



# SLOVENSKI STANDARD

## SIST EN 792-8:2001

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### Hand-held non-electric power tools - Safety requirements - Part 8: Sanders and polishers

Hand-held non-electric power tools - Safety requirements - Part 8: Sanders and polishers

Handgehaltene nicht-elektrisch betriebene Maschinen - Sicherheitsanforderungen - Teil 8: Schleifmaschinen für Schleifblätter und Polierer

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Machines portatives a moteur non électrique - Prescriptions de sécurité - Partie 8: Polisseuses-lustreuses et ponceuses

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## Hand-held non-electric power tools - Safety requirements - Part 8: Sanders and polishers

Machines portatives à moteur non électrique - Prescriptions  
de sécurité - Partie 8: Polisseuses-lustreuses et ponceuses

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Sicherheitsanforderungen - Teil 8: Schleifmaschinen für  
Schleifblätter und Polierer

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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## Foreword

This European Standard has been prepared by Technical Committee CEN/TC 255 "Hand-held, non-electric power tools – Safety", the secretariat of which is held by SIS.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 2001, and conflicting national standards shall be withdrawn at the latest by August 2001.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this standard.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

The "European Committee of Manufacturers of Compressors, Vacuum Pumps and Pneumatic Tools", PNEUROP, has given substantial contributions to this standard.

The standard has been created in close co-operation with CENELEC/TC 61F with the aim of achieving requirements for mechanical safety in the EN 50 144 series, which are similar for hand-held electric and non-electric power tools.

NOTE Other technical committees in CEN dealing with hand-held power tools have been asked to follow the safety requirements as in EN 792.

The annexes to this part of the standard are:

- Annex A (informative) Examples of power tools covered by this part
- Annex B (informative) Labels, signs and tags
- Annex C (informative) Examples of abrasive products for polishers and sanders
- Annex ZA (informative) Clauses of this European Standard addressing essential requirements or other provisions of EU Directives.

This Standard also contains a Bibliography.

## 0 Introduction

SIST EN 792-8:2001

This European standard is a type C standard as stated in EN 1070:1998.

The machinery concerned and the extent to which hazards, hazardous situations and events are covered are indicated in the scope of this standard.

When provisions of this type C standard are different from those which are stated in type A or B standards, the provisions of this type C standard take precedence over the provisions of other standards, for machines that have been designed and built according to the provisions of this type C standard.

EN 792 consists of a number of independent parts for individual types of hand-held non-electric power tools.

Other European standards deal with safety rules for hand-held power tools used in e. g. the following fields:

- agriculture and forestry such as chain saws, hedge-trimmers, brush cutters, grass trimmers;
- construction and building such as cutting-off power tools, concrete vibrators;
- food industry, such as fowl secateurs, sheep shears.

Endeavours have been made to achieve co-ordination with the relevant Technical Committees so that the safety requirements are compatible.

This standard is divided in the following parts:

- Part 1: Assembly power tools for non-threaded mechanical fasteners (former part 14)
- Part 2: Cutting-off and crimping power tools (former part 15)
- Part 3: Drills and tappers
- Part 4: Non-rotary percussive power tools
- Part 5: Rotary, percussive power drills
- Part 6: Assembly power tools for threaded fasteners
- Part 7: Grinders
- Part 8: Sanders and polishers
- Part 9: Die grinders
- Part 10: Compression power tools
- Part 11: Nibblers and shears
- Part 12: Small circular, small oscillating and reciprocating saws
- Part 13: Fastener driving tools

Certain parts of EN 792 cover hand-held non-electric power tools, driven by internal combustion engines powered by gaseous or liquid fuel. In these parts, the safety aspects relating to internal combustion engines are found in a normative annex.

The parts are type C standards and refer to pertinent European Standards of type A and B where such standards are applicable.

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### 1 Scope

EN 792 applies to hand-held non-electric power tools driven by rotary or linear motors, powered by compressed air or hydraulic fluid and intended to be used by one operator and supported by:

- the operator's hand or hands;
- a suspension, e. g. a balancer.

This part of EN 792 applies to hand-held non-electric power tools intended for polishing and sanding with all types of movement e.g. rotary, orbital and reciprocating, using coated abrasive products and bonnets of various soft materials and endless belts.

