

Hand-held motor-operated electric tools — Safety —

Part 2-5: Particular requirements for circular saws

The European Standard EN 60745-2-5:2003 has the status of a
British Standard

ICS 25.100.40

National foreword

This British Standard is the official English language version of EN 60745-2-5:2003. It was derived by CENELEC from IEC 60745-2-5:2003. It supersedes BS EN 50144-2-5:2000 and BS EN 50260-2-5:2002 which will be withdrawn on 2006-04-01.

The CENELEC common modifications have been implemented at the appropriate places in the text and are indicated by tags (e.g. [C] [C]).

WARNING: This standard allows the manufacture of circular saws with and without a riving knife. Therefore care should always be taken in selecting the appropriate style of saw depending on the working environment of the application.

The attention of users of this standard is drawn to clause 8.12.101 which contains additional safety instructions to be provided with the product.

The UK participation in its preparation was entrusted by Technical Committee CPL/61, Safety of household electrical appliances, to Subcommittee CPL/61/6, Portable motor operated tools, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the *BSI Catalogue* under the section entitled “International Standards Correspondence Index”, or by using the “Search” facility of the *BSI Electronic Catalogue* or of British Standards Online.

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 30, an inside back cover and a back cover.

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Amendments issued since publication

Amd. No.	Date	Comments

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 8 August 2003

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ISBN 0 580 42414 6

English version

**Hand-held motor-operated electric tools -
Safety
Part 2-5: Particular requirements for circular saws
(IEC 60745-2-5:2003, modified)**

Outils électroportatifs à moteur -
Sécurité
Partie 2-5: Règles particulières
pour les scies circulaires
(CEI 60745-2-5:2003, modifiée)

Handgeführte motorbetriebene
Elektrowerkzeuge -
Sicherheit
Teil 2-5: Besondere Anforderungen
für Kreissägen
(IEC 60745-2-5:2003, modifiziert)

This European Standard was approved by CENELEC on 2003-04-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

The text of the International Standard IEC 60745-2-5:2003, prepared by SC 61F, Safety of hand-held motor-operated electric tools, of IEC TC 61, Safety of household and similar electrical appliances, together with the common modifications prepared by the Technical Committee CENELEC TC 61F, Safety of hand-held and transportable motor operated electric tools, was submitted to the formal vote and was approved by CENELEC as EN 60745-2-5 on 2003-04-01.

This European Standard supersedes EN 50144-2-5:1999 and EN 50260-2-5:2002.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2004-04-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2006-04-01

Other standards referred to in this European standard are listed in Clause 2. Clause 2 lists the valid edition of those documents at the time of issue of this EN.

This standard is divided into two parts:

Part 1: General requirements which are common to most hand-held electric motor operated tools (for the purpose of this standard referred to simply as tools) which could come within the scope of this standard;

Part 2: Requirements for particular types of tools which either supplement or modify the requirements given in Part 1 to account for the particular hazards and characteristics of these specific tools.

This European Standard has been prepared under a mandate given to CEN and CENELEC by the European Commission and the European Free Trade Association and supports the essential health and safety requirements of the Machinery Directive.

Compliance with the clauses of Part 1 together with this Part 2-5 provides one means of conforming with the essential health and safety requirements of the Directive concerned.

CEN/TC 255 is producing standards for non-electric circular saws (EN 792-12).

Warning: Other requirements and other EC Directives can be applicable to the products falling within the scope of this standard.

This standard follows the overall requirements of EN 292-1 and EN 292-2.

This Part 2-5 is to be used in conjunction with EN 60745-1:2003. When this standard states "addition", "modification" or "replacement", the relevant text in Part 1 is to be adapted accordingly.

Subclauses and figures which are additional to those in Part 1 are numbered starting from 101; additional annexes are lettered AA, BB, etc.

Subclauses, tables and figures which are additional to those in IEC 60745-2-5 are prefixed "Z".

NOTE In this standard, the following print types are used:

- Requirements: in roman type;
- *Test specification: in italic type;*
- Notes: in smaller roman type.

Endorsement notice

The text of the International Standard IEC 60745-2-5:2003 was approved by CENELEC as a European Standard with agreed common modifications as given below.

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HAND-HELD MOTOR-OPERATED ELECTRIC TOOLS – SAFETY –

Part 2-5: Particular requirements for circular saws

1 Scope

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

1.1 Addition:

This standard applies to all types of circular saws. Circular saws hereinafter will be referred to as saws. This standard does not apply to saws used with abrasive wheels.

