SLOVENSKI STANDARD
SIST EN 61029-2-4:2011

01-april-2011

Nadomešča:
SIST EN 61029-2-4:2003
SIST EN 61029-2-4:2003/A1:2004

Varnost premičnih električnih orodij - 2-4. del: Posebne zahteve za namizne brusilnike (IEC 61029-2-4:1993, spremenjen + A1:2001, spremenjen)

Safety of transportable motor-operated electric tools - Part 2-4: Particular requirements for bench grinders (IEC 61029-2-4:1993, modified + A1:2001, modified)

Sicherheit transportabler motorbetriebener Elektrowerkzeuge - Teil 2-4: Besondere Anforderungen für Tischschleifmaschinen (IEC 61029-2-4:1993, modifiziert + A1:2001, modifiziert)

Sécurité des machines-outils électriques semi-fixes - Partie 2-4: Règles particulières pour les tourets à meuler (CEI 61029-2-4:1993, modifiée + A1:2001, modifiée)

Ta slovenski standard je istoveten z: **EN 61029-2-4:2011**

ICS:

25.080.50	Brusilni in polirni stroji	Grinding and polishing machines
25.140.20	Električna orodja	Electric tools

SIST EN 61029-2-4:2011 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61029-2-4

January 2011

ICS 25.140.20; 25.080.50

Supersedes EN 61029-2-4:2003 + corr. Apr.2003 + A1:2003

English version

Safety of transportable motor-operated electric tools - Part 2-4: Particular requirements for bench grinders
(IEC 61029-2-4:1993, modified + A1:2001, modified)

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(IEC 61029-2-4:1993, modifiziert + A1:2001, modifiziert)

This European Standard was approved by CENELEC on 2011-01-10. 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, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

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

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Ref. No. EN 61029-2-4:2011 E

Foreword

The text of the International Standard IEC 61029-2-4:1993 + A1:2001, prepared by IEC TC 116, Safety of hand-held motor-operated electric tools, together with the common modifications prepared by the Technical Committee CENELEC TC 116, Safety of motor-operated electric tools, was submitted to the formal vote and was approved by CENELEC as EN 61029-2-4 on 2011-01-10.

This document supersedes EN 61029-2-4:2003 + corrigendum April 2003 + A1:2003.

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)	2012-01-10
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2014-01-10

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 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 CENELEC by the European Commission and the European Free Trade Association and covers essential requirements of the Machinery Directive 2006/42/EC. See Annex ZZ.

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.

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 61029-1:2009.
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.

Contents

Figures

Tables

Text of EN 61029-2-4

The text of this European Standard consists of the text of the International Standard IEC 61029-2-4:1993 + A1:2001 with the following common modifications.

COMMON MODIFICATIONS

1 Scope

This clause of Part 1 is applicable except as follows:

1.1 *Addition:*

This standard applies to transportable bench grinders (see Figure 101) and combined bench grinders (see Figure 107) with a wheel diameter and brush diameter not exceeding 200 mm, a thickness not exceeding 30 mm and a peripheral speed not exceeding 50 m/s, as defined in 2.101 and 2.107.

The requirements for bonded abrasive products (wheel) are given in EN 12413. The requirements for brushes are given in EN 1083-2.

Stationary grinding machines are covered by EN 13218.

Bench grinders where the wheel partly runs in a water reservoir are not considered as tools with water supply.

2 Terms and definitions

This clause of Part 1 is applicable except as follows:

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 or of the combined bench grinder which supports the brush and/or grinding wheels and transports the rotation to them

2.104
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

2.105
flange assembly
means provided to clamp an abrasive wheel to the tool spindle

2.106
work rest
surface or device intended to support or guide the piece to be worked

2.107
combined bench grinder
tool designed to grind metal or similar materials or to clean, polish or deburr metal or similar materials by means of an abrasive wheel and a brush fixed on opposite ends of the tool spindle, and which is located in a proper workplace and where pieces are held by hand

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 .../min or min^{-1};
– the minimum and maximum diameter *D* of the wheel to be used;
– indication of the direction of rotation of the grinding wheel;
– for combined bench grinders, the minimum and maximum diameter *D* of the brush to be used;
– for combined bench grinders, a warning near to the brush spindle never to use a grinding wheel on the brush side of the machine;
– a warning to wear safety glasses or the relevant symbol.

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:*

The handbook or information sheet shall include all the necessary information for safe working with the bench grinder or combined bench grinder, such as method of operation, wheel and brush changing, maintenance, assembly, transportation, etc.

The substance of the following instructions shall also be given:

– warning not to use damaged or misshapen wheels or brushes;

– instruction to use only grinding wheels and brushes which have a marked speed equal to or greater than the speed marked on the nameplate of the tool;

– instruction to 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;

– instructions for the safe use, handling and storage of abrasive wheels and brushes;

– if the grinder is intended to be bolted down, an instruction requesting it to be secured to a suitable work surface;

– for combined bench grinders, instruction to always keep the brush assembled on the spindle in order to limit the risk of contact with the rotating spindle;

– details of the grinding wheel(s) recommended, the maximum thickness of the wheel and the diameter of the hole in the wheel;

– for combined bench grinders, details of the brushes recommended, the maximum thickness of the brush and the diameter of the hole in the brush;

– the maximum wear of the wheel allowed before replacement;

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 *This subclause is not applicable.*

13.2.4 *Replacement of paragraphs 1 and 2:*

Bench grinders and combined bench grinders are tested at no-load.

NOTE The most important sources of noise for bench grinders are the workpiece and the wheel or brush. As these sources of noise cannot be influenced by the design of the tool, the noise is measured at no-load.

13.3 *This subclause is not applicable.*

14 Protection against ingress of foreign bodies and moisture resistance

This clause of Part 1 is applicable except as follows:

14.4 If the tool is constructed to IPX4 or above, this subclause is not applicable.

14.5 If the tool is constructed to IPX4 or above, this subclause is not 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 and combined 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.

18.1.101 Guard for wheel

Bench grinders and combined bench grinders shall be equipped with guards which leave uncovered only a portion of the wheel as allowed in 18.1.101.2 and indicated in Figure 103.

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 Z101 or Table Z102, provided the guard is made of material in accordance with Table Z103; or

b) meet the requirements of 18.1.101.1.Z1.

Guards for cup wheels shall either:

a) have a thickness as given in Table Z101 or Table Z102, provided the guard is made of material in accordance with Table Z103; 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.Z1, be of the same material and thickness as the guard for the straight sided wheel.

Table Z101 − Guard thickness for steel

Material (see Table Z103)	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

Table Z102 − Guard thickness for aluminium

Material (See Table Z103)	Peripheral speed m/s	Wheel thickness mm	Wheel diameter in mm					
			≤ 125		≤ 200		≤ 250	
			P	J	P	J	P	J
7	32	10	5,5	5	6,5	5	8	6
		20	6	5	8	6	10	8
		32	6,5	5	9	7	12	10
	50	10	6	5	8,5	7	10,5	9
		20	7	6	10	8	13	11
6	40	10	2,5	2,5	3,5	3,5	4	4
		20	3	3	4	4	5	5
		32	3,5	3,5	4,5	4,5	6	5
	50	10	3	3	4	4	5	5
		20	3,5	3,5	4,5	4,5	6	5
		32	4	4	5	5	7	6