
Varnost premičnih električnih orodij - 2-1. del: Posebne zahteve za krožne žage z delovno mizo (IEC 61029-2-1:1993; spremenjen+ A1:1999 + A2:2001)

Safety of transportable motor-operated electric tools -- Part 2-1: Particular requirements for circular saw benches

Sicherheit transportabler motorbetriebener Elektrowerkzeuge -- Teil 2-1: Besondere Anforderungen an Tischkreissägen

Sécurité des machines outils électrique semi-fixes -- Partie 2-1: Règles particulières pour les scies circulaires à table

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EUROPEAN STANDARD

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ICS 25.140.20

English version

Safety of transportable motor-operated electric tools
Part 2-1: Particular requirements for circular saw benches
 (IEC 61029-2-1:1993 + A1:1999 + A2:2001, modified)

Sécurité des machines outils électrique
 semi-fixes
 Partie 2-1: Règles particulières pour les
 scies circulaires à table
 (CEI 61029-2-1:1993 + A1:1999 +
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Sicherheit transportabler
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 Teil 2-1: Besondere Anforderungen an
 Tischkreissägen
 (IEC 61029-2-1:1993 + A1:1999 +
 A2:2001, modifiziert)

This European Standard was approved by CENELEC on 2001-12-01. 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.

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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 61029-2-1:1993 and its amendments 1:1999 and 2:2001, 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, was submitted to the formal vote and was approved by CENELEC as EN 61029-2-1 on 2001-12-01.

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) 2002-12-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2004-12-01

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

This standard is divided into two parts:

- Part 1 General requirements that are common to most transportable 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 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 the 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 this part 2 provides one means of conforming 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 provision 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 the art.

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

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

This part 2-1 supplements or modifies the corresponding clauses of EN 61029-1, so as to convert it into the European Standard: Safety requirements for transportable circular saw benches.

Where a particular subclause of part 1 is not mentioned in this part 2-1, that subclause applies as far as is reasonable. Where this part 2-1 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 61029-2-1 are prefixed "Z".

NOTE In this standard the following print types are used:

- Requirements proper;
- *Test specifications*;
- Explanatory matter.

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1 Scope

This clause of part 1 is applicable except as follows:

1.1 Addition:

This European Standard applies to transportable circular saw benches intended for cutting wood and analogue materials with a blade diameter not exceeding 315 mm.

1.2 Addition:

This standard does not apply to transportable circular saw benches used to cut steel, iron, brass or food.

Hand-held electric circular saws are covered by EN 50144-2-5. Saws covered by EN 50144-2-5, when mounted on a bench, are not covered by this standard.

Circular saw benches other than transportable or hand-held electric tools are covered by EN 1870-1.

2 Definitions

This clause of part 1 is applicable except as follows:

2.21 Replacement:

2.21

normal load

the load to obtain rated input

2.101

circular saw bench

machine designed to cut wood or similar materials by means of a rotating toothed saw blade that projects through a slot in a table which supports and positions the work piece. The work piece is fed by hand towards the saw blade. The motor and drive assembly for the saw blade are located below the level of the table

2.Z101

transportable circular saw bench

a circular saw used on a table or similar support which is intended to carry out work in a stationary position, capable of being lifted by hand by one person. See Figure Z101

3 General requirement

This clause of part 1 is applicable. [SIST EN 61029-2-1:2002
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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:

Circular saw benches shall be marked with:

- maximum and minimum saw blade diameter;
- rated no-load speed;
- thickness of riving knife
- maximum cutting depth capacity;
- indication of direction of rotation of the saw blade
- blade bore diameter

If the upper guard 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 guard.

Circular saw benches for which different no-load speeds can be selected shall be marked, close to the means of adjustment, with details of the method of changing the speed and the resultant no-load speed obtained. This may be done by means of diagrams, etc.

Where a 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).

