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Varnost premičnih električnih orodij - 2-9. del: Posebne zahteve za zajeralne žage

Safety of transportable motor-operated electric tools - Part 2-9: Particular requirements for mitre saws

Sicherheit transportabler motorbetriebener Elektrowerkzeuge - Teil 2-9: Besondere Anforderungen für Gehrungskappsägen

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Sécurité des machines-outils électriques semi-fixes. Partie 2-9: Règles particulières pour les scies à onglet

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en



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Safety of transportable motor-operated electric tools -Part 2-9: Particular requirements for mitre saws

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Sécurité des machines-outils électriques semi-fixes -Partie 2-9: Règles particulières pour les

scies à onglet (CEI 61029-2-9:1995, modifiée)

Sicherheit transportabler motorbetriebener Elektrowerkzeuge -Teil 2-9: Besondere Anforderungen für Gehrungskappsägen (IEC 61029-2-9:1995, modifiziert) **iTeh STANDARD PREVIEW**

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Foreword

This document (EN 61029-2-9:2012) consists of the text of IEC 61029-2-9:1995 prepared by IEC/SC 61F (transformed into IEC TC 116 "Safety of hand-held motor-operated electric tools"), together with the common modifications prepared by CLC/TC 116 "Safety of motor-operated electric tools".

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement
 latest date by which the national standards conflicting (dow) 2015 00.03
- latest date by which the national standards conflicting (dow) 2015-09-03 with the document have to be withdrawn

This document supersedes EN 61029-2-9:2009.

EN 61029-2-9:2012 includes the following significant technical changes with respect to EN 61029-2-9:2009:

- rewording of some clauses and
- improvement and clarification of Clause 18. A RD PREVIEW

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

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This European Standard is divided into two parts. a48961a14e/0/sist-en-61029-2-9-2013

- Part 1 General requirements, which are common to most transportable motor, operated tools (for the purpose of this European Standard referred to simply as tools) which could come within the scope of this European 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.

Compliance with the relevant clauses of Part 1 together with this Part 2 provides one means of conforming to the specified essential health and safety requirements of the Directive.

This European Standard follows the overall requirements of EN ISO 12100.

For noise and vibration, this European 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 the art.

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

CEN have prepared standards for wood working machines, which may include transportable machines. Although CEN and CENELEC have, where appropriate, used common solutions to provide uniform levels of protection, persons using this European Standard should check the scope of both this and CEN standards to ensure that a correct standard is used. Where necessary, normative reference is made to these standards in this Part 2.

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This Part 2-9 is to be used in conjunction with EN 61029-1:2009. This Part 2-9 supplements or modifies the corresponding clauses of EN 61029-1, so as to convert it into the European Standard: "Safety requirements for transportable mitre saws".

Where a particular subclause of Part 1 is not mentioned in this Part 2-9, that subclause applies as far as is reasonable. Where this Part 2-9 states "addition", "modification" or "replacement", the relevant text of Part 1 is to be adapted accordingly.

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

Clauses, subclauses, notes, tables and figures which are additional to those in IEC 61029-2-9 are prefixed "Z".

NOTE In this European Standard, the following print types are used:

- requirements proper: in roman type;
- test specifications: in italic type;
- explanatory matter: in smaller roman type.

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive.

For the relationship with EU Directive 2006/42/EC, see informative Annex ZZ, which is an integral part of this document.

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(SEndorsement notice i)

The text of the International Standard IE<u>C 61029-2-9:1995</u> was approved by CENELEC as a European Standard with agreed common modifications g/standards/sist/a830c3e8-4939-4e3c-9423a48961a14e70/sist-en-61029-2-9-2013

1 Scope

This clause of Part 1 is applicable except as follows:

1.1 Addition:

This European Standard applies to transportable mitre saws with a saw blade diameter not exceeding 350 mm, intended for cutting wood and analogous materials, plastics and non-ferrous metals except magnesium.

1.2 Addition:

This European Standard does not apply to transportable mitre saws used to cut ferrous metal or magnesium.

This standard does not apply to mitre saws other than transportable.

NOTE 1 EN 1870-3 gives requirements for mitre saws for cutting wood other than transportable.

This standard does not apply to tools combining the function of a mitre saw with the function of a circular saw bench.

