



# SLOVENSKI STANDARD

## SIST EN 28662-3:2000

01-april-2000

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### Hand-held portable power tools - Measurement of vibrations at the handle - Part 3: Rock drills and rotary hammers (ISO 8662-3:1992)

Hand-held portable power tools - Measurement of vibrations at the handle - Part 3: Rock drills and rotary hammers (ISO 8662-3:1992)

Handgehaltene motorbetriebene Maschinen - Messung mechanischer Schwingungen am Handgriff - Teil 3: Gesteinsbohrmaschinen und Bohrhämmer (ISO 8662-3:1992)

Machines a moteur portatives - Mesurage des vibrations au niveau des poignées - Partie 3: Marteaux perforateurs et marteaux rotatifs (ISO 8662-3:1992)

**Ta slovenski standard je istoveten z: EN 28662-3:1994**

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#### ICS:

13.160	Vpliv vibracij in udarcev na ljudi	Vibration and shock with respect to human beings
25.140.01	Ü[ } a[ [ ] [ z ] [	Hand-held tools in general

**SIST EN 28662-3:2000**

**en**

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EUROPEAN STANDARD

EN 28662-3

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 1994

UDC 622.233.4-182.4:534.1.08

Descriptors: Power-operated tools, portable equipment, portable electric machine tool, electric hammers, drill hammers, handles, vibration tests, measurements, vibration

English version

**Hand-held portable power tools - Measurement of vibrations at the handle - Part 3: Rock drills and rotary hammers (ISO 8662-3:1992)**

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This European Standard was approved by CEN on 1994-05-20. CEN 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 CEN member.

The European Standards exist in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

**CEN**

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

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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### Foreword

According to Resolution 13/1992, taken in April 1992 at the third meeting of CEN/TC 231 "Mechanical vibration and shock", the International Standard

ISO 8662-3:1992      Hand-held portable power tools; Measurement of vibrations at the handle;  
Part 3: Rock drills and rotary hammers

was submitted under the Unique Acceptance Procedure for approval as European Standard.

The result of the Formal Vote was positive.

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 EC Directive(s).

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 November 1994, and conflicting national standards shall be withdrawn at the latest by November 1994.

In accordance with the CEN/CENELEC Internal Regulations, following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

### Endorsement notice

The text of the International Standard ISO 8662-3:1992 was approved by CEN as a European Standard without any modification.

NOTE: Normative references to international publications are listed in annex ZA (normative).

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**Annex ZA** (normative)**Normative references to international publications  
with their relevant European publications**

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).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN</u>	<u>Year</u>
ISO 679	1989	Methods of testing cements - Determination of strength	--	--
ISO 2787	1984	Rotary and percussive pneumatic tools - Performance tests	--	--
ISO 8662-1	1988	Hand-held portable power tools - Measurement of vibrations at the handle - Part 1: General	EN 28662-1	1992

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INTERNATIONAL  
STANDARD

**ISO**  
**8662-3**

First edition  
1992-07-01

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**Hand-held portable power tools — Measurement  
of vibrations at the handle —**

**Part 3:**  
Rock drills and rotary hammers

*Machines à moteur portatives — Mesurage des vibrations au niveau des  
poignées —*

*Partie 3: Marteaux perforateurs et marteaux rotatifs*

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Reference number  
ISO 8662-3:1992(E)

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 8662-3 was prepared by Technical Committee ISO/TC 118, *Compressors, pneumatic tools and pneumatic machines*, Sub-Committee SC 3, *Pneumatic tools and machines*.

ISO 8662 consists of the following parts, under the general title *Hand-held portable power tools — Measurement of vibrations at the handle*:

- Part 1: *General*
- Part 2: *Chipping hammers and riveting hammers*
- Part 3: *Rock drills and rotary hammers*
- Part 4: *Grinding machines*
- Part 5: *Pavement breakers and hammers for construction work*
- Part 6: *Impact drills*
- Part 7: *Impact wrenches*
- Part 8: *Orbital sanders*

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Annex A forms an integral part of this part of ISO 8662. Annexes B and C are for information only.

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## Introduction

This part of ISO 8662 specifies how a type test for the measurement of vibrations at the handles of rock drills and rotary hammers shall be performed. It supplements ISO 8662-1 which gives the general specifications for the measurement of vibrations at the handles of hand-held portable power tools. It specifies the operation of the power tool under type test and other requirements for the performance of the type test.

The principle of operation of these power tools is that a drill bit is made to rotate while at the same time energy is converted into periodic impacts which are transmitted to the connection end of the drill bit.

For light rock drills, having a mass (without the drill bit) below 15 kg, and rotary hammers, testing is carried out in a way which closely resembles a typical work situation. Heavy rock drills with a mass above 15 kg have a high penetration rate and the loading device used for the light machines would not be economical. Another type of loading device, a steel ball energy absorber, is used. The method gives an operation similar to that in a real work situation, and since the loading device can be used for a large number of tests the method is economical.

The reproducibility of measurements has been found to be satisfactory for the methods specified in this part of ISO 8662.

In rotary hammers and rock drills the magnitude of the impact energy is determined by the internal design of the tool and is **not** influenced by external forces. A prerequisite for a **stationary operating condition** is that a certain minimum static force is applied.

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# Hand-held portable power tools — Measurement of vibrations at the handle —

## Part 3:

### Rock drills and rotary hammers

#### 1 Scope

This part of ISO 8662 specifies a laboratory method of measuring the vibrations at the handles of hand-held power driven rock drills and rotary hammers. It is a type test procedure for establishing the magnitude of vibration in the handle of a power tool operating under a specified load.

The power tools covered by this part of ISO 8662 may be electrically, pneumatically or hydraulically driven, or driven by means of an internal combustion engine.

It is intended that the results obtained can be used to compare different power tools or different models of the same power tool. Although for heavy rock drills the levels measured are obtained in a simulated work operation they give an estimation of the levels that would be found in a real work situation.

#### 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 8662. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 8662 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 679:1989, *Methods of testing cements — Determination of strength*.

ISO 2787:1984, *Rotary and percussive pneumatic tools — Performance tests*.

ISO 8662-1:1988, *Hand-held portable power tools — Measurement of vibrations at the handle — Part 1: General*.

#### 3 Quantities to be measured

The quantities to be measured are as follows:

- the root-mean-square (r.m.s.) acceleration in accordance with ISO 8662-1:1988, subclause 3.1, presented as a weighted acceleration in accordance with ISO 8662-1:1988, subclause 3.3, and as a frequency analysis in accordance with ISO 8662-1:1988, subclause 3.2;

NOTE 1 The frequency analysis may be omitted if the absence of d.c.-shift can be proved by other means.

- the supply voltage, and the air or hydraulic pressure;
- the blow frequency;
- the feed force.

#### 4 Instrumentation

##### 4.1 General

The specifications for the instrumentation given in ISO 8662-1:1988, subclauses 4.1 to 4.6, apply.

##### 4.2 Transducer

The specification for the transducer given in ISO 8662-1:1988, subclause 4.1, applies.