
Varnost premičnih električnih orodij - 2-4. del: Posebne zahteve za namizne brusilnike (IEC 61029-2-4:1993; spremenjen)

Safety of transportable motor-operated electric tools - Part 2-4: Particular requirements for bench grinders

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EUROPEAN STANDARD

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NORME EUROPÉENNE

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English version

Safety of transportable motor-operated electric tools
Part 2-4: Particular requirements for bench grinders
(IEC 61029-2-4:1993, modified)

Sécurité des machines-outils
électriques semi-fixes
Partie 2-4: Règles particulières
pour les tourets à meuler
(CEI 61029-2-4:1993, modifiée)

Sicherheit transportabler
motorbetriebener Elektrowerkzeuge
Teil 2-4: Besondere Anforderungen
für Tischeschleifmaschinen
(IEC 61029-2-4:1993, modifiziert)

This European Standard was approved by CENELEC on 2002-03-05. 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.

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CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of the International Standard IEC 61029-2-4:1993, 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 electric motor-operated tools, was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 61029-2-4 on 2002-03-05.

A draft for an amendment (prAA) was submitted to the formal vote and was approved by CENELEC for incorporation into EN 61029-2-4 on 2002-03-05.

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) 2003-08-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2005-03-01

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 electric motor operated tools (for the purpose of this standard refer

red 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 health and safety requirements of the Directive.

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.

As with any standard, technical progress will be kept under review so that any developments can be taken into account.

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

Part 2-4 is to be used in conjunction with EN 61029-1:2000.

Part 2-4 supplements or modifies the corresponding clauses of EN 61029-1, so as to convert it into the European Standard: Safety requirements for transportable bench grinders.

Where a particular subclause of part 1 is not mentioned in this part 2-4, that subclause applies as far as is reasonable. Where this part 2-4 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 61029-2-4 are prefixed "Z".

NOTE In this European 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 standard applies to transportable bench grinders with a wheel diameter not exceeding 250 mm, a thickness not exceeding 50 mm and a peripheral speed not exceeding 50 m/s, as defined in 2.101.

The requirements for bonded abrasive products (wheel) are given in EN 12413.

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

bench grinder

tool designed to grind metal or similar materials by means of one or two rotating abrasive wheels fixed on the tool spindle, the work piece being held by hand (see Figure 101)

2.102

accessory

device or piece other than a grinding wheel intended to be mounted on the bench grinder spindle

2.103

tool spindle

motor spindle of the bench grinder which supports and transmits the rotation to the grinding wheel

2.104

nozzle for dust collection

device allowing the connection of the bench grinder to a dust collection system

2.105

guard for wheel

device which partially encloses the abrasive wheel in order to protect the user against accidental contact with the wheel in normal use and against ejection of fragments of the wheel in the protected area in case of breakage of the wheel [SIST EN 61029-2-4:2003](https://standards.iteh.ai/catalog/standards/sist/f2d437d6-c459-4aed-a0ff-f1d97e638ff2/sist-en-61029-2-4-2003)

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2.106

flange assembly

means provided to clamp an abrasive wheel to the tool spindle

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2.107**work rest**

surface or device intended to support or guide the piece to be worked

3 General requirement

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

This clause of part 1 is applicable except as follows:

7.1 Addition:

- the rated no-load speed in rev/min;
- the maximum diameter D of the wheel to be used;
- indication of the direction of rotation of the grinding wheel.

7.6 Addition:

The direction of rotation of the wheel shall be indicated on the tool by an arrow raised or sunk or by any other means not less visible and indelible.

7.13 Addition:

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The following instructions shall also be given:

- wear protective glasses;
- do not use damaged grinding wheels;
- use only grinding wheels recommended by the manufacturer which have a marked speed equal to or greater than the speed marked on the nameplate of the tool;
- adjust the spark arrestor frequently so as to compensate for wear of the wheel, keep the distance between the spark arrestor and the wheel as small as possible and in any case not greater than 2 mm;

- instruction for the safe use, handling and storage of abrasive wheels taking into account the requirements of the CEN standard for abrasive products for the type of tool covered by this standard. It is assumed that wheels will not be dressed. If wheel dressing is intended then suitable precautions should be taken;
- if the grinder is intended to be bolted down, an instruction requesting it to be secured to a suitable work surface.

The following information shall also be given:

- how to connect the dust collection device, if any;
- details of the grinding wheel(s) recommended, the maximum thickness of the wheel and the diameter of the hole in the wheel;
- the maximum wear of the wheel allowed before replacement;
- description of residual risks.

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

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13 Environmental requirements [SIST EN 61029-2-4:2003](https://standards.iteh.ai/catalog/standards/sist/f2d437d6-c459-4aed-a0ff-f1d97e638ff2/sist-en-61029-2-4-2003)

This clause of part 1 is applicable except as follows.

13.1 This subclause is not applicable.

13.2.1 *Addition:*

The most important sources of noise are:

- abrasive wheels,
- workpieces.

13.2.4 Replacement of paragraphs 1, 2 and 3:

Bench grinders are tested under load under the conditions shown in Table Z101.

Table Z101 – Noise test conditions for bench grinders

Wheels	New wheels as recommended by the manufacturer for grinding of firmer chisel
Work piece	Flat firmer chisel, 30 mm wide
Feed-speed	Sufficient to perform finish-grind
Test position	To be used on a test bench above reflecting plane as shown in Figure 12 of part 1.
Test cycle	To consider the influence of different wheels the measurements shall be performed as follows: <ul style="list-style-type: none"> - 3 measurements with grinding wheel; - 3 measurements with finishing wheel. Each measurement shall take at least 60 s.

The highest mean value of the three equivalent measurements has to be given in the manual.

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.

16 Endurance

This clause of part 1 is applicable.

17 Abnormal operation

This clause of part 1 is applicable.

18 Stability and mechanical hazards

This clause of part 1 is applicable except as follows:

18.1 Addition:

Bench grinders shall be equipped with an adequate guarding system which cannot be removed without the aid of a tool.

The guarding system shall comply with the requirements of 18.1.101.

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18.1.101 Wheel guards

Except for the openings in the guard as allowed in 18.1.101.2 the wheel shall be enclosed by a fixed guard.

On straight-sided wheels the side guard shall cover the flanges and the end of the tool spindle.

The guard shall be designed so that the tool cannot be fitted with a wheel greater than 1,07 times the maximum diameter marked on the tool.

18.1.101.1 Strength of guards

Guards for straight sided wheels shall either

- a) have a thickness as given in Table Z102 or Table Z103, provided the guard is made of material in accordance with Table Z104, or,
- b) meet the requirements of 18.1.101.1.1.

Guards for cup wheels shall either

- a) have a thickness as given in Table Z102 or Table Z103, provided the guard is made of material in accordance with Table Z104, or,
- b) if the bench grinder is also fitted with a straight sided wheel and that guard meets the requirements of 18.1.101.1.1, be of the same material and thickness as the guard for the straight sided wheel.

Table Z102 - Guard thickness for steel

Material (see Table Z104)	Peripheral speed m/s	Wheel thickness mm	Wheel diameter in mm					
			≤ 125		≤ 200		≤ 250	
			P	J	P	J	P	J
1, 2 & 3	32	50	1,5	1,5	2	1,5	3	2
1, 2 & 3	40	25	1,5	1,5	2	1,5	2,5	2
		50	1,5	1,5	2	1,5	3,5	2
1, 2 & 3	50	25	1,5	1,5	2	1,5	3	2
		50	2	1,5	3	2	4,5	3

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