

# Hand-held motor-operated electric tools — Safety —

Part 2-4: Particular requirements for  
sanders and polishers other than disk  
type

The European Standard EN 60745-2-4:2003 has the status of a  
British Standard

ICS 25.140.20; 25.140.30; 25.080.50





## National foreword

This British Standard is the official English language version of EN 60745-2-4:2003. It was derived by CENELEC from IEC 60745-2-4:2002. It supersedes BS EN 50144-2-4:2000 and BS EN 50260-2-4:2002 which will be withdrawn on 2006-02-01.

The CENELEC common modifications have been implemented at the appropriate places in the text and are indicated by tags (e.g.      ).

The UK participation in its preparation was entrusted by Technical Committee CPL/61, Safety of household and similar electrical appliances, to Subcommittee CPL/61/6, Portable motor operated tools, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

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### Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 8, an inside back cover and a back cover.

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Supersedes EN 50144-2-4:1999 & EN 50260-2-4:2002

English version

**Hand-held motor-operated electric tools -  
Safety  
Part 2-4: Particular requirements for sanders  
and polishers other than disk type  
(IEC 60745-2-4:2002, modified)**

Outils électroportatifs à moteur -  
Sécurité  
Partie 2-4: Règles particulières pour les  
ponceuses et lustreuses,  
autres que du type à disque  
(CEI 60745-2-4:2002, modifiée)

Handgeführte motorbetriebene  
Elektrowerkzeuge -  
Sicherheit  
Teil 2-4: Besondere Anforderungen  
für Schleifer und Polierer außer  
Tellerschleifern  
(IEC 60745-2-4:2002, modifiziert)

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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.

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**CENELEC**

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

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## Foreword

The text of the International Standard IEC 60745-2-4:2002, 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 motor-operated electric tools, was submitted to the formal vote and was approved by CENELEC as EN 60745-2-4 on 2003-02-01.

This European Standard supersedes EN 50144-2-4:1999 and EN 50260-2-4:2002.

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) 2004-02-01
- latest date by which the national standards conflicting  
with the EN have to be withdrawn (dow) 2006-02-01

Other standards referred to in this European standard are listed in Clause 2. Clause 2 lists the valid edition of those documents at the time of issue of this EN.

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) which could come within the scope of this standard;

Part 2: Requirements for particular types of tools 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 and 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 concerned.

CEN/TC 255 is producing standards for non-electric sanders and polishers (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.

This Part 2-4 is to be used in conjunction with EN 60745-1:2003. When this standard states "addition", "modification" or "replacement", the relevant text in Part 1 is to be adapted accordingly.

Subclauses 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 60745-2-4 are prefixed "Z".

NOTE In this standard, the following print types are used:

- requirements: in roman type;
- *test specifications: in italic type;*
- notes: in smaller roman type.

## Endorsement notice

The text of the International Standard IEC 60745-2-4:2002 was approved by CENELEC as a European Standard with agreed common modifications.





## **HAND-HELD MOTOR-OPERATED ELECTRIC TOOLS – SAFETY –**

### **Part 2-4: Particular requirements for sanders and polishers other than disk type**

#### **1 Scope**

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

##### **1.1 Addition:**

This standard applies to sanders and polishers with the exception of all types of rotating disc-type sanders, which are covered by EN 60745-2-3.

NOTE Until publication of EN 60745-2-3, rotating disc-type sanders are covered by EN 50144-2-3.

Tools covered by this standard include but are not limited to belt sanders, reciprocating sanders or polishers, orbital sanders or polishers, and random orbit sanders or polishers.

#### **2 Normative references**

This clause of Part 1 is applicable.

#### **3 Definitions**

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

*Additional definitions:*

##### **3.101**

###### **sander**

tool intended to remove surface material using an abrasive medium

##### **3.102**

###### **polisher**

tool equipped with a disk or pad intended for polishing

##### **3.103**

###### **belt sander**

sander equipped with an endless abrasive belt

##### **3.104**

###### **orbital sander or polisher (oscillating sander or polisher)**

sander or polisher equipped with a plate, which performs an orbital oscillating motion parallel to the work surface

##### **3.105**

###### **random orbit sander or polisher**

sander or polisher equipped with a plate positioned eccentrically on the driving spindle which can rotate freely around its axis parallel to the work surface





3.106

reciprocating sander or polisher

sander or polisher equipped with a plate which performs a reciprocating motion parallel to the work surface

4 General requirements

This clause of Part 1 is applicable.