This part lists the significant hazards caused by such power tools and specifies safety requirements valid for different aspects of safety during their foreseeable lifetime.

Power tools covered by this part of the standard:

- belt sanders;
- orbital sanders;
- polishers;
- random orbital sanders;
- rotary sanders;
- straight line sanders.

Special requirements and modifications on a hand-held power tool for the purpose of mounting it in a fixture are not covered by this part.

NOTE At the date of publication no sanders and polishers driven by internal combustion engines are known.

## 2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 292-1:1991	Safety of machinery - Basic concepts, general principles for design – Part 1: Basic terminology, methodology
EN 292-2:1991	Safety of machinery - Basic concepts, general principles for design – Part 2: Technical principles and specifications
EN 563	Safety of machinery - Temperatures of touchable surfaces - Ergonomics data to establish temperature limit values for hot surfaces
EN 614-1	Safety of machinery - Ergonomic design principles - Part 1: Terminology and general principles
EN 1070:1998	Safety of machinery - Terminology
EN 1127-1	Explosive atmospheres – Explosion prevention and protection – Part 1: Basic concepts and methodology
EN 12096	Mechanical vibration - Declaration and verification of vibration emission values
EN ISO 4871	Acoustics - Declaration and verification of noise emission values of machinery and equipment (ISO 4871:1996)
EN 28662-1	Hand-held portable power tools - Measurement of vibrations at the handle - Part 1: General (ISO 8662-1:1988)

EN ISO 8662-8	Hand-held portable power tools - Measurement of vibrations at the handle - Part 8: Polishers and rotary, orbital and random orbital sanders (ISO 8662-8:1997)
EN ISO 14163	Acoustics – Guidelines for noise control by silencers (ISO 14163:1998)
prEN ISO 15744:1999	Hand-held non-electric power tools – Noise measurement code – Engineering method (grade 2) (ISO/DIS 15744:1999)
ISO 3857-3:1989	Compressors, Pneumatic tools and machines - Vocabulary - Part 3: Pneumatic tools and machines.
ISO 5391:1988	Pneumatic tools and machines - Vocabulary

### 3 Terms and definitions

For the purposes of this part of the standard, the following terms and definitions apply.

#### 3.1 General terms and definitions

##### 3.1.1

##### **hand-held power tool**

machine driven by rotary or linear motors powered by compressed air, hydraulic fluid, gaseous or liquid fuel, electricity or stored energy (e.g. by a spring) to do mechanical work and so designed that the motor and the mechanism form an assembly that can easily be brought to its place of operation. The hand-held power tool is operated by one or two hands

NOTE Hand-held power tools driven by compressed air or gas are called pneumatic tools. Hand-held power tools driven by hydraulic liquid are called hydraulic tools.

##### 3.1.2

##### **rotary power tool**

hand-held power tool the machine spindle of which rotates

##### 3.1.3

##### **inserted tool**

tool inserted in the hand-held power tool to perform the intended work

##### 3.1.4

##### **service tool**

tool intended for performing maintenance or service on the hand-held power tool

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##### 3.1.5

##### **control device**

device to start and stop the hand-held power tool or to change the direction of the rotation or to control the functional characteristics such as speed and power

##### 3.1.6

##### **rated speed, r/min**

maximum rotational speed of the machine spindle, in revolutions per minute under operating conditions with the inserted tool mounted and at the upper limit of the energy supply, e.g. pressure or flow, as specified by the manufacturer



**3.1.7****maximum operating pressure**

maximum pressure that a hand-held power tool may be operated at, as specified by the manufacturer

**3.2 Terms and definitions related to polishers and sanders****3.2.1****sander**

power tool with rotary, orbital, random orbital or reciprocating motion for sanding, equipped with a flexible pad fitted with a coated abrasive product, such as fibre disc or abrasive paper

**3.2.2****belt sander**

sander driving an endless belt, coated with abrasive material

**3.2.3****orbital sander**

sander driving a rectangular pad in a circular or orbital motion

**3.2.4****random orbital sander**

sander driving a rotating round pad in a combined reciprocating and rotational motion

**3.2.5****rotary sander**

sander driving a circular flexible pad in a simple rotating motion

**3.2.6****straight line sander**

sander driving a rectangular pad in an alternating motion (also called a reciprocating sander)

**3.2.7****polisher**

power tool, fitted with a flexible pad and various soft materials or felt pad for polishing surfaces

NOTE Polisher is often a modified sander.

