IEC 62841-2-5

Edition 1.1 2025-02
CONSOLIDATED VERSION

INTERNATIONAL STANDARD

Electric motor-operated hand-held tools, transportable tools and lawn and garden machinery – Safety – Part 2-5: Particular requirements for hand-held circular saws

IEC 62841-2-5:2014-06+AMD1:2025-02 CSV(en)

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INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 25.140.20

ISBN 978-2-8327-0247-5

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

IEC 62841-2-5 edition 1.1 contains the first edition (2014-06) [documents 116/166/FDIS and 116/180/RVD] and its amendment 1 (2025-02) [documents 116/860/FDIS and 116/878/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 62841-2-5 has been prepared by IEC technical committee 116: Safety of motor-operated electric tools.

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

This Part 2-5 is to be used in conjunction with the first edition of IEC 62841-1 (2014).

This Part 2-5 supplements or modifies the corresponding clauses in IEC 62841-1, so as to convert it into the IEC Standard: Particular requirements for hand-held circular saws.

Where a particular subclause of Part 1 is not mentioned in this Part 2-5, 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 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 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.

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 2-5: Particular requirements for hand-held circular saws

1 Scope

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

Addition:

This part of IEC 62841 applies to hand-held **circular saws**, which hereinafter will be referred to as saws.

This standard does not apply to saws designed for use with abrasive wheels.

NOTE Saws designed for use with abrasive wheels as cut-off machines are covered by IEC 62841-2-22.

2 Normative references

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

Addition:

NOTE In Europe (EN 62841-2-5), the following normative reference applies:

EN 847-1, *Tools for woodworking - Safety requirements - Part 1: Milling tools, circular saw blade*

3 Terms and definitions

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

Addition:

3.101
base plate
part supporting the saw on the material being cut (see Figure 113)

3.102
bevel angle
angular displacement of the saw blade plane with respect to the **base plate** plane, the position of the saw blade plane that is perpendicular to the **base plate** being the 0° bevel position

3.103
circular saw
tool intended for cutting various materials with a rotating toothed blade

3.104
cutting edge zone
outer 20 % of the blade's radius

3.105
D
maximum specified diameter of the saw blade

3.106
guarding system
combination of some or all of the following elements as applicable for the type of saw: **upper guard**, **lower guard**, **base plate** and the mechanism to facilitate the performance of these elements

3.107
kickback
sudden reaction to a pinched, jammed or misaligned saw blade, causing an uncontrolled saw to lift up and out of the workpiece

3.108
lower guard
movable blade-covering device which, in the closed or rest position, is mainly situated below the **base plate**

3.109
maximum depth of cut
maximum thickness of the workpiece that can be cut through when the saw is set to 0° bevel position, at the maximum protrusion of the largest specified saw blade through the plane of the **base plate**

3.110
plunge type saw
saw having only an **upper guard** into which the saw blade retracts when not in use (see Figure 104)

3.111
riving knife
metal part placed in the plane of the saw blade with the intent of preventing the kerf in the workpiece from closing on the rear part of the saw blade

3.112
saw with outer pendulum guard
saw having a **lower guard** which swings outside the **upper guard** (see Figure 101)

3.113
saw with inner pendulum guard
saw having a **lower guard** which swings inside the **upper guard** (see Figure 102)

3.114
saw with tow guard
saw having a **lower guard** which slides along the **upper guard** (see Figure 103)

3.115
upper guard
fixed and/or movable cover of the blade situated above the **base plate**

4 General requirements

This clause of Part 1 is applicable.

5 General conditions for the tests

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

5.17 *Addition:*

The weight of the tool includes the dust extraction adapter and the auxiliary handle, if any.

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:*

Saws shall be marked with:

– rated no-load speed of the output spindle.

8.2 *Addition:*

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

Tools shall be marked with the following additional safety warnings:

– "DANGER – Keep hands and body away from and to the side of the blade. Contact with blade will result in serious injury."

  In Canada, the equivalent French wording of the above warning is as follows: "DANGER – Tenir les mains et le corps à l'écart de la lame et se tenir de côté par rapport à la lame. Le contact avec la lame entraînera des blessures graves."

– "WARNING – Check guarding system. It must cover the blade instantly!"

  In Canada, the equivalent French wording of the above warning is as follows: "AVERTISSEMENT – Vérifiez le système de protection. Il doit couvrir la lame instantanément!"

– For saws with a blade diameter greater than 140 mm, the following warning shall be used: "WARNING – Hold saw with both hands."

  In Canada, the equivalent French wording of the above warning is as follows: "AVERTISSEMENT – Tenir la scie avec les deux mains."

– "WARNING – Support and clamp workpiece."

