

INTERNATIONAL STANDARD

NORME INTERNATIONALE

AMENDMENT 1 AMENDEMENT 1

**Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety –
Part 3-1: Particular requirements for transportable table saws**

**Outils électroportatifs à moteur, outils transportables et machines pour jardins et pelouses – Sécurité –
Partie 3-1: Exigences particulières pour les scies circulaires à table transportables**



THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2021 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
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 It also gives information on projects, replaced and withdrawn publications.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 online collection - oc.iec.ch

Discover our powerful search engine and read freely all the publications previews. 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 22 000 terminological entries in English and French with equivalent terms in 18 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

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.

Recherche de publications IEC -

webstore.iec.ch/advsearchform

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 une fois par mois par email.

Service Clients - webstore.iec.ch/csc

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

IEC online collection - oc.iec.ch

Découvrez notre puissant moteur de recherche et consultez gratuitement tous les aperçus des publications. Avec un abonnement, vous aurez toujours accès à un contenu à jour adapté à vos besoins.

Electropedia - www.electropedia.org

Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 000 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 16 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

INTERNATIONAL STANDARD

NORME INTERNATIONALE

AMENDMENT 1 AMENDEMENT 1

Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety –
Part 3-1: Particular requirements for transportable table saws

Outils électroportatifs à moteur, outils transportables et machines pour jardins et pelouses – Sécurité –
Partie 3-1: Exigences particulières pour les scies circulaires à table transportables

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 25.140.20

ISBN 978-2-8322-9399-7

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.

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Part 3-1: Particular requirements for transportable table saws

AMENDMENT 1

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 document may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

Amendment 1 to IEC 62841-3-1:2014 has been prepared by IEC technical committee 116: Safety of motor-operated electric tools.

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

Draft	Report on voting
116/485/FDIS	116/492/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this Amendment is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications/.

The committee has decided that the contents of this document 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,
- replaced by a revised edition, or
- amended.

2 Normative references

Replace the existing normative reference ISO 180 with the following:

ISO 180:2019, *Plastics – Determination of Izod Impact strength*

<https://standards.iteh.ai/catalog/standards/sist/dc1b3a89-5793-43d5-bf3f-9449f47d4749/iec-62841-3-1-2014-amd1-2021>

3 Terms and definitions

Replace the existing definition 3.110 with the following:

3.110

kerf width

maximum distance between two parallel planes that are touching the opposing sides of at least three saw blade tooth tips

8 Marking and instructions

Add the following new subclause:

8.2 Addition:

NOTE 101 In the United States of America, the following additional requirements apply.

The following statements shall be verbatim:

- a) DANGER – Never place your hands in the vicinity or in line with the saw blade.
- b) WARNING – “Wear eye protection”.

NOTE 102 It is possible to replace the above verbatim text with symbol M004 of ISO 7010 (2011-05).

- c) WARNING – Always use a properly functioning saw-blade guard, riving knife and anti-kickback device for every operation for which it can be used, including all through sawing.

NOTE 103 If an **anti-kickback device** is not provided, the text is revised as follows:

WARNING – Always use a properly functioning saw-blade guard and riving knife for every operation for which it can be used, including all through sawing.

NOTE 104 It is possible to replace the term “**anti-kickback device**” with “anti-kickback pawls” or “anti-kickback rollers”.

- d) WARNING – Use a push-stick or push-block when required.
- e) WARNING – Do not perform any operation freehand.
- f) WARNING – Pay particular attention to instructions on reducing risk of kickback. (or “Know how to reduce risk of kickback.”)
- g) WARNING – Never reach around or over saw blade. (or “Never reach in back of or over saw blade.”)
- h) WARNING – Turn off tool and wait for saw blade to stop before moving workpiece or changing settings.
- i) WARNING – Never stand directly in line with the saw blade. Always position your body on the same side of the saw blade as the fence.

8.14.1.101 Safety instructions for table saws

Replace the existing text of NOTE 1 of 8.14.1.101 1) b) with the following new text:

NOTE 1 If an **anti-kickback device** is not provided, the warning is revised as follows:

Always use saw blade guard and riving knife for every through-cutting operation. For through-cutting operations where the saw blade cuts completely through the thickness of the workpiece, the guard and other safety devices help reduce the risk of injury.