7.6 Addition:

The direction of rotation of the blade shall be indicated on a fixed part of the tool 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 and indelible. [SIST EN 61029-2-1:2002](https://standards.iteh.ai/catalog/standards/sist/12896031-3376-4191-8cab-28c7abcf5f51/sist-en-61029-2-1-2002)

7.13 Addition:

The following instructions shall also be given:

c) Safety precautions

- Do not use saw blades which are damaged or deformed;
- Replace table insert when worn;

- Use only saw blades recommended by the manufacturer, which conform to EN 847-1, with a warning. When changing the saw blade beware that the width of the groove cut of the saw blades shall not be less than and the thickness of the body of the saw blade shall not be more than the thickness of the riving knife;
- Take care that the selection of the saw blade is suitable for the material to be cut;
- 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,
 - wear gloves when handling saw blades and rough material. Saw blades shall be carried in a holder whenever practicable;
- Connect circular saws to a dust-collecting device when sawing wood. The operator shall be informed of the factors that influence exposure of dust e.g. type of material being machined and importance of local extraction (capture or source) and proper adjustment of hoods/baffles/chutes;
- Do not use High speed steel (HS) blades;
- The push-stick or push block should always be stored with the machine when not in use.

d) Maintenance and servicing

- Operator's instructions on factors influencing exposure to noise (e.g. saw blades designed to reduce the emitted noise, saw blade and machine maintenance);
- Faults in the machine, including guards or saw blades, should be reported as soon as they are discovered.

e) Safe operation

- Use push-sticks or push blocks to feed the workpiece past the saw blade;
- Use and correct adjustment of the riving knife;
- Use and correct adjustment of the upper saw blade guard;
- Rebating or grooving should not be carried out unless suitable guarding, such as a tunnel guard, is fitted above the saw table;
- Saws 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 tool;
- Use only saw blades for which the maximum possible speed is not less than the maximum spindle speed of the tool and the material to be cut;
- When transporting the machine use only transportation devices and do never use guards for handling or transportation;
- During transportation the upper part of the saw blade should be covered; for example by the guard;
- The handbook or information sheet shall contain information regarding: the range of saw blade outside diameter, thickness and bore diameter which may be used with the tool;
- How to support long workpieces;

- Description of the residual risks;
- Results of the dust efficiency measurement 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 as follows:

13.1 Replacement:

The tests under working conditions, orientation within the cabin (see Figure Z102) and material to be worked shall be in accordance with Table Z101.

Table Z101 - Conditions for dust measurements

Material	Chipboard 800 mm x 400 mm x 19 mm
Feed-speed	(3 ± 1) m/min
Depth of cut	Blade adjusted for a 22 mm depth of cut
Width of cut-off	10 mm minimum, as set by the rip fence
Tool bit/cutter/abrasive	New blade, as recommended by the manufacturer for chipboard, at the start of each test period
Integral collection (if any)	Emptied during each 2 min period of rest time
Orientation	Across the width of the cabin with the airflow from left to right of the operator (see Figure Z102)
Test cycle	Three cuts per minute across 400 mm width for 10 min followed by a 2 min rest period (total 12 min)
Test period	Five complete cycles (total one hour)

13.2.1 Addition:

The most important sources of noise in circular saw benches are:

- the saw blade;
- the gear;
- the motor / the fan.

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

13.2.4 Replacement of paragraphs 1, 2 and 3:

Circular saw benches are tested under load under the conditions shown in Table Z102:

Table Z102 —Noise test conditions for circular saw benches

Orientation	Cutting a horizontal piece of chipboard 800 mm x 400 mm x 19 mm
Tool bit	New blade as recommended by the manufacturer for cutting chipboard
Feed force	Just sufficient to cut at a brisk pace ((3 ± 1) m/min)
Depth of cut	Blade adjusted for a 22 mm depth of cut
Test cycle	Cutting off approximately 10 mm wide strips (set by rip fence) across the 400 mm width of the chipboard
Test position	Machine table surface in a height of 0,8 m above reflecting plane
Test time	Five cuts, measurement starting 100 mm behind front edge up to end of the workpiece

13.3 This subclause is not applicable.

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.

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16 Endurance

This clause of part 1 is applicable.

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17 Abnormal operation [28c7abcf5f51/sist-en-61029-2-1-2002](#)

This clause of part 1 is applicable except as follows:

17.1 Addition:

Circular saw benches shall be considered to be machines in which moving parts are liable to be jammed, if equipped with an induction motor.

18 Stability and mechanical hazards

This clause of part 1 is applicable except as follows:

18.1 Addition:

Circular saw benches shall be equipped with a guarding system, which cannot be removed without the aid of a tool. This requirement does not apply to a top guard fixed to a riving knife.

