

**Kantavad käeshoitavad ajamiga
tööriistad. Vibratsiooni mõõtmine
käepidemel. Osa 1: Üldist**

Hand-held portable power tools - Measurement of
vibrations at the handle - Part 1: General

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 28662-1:1999 sisaldab Euroopa standardi EN 28662-1:1992 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 23.11.1999 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 28662-1:1999 consists of the English text of the European standard EN 28662-1:1992.</p> <p>This document is endorsed on 23.11.1999 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p>Käsitlusala:</p> <p>Standard kirjeldab käeshoitavate ajamiga tööriistade käepidemete vibratsiooni määramise põhinõudeid. Standard ei ole ette nähtud vibratsiooni poolt inimesele avaldatava mõju ulatuse määramiseks. Töökohal käte kaudu edasikanduva vibratsiooni ulatuse mõõtmise ja määramise kord on esitatud standardis ENV 25349.</p>	<p>Scope:</p>
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ICS 13.160, 25.140.01

Võtmesõnad: ajamiga tööriistad, kantavad elektritööriistad, käepidemed, mõõtmine, vibratsioon, vibratsioonikatsed

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Descriptors: Vibration, power tools, portable electric machines, handles, vibration tests, vibration measurements.

English version

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

Machines à moteur portatives; mesu-
rage des vibrations au niveau des
poignées. Partie 1: Généralités
(ISO 8662-1 : 1988)

Handgehaltene motorbetriebene Maschi-
nen; Messung mechanischer Schwingun-
gen am Handgriff. Teil 1: Allgemeines
(ISO 8662-1 : 1988)

This European Standard was approved by CEN on 1991-10-19 and is identical to the ISO Standard as referred to.

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.

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 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

Foreword

In 1991, CEN/BT decided to submit International Standard

ISO 8662-1 : 1988 Hand-held portable power tools; measurement of vibrations at the handle; general to Formal Vote. The result was positive.

National standards identical to this European Standard shall be published, and conflicting national standards withdrawn, by April 1993 at the latest.

In accordance with the CEN/CENELEC Internal Regulations, the 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 8662-1 : 1988 was approved by CEN as a European Standard without any modification.

Introduction to the European Standard

There are two primary reasons for measuring the vibration on hand-held or hand-guided machinery.

The first is to determine the vibration load by combining the measured vibration accelerations within the time the tool is used during a typical working day. The measured vibration values should be obtained in such a way as to represent in as realistic a way as possible the actual working situation. They should be measured over a sufficient time period to allow a good average value to be measured, representing the actual daily exposure. It may be necessary to use a number of transducer locations in order to take account of different vibration levels over the grip surface or handle. The vibration load can then be converted to an equivalent level which would be considered to be constant over a reference period (e.g. 4 hours). This equivalent vibration value can then be used to evaluate the risk of damage due to vibration exposure using agreed criteria.

The second reason would be to compare the vibrations from different tools or machinery or different models of the same tool. The EC Safety Directive (89/392/EEC) requires that measurements be made and values put into the instructions and sales literature if the values are greater than $2,5 \text{ m/s}^2$ and, if the value is lower than $2,5 \text{ m/s}^2$, that fact shall be stated.

The first measurements are called field measurements and the second are called type test measurements.

Field measurements require accurate vibration measurements coupled with the appropriate time period, and the result is highly dependent on the particular process or way in which the tool is used. This means that field measurements cannot be used to type test tools.

Type test measurements require accurate and reproducible measurements. It is essential that different laboratories obtain the same results within specified limits. This requires that the process or way in which the tool or machinery is used during the measurement is precisely defined. Normally, this process will be typical of the way the tool or machinery is used in practice. Unfortunately in some cases, in order to obtain sufficient accuracy, an artificial process, which is not typical of the way the tool is used in the field, has to be used. However, it is important that the process used in these measurements gives vibration levels which are typical of measurements made in the field. It should be noted that type test measurements cannot be used to assess vibration exposure at the workplace.

ENV 25 349 defines the parameters and gives general guidance on how field measurements and assessment of risk may be made. In specific standards, guidance will be given as to how to perform field tests for different types of machinery.

EN 28 662-1 defines the general requirements that are needed for type test measurements and the tool specific parts of EN 28 662 define precise methodologies for the type testing of specific tools.*).

0 Introduction

This International Standard specifies type test methods for the measurement of vibrations in the handles of hand-held power-driven tools.

It defines a laboratory measuring procedure which provides accurate and reproducible results as well as results which are as far as possible in agreement with results measured under real working conditions.

These type tests serve to establish type values, enabling comparison of the same type or of different types of tools.

This part of ISO 8662 contains general requirements for the measurement of vibrations in all types of hand-held power tools. The other parts of ISO 8662 specify type test procedures for the measurement of vibrations in handles of hand-held power-driven tools. The type test is designed to give information on the vibration performance of a given power tool, making it possible to compare various tools. As far as possible, the operating conditions of the tool will represent a typical work situation. The operating procedure is specified in sufficient detail to ensure satisfactory reproducibility of measurements.

NOTE — A number of test methods have been specified, covering a range from a real work situation to a completely artificial situation, to achieve the desired reproducibility.

The vibrations generated in a tool depend on the work situation in which it is used. The operator's exposure to vibration depends on factors additional to those specified in the type test given, e.g. the operator's experience, the condition of the tool and its accessories, the process and the duration of exposure. This International Standard does not give any guidelines or recommendations for assessing the risk of damage due to the vibration exposure. However, the magnitude of the vibrations measured is, as far as possible, a realistic measure of the vibration intensity to be expected in a normal working situation.

Vibrations in a hand-held power tool in a working situation comprise components generated in the machine itself and in the inserted tool, e.g. the grinding wheel or chisel. The workpiece and the process have an important influence on the

vibration levels encountered. It is not the purpose of this International Standard to separate the influences of these various factors.

At present, the deviation observed between measurements carried out in different laboratories is not as low as desired. However, development of the measurement technique and more precise specification of the operating conditions in conjunction with experience should lead to a greater degree of reproducibility in the future.

NOTE — When further experience and more information have been gained, a revision to this International Standard may become justified.

1 Scope and field of application

This part of ISO 8662 describes the basic requirements for evaluating vibrations in the handles of hand-held power-driven tools.

It is not intended for assessment of human exposure to vibrations. The measurement and assessment of human exposure to hand-transmitted vibration in the workplace is given in ISO 5349.

2 References

ISO 1683, *Acoustics — Preferred reference quantities for acoustic levels.*

ISO 5347, *Methods for the calibration of vibration and shock pick-ups.*¹⁾

ISO 5348, *Mechanical vibration and shock — Mechanical mounting of accelerometers.*

ISO 5349, *Mechanical vibration — Guidelines for the measurement and the assessment of human exposure to hand-transmitted vibration.*

1) At present at the stage of draft.