For other terms, see EN 1070:1998 and also ISO 3857-3:1989 and ISO 5391:1988.  
For examples of power tools see annex A.

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## 4 List of hazards

The following hazards can occur in the use of sanders and polishers.

Hazard type	Reference to safety requirement	
	By design or guarding	Information for use
4.1 Mechanical hazards <ul style="list-style-type: none"> <li>- cutting</li> <li>- drawing in or trapping</li> <li>- crushing</li> <li>- friction or abrasion hazard</li> <li>- loss of stability</li> <li>- whipping hose</li> <li>- ejection from high pressure hydraulic systems</li> <li>- hose and hose coupling specifications</li> </ul>	5.1.1  5.1.6 5.1.7 5.1.2  5.1.4	6.2.2     6.2.2  6.2.2
4.2 Electrical hazards		6.2.2
4.3 Thermal hazards <ul style="list-style-type: none"> <li>- explosions</li> <li>- health damage due to hot or cold surfaces</li> </ul>	5.2  5.2	
4.4 Hazards caused by noise	5.3	6.2.2
4.5 Hazards generated by vibration	5.4	6.2.2
4.6 Hazards caused by materials and substances processed, used or exhausted <ul style="list-style-type: none"> <li>- inhalation of harmful dust</li> <li>- exhaust air</li> <li>- lubricants</li> <li>- hydraulic fluids</li> </ul>	5.5.1 5.5.1 5.5.2	6.2.2 6.2.2  6.2.2
4.7. Hazards caused by neglecting ergonomic principles in machine design <ul style="list-style-type: none"> <li>- repetitive strain injuries</li> <li>- unsuitable postures</li> <li>- inadequate grip design and tool balance</li> <li>- neglected use of personal protection equipment</li> </ul>	5.6.1, 5.6.2  5.6.1	6.2.2  6.2.2
4.8 Hazards caused by failure of energy supply <ul style="list-style-type: none"> <li>- unexpected return of energy supply after a breakdown</li> <li>- incorrect hydraulic fluid flow and outlet pressure</li> </ul>		6.2.2  6.2.2
4.9 Hazards caused by missing and/or incorrectly positioned safety related means <ul style="list-style-type: none"> <li>- start and stop device</li> <li>- unintentional start</li> </ul>	5.7.1 5.7.2	6.2.2

## 5 Safety requirements and measures

### 5.1 Mechanical safety

#### 5.1.1 Surfaces, edges and corners

Accessible parts of power tools, except the insert tool, shall not have sharp edges or angles or rough or abrasive surfaces, see 3.1 of EN 292-2:1991.

#### 5.1.2 Supporting surface and stability

Power tools shall be so designed that they can be laid aside and remain in stable position on a plane surface.

#### 5.1.3 Run-down time

The run-down time, after the stop command has been given, shall be as short as possible.

#### 5.1.4 High pressure ejection

Hydraulic systems of the power tool shall be enclosed so as to give protection against high pressure fluid ejection.

#### 5.1.5 Speed control

The rated speed of the rotary sander shall not be exceeded under the conditions marked on the power tool. It shall be possible to measure rotational speed by a tachometer.

At no load, the speed may exceed the rated speed by no more than 10% at rated input values.

The speed control device of the rotary sander shall be designed to prevent incorrect assembly. The speed control device shall be manufactured of non-corrodable material.

#### 5.1.6 Distance between moving and fixed parts

Polishers and sanders shall be designed so as not to allow fingers to be caught between the moving and fixed parts

#### 5.1.7 Position of handles

The handles shall be so shaped and located as to minimize the risk of inadvertent contact of the operator's hand with the rotating abrasive tool.

#### 5.1.8 Guards

Guards are not necessary for these types of power tools.

### 5.2 Thermal safety

Surface temperatures of parts of the power tool which are held during use or could be inadvertently touched shall follow the provisions of EN 563.

NOTE The limit values for low temperatures are studied by CEN/TC 122.