

**Transportation loads - Measurement and
evaluation of dynamic mechanical loads -
Part 2: Data acquisition and general
requirements for measuring equipment**

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<p>Käesolev Eesti standard EVS-EN 15433-2:2008 sisaldab Euroopa standardi EN 15433-2:2007 ingliskeelset teksti.</p> <p>Standard on kinnitatud Eesti Standardikeskuse 28.01.2008 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 01.12.2007.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 15433-2:2008 consists of the English text of the European standard EN 15433-2:2007.</p> <p>This standard is ratified with the order of Estonian Centre for Standardisation dated 28.01.2008 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 01.12.2007.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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ICS 01.040.43, 43.160

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English Version

**Transportation loads - Measurement and evaluation of dynamic
mechanical loads - Part 2: Data acquisition and general
requirements for measuring equipment**

Charges de transport - Mesurage et analyse des charges
mécaniques dynamiques - Partie 2 : Acquisition des
données et exigences générales pour l'équipement de
mesure

Transportbelastungen - Messen und Auswerten von
mechanisch-dynamischen Belastungen - Teil 2:
Datenerfassung und allgemeine Anforderungen an
Messeinrichtungen

This European Standard was approved by CEN on 28 October 2007.

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Foreword

This document (EN 15433-2:2007) has been prepared by Technical Committee CEN/TC 261 "Packaging", the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by June 2008, and conflicting national standards shall be withdrawn at the latest by June 2008.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

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Introduction

This standard was originally prepared by working group NAVp-1.4, Requirements and Testing, of the German Standardization Institute (DIN). It is part of a complete normative concept to acquire and describe the loads acting on goods and influencing them during transport, handling and storage.

This standard becomes significant when related to the realisation of the European Directive on Packaging and Packaging Waste (Directive 94/62 EC, 20 December 1994). This directive specifies requirements on the avoidance or reduction of packaging waste, and requires that the amount of packaging material is adjusted to the expected transportation load, in order to protect the transportation item adequately. However, this presumes some knowledge of the transportation loads occurring during shipment.

At present, basic standards, based on scientifically confirmed values, which can adequately describe and characterize the magnitudes of transportation loads, especially in the domain of dynamic mechanical loads do not exist nationally or internationally. Reasons for this are mainly the absence of published data, insufficient description of the measurements or restrictions on the dissemination of this information.

This standard will enable the measurement and evaluation of dynamic mechanical transportation loads, thus enabling the achievement of standardized and adequately documented load values.

This series of standards consists of the following parts:

- Part 1: General requirements
- Part 2: Data acquisition and general requirements for measuring equipment
- Part 3: Data validity check and data editing for evaluation
- Part 4: Data evaluation
- Part 5: Derivation of test specifications
- Part 6: Automatic recording systems for measuring randomly occurring shock during monitoring of transports.

1 Scope

This standard specifies requirements for the preparation, performance and documentation of transportation measurements.

2 Normative references

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.

EN 15433-3, *Transportation loads — Measurement and evaluation of dynamic-mechanical loads — Part 3: Data validity check and data editing for evaluation*

EN 15433-4, *Transportation loads — Measurement and evaluation of dynamic-mechanical loads — Part 4: Data evaluation*

ISO 8002, *Mechanical vibrations — Land vehicles — Method for reporting measured data*

3 Terms and definitions

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

3.1 data acquisition

acquisition of raw data by measuring the load-time function with the aid of a measuring device

3.2 measuring equipment

measuring chain consisting of at least a sensor, signal conditioner, data recorder and data-storing device

3.3 source data

time function of a viewed stress amplitude, e.g. acceleration, acquired with a measuring device, but without analysing same, e.g. by frequency analysis

3.4 measuring report

documentation covering the particularities gained during the acquisition of raw data

4 Measