Particular requirements for transportable drain cleaners**

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) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at <https://patents.iec.ch>. IEC shall not be held responsible for identifying any or all such patent rights.

This consolidated version of the official IEC Standard and its amendment has been prepared for user convenience.

IEC 62841-3-14 edition 1.1 contains the first edition (2017-10) [documents 116/340/FDIS and 116/349/RVD] and its amendment 1 (2024-10) [documents 116/807/FDIS and 116/833/RVD].

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.

International Standard IEC 62841-3-14 has been prepared by IEC technical committee 116: Safety of motor-operated electric tools.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

This Part 3-14 is to be used in conjunction with the first edition of IEC 62841-1 (2014).

This Part 3-14 supplements or modifies the corresponding clauses in IEC 62841-1, so as to convert it into the IEC standard: Particular requirements for transportable drain cleaners.

Where a particular subclause of Part 1 is not mentioned in this Part 3-14, 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: 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 document and its amendment will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

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 3-14: Particular requirements for transportable drain cleaners

1 Scope

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

Addition:

This part of IEC 62841 applies to transportable **drain cleaners**.

NOTE 101 **Drain cleaners** are also known as pipe cleaners.

This standard does not apply to hand-held **drain cleaners**.

NOTE 102 Hand-held drain cleaners are covered by IEC 62841-2-21.

This standard does not apply to high pressure cleaners to clean drains.

NOTE 103 High pressure cleaners are covered by IEC 60335-2-79.

This standard does not apply to machines that use a solid rod to clean drains.

2 Normative references

~~This clause of Part 1 is applicable.~~ [IEC 62841-3-14:2017](https://standards.iteh.ai/catalog/standards/iec/c98a1035-e97c-45b5-a808-d288d0189bcb/iec-62841-3-14-2017)

<https://standards.iteh.ai/catalog/standards/iec/c98a1035-e97c-45b5-a808-d288d0189bcb/iec-62841-3-14-2017>

This clause of IEC 62841-1:2014 is applicable, except as follows:

Addition:

IEC 62841-1:2014, *Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 1: General requirements*

3 Terms and definitions

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

Additional definitions:

3.101

cutter

accessory that is attached to the end of the **drain cleaner cable** or is a specially formed section of the **drain cleaner cable**

3.102

drain cleaner

tool designed to clean out drains and pipes using a **drain cleaner cable** and that rests on the ground, floor or a counter top during operation

3.103

drain cleaner cable

rotating flexible **accessory** of a **drain cleaner** that is inserted into the pipe or drain

3.104

drum

cylindrical container that rotates and houses the **drain cleaner cable**

3.105

drum machine

drain cleaner that uses a **drain cleaner cable** contained in a rotating **drum**

Note 1 to entry: See Figure 101.

3.106

guide tube

rotating tube that guides the **drain cleaner cable** from the **drum** to the front exit of a **drum machine**

3.107

rear guide hose

device connected to the rear of a **sectional machine** and which encloses a portion of the **drain cleaner cable** that extends out of the rear of the tool

3.108

sectional machine

drain cleaner that uses individual sections of the **drain cleaner cable** which are connected together to extend the overall length of the **drain cleaner cable**

Note 1 to entry: See Figure 102.

4 General requirements

[IEC 62841-3-14:2017](https://standards.iteh.ai/catalog/standards/iec/c98a1035-e97c-45b5-a808-d288d0189bcb/iec-62841-3-14-2017)

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:

A **drain cleaner cable** is considered to be an **accessory** and 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:

8.14.1 Addition:

For **drain cleaners**, 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”.

8.14.1.1 Addition:

Item 2) b) is not applicable.

8.14.1.101 Safety instructions for drain cleaners

NOTE 1 In the below instructions, on discretion of the manufacturer the term “drain” is replaced with the term “pipe”.

- a) **Before using the tool, test the residual current device (RCD) provided with the supply cord to insure it is operating correctly. A properly operating RCD reduces the risk of electrical shock.**

NOTE 2 It is possible to replace the term “residual current device (RCD)” with the term “ground fault circuit interrupter (GFCI)” or “earth leakage circuit breaker (ELCB)”.

- b) **Only use extension cords that are protected by an RCD. The RCD on the machine power cord will not prevent electrical shock from the extension cords.**

NOTE 3 It is possible to replace the term “residual current device (RCD)” with the term “ground fault circuit interrupter (GFCI)” or “earth leakage circuit breaker (ELCB)”.

