

# Safety of transportable motor-operated electric tools —

## Part 2-11: Particular requirements for combined mitre and bench saws

The European Standard EN 61029-2-11:2003 has the status of a  
British Standard

ICS 25.080.60; 25.140.20

# National foreword

This British Standard is the official English language version of EN 61029-2-11:2003, including Corrigendum February 2004. It was derived by CENELEC from IEC 61029-2-11:2003.

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.

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English version

**Safety of transportable motor-operated electric tools**  
**Part 2-11: Particular requirements for combined mitre and bench saws**  
(IEC 61029-2-11:2001, modified)

Sécurité des machines-outils électriques  
semi-fixes  
Partie 2-11: Règles particulières pour les  
scies d'établi-scies à mortaiser  
(CEI 61029-2-11:2001, modifiée)

Sicherheit transportabler  
motorbetriebener Elektrowerkzeuge  
Teil 2-11: Besondere Anforderungen für  
kombinierte Tisch- und Gehrungssägen  
(IEC 61029-2-11:2001, modifiziert)

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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.

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**CENELEC**

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Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

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## Foreword

The text of the International Standard IEC 61029-2-11:2001, 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, Hand-held and transportable electric motor-operated tools, is submitted to the CENELEC Unique Acceptance Procedure for acceptance as a European standard.

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) 2004-06-01
- latest date by which the national standards conflicting  
with the EN have to be withdrawn (dow) 2005-10-01

In this document the common modifications to the International Standard are indicated by a vertical line in the left margin of the text.

This European Standard is divided into two parts:

- Part 1 General requirements, which are common to most transportable motor, operated tools (for the purpose of this standard referred to simple as tools) which could come within the scope of this standard.
- Part 2 Requirements for particular types of tool 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/CENELEC by the European Commission and European Free Trade Association and supports the essential health and safety requirements of the Machinery Directive.

Compliance with the relevant clauses of Part 1 together with a relevant Part 2 of this standard provides one means of confirming with the specified essential requirements of the Directive. The requirements defined in EN 1050 are also dealt with in this standard.

For noise and vibration this standard covers the requirements for their measurement, the provisions of information arising from these measurements and the provision of information about the Personal Protective Equipment required. Specific requirements for the reduction of the risk arising from noise and vibration through the design of the tool are not given as this reflects the current state of art.

**Warning:** Other requirements arising from other European Directives can be applicable to the products falling within the scope of this standard.

CEN have prepared standards for industrial machines, which may extend transportable machines. Although CEN and CENELEC have where appropriate used common solutions to provide uniform levels of protection, person using this standard should check the scope of both this and CEN standards to ensure that a correct standard is used.

EN 61029-2-11 is to be used in conjunction with EN 61029-1:2000.

EN 61029-2-11 supplements or modifies the corresponding clauses of EN 61029-1, so as to convert it into the European Standard: Safety requirements for transportable combined mitre and bench saws.

Where a particular subclause is not mentioned in this Part 2-11, that subclause applies as far as reasonable. Where this Part 2-11 states "addition" "modification" or "replacement", the relevant text of Part 1 is to be adapted accordingly.

Subclauses, tables and figures which are additional to those in Part 1 are numbered starting from 101.

Subclauses, tables and figures which are additional to those in IEC 61029-2-11 are prefixed "Z".

NOTE In this standard the following print types are used:

- *Requirements proper,*
- *Test specifications,*
- Explanation matter.

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## 1 Scope

This clause of Part 1 is applicable except as follows:

### 1.1 *Addition:*

This standard applies to transportable combined mitre and bench saws with a saw blade diameter not exceeding 315 mm and intended for cutting wood and analogue materials.

### 1.2 *Addition:*

This standard does not apply to transportable mitre and bench saws used to cut steel, iron, brass or food.

Single function bench saws are covered by EN 61029-2-1.

Single function mitre saws are covered by EN 61029-2-9.

Combined mitre and bench saws other than transportable are covered by EN 1870-3.

## 2 Definitions

This clause of Part 1 is applicable except as follows:

### 2.2.21 *Replacement:*

#### 2.21

##### **normal load**

the load to obtain rated input

#### 2.101

##### **combined mitre and bench saw**

a saw that can be used:

- a) as a down-cutting cross cut saw;
- b) as a circular bench saw.

