SLOVENSKI STANDARD
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Safety of hand-held electric motor operated tools - Part 2-17: Particular requirements for routers

Safety of hand-held electric motor operated tools -- Part 2-17: Particular requirements for routers

Sicherheit handgeführter motorbetriebener Elektrowerkzeuge -- Teil 2-17: Besondere Anforderungen für Oberfräsen

Sécurité des outils électroportatifs à moteur -- Partie 2-17: Règles particulières pour les défonceuses

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ICS:

25.080.20	Frezalniki	Boring and milling machines
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English version

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Part 2-17: Particular requirements for routers

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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.

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

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

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Foreword

This European Standard has been prepared by Technical Committee TC 61F, Hand-held and transportable electric motor operated tools. The text of the draft was submitted to the Unique Acceptance Procedure (UAP) in August 1996 and was approved by CENELEC as EN 50144-2-17 on 2000-01-01.

This European Standard supersedes HD 400.3O S1:1992.

The following dates were fixed:

- latest date by which the EN has to be implemented at a national level by publication of an identical national standard or by endorsement (dop) 2000-09-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2001-12-01

This standard is divided into two parts:

Part 1: General requirements which are common to most hand-held electric motor operated tools (for the purpose of this standard referred to simply as tools).

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 clauses of Part 1 together with this Part 2 provides one means of conforming with the 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.

This standard follows the overall requirements of EN 292-1 and EN 292-2.

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

NOTE In this European Standard the following print types are used:
- Requirements proper;
- *Test specifications;*
- Explanatory matter.

Contents

1 Scope

This clause of Part 1 is applicable except as follows:

1.1 *Addition:*

This European Standard applies to all types of router.

This standard does not give requirements for the design of the tool to reduce the risks arising from noise and vibration.

2 Definitions

This clause of Part 1 is applicable except as follows:

2.2.18 *Replacement:*

2.2.18 **normal load:** The load obtained when the tool is operated intermittently, each cycle comprising a period of continuous operation of 1 min and a rest period of 1 min with the tool switched off. The load applied during the periods of continuous operation shall be such that the input, in watts, is equal to rated input.

The normal load is based on the rated voltage or on the upper limit of the rated voltage range.

Additional definition:

2.2.101 **router:** A tool designed to be fitted with suitable rotary cutters for cutting slots into or shaping wood or similar materials.

3 General requirements

This clause of Part 1 is applicable.

4 General notes on tests

This clause of Part 1 is applicable except as follows:

4.11 *Addition:*

If eddy current brakes are used for applying the load their starting characteristics shall not adversely affect the router under test.

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:*

Routers shall be marked with the maximum no-load speed(s) in revolutions per minute.

7.13.1 *Addition:*

— details of the type and shank size of cutters for which the tool is designed

7.13.2 *Addition:*

Instructions shall also include the substance of the following:

— only use cutters of the correct shank diameter and which are suitable for the speed of the tool.

Additional subclause:

7.13.101 The instruction sheet shall also include the following: "Hearing protection should be worn".

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 except as follows:

10.1 This subclause of Part 1 is not applicable.

11 Heating

This clause of Part 1 is applicable except as follows:

11.5 *Modification:*

The tool is operated under normal load for 30 cycles. The temperature rises are measured at the end of the last period of continuous operation.

12 Leakage current

This clause of Part 1 is applicable.

13 Environmental requirements

This clause of Part 1 is applicable except as follows:

13.1.2 *Replacement:*

The tests under working conditions, orientation within the cabin and material to be worked shall be in accordance with the following:

Material	Chipboard 19 mm x 800 mm x 400 mm
Feed speed	At a brisk pace without overloading the tool
Depth of cut	8 mm
Width of cut-off	10 mm between each groove cut
Tool bit/cutter/ abrasive	New ∅ 12 mm straight sided bit as recommended by the manufacturer for the material being worked, at the start of each test period
Integral collection (if any)	Emptied during each 10 minute rest time
Orientation	Along the length of the cabin with the airflow from behind the operator (see Figure 101)
Test cycle	Straight cuts, across 400 mm width, along a fixed guide in alternate directions for 2 min working time followed by 10 minutes rest time
Test period	Five complete cycles

NOTE Working time means the time the tool is actually doing work and does not include the non-working time at the end of each stroke and before the beginning of the next stroke.

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

Routers are tested at no load.

Paragraph 4 is not applicable.

13.2.4 *Addition:*

The base plate shall be horizontal.

13.3.7 *Replacement of paragraph 1:*

Routers are tested under load under the conditions shown in Table 101.

Table 101 - Test conditions for routers

Orientation	Cutting grooves in a horizontal piece of chipboard 800 mm x 400 mm x 19 mm supported on resilient material and fixed to a bench
Tool bit	∅ 12 mm straight sided bit as recommended by the manufacturer for chipboard
Feed force	Just sufficient to cut at a brisk pace
Test cycle	Cutting grooves 8 mm deep across the 400 mm width of the chipboard. Distance between grooves to be 10 mm using the guide fence if supplied.

Paragraph 3 is not applicable.

14 Moisture resistance

This clause of Part 1 is applicable.

15 Insulation 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 Mechanical hazards

This clause of Part 1 is applicable except as follows:

18.3 *Replacement:*

Routers shall be provided with at least one handle.

The motor housing, if appropriately shaped, can be considered to be a handle.

Routers having a rated input exceeding 700 W or a mass exceeding 2 kg shall be provided with two handles.

The handles shall be shaped or located so as to minimize the risk of inadvertent contact of the hand of the user with the rotating parts.

Inadvertent contact of the hand of the user is considered to be sufficiently prevented, for example, if the gripping area of the handle is provided with a suitable shroud(s) or barrier at its end(s) adjacent to the body of the tool, or if there is a distance of at least 120 mm from the furthest side of the handle to the cutter.

Compliance is checked by inspection and by measurement . The measurement shall be carried out as shown in Figure 102. If the shape of the tool is such that there is no direct path between the handle and the cutter, the distance separating the two may be measured around the profile of the parts preventing the direct path. The mass of the router is measured without accessories, e.g. mandrels, cutters and without cable or cord.

Additional subclauses:

18.101 Routers shall be equipped with a base plate which surrounds the cutter so as to prevent inadvertent contact with the cutter during normal operation.

Compliance is checked by inspection.

18.102 The maximum speed of the spindle at rated voltage or at the upper limit of the rated voltage range shall not exceed the speed marked on the nameplate.

Compliance is checked by measuring the speed of the spindle after the tool has been operating for 15 minutes with no-load.

19 Mechanical strength

This clause of Part 1 is applicable.