Replace the existing text of 8.14.1.101 1) c) with the following new text:

- c) **After completing a non-through cut such as rabbeting, resawing, or dadoing, restore the riving knife to the extended-up position. With the riving knife in the extended-up position, reattach the blade guard and the anti-kickback device. The guard, riving knife, and anti-kickback device help to reduce the risk of injury.**

Replace the existing text of NOTE 3 of 8.14.1.101 1) c) with the following new text:

NOTE 3 If an **anti-kickback device** is not provided, the warning is revised as follows:

After completing a non-through cut such as rabbeting, resawing, or dadoing, restore the riving knife to the extended-up position. With the riving knife in the extended-up position, reattach the blade guard. The guard and riving knife help to reduce the risk of injury.

Replace the existing text of NOTE 1 of 8.14.1.101 1) f) with the following new text:

NOTE 1 If an **anti-kickback device** is not provided, the warning is revised as follows:

For the riving knife to work, it must be engaged in the workpiece. The riving knife is ineffective when cutting workpieces that are too short to be engaged with the riving knife. Under these conditions, a kickback cannot be prevented by the riving knife.

Replace the existing text of 8.14.1.101 2) d) with the following new text:

- d) **When ripping, always keep the workpiece in full contact with the fence and always apply the workpiece feeding force between the fence and the saw blade. Use a push stick when the distance between the fence and the saw blade is less than 150 mm, and use a push block when this distance is less than 50 mm. “Work helping” devices will keep your hand at a safe distance from the saw blade.**

Replace the existing text of 8.14.1.101 2) f) with the following new text:

- f) **Never use a damaged or cut push stick. A damaged or cut push stick may break causing your hand to slip into the saw blade.**

Replace the existing text of 8.14.1.101 2) j) with the following new text:

- j) **Feed the workpiece at an even pace. Do not bend, twist or shift the workpiece from side to side. If jamming occurs, turn the tool off immediately, unplug the tool, then clear the jam. Jamming the saw blade by the workpiece can cause kickback or stall the motor.**

18 Abnormal operation

Replace the existing text of 18.8 with the following new text:

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	Shall be evaluated using the fault conditions of 18.6.1 without the loss of this SCF
Power switch - provide desired switch-off	Shall be evaluated using the fault conditions of 18.6.1 without the loss of this SCF
Provide desired direction of rotation	Shall be evaluated using the fault conditions of 18.6.1 without the loss of this SCF
Any electronic control to pass the test of 18.3	c
Overspeed prevention to prevent output speed above 130 % of rated no-load speed	c
Provide run-down time as required by 19.105	a
Restart prevention in accordance with 21.18.2.1	b
Lock-off function as required by 21.18.2.3	b
Prevent exceeding thermal limits as in Clause 18	a
Prevent self-resetting as required in 23.3	a

19 Mechanical hazards

Add the following new subclauses:

19.6 This subclause of Part 1 is applicable.

19.7 This subclause of Part 1 is applicable.

19.8 This subclause of Part 1 is applicable.

Replace the existing text of 19.101.2.8 with the following new text:

19.101.2.8 A **saw blade guard** and its mounting means shall not cause undue resistance when a workpiece is advanced toward and passed through the saw blade.

Compliance is checked by the following test.

With the saw blade set at the maximum depth of cut, a workpiece of common wood is cut at a rate of approximately 1,2 m/min. The workpiece has a width of at least 50 mm greater than the width of the guarding system and a length of at least 2D, with a leading edge that has been cut with a 0° **bevel angle** (i.e. a squared leading edge). One complete cut, the workpiece being centred about the saw blade and being guided by the **rip fence**, is performed for each applicable combination of workpiece thicknesses and **mitre angle** settings as specified below.

Workpiece thickness and **mitre angle** settings of approximately:

a) 25 % of the **maximum cutting capacity** and

- with a **mitre angle** of 45° right (+);
- with a **mitre angle** of 45° left (-);

b) 50 % of the **maximum cutting capacity** and

- with a **mitre angle** of 45° right (+);
- with a **mitre angle** of 45° left (-).

The test is conducted in accordance with a) and b), with the saw blade set to 0° **bevel angle**. The test is then repeated in accordance with a) and b), with the saw blade set to the maximum **bevel angle** setting, but not more than 45°.

During the test, the **saw blade guard** shall not be displaced to a point where it contacts the **cutting edge zone** of the saw blade, and the **ripping knife** shall not interfere with the passage of the workpiece.

Replace the existing text of 19.102 with the following new text:

19.102 Guarding below the table

Hazardous moving parts below the **table top** shall be guarded.

Compliance is checked by the following test.