The saw may be of type A or type B as defined in 2.2.Z103 and 2.2.Z104

#### 2.Z101

##### **transportable combined mitre and bench saw**

a mitre and bench saw designed to be used on a bench or a table similar to a bench and which is intended to carry out work in a stationary position and is transportable by hand by one person

## **2.Z102**

### **type A saw**

a combined mitre and bench saw equipped with two tables: a mitre saw table having a fence to support the material to be cut as the saw blade is brought down and a bench table which supports the material to be cut as it is fed by hand towards to the saw blade. In mitre mode the saw blade is suspended over the mitre saw table from an arm, normally from a point located at the table or on a part of the frame of the machine. A sliding cutting movement may follow a downward cutting action or vice-versa. In bench mode the saw blade projects through a slot in the bench saw table (see Figure Z101)

## **2.Z103**

### **type B saw**

a combined mitre and bench saw equipped with a single table which supports and positions the workpiece during mitre and bench sawing operations. The saw blade is capable of being located either above or below the table. In the bench mode the saw blade projects through a slot in the table. In the mitre mode the saw blade is suspended over the table from an arm, normally from a point located at the table or on a part of the frame of the machine. In some cases a sliding movement follows a downward cutting action or vice-versa (see Figure Z102)

## **3 General requirements**

This clause of Part 1 is applicable.

## **4 General notes on tests**

This clause of Part 1 is applicable.

## **5 Rating**

This clause of Part 1 is applicable.

## **6 Classification**

This clause of Part 1 is applicable.

## **7 Marking and information for use**

This clause of Part 1 is applicable except as follows:

### 7.1 *Addition:*

Combined mitre and bench saws shall be marked with

- maximum and minimum saw blade diameter,
- rated no-load speed,
- the direction of rotation of the saw blade,
- maximum cutting depth capacity for bench sawing operation,
- saw blade bore diameter,
- thickness of riving knife.

If the top guard in bench mode is made of non-transparent material, an indication of the cutting line in alignment with the plane of the saw blade shall be marked on the top guard.

Mitre saws, which may be changed to different no-load speeds shall be marked, close to the means of adjustment, with details of the method. This may be explained by means of drawings or diagrams, etc.

### 7.6 *Addition:*

The direction of rotation of the blade shall be indicated on a fixed part of the saw in the vicinity of the spindle axis by an arrow, raised or sunk, which is visible when changing the blade, or by any other means not less visible or indelible.

Where the machine is designed to operate at more than one spindle speed, the following requirements shall apply:

- on machines where a speed change is achieved by changing the position of the drive belts on the drive pulleys, the selected speed shall be indicated on the same side of the machine as the start control by a diagram showing the relevant speed selected for each combination of pulleys;
- on machines where a speed change is achieved by an electronic control circuit, the selected speed shall be indicated on the machine at the selecting device (e.g. variable speed control dial provided with numerical speed settings).

### 7.13 *Addition:*

The substance of the following instructions shall be given.

#### c) Safety precautions

- do not use saw blades which are damaged or deformed;
- do not use the saw without the guards in position, especially after a mode change and keep guards in good working order and properly maintained;
- replace the table insert when worn;
- use only saw blades recommended by the manufacturer and which conform to EN 847-1, with a warning that the riving knife shall not be thicker than the width of the groove cut by the saw blade and not thinner than the body of the blade;
- ensure that the arm is securely fixed when bevelling;
- do not use saw blades manufactured from high speed steel;

- connect the saw to a dust collection device when sawing wood. In addition the operator shall be informed of factors that influence exposure to dust and the precautions required i.e. type of material to be worked and the importance of local extraction (capture at source) and proper adjustment of hoods/baffles/chutes;
- wear suitable personal protective equipment when necessary, this could include:
  - hearing protection to reduce the risk of induced hearing loss,
  - respiratory protection to reduce the risk of inhalation of harmful dust,
  - gloves for handling saw blades (saw blades shall be carried in a holder wherever practicable) and rough material;
- take care that the selection of the saw blade accounts for the material to be cut;
- always put the push-stick into storage when is not in use;

d) Maintenance and servicing

- operators instructions on factors influencing exposure to noise (e.g. use of saw blades designed to reduce the emitted noise and saw blade and machine maintenance;
- report faults in the machine, including guards or saw blades, as soon as they are discovered;

e) Safe operation

- select the correct saw blade for the material to be cut;
- do not use the saw to cut materials other than those recommended by the manufacturer;
- lifting and transportation information, information including where to lift and support the mitre saw and when necessary a warning not to use guards for this purpose;
- keep the floor area around the machine level, well maintained and free of loose materials e.g. chips and cut-offs;
- provide adequate general or localized lighting;
- blade replacement procedure including prescriptions and warning for correct guard repositioning in mitre saw and bench saw mode;
- use push-sticks or a push-block handle to avoid working with the hands close to the saw of the machine blade when using in the bench sawing mode;
- the operator is adequately trained in the use, adjustment and operation of the machine;
- ensure that the arm is securely fixed when bevelling;
- ensure that the arm is securely fixed in the working position in the bench sawing mode;
- stop the saw when unattended;
- ensure that the bench saw table is securely fixed at the chosen height (for type A saws only);
- use correctly sharpened saw blades. Observe the maximum speed marked on the saw blade;
- ensure that any spacers and spindle rings used are suitable for the purpose as stated by the manufacturer;
- when fitted with laser, no exchange with different type of laser is permitted. Repairs shall only be carried out by laser manufacturer or authorized agent;

