

**Mehaaniline vibratsioon. Liikuvate masinate
testimine tekitatava vibratsiooni taseme
määramiseks KONSOLIDEERITUD TEXT**

Mechanical vibration - Testing of mobile machinery in
order to determine the vibration emission value
CONSOLIDATED TEXT

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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| <p>Käesolev Eesti standard EVS-EN 1032:2003+A1:2009 sisaldab Euroopa standardi EN 1032:2003+A1:2008 ingliskeelset teksti.</p> <p>Standard on kinnitatud Eesti Standardikeskuse 29.01.2009 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 26.11.2008.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p> | <p>This Estonian standard EVS-EN 1032:2003+A1:2009 consists of the English text of the European standard EN 1032:2003+A1:2008.</p> <p>This standard is ratified with the order of Estonian Centre for Standardisation dated 29.01.2009 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.</p> <p>Date of Availability of the European standard text 26.11.2008.</p> <p>The standard is available from Estonian standardisation organisation.</p> |
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ICS 13.160

Võtmesõnad: definitions, ergonomics, human factors engineering, machines, occupational safety, specification (approval), specifications, testing, testing conditions, transportable structures, whole body vibrations, vibration, vibration measurement, vibration meters

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English Version

Mechanical vibration - Testing of mobile machinery in order to determine the vibration emission value

Vibrations mécaniques - Essai des machines mobiles dans le but de déterminer la valeur d'émission vibratoire

Mechanische Schwingungen - Prüfverfahren für bewegliche Maschinen zum Zwecke der Bestimmung des Schwingungsemissionswertes

This European Standard was approved by CEN on 28 February 2003 and includes Amendment 1 approved by CEN on 5 October 2008.

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Foreword

This document (EN 1032:2003+A1:2008) has been prepared by Technical Committee CEN/TC 231 "Mechanical vibration and shock", the secretariat of which is held by DIN.

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 May 2009, and conflicting national standards shall be withdrawn at the latest by December 2009.

This document includes Amendment 1, approved by CEN on 2008-10-05.

This document supersedes A1 EN 1032:2003 A1.

The start and finish of text introduced or altered by amendment is indicated in the text by tags A1 A1.

This document 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).

A1 For relationship with EU Directive(s), see informative Annexes ZA and ZB, which are integral parts of this document. A1

Annexes A to F are informative.

This document includes a Bibliography.

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

Introduction

Exposure to mechanical vibration from mobile machinery can interfere with comfort, working efficiency and, in some circumstances, health and safety. The EC Machinery Directive, supported by the basic safety standards [A1] EN ISO 12100 [A1], requires that machinery is designed and constructed so that the risks resulting from vibration emissions are minimized and that where risks remain, despite such measures, the manufacturer shall supply warnings. It also states that the magnitudes of vibration generated by mobile machinery shall be noted in the relevant instruction handbook in terms of root-mean-square (r.m.s.) value of frequency-weighted acceleration. This European Standard is limited to test methods and measurements related to fulfilment of the second statement. Knowledge of whole-body and hand-transmitted vibration emission values will aid the selection of low-vibration machinery.

The vibration emission determined by a test code should be in proportion to the magnitude of the vibration hazard. In some cases (for example, where the vibration emission at the seat contains shocks) the r.m.s. values determined by the test code cannot adequately represent the vibration hazard. Test codes should provide guidance on how to warn of vibration risk (residual risk) in these cases.

However, the EC Machinery Directive does not require specific declaration of the magnitude of shocks. Therefore in this European Standard, only requirements for evaluation of r.m.s. values are given, together with general requirements for testing and evaluating whole-body and hand-transmitted vibration emissions of mobile machinery as a basis for technical committees responsible for the preparation of vibration test codes.

Standardized vibration test codes are required for many purposes, e.g. to fulfil legal requirements, as well as for trade agreements, aspects of work environment, vibration control, planning of process and work.

In order to prepare a vibration test code for a specific family of machinery it is essential to establish additional requirements for that family, e.g. installation and mounting conditions, operating conditions, measurement positions, measurement directions, vibration declaration, information to be reported.

It is essential when developing a test code for declaration of vibration emission to define a procedure to collect representative vibration values for the machine, to identify causes of variability, to validate the test method and to evaluate the reproducibility of results.

1 Scope

This European Standard specifies the determination of whole-body and hand-arm vibration emissions at operator position(s) during testing of mobile machinery. The purpose of this European Standard is to assist technical standardization committees responsible for specific types of machinery in preparing vibration test codes to ensure that such vibration test codes

- are as homogeneous as possible with each individual test code having the same basic structure;
- are in full accordance with basic standards on measurement of vibration emission;
- reflect the latest technical knowledge of methods of determining the vibration emission from the specific family of machinery under consideration;
- provide manufacturers with a standardized method for the determination and declaration of the vibration emission value(s) of their machinery;
- enable the user of the machinery or the member of an inspection body to compare the vibration emission values of different machinery and to verify the vibration emission values provided by the manufacturer.

This European Standard provides requirements for the preparation of vibration test codes, including guidelines for the conditions under which the measurements shall be made (e.g. operating conditions). Information to be included in a typical vibration test code is summarized in Annex A.

Vibration test codes based on this European Standard should define measuring procedures which provide accurate and reproducible results which are as far as possible in agreement with values measured under real working conditions. For determination of the magnitude of the vibration to be noted in the instruction handbook, this European Standard requires operating conditions enabling the determination of the 75-percentile of the vibration experienced at the operator's position during the mode of operation causing the highest vibration.

This European Standard applies to sitting and standing positions. It is applicable to all mobile machinery producing periodic or random vibration with or without transients. Rotational vibration is not dealt with in this European Standard.

This European Standard contains sufficient guidance for designing an appropriate test for machinery for which no vibration test codes exist. It can also be used for the determination of vibration emission values of individual machines.

This European Standard does not present limits or recommended vibration values.

In general, the emission values should not be used for assessment of the health risk. This European Standard does not give any guidance or recommendations for determination of human exposure to vibration and shock.

NOTE For such information, reference is made to ISO 2631-1 and EN ISO 5349-1.

2 Normative references

[A₁] The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies. **[A₁]**

EN 12096, *Mechanical vibration — Declaration and verification of vibration emission values*

[A₁] EN ISO 8041, *Human response to vibration — Measuring instrumentation (ISO 8041:2005)* **[A₁]**

EN 30326-1, *Mechanical vibration — Laboratory method for evaluating vehicle seat vibration — Part 1: Basic requirements (ISO 10326-1:1992)*