NOTE 2 Transportable tools combining the function of a mitre saw with the function of a circular saw bench are covered by EN 61029-2-11. (standards.iteh.ai)

2 Definitions

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2.21 Replacement:

2.21

normal load load to obtain rated input

2.101

mitre saw

saw consisting of a table which supports and positions the workpiece and a saw unit fitted to an arm which projects over the table, normally from a pivot located at the table or on part of the frame of the machine

Note 1 to entry A mitre saw will have one or more of the following actions, down cutting action or sliding action which may follow or precede any down cutting action and can perform cuts such as angle / mitre, bevel and compound.

2.102

linked action

action of opening and closing of the guard is linked to the corresponding up and down movement of the saw unit. This linked action need not be a rigid connection

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:

Mitre saws shall be marked with

- maximum and minimum saw blade diameter; retad as load apoad
- rated no-load speed:
- indication of direction of rotation of the saw blades.iteh.ai)
- saw blade bore diameter.

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

7.13 Addition:

The substance of the following instructions shall also be given:

- c) Safety precautions
- Z101) warning not to use saw blades which are damaged or deformed;
- Z102) instruction to replace the table insert when worn;
- Z103) instruction to use only saw blades specified by the manufacturer; specified saw blades for wood working shall comply with EN 847-1;
- Z104) warning not to use saw blades manufactured from high speed steel;
- Z105) instruction to wear suitable personal protective equipment when necessary, this could include:
 - i) hearing protection to reduce the risk of induced hearing loss;
 - ii) eye protection;
 - iii) respiratory protection to reduce the risk of inhalation of harmful dust;
 - iv) gloves for handling saw blades and rough material (recommendation that saw blades should be carried in a holder wherever practicable).
- Z106) instruction to connect the saw to a dust-collecting device when sawing wood;

e) Safe operation

- Z101) instruction to select the correct saw blade for the material to be cut;
- Z102) warning not to use the saw to cut materials other than those specified;
- Z103) lifting and transportation information: Information shall include where to lift and support the mitre saw and when necessary a warning not to use guards for this purpose;
- Z104) instruction to use only the saw with guards in good working order and properly maintained, and in position;
- Z105) instruction to keep the floor area free of loose material e.g. chips and cut-offs;
- Z106) instruction to ensure the speed marked on the saw blade is at least equal to the speed marked on the saw;
- Z107) instruction to ensure that any spacers and spindle rings used are suitable for the purpose as stated by the manufacturer;
- Z108) when fitted with a laser or LED: warning not to replace the laser or LED with a different type. Instruction that repairs shall only be carried out by the manufacturer or an authorised agent;
- Z109) instruction how to correctly replace and reposition the saw blade;
- Z110) warning to refrain from removing any cut-offs or other parts of the workpiece from the cutting area whilst the machine is running with an unguarded saw blade;
- Z111) instruction how to perform cuts correctly and safely:
 - i) always to clamp workpieces to the saw table;
 - ii) to ensure before each cut that the machine is stable; CV EV
 - iii) if needed, to fix the machine to a work bench or the like;
 - iv) if needed, to support long workpieces with appropriate additional supports;
- Z112) instruction how to clamp workpieces to the saw table;
- Z113) instruction howpto/fix/the/machine.to/a/workbench/or3the/like/939-4e3c-9423-
- Z114) information about the minimum size of the workpiece;
- Z116) information about the maximum cross-section size of the workpiece for cross-cutting;
- Z117) information about the range of outside diameter, bore diameter and thickness of saw blades which may be used;
- Z118) information about the maximum cutting depth;
- Z119) information about the possible mitre and bevel angles and combinations thereof.

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.

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12 Leakage current

This clause of Part 1 is applicable.

13 Environmental requirements

This clause of Part 1 is applicable except as follows:

13.2.1 Addition:

The major sound sources of tools are:

- the saw blade;
- gears;
- the motor / the fan;
- the workpiece.

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

13.2.4 Replacement of paragraphs 1, 2 and 3:

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

Table Z101 – Test conditions for mitre saws SIST EN 61029-2-9:2013

Material	Beech 20 mm × 2/3 maximum cutting width, but hot more than 200 mm - planed on four sides		
Feed speed	At a brisk pace without overloading the machine		
Width of cut-off	15 mm minimum at 90° crosscut		
Test work cycle	Five cuts quickly following each other constitutes one complete test work cycle. The measurement is conducted over the complete test work cycle		
Tool bit	New saw blade at the start of the test, tungsten carbide tipped for crosscutting and having the maximum diameter as marked on the tool in accordance with 7.1		
Test position	To be used on a bench above reflecting plane as shown in Figure 12 of Part 1		

13.3 Replacement:

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.