  In Canada, the equivalent French wording of the above warning is as follows: "AVERTISSEMENT – Supporter et assujettir la pièce à travailler."

8.3 *Addition:*

– specified blade diameter or specified blade diameter range.

The direction of rotation of the spindle shall be indicated on the tool by an arrow, raised or recessed or by any other means no less visible and indelible.

8.14.1.101 Additional safety instructions for circular saws

8.14.101.1 General

The additional safety instructions as specified in 8.14.1.101.2 to 8.14.1.101.6 shall be given. If in English they shall be verbatim and in the following order as applicable and equivalent in any other language. This part may be printed separately from the "General Power Tool Safety Warnings".

All notes are not to be printed; they are information for the designer of the manual.

8.14.1.101.2 Safety instructions for all saws

Cutting procedures

a) **DANGER: Keep hands away from cutting area and the blade. Keep your second hand on auxiliary handle, or motor housing.** *If both hands are holding the saw, they cannot be cut by the blade.*

NOTE For **circular saws** with a maximum blade diameter of 140 mm or smaller, the words "Keep your second hand on auxiliary handle, or motor housing" do not apply.

b) **Do not reach underneath the workpiece.** *The guard cannot protect you from the blade below the workpiece.*

c) **Adjust the cutting depth to the thickness of the workpiece.** *Less than a full tooth of the blade teeth should be visible below the workpiece.*

d) **Never hold the workpiece in your hands or across your leg while cutting. Secure the workpiece to a stable platform.** *It is important to support the work properly to minimise body exposure, blade binding, or loss of control.*

e) **Hold the power tool by insulated gripping surfaces, when performing an operation where the cutting tool may contact hidden wiring or its own cord.** *Contact with a "live" wire will also make exposed metal parts of the power tool "live" and could give the operator an electric shock.*

f) **When ripping, always use a rip fence or straight edge guide.** *This improves the accuracy of cut and reduces the chance of blade binding.*

g) **Always use blades with correct size and shape (diamond versus round) of arbour holes.** *Blades that do not match the mounting hardware of the saw will run off-centre, causing loss of control.*

h) **Never use damaged or incorrect blade washers or bolt.** *The blade washers and bolt were specially designed for your saw, for optimum performance and safety of operation.*

8.14.1.101.3 Further safety instructions for all saws

Kickback causes and related warnings

– kickback is a sudden reaction to a pinched, jammed or misaligned saw blade, causing an uncontrolled saw to lift up and out of the workpiece toward the operator;

– when the blade is pinched or jammed tightly by the kerf closing down, the blade stalls and the motor reaction drives the unit rapidly back toward the operator;

– if the blade becomes twisted or misaligned in the cut, the teeth at the back edge of the blade can dig into the top surface of the wood causing the blade to climb out of the kerf and jump back toward the operator.

Kickback is the result of saw misuse and/or incorrect operating procedures or conditions and can be avoided by taking proper precautions as given below.

a) **Maintain a firm grip with both hands on the saw and position your arms to resist kickback forces. Position your body to either side of the blade, but not in line with**

the blade. *Kickback could cause the saw to jump backwards, but kickback forces can be controlled by the operator, if proper precautions are taken.*

NOTE For **circular saws** with a maximum blade diameter of 140 mm or smaller, the words "with both hands" do not apply.

b) **When blade is binding, or when interrupting a cut for any reason, release the trigger and hold the saw motionless in the material until the blade comes to a complete stop. Never attempt to remove the saw from the work or pull the saw backward while the blade is in motion or kickback may occur.** *Investigate and take corrective actions to eliminate the cause of blade binding.*

c) **When restarting a saw in the workpiece, centre the saw blade in the kerf so that the saw teeth are not engaged into the material.** *If a saw blade binds, it may walk up or kickback from the workpiece as the saw is restarted.*

d) **Support large panels to minimise the risk of blade pinching and kickback.** *Large panels tend to sag under their own weight. Supports must be placed under the panel on both sides, near the line of cut and near the edge of the panel.*

e) **Do not use dull or damaged blades.** *Unsharpened or improperly set blades produce narrow kerf causing excessive friction, blade binding and kickback.*

f) **Blade depth and bevel adjusting locking levers must be tight and secure before making the cut.** *If blade adjustment shifts while cutting, it may cause binding and kickback.*

g) **Use extra caution when sawing into existing walls or other blind areas.** *The protruding blade may cut objects that can cause kickback.*

8.14.1.101.4 Safety instructions for saws with pendulum guard and saws with tow guard as shown in Figures 101, 102 and 103

Lower guard function

a) **Check the lower guard for proper closing before each use. Do not operate the saw if the lower guard does not move freely and close instantly. Never clamp or tie the lower guard into the open position.** *If the saw is accidentally dropped, the lower guard may be bent. Raise the lower guard with the retracting handle and make sure it moves freely and does not touch the blade or any other part, in all angles and depths of cut.*