- ensure that the upper portion of the saw blade is completely enclosed in the mitre sawing mode;
- blade replacement procedure including the method for repositioning and a warning that this must be carried out correctly;
- ensure that the machine is fixed to a bench, whenever possible;
- refrain from removing any cut-offs or other parts of the workpiece from the cutting area whilst the machine is running and the saw head is not in the rest position;
- how to support long workpieces;
- use and correct adjustment of riving knife in the bench saw mode;
- rebating or grooving should not be carried out unless suitable guarding, such as a tunnel guard, is fitted as top guard;
- the saw shall not be used for slotting (stopped groove);
- a table giving guidance on spindle speed selection for different materials to be sawn shall be given for variable speed machines;
- during transportation the upper part of the saw blade shall be covered, for example by the top guard or the saw blade is adjusted to the lowest position;
- use and correct adjustment of the lower saw guard in bench sawing mode.

The following information shall be given:

- the maximum and minimum diameters, thickness and bore diameter of saw blade which may be used;
- maximum depth of cut;
- if double bevelling is possible, the safe method of operation;
- for type B saws: How to correctly locate the saw in either the mitre or bench sawing mode;
- description of residual risks;
- results of the dust efficiency measured as defined in 13.1.

NOTE Sketches may be used to illustrate the modes of operation.

## **8 Protection against electric shock**

This clause of Part 1 is applicable.

## **9 Starting**

This clause of Part 1 is applicable.

## **10 Input and current**

This clause of Part 1 is applicable.

## 11 Heating

This clause of Part 1 is applicable.

## 12 Leakage current

This clause of Part 1 is applicable.

## 13 Environmental requirements

This clause of Part 1 is applicable except the following:

### 13.1 Replacement:

Combined mitre and bench saws are tested under load in the bench circular saw mode, orientation within the cabin and under the conditions as given in Table Z101.

**Table Z101 - Conditions for dust measurement**

|                              |                                                                                                                                                 |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Material                     | Cutting a horizontal piece of chipboard 800 mm x 40 mm x 19 mm                                                                                  |
| Feed speed                   | (3 ± 1) m/min                                                                                                                                   |
| Width of cut-off             | Approximately 10 mm wide strips (set by rip fence) across the 400 mm width of the chip board                                                    |
| Depth of cut                 | Blade adjusted to cut 22 mm                                                                                                                     |
| Tool bit                     | New blade at the start of the test, tungsten carbide tipped for crosscutting and having the maximum diameter as recommended by the manufacturer |
| Integral collection (if any) | Emptied during each 2 min rest time                                                                                                             |
| Orientation                  | Across the width of the cabin with air flow from left to right side of operator (see Figure Z103)                                               |
| Test cycle                   | Three cuts per min across the width of the workpiece for 10 min, followed by 2 min rest time (total 12 min)                                     |
| Test period                  | Five complete cycles (total 1 h)                                                                                                                |

### 13.2.1 Addition:

The most important sources of noise are

- the workpiece,
- the saw blade,
- the gear,
- the motor/fan.

For general information concerning the reduction of noise see EN ISO 11688-1.

**13.2.4 Replacement of paragraphs 1, 2 and 3:**

Combined mitre and bench saws are tested in the bench mode under the conditions shown in Table Z102.

**Table Z102 - Noise test conditions for combined mitre and bench saws**

|                  |                                                                                                                                                 |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Material         | Cutting a horizontal piece of chipboard 800 mm x 400 mm x 19 mm                                                                                 |
| Feed speed       | (3 ± 1) m/min                                                                                                                                   |
| Width of cut-off | Approximately 10 mm wide strips (set by rip fence) across the 400 mm width of the chipboard                                                     |
| Depth of cut     | Blade adjusted to cut 22 mm                                                                                                                     |
| Test time        | Five cuts, measurement starting 100 mm behind front edge up to end of the workpiece                                                             |
| Tool bit         | New blade at the start of the test, tungsten carbide tipped for crosscutting and having the maximum diameter as recommended by the manufacturer |

**13.3.3 Replacement:**

Combined mitre and bench saws are tested at no-load in the mitre saw mode.

**14 Protection against ingress of foreign bodies and moisture resistance**

This clause of Part 1 is applicable.

**15 Insulation resistance and electric strength**

This clause of Part 1 is applicable.

**16 Endurance**

This clause of Part 1 is applicable.

**17 Abnormal operation**

This clause of Part 1 is applicable except as follows:

**17.1 Addition:**

Combined mitre and bench saws are considered to be saws in which moving parts are liable to be jammed, if equipped with an induction motor.