



# SLOVENSKI STANDARD

## SIST EN 50144-2-4:2000

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Nadomešča:

SIST EN 50144-2-4:1999

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### Varnost električnih ročnih orodij - 2-4. del: Posebne zahteve za brusilnike

Safety of hand-held electric motor operated tools -- Part 2-4: Particular requirements for sanders

Sicherheit handgeführter motorbetriebener Elektrowerkzeuge -- Teil 2-4: Besondere Anforderungen für Schwing- und Bandschleifer

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Sécurité des outils électroportatifs à moteur -- Partie 2-4: Règles particulières pour les ponceuses

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**Ta slovenski standard je istoveten z: EN 50144-2-4:1999**

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#### **ICS:**

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

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 50144-2-4**

November 1999

ICS 25.140.20; 25.080.50

Supersedes EN 50144-2-4:1995

English version

**Safety of hand-held electric motor operated tools  
Part 2-4: Particular requirements for sanders**

Sécurité des outils électroportatifs  
à moteur  
Partie 2-4: Règles particulières  
pour les ponceuses

Sicherheit handgeführter  
motorbetriebener Elektrowerkzeuge  
Teil 2-4: Besondere Anforderungen  
an Schwing- und Bandschleifer

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This European Standard was approved by CENELEC on 1998-08-01. 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.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

**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

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 December 1993 and was approved by CENELEC as EN 50144-2-4 on 1994-10-04.

A draft for an amendment was submitted to UAP in April 1994 and was approved by CENELEC on 1994-10-04 for inclusion into the European Standard.

A further amendment was submitted to UAP in May 1996 and was approved by CENELEC as amendment A1 to EN 50144-2-4 on 1996-12-09.

Amendments to fulfill the essential requirements of the Machinery Directive were submitted to the formal vote in January 1998 and were approved by CENELEC on 1998-08-01 for inclusion, together with the earlier amendment, into a second edition of EN 50144-2-4.

This European Standard supersedes EN 50144-2-4:1995 and its corrigendum March 1996.

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) 2000-06-01
- 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.

CEN TC/255 is producing standards for non electrically driven sanders (EN 792-8).

**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.....	4
2	Definitions .....	4
3	General requirements .....	4
4	General conditions for the tests .....	4
5	Rating.....	4
6	Classification.....	4
7	Marking and information for use .....	5
8	Protection against electric shock .....	5
9	Starting .....	5
10	Input and current.....	5
11	Heating.....	5
12	Leakage current.....	5
13	Environmental requirements .....	6
14	Moisture resistance.....	7
15	Insulation resistance and electric strength .....	7
16	Endurance .....	7
17	Abnormal operation .....	7
18	Mechanical hazards.....	7
19	Mechanical strength.....	7
20	Construction.....	7
21	Components.....	8
22	Internal wiring .....	8
23	Supply connection and external flexible cables and cords .....	8
24	Terminals for external conductors.....	8
25	Provision for earthing.....	8
26	Screws and connections.....	8
27	Creepage distances, clearances and distances through insulation .....	8
28	Resistance to heat, fire and tracking .....	8
29	Resistance to rusting .....	8
30	Radiation.....	8
Annexes .....		10

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SIST EN 50144-2-4:2000

[https://standards.iteh.ai/catalog/standards/sist/275582e9-32d2-4e3d-a771-](https://standards.iteh.ai/catalog/standards/sist/275582e9-32d2-4e3d-a771-104d5648d3e/sist-en-50144-2-4-2000)

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Page 4  
EN 50144-2-4:1999

## 1 Scope

This clause of Part 1 is applicable except as follows:

### 1.1 Addition:

This European Standard applies to hand-held reciprocating sanders, belt sanders, orbital sanders and random orbital sanders.

It does not apply to disc type sanders which are covered by EN 50144-2-3 (in preparation).

This standard does not give requirements for the design of the tool for the reduction of the risk 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 sander is operated continuously while sanding a horizontal softwood surface, the sander being fitted with 80 grit aluminium-oxide abrasive paper and loaded with an additional weight having a mass equal to 3 kg or to the mass of the sander, whichever is the smaller, and moved backwards and forwards over a distance of 50 cm, at a rate of 30 cycles per minute.