A rigid test probe with the dimensions of test probe B of IEC 61032:1997, but without any articulation, is applied with a force not exceeding 5 N to all areas below the **table top**. If an enclosure is fitted, the probe is applied to all sides and from underneath the enclosure. The test probe shall not make contact with the **cutting edge zone** of the saw blade and moving parts of the saw blade drive mechanism, except for flanges and clamping nuts that are circular.

Replace the existing text item f) of 19.103.2 with the following new text:

- f) The **ripping knife** shall be made of steel with a hardness of between 38 HRC and 48 HRC and an ultimate tensile strength of at least 800 MPa.

Replace the existing text of the last paragraph of 19.103.2 with the following new text:

Compliance is checked by receipt of confirmation of the hardness and of the ultimate tensile strength of the material or through measurement of samples of the material.

Replace the existing text of 19.105 with the following new text:

19.105 Run-down time

Run down time of the saw blade shall not exceed 10 s after switching off the motor. Device(s), if any, to achieve the 10 s run down time shall not be applied directly to the saw blade or to the saw blade driving flanges.

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

A steel test disc with a thickness of $(2 \pm 0,1)$ mm and a diameter in accordance with 8.3 is mounted to the tool. The tool motor is switched on for a minimum of 30 s, then switched off. The run-down time is measured. For each test, the run-down time shall not exceed 10 s.

20 Mechanical strength

Replace the existing text of 20.1 with the following new text:

20.1 Addition:

The **saw blade guard** shall be manufactured from any of the following:

a) metal having the following characteristics:

Ultimate tensile strength	Minimum thickness
N/mm ²	mm
≥ 380	1,25
≥ 350 and < 380	1,50
≥ 200 and < 350	2,00
≥ 160 and < 200	2,50

b) polycarbonate with a wall thickness of at least 3 mm;

c) other plastic material of at least 3 mm thickness with an ultimate tensile strength of at least 60 N/mm² and an Izod notched impact strength of at least 60 kJ/m² in accordance with ISO 180:2019.

Compliance is checked by measurement and by inspection of the tool and by receipt of confirmation of the ultimate strength and the Izod notched impact strength of the material from the material manufacturer or through measurement of samples of the material.

Delete Subclause 20.3 and add the following new subclause:

20.3.2 Addition:

*The **saw blade guard** and **ripping knife** are not impacted during this test.*

21 Construction

Replace the existing text of the first dash of 21.101.3 with the following new text:

- 10 N for table inserts or saw blade access panels where the width of the saw blade slot is 6 mm to 12 mm plus the **kerf width** of the thickest saw blade specified in 8.14.2 a);

Replace the existing text of 21.103.2 with the following new text:

21.103.2 The depth of cut and **bevel angle** settings as well as the saw blade alignment shall not change and cause saw blade jamming during normal and reasonably foreseeable misuse cutting. In addition, for a **table saw with sliding function**, the saw blade guide locking mechanism during the ripping operation shall not allow the displacement of the saw blade assembly.

Compliance is checked by the following tests.

General test conditions:

- a) For these tests, a steel test disc with a thickness of $(2,0 \pm 0,2)$ mm and a diameter D is installed. The steel disc shall have an unbalance of $(0,005 \times D^2 \text{ }^{+20}_0)$ g mm, where D is expressed in mm. The unbalance may be achieved by either adding or removing material from the steel disc. The steel test disc adjustments are made in accordance with 8.14.2 a). The steel test disc is set to approximately one half of the **maximum cutting capacity** at the given **bevel angle** settings. Once the steel test disc adjustments are made, they shall not be readjusted during the test or prior to the measurements. The steel test disc is marked as needed with reference points prior to performing the required measurements in order to ensure consistency of the measurements. The steel test disc is provided with an attachment point which may be a hole or other means located at a radial distance of (20 ± 1) mm from the outer periphery of the steel test disc for applying the test forces. The attachment point may be achieved by the same means as used for fulfilling the required unbalance.
- b) For a **table saw with sliding function**, prior to the test, lock the saw blade assembly in the **rip cutting** position in accordance with 8.14.2 b) and mark the saw blade assembly position in such way as to detect a displacement from the locked position greater than 1 mm.
- c) For each test, the force is applied at the steel test disc attachment point in a direction perpendicular to the plane of the **table top** for 1 min. The force is then released and the amount of displacement of the steel test disc is measured at the same location.