- c) **Only grasp the rotating cable with gloves recommended by the manufacturer. Latex or loose fitting gloves or rags can become wrapped around the cable and may result in serious personal injury.**

- d) **Do not allow the cutter to stop turning while the cable is turning. This can overstress the cable and may cause twisting, kinking or breaking of the cable and may result in serious personal injury.**

- e) **One person must control both the cable and the switch. If the cutter stops rotating, the operator must be able to turn the tool off to prevent the cable from twisting, kinking and breaking.**

- f) **Use latex or rubber gloves inside the gloves recommended by the manufacturer, goggles, face shields, protective clothing, and respirator when chemicals, bacteria or other toxic or infectious substances are suspected to be in a drain line. Drains may contain chemicals, bacteria and other substances that may cause burns, be toxic or infectious or may result in other serious personal injury.**

- g) **Practice good hygiene. Do not eat or smoke while handling or operating the tool. After handling or operating drain cleaning equipment, use hot, soapy water to wash hands and other body parts exposed to drain contents. This will help reduce the risk of health hazards due to exposure to toxic or infectious material.**

- h) **Only use the drain cleaner for the recommended drain sizes. Using the wrong size drain cleaner can lead to twisting, kinking or breaking of the cable and may result in personal injury.**

- i) **Always use the rear guide hose while operating the tool and ensure the cable does not extend beyond the rear guide hose. This prevents the cable from whipping which may result in entanglement and personal injury.**

NOTE 4 The above warning only applies for **sectional machines**.

8.14.2 a) Additional items:

101) Information on the permitted length(s) and diameter(s) of the **drain cleaner cable** or **drain cleaner cable** sections;

102) Instruction on how to install the **drain cleaner cable**;

103) For **sectional machines**: instruction on how to install the **rear guide hose**;

104) Information on recommended **drain cleaner cable** diameters for different pipe diameters.

8.14.2 b) Additional items:

- 101) Information on the correct gloves to wear during operation;
- 102) Information on the distance the **drain cleaner** is to be placed from the drain or pipe opening.
- 103) Instruction on **drain cleaner cable** feed and rotation.

8.14.2 c) Additional items:

- 101) Instruction on how to inspect and maintain the **drain cleaner cable**.

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. <https://standards.iteh.ai/catalog/standards/iec/c98a1035-e97c-45b5-a808-d288d0189bcb/iec-62841-3-14-2017>

14 Moisture resistance

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

14.5 Replacement:

A **residual current device** used to provide protection from shock in the case of moisture shall comply with IEC 61540:1999 and shall meet the following requirements a) to c):

- 1) The **RCD** shall disconnect both mains conductors, but not the earth conductor if provided, when the leakage exceeds 10 mA and with a maximum response of 300 ms.

Compliance is checked by inspection and the test of 9.9.2 of IEC 61540:1999. In addition, during the test, the earthing conductor shall not become disconnected.

- 2) The **RCD** shall be reliable for its intended use.

*Compliance is checked at **rated voltage** by operating the **residual current device** under conditions of simulated leakage as in a) above during conditions of locked rotor of the tool for 50 cycles. The **residual current device** shall operate correctly for all cycles.*

- 3) The **RCD** shall be installed such that it is unlikely to be removed during use or normal maintenance.

This requirement is considered fulfilled if the **residual current device** is fixed to the tool or the **supply cord** connected to the tool.

Where fitted in the **supply cord**, the **residual current device** shall be provided with **type Y attachment** or **type Z attachment** for connection with the **supply cord** and **interconnection cord**.

Compliance is checked by inspection.

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:~~

~~17.101 The device for **sectional machines** as required in 21.18.2.1 shall have sufficient endurance for safe operation.~~

~~Compliance is checked by the following test.~~

~~The **sectional machine** is fitted with the longest **drain cleaner cable** section of the largest diameter permitted in accordance with 8.14.2 a) 101). The tool is switched on.~~

~~For the endurance test, the device is actuated with the minimum required force to rotate the **drain cleaner cable** section and then released until the **drain cleaner cable** section rotation has completely stopped. This actuation and release is repeated for 10 000 cycles or until the device fails to rotate the **drain cleaner cable** section, whichever occurs first. During the test, any user maintenance to ensure the correct operation of the device is allowed.~~

~~During the test, the **drain cleaner cable** section shall always stop rotating when the device is released.~~

IEC 62841-1:2014, Clause 17 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 drain cleaners with a clutch that disengages the output from the motor	Not an SCF
Power switch – prevent unwanted switch-on for other drain cleaners	a
Power switch – provide desired switch-off	a
Provide desired direction of rotation	Not an SCF