18.1.101 Guarding above the saw table

18.1.101.1 Circular saw benches shall have a top guard for the crown and the front of the saw blade that may be an adjustable guard, a self-closing guard or a combination of these. An adjustable guard when adjusted shall remain in any position necessary to give the required protection.

- For riving knife mounted guard:

For all intended saw blade diameters and all positions of the saw blade, the guard shall cover the top and sides of the exposed saw teeth from the guard mounting point on the riving knife to the first cutting tooth at the top of the table with the saw blade in the vertical position (as shown in Figure Z103). The maximum external width shall be 40 mm.

- For other top guards:

When mounted separately from the riving knife, but integral with the machine, the support for the top guard shall not be in line with the riving knife.

The guard shall be capable of screening the top and both sides of the saw blade horizontally between the riving knife and the table at the front of the saw blade and be adjustable from a position 5 mm above the maximum height of cut down to the table and remain parallel with the table. The maximum external width shall be 50 mm.

- For tools that have the facility to tilt the saw blade, either an auxiliary guard shall be provided, or the tool guard shall be capable of being fitted with an extension piece for use during angled cutting. The guards or extension pieces shall be exchangeable without the aid of a tool.

18.1.101.2 The contact surface of the guard shall be constructed from material which will minimize damage to the saw blade should contact occur (e.g. aluminium, wood, plastic).

The guard side walls shall either have a thickness of 6 mm or shall have on the lower edge of the side walls internal ribs with a minimum thickness of 3 mm designed to bear against the smooth sides of the saw blade in order to minimize the risk of damage to the guard (See Figure Z104).

(18.1.101.3 and 18.1.101.4 Deleted)

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18.1.101.5 A self-closing guard shall automatically

- a) open by contact with the workpiece to be cut as it is moved towards the saw blade,
- b) remain in contact with the upper surface of the workpiece as it is cut; to screen both sides of the saw blade at least down to the root of the teeth and at least between the upper surface of the workpiece and the riving knife,
- c) return to the initial position, in contact with the top of the table, after the workpiece has moved past the guard.

Compliance with 18.101.1, 18.101.2 and 18.101.5 shall be checked by inspection and by measurement.

18.1.101.Z1 The guard and its supporting system shall have sufficient stability to reduce the risk of the saw blade making contact with the guard.

Compliance is checked, with no saw blade fitted, by the following test (see Figures Z105a and Z105b).

- *For riving knife mounted saw blade guards:*

The guard shall first be subjected to a load of 5 N at the front edge of the guard as defined in Figure Z105a. The maximum deflection shall not be more than 15 mm.

- *For separately from riving knife mounted saw blade guards:*

The guard shall first be subjected to a load of 20 N at the front edge of the guard as defined in Figure Z105b. The maximum allowable deflection shall not be more than 8,0 mm.

18.1.102 *Guarding below the saw table*

18.1.102.1 Access to dangerous moving parts under the table shall not be possible at any depth of cut and any angle of inclination of the saw blade.

Compliance with 18.1.102.1 is checked by using the test probe in Figure Z106.

(18.1.102.2 Deleted (MD)) (secretary's note: "(MD)" will be deleted from the final document)

18.1.103 *Riving knife*

18.1.103.1 Circular saw benches shall be equipped with a riving knife.

18.1.103.2 The riving knife shall be rigidly fixed and be in alignment with the plane of the saw blade (tolerance $\pm 0,2$ mm) and disposed to it so as to pass freely through the cutting groove. The position of the riving knife shall not change relative to the saw blade when the depth of cut is adjusted.

18.1.103.3 The riving knife and its holder shall be so designed as to allow the adjustment of the riving knife, for all saw blade diameters resulting in cutting depths between 100 % and 95 % of the rate cutting depth, to comply with the following conditions:

- a) above the saw table the radial distance between the riving knife and the toothed rim of the saw blade shall not at any point exceed 5 mm as shown at Figure Z107, at any depth of cut;
- b) the tip of the riving knife shall not be lower than 5 mm from the tooth peak, as shown at Figure Z107. The leading edge of the riving knife shall be chamfered to provide a lead-in and the riving knife shall be of constant thickness (within $\pm 0,2$ mm) throughout its working length.

18.1.103.4 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.

The riving knife shall have a hardness of 43 HRC \pm 5 HRC.

Compliance with the requirements of 18.1.103.1 to 18.1.103.4 is checked by inspection and by measurement.