Bevel setting evaluation:

- 1) The steel test disc **bevel angle** is set to the midpoint of the bevel adjusting range in accordance with 8.14.2 a). The steel test disc attachment point is rotated to the 12 o'clock position. The **bevel angle** of the steel test disc is measured in the plane perpendicular to the **table top**. The accuracy of angular measurements shall be within $\pm 0,1^\circ$. The measured **bevel angle** is recorded.
- 2) The tool is then operated at no-load for 5 min.
- 3) The steel test disc attachment point is returned to the 12 o'clock position. The test is then conducted in accordance with c), using a force of $1,1 D$.
- 4) After the conclusion of the test, the **bevel angle** of the steel test disc shall be measured as above. The difference between the before and after test measurements of the steel test disc **bevel angle** shall not exceed 1° . In addition, for **table saws with sliding function**, the position of the steel test disc assembly shall not have displaced by more than 1 mm.

Depth of cut evaluation:

- 1) The steel test disc is set to 0° **bevel angle** in accordance with 8.14.2 a). The steel test disc attachment point is positioned at the 12 o'clock position. The maximum height of the outer periphery of the steel test disc over the **table top** shall be measured and recorded. The accuracy of the measurements shall be within $\pm 0,1$ mm.
- 2) The tool is then operated at no-load for 5 min.
- 3) The steel test disc attachment point is returned to the 12 o'clock position. The test is then conducted in accordance with c), using a force of $1,1 D$.
- 4) After the conclusion of the test, the maximum height of the outer periphery of the steel test disc over the **table top** is measured as above. The difference between the before and after test measurements of the steel test disc height shall not exceed 1 % of D . In addition, for **table saws with sliding function**, the position of the steel test disc assembly shall not have displaced by more than 1 mm.

Saw blade alignment evaluation:

The measurement of 21.103.1 is repeated after the conclusion of the above tests, except for the initial saw blade set-up alignment.

Replace the existing text of item b) of 21.104.4 with the following new text:

- b) within the surface area defined by the minimum values of the **table top** dimensions of "b" and "c", shall be without any depressions or holes with the exception of:
- mitre gauge slots,
 - slots for workpiece clamps,
 - opening for the table insert,
 - minimal diameter recess holes for fasteners,
 - recessed pockets for any warning symbols less than 0,7 mm deep.

Figures

Replace the existing Figure 114 with the following new figure:

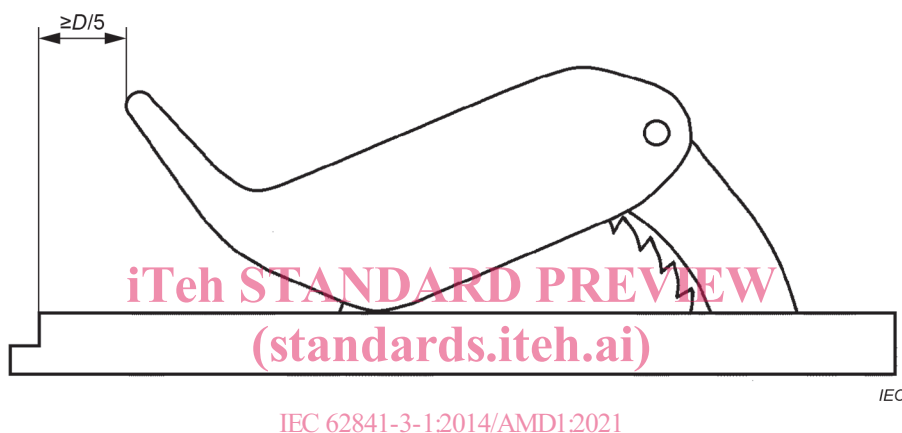


Figure 114 – Minimum distance from the front edge of the table top to the front edge of the saw blade guard

Annex K – Battery tools and battery packs

K.8.14.1.101 Replace the existing text of K.8.14.1.101 with the following new text:

K.8.14.1.101 Replacement of item 2) j):

- j) **Feed the workpiece at an even pace. Do not bend, twist or shift the workpiece from side to side. If jamming occurs, turn the tool off immediately, remove or disconnect the battery pack, then clear the jam. Jamming the saw blade by the workpiece can cause kickback or stall the motor.**

Replacement of item 4) a):

- a) **Turn off the table saw and remove or disconnect the battery pack when removing the table insert, changing the saw blade or making adjustments to the riving knife, anti-kickback device or blade guard, and when the machine is left unattended. Precautionary measures will avoid accidents.**

NOTE 1 If an **anti-kickback device** is not provided, the phrase "**anti-kickback device**" is omitted.

NOTE 2 At the manufacturer's discretion, it is possible to replace the term "**anti-kickback device**" with an appropriate term such as "**anti-kickback pawls**" or "**anti-kickback rollers**".