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

*Additional definition:*

2.2.101 **random orbital sander**: Denotes a disc type sander where the rotation is combined with an oscillating movement.

## 3 General requirements

This clause of Part 1 is applicable.

## 4 General conditions for the tests

This clause of Part 1 is applicable except as follows:

### 4.10 Addition:

*For tests to be made under normal load, a brake may be used instead of sanding the wooden surface. The load caused by the brake shall, however, be the same as that measured after the sander has been operating for a period of 2 min under normal load.*

## 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:

Belt-type sanders and random orbital sanders shall be marked with an indication of the direction of rotation. The direction of rotation of the belt or disc shall be clearly indicated by an arrow, raised or sunk, or by any other means no less visible and indelible.

### 7.13.1 Addition:

- information on the correct use of the dust collection equipment;
- a warning about harmful/toxic dusts arising from sanding (e.g. lead paint, some woods and metal).

*Additional subclause:*

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

## 8 Protection against electric shock

This clause of Part 1 is applicable.

## 9 Starting

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This clause of Part 1 is applicable. [464a13648d3e/sist-en-50144-2-4-2000](https://standards.iteh.ai/catalog/standards/sist/243582c9-32d2-4e3d-a771-464a13648d3e/sist-en-50144-2-4-2000)

## 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:

**13.1.2 Replacement:**

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

<u>Material</u>	Orbital and reciprocating sanders - Beech 500 mm × B × any convenient thickness, where B = width of platen plus 15 mm. Belt sanders - Beech 500 mm × B × any convenient thickness, where B = width of platen less 15 mm.
<u>Feed-speed</u>	As for normal load.
<u>Depth of cut</u>	Not applicable.
<u>Width of cut-off</u>	Not applicable.
<u>Tool bit/cutter abrasive</u>	Aluminium oxide 80 grit abrasive paper, new at the start of each 10 min work cycle.
<u>Integral collection (if any)</u>	Emptied during 10 minutes rest time
<u>Orientation</u>	Across the cabin with the airflow from the left to the right of the operator (see Figure 101).
<u>Test cycle</u>	10 min working time as for normal load, then 10 min rest time (total 20 min).
<u>Test period</u>	Three complete cycles (total 1 hour).

**13.2.3 Replacement of paragraphs 1, 2, 3 and 4:**

All tools are tested at no load.

**13.2.4 Addition:**

The plate of the sander shall be horizontal.

**13.3.7 Replacement of paragraph 1:**

Sanders are tested under load under the following conditions:

**Table 101 - Test conditions for sanders**

Orientation	Sanding a horizontal steel plate 400 mm × 400 mm × 20 mm mounted on a bench
Tool bit	Recommended sanding paper for steel with a grain size of 180
Feed force	50 N ± 5 N
Pre-test requirements	With a new sanding sheet carry out 1 min sanding before starting measurements

Paragraph 3 is not applicable.



**14 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 except as follows:

**16.2 Addition:**

*Orbital sanders and reciprocating sanders are operated while the platen, which is covered with an abrasive medium in the reversed position, is resting on a steel plate, the platen being loaded with the mass of the sander only.*

*Random orbital sanders are operated according to Part 1 after removing the oscillating device.*

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**17 Abnormal operation**

This clause of Part 1 is applicable.

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**18 Mechanical hazards**

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This clause of Part 1 is applicable except as follows:

**18.6 Addition:**

When the support is fixed as recommended by the manufacturer, a force of 100 N is applied to the front edge of the tool in the direction of feed.

The tool shall not move or overturn.

**19 Mechanical strength**

This clause of Part 1 is applicable except as follows:

**19.1 Addition:**

The test of 19.3 is not made on belt-type sanders.

**20 Construction**

This clause of Part 1 is applicable except as follows:

**20.21 Addition:**

Sanders are considered to be tools for which this clause of Part 1 is applicable.