2 Normative references

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

EN 847-1:1997, *Tools for woodworking — Safety requirements — Part 1: Milling tools and circular saw blades* Ⓒ

3 Definitions

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

Additional definitions:

3.101

circular saw

tool intended for cutting various materials with a rotating toothed blade

3.102

cutting edge zone

the outer 20 % of the blade's radius

3.103

guide plate

the part of the saw resting on the material to be cut (see Figure 113)

3.104

lower guard

movable blade-covering device which, in the closed or rest position, is generally situated below the guide plate

3.105

upper guard

fixed and/or movable cover of the blade situated above the guide plate

3.106

riving knife

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

3.107

saw with outer pendulum guard

saw having a lower guard which swings outside the upper guard (see Figure 101)

3.108

saw with inner pendulum guard

saw having a lower guard which swings inside the upper guard (see Figure 102)

3.109

saw with tow guard

saw having a lower guard which slides along the upper guard (see Figure 103)

3.110

kickback

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

3.111

plunge type saw

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

4 General requirements

This clause of Part 1 is applicable.

5 General conditions for the tests

This clause of Part 1 is applicable.

6 Environmental requirements

This clause of Part 1 is applicable except as follows:

6.1.2.4 Modification:

Circular saws are held and used as specified in 6.1.2.5.

6.1.2.5 Modification:

Circular saws are tested under load observing the conditions shown in Table Z101. 



Table Z101 — Operating conditions for circular saws

Orientation	Cutting a horizontal piece of chipboard 800 mm × 400 mm × 19 mm. The workpiece, apart from the strips to be cut off, is supported on resilient material and fixed to a bench
Tool bit	New blade as recommended by the manufacturer for cutting chipboard
Feed force	Just sufficient to cut at a brisk pace
Test cycle	One test cycle is given by cutting off one approximately 10 mm wide strip (set by rip fence) across the 400 mm width of the chipboard

6.2.2.4 Modification:

Circular saws are tested under the conditions specified in 6.1.2.5.

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:

- direction of rotation, indicated on the tool by an arrow, raised or recessed or by any other means no less visible and indelible;
- rated no-load speed of the output spindle;
- recommended blade diameter.

8.12.2 a) Addition:

101) Instructions not to use any abrasive wheels

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

Instructions 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.



Z101) Information on the correct use of the dust collection system

Z102) Advice to wear a dust mask

Z103) Instruction to only use saw blades recommended

Z104) Instruction to always wear hearing protection

8.12.2 b) Addition

101) Instructions for the blade changing procedure

Additional subclause:

8.12.101 The following additional safety instructions 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 Safety Instructions. All notes are not to be printed, they are information for the designer of the manual.

8.12.101.1 Safety instructions for all saws

DANGER:

- a) **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 140 mm or smaller diameter blades, the "Keep your second hand on auxiliary handle, or motor housing" may be omitted.

- 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 piece being cut in your hands or across your leg. Secure the workpiece to a stable platform.** *It is important to support the work properly to minimize body exposure, blade binding, or loss of control.*
- e) **Hold 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 shock the operator.*
- 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 eccentrically, 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.*

8.12.101.2 Further safety instructions for all saws

Causes and operator prevention of kickback:

- kickback is a sudden reaction to a pinched, bound 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 bound 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 140 mm or smaller diameter blades, the words "with both hands" may be omitted.

- 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 and check that saw teeth are not engaged into the material. If saw blade is binding, 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 cut. If blade adjustment shifts while cutting, it may cause binding and kickback.**
- g) **Use extra caution when making a "plunge cut" into existing walls or other blind areas. The protruding blade may cut objects that can cause kickback.**

8.12.101.3 Safety instructions for saws shown in Figures 101, 102 and 103

- a) **Check lower guard for proper closing before each use. Do not operate the saw if lower guard does not move freely and close instantly. Never clamp or tie the lower guard into the open position. If saw is accidentally dropped, 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 may be substituted for "retracting handle."

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

NOTE Alternate wording may be substituted for "retracting handle."

- d) **Always observe that the lower guard is covering the blade before placing 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.**

8.12.101.4 Safety instructions for saws shown in Figure 104

- a) **Check guard for proper closing before each use. Do not operate the saw if guard does not move freely and enclose the blade instantly. Never clamp or tie the guard with the blade exposed. If saw is accidentally dropped, guard may be bent. Check to make sure that 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. Guard may operate sluggishly due to damaged parts, gummy deposits, or a build-up of debris.**
- c) **Assure that the guide plate of the saw will not shift while performing the "plunge cut" when the blade bevel setting is not at 90°. Blade shifting sideways will cause binding and likely kick back.**
- d) **Always observe that the guard is covering the blade before placing 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.**