5 General conditions for the tests

This clause of Part 1 is applicable.

6 Environmental requirements

This clause of Part 1 is applicable except as follows:

6.1.2.4 Modification:

Sanders and polishers are suspended. The plate of the tool shall be horizontal.

6.1.2.5 Modification:

Sanders and polishers are tested at no-load.

6.2.2.4 Modification:

Sanders and polishers are tested under load observing the conditions shown in Tables Z101 and Z102.

	<b>Table Z101 - Test conditions for sanders</b>
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

	<b>Table Z102 - Test conditions for polishers</b>
Orientation	Polishing a horizontal steel plate 400 mm × 400 mm × 20 mm mounted on a bench
Tool bit	Polishing pad

Feed force                      50 N ± 5 N

7 Classification

This clause of Part 1 is applicable.



## **8 Marking and instructions**

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

### **8.1 Addition**

For belt sanders, the direction of rotation of the belt shall be indicated on the tool by an arrow, raised or sunk, or by any other means no less visible and indelible.

#### **8.12.2 Za) Addition:**

101) for sanders:

instructions how to deal with harmful/toxic dusts arising from sanding e.g. lead painted surfaces, woods and metals. These instructions shall be preceded by a warning that contact with or inhalation of these dusts can endanger the health of operator and bystanders. These instructions shall include the use of appropriate personal protective equipment.

## **9 Protection against access to live parts**

This clause of Part 1 is applicable.

## **10 Starting**

This clause of Part 1 is applicable.

## **11 Input and current**

This clause of Part 1 is applicable.

## **12 Heating**

This clause of Part 1 is applicable.

## **13 Leakage current**

This clause of Part 1 is applicable.

## **14 Moisture resistance**

This clause of Part 1 is applicable.

## **15 Electric strength**

This clause of Part 1 is applicable.

## **16 Overload protection of transformers and associated circuits**

This clause of Part 1 is applicable.

## **17 Endurance**

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

### **17.2** *Replacement of the fifth paragraph, except for belt sanders:*

*Orbital sanders and polishers, random orbit sanders and polishers, and reciprocating sanders and polishers are operated while the platen, fitted with abrasive paper in reverse position or a polishing bonnet as applicable, is resting under the weight of the sander on a steel plate. The abrasive paper should be replaced as required to avoid direct contact between platen and steel plate. These tools are only tested in the upright position where the platen is horizontal.*

## **18 Abnormal operation**

This clause of Part 1 is applicable.

## **19 Mechanical hazards**

This clause of Part 1 is applicable.

## **20 Mechanical strength**

This clause of Part 1 is applicable.

## **21 Construction**

This clause of Part 1 is applicable except as follows:

### **21.Z1** *Addition:*

Sanders for woodworking are considered to be tools where a considerable amount of dust is produced.

## **22 Internal wiring**

This clause of Part 1 is applicable.

## **23 Components**

This clause of Part 1 is applicable.

## **24 Supply connection and external flexible cords**

This clause of Part 1 is applicable.

## **25 Terminals for external conductors**

This clause of Part 1 is applicable.

## **26 Provision for earthing**

This clause of Part 1 is applicable.

## **27 Screws and connections**

This clause of Part 1 is applicable.

## **28 Creepage distances, clearances and distances through insulation**

This clause of Part 1 is applicable.

## **29 Resistance to heat, fire and tracking**

This clause of Part 1 is applicable.

## **30 Resistance to rusting**

This clause of Part 1 is applicable.

## **31 Radiation, toxicity and similar hazards**

This clause of Part 1 is applicable.

## Annexes

The annexes of Part 1 are applicable.

## Bibliography

The bibliography of Part 1 is applicable except as follows:

### *Addition:*

EN 60745-2-3 1), *Safety of hand-held motor-operated electric tools – Part 2: Particular requirements for grinders, polishers and disk-type sanders*

EN 50144-2-3:2002, *Safety of hand-held electric motor-operated tools – Part 2: Particular requirements for grinders, disk-type sanders and polishers*

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1) Under preparation.





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