NOTE Alternate wording for "retracting handle" is possible.

b) **Check the operation of the lower guard spring. If the guard and the spring are not operating properly, they must be serviced before use.** *Lower guard may operate sluggishly due to damaged parts, gummy deposits, or a build-up of debris.*

c) **The lower guard may be retracted manually only for special cuts such as "plunge cuts" and "compound cuts". Raise the lower guard by the retracting handle and as soon as the blade enters the material, the lower guard must be released.** *For all other sawing, the lower guard should operate automatically.*

NOTE Alternate wording for "retracting handle" is possible.

d) **Always observe that the lower guard is covering the blade before placing the saw down on bench or floor.** *An unprotected, coasting blade will cause the saw to walk backwards, cutting whatever is in its path. Be aware of the time it takes for the blade to stop after switch is released.*

8.14.1.101.5 Safety instructions for plunge type saws shown in Figure 104

Guard function

a) **Check the guard for proper closing before each use. Do not operate the saw if the guard does not move freely and enclose the blade instantly. Never clamp or tie the guard so that the blade is exposed.** *If the saw is accidentally dropped, the guard may be bent. Check to make sure that the guard moves freely and does not touch the blade or any other part, in all angles and depths of cut.*

b) **Check the operation and condition of the guard return spring. If the guard and the spring are not operating properly, they must be serviced before use.** *The guard may operate sluggishly due to damaged parts, gummy deposits, or a build-up of debris.*

c) **Assure that the base plate of the saw will not shift while performing a "plunge cut".** *Blade shifting sideways will cause binding and likely kick back.*

d) **Always observe that the guard is covering the blade before placing the saw down on bench or floor.** *An unprotected, coasting blade will cause the saw to walk backwards, cutting whatever is in its path. Be aware of the time it takes for the blade to stop after the switch is released.*

8.14.1.101.6 Additional safety instructions for all saws with riving knife

Riving knife function

a) **Use the appropriate saw blade for the riving knife.** *For the riving knife to function, the body of the blade must be thinner than the riving knife and the cutting width of the blade must be wider than the thickness of the riving knife.*

b) **Adjust the riving knife as described in this instruction manual.** *Incorrect spacing, positioning and alignment can make the riving knife ineffective in preventing kickback.*

c) **Always use the riving knife except when plunge cutting.** *The riving knife must be replaced after plunge cutting. The riving knife causes interference during plunge cutting and can create kickback.*

NOTE This warning is not applicable for **plunge type saws** with a spring loaded **riving knife**.

d) **For the riving knife to work, it must be engaged in the workpiece.** *The riving knife is ineffective in preventing kickback during short cuts.*

e) **Do not operate the saw if the riving knife is bent.** *Even a light interference can slow the closing rate of a guard.*

8.14.2 a) *Addition:*

101) Instruction not to use any abrasive wheels;

102) For saws with **riving knife** the instruction shall include the following:

- instruction to ensure that the **riving knife** is adjusted so that the distance between the **riving knife** and the rim of the blade is not more than 5 mm, and the rim of the blade does not extend more than 5 mm beyond the lowest edge of the **riving knife**;
- information about the allowed range of saw blade body thickness and the tooth set of the blade;

103) Instruction to use only blade diameter(s) in accordance with the markings;

104) Instruction to identify the correct saw blade to be used for the material to be cut;

105) Instruction to use only saw blades that are marked with a speed equal or higher than the speed marked on the tool.

NOTE In Europe (EN 62841-2-5), the following additional requirement applies:

Instruction to use only saw blades recommended by the manufacturer, which conform to EN 847-1, if intended for wood and analogous materials.

8.14.2 b) *Addition:*

101) Information regarding the **maximum depth of cut**;

102) Instruction for the blade changing procedure;

103) Instruction how to check the function of all blade guard operations;

104) Information regarding what materials can be cut. Instructions to avoid overheating the blade tips and, if cutting plastics is permitted, to avoid melting the plastic;

105) Instructions on the correct use of the dust collection system;

106) Instruction to wear a dust mask.

8.14.2 c) *Addition:*

101) Instruction how to properly clean the tool and **guarding system**.

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.

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 Guarding system – Longevity**~~

~~**17.101.1** To provide sufficient endurance for extended use, the **guarding system** shall have a longevity of 50 000 operating cycles.~~

~~*Compliance is checked by a new saw sample completing the following test.*~~

~~*The saw is to be set for 0° **bevel angle** with the **base plate** in horizontal position and the blade removed. The **lower guard**, or the **guarding system** as shown in Figure 104, is*~~