17 Abnormal operation

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

17.1 Addition:

Mitre saws equipped with an induction motor are considered to be tools in which moving parts are liable to be jammed.

18 Stability and mechanical hazards

This clause of Part 1 is applicable except as follows:

18.1 *Replacement:*

Mitre saws shall be equipped with a guarding system, which cannot be removed without the aid of a tool.

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The guarding system shall comply with the requirements of 18.1.101. (standards.iteh.al)

18.1.101 Saw blade guards

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18.1.101.Z1 Mitre saws shall be provided with a combination of fixed and self-closing guards.

The areas 1 and 2 of the machine are shown in Figure Z101.

The area 1 shall have a fixed guard which as a minimum covers the periphery and both sides of the saw blade down at least to the root of the teeth, independent of the position of the saw unit. When the flange/clamping nut is not circular it shall be covered by a fixed guard.

In the upper position, the area 2 shall be guarded by a combination of fixed and self-closing guards which as a minimum cover the periphery of the saw blade and both sides of the saw teeth down at least to the root of the teeth. See Figure Z101 for illustration.

The guards shall comply with this requirement at any mitre and bevel position which is possible.

The self-closing guard shall comply with either a) or b):

a) The guard shall be of a U-shaped construction (see Figure Z102). The guard shall enclose the teeth of the saw blade.

For saws with linked action and with the saw unit in its upper position, the guard shall be in its completely closed position and both the guard and saw unit shall be locked.

Compliance is checked by inspection and the following test.

The saw unit in the upper position at 90° to the table is subjected to a load of 100 N vertically downwards at the highest point of the operating handle. It shall not be possible to touch the teeth of the saw blade with the test probe of Figure Z105, taking into account any free movement of the guard.

The saws unit and guard shall only be unlocked by manually operating the release device(s) and the guard shall pen by moving the saw unit down. It shall be possible to operate the release device(s) without releasing the grip on the handle.

Compliance is checked by inspection and by manual test.

For saw units without linked action and with the saw unit in its upper position, the guard shall be locked. When moving down the saw unit from its upper position, the guard shall remain locked and closed in all positions of the saw unit and only be unlocked and opened by manually operating the release device.

Compliance is checked by inspection and by applying the test probe of Figure Z105 in all positions of the saw unit. It shall not be possible to touch the teeth of the saw blade taking into account any free movement of the guard.

After manually operating the release device, the guard shall open by further pressing of the release device for an angle of maximum 60°.

Compliance is checked by inspection and by manual test.

b) The guard shall be of an open guard construction (see Figure Z103) which covers both sides of the saw blade teeth as shown in Figure Z104 and which opens when it makes contact with the workpiece or the fence. The guard shall lie on the workpiece or on the fence during cutting to afford maximum protection. STANDARD PREVIEW

Compliance is checked by inspection and by measurement.

The guard shall be in its completely closed position. https://standards.iteh.ai/catalog/standards/sist/a830c3e8-4939-4e3c-9423-

a48961a14e70/sist-en-61029-2-9-2013

Compliance is checked by inspection and the following test.

The saw unit in the upper position at 90° to the table is subjected to a load of 100 N vertically downwards at the highest point of the operating handle. The guard shall remain locked and not open.

It shall be possible for an operator to unlock the guard without releasing the grip on the handle.

Compliance is checked by manual test.

18.1.101.Z2 In cutting mode, the front of the saw blade shall be guarded against inadvertent contact, see Figure Z108.

Compliance is checked while the saw unit is at its lowest vertical position, its maximum extended horizontal position and no workpiece present. A test rod with 12 mm diameter and 50 mm length is applied at all bevel and mitre angles. The longitudinal axis of the test probe shall be parallel to the table surface and be perpendicular to the cutting line. The test probe shall be equally shared about the cutting line. When the test probe is moved towards the saw blade, it shall not be able to touch its toothed rim.

18.1.101.Z3 For saws without linked action provided with a spring loaded guard, the closing time of the self-closing guard from the fully open position to the fully closed position shall not exceed 0,3 s.

Compliance is checked by the following test. During the test, the saw unit is set to cut at 90° to the table. Without any lubrication, the self-closing guard is retracted fully and then allowed to close for 20 000 cycles. The closing time from the fully open position to the fully closed position shall not exceed the time specified above at the first and at the last of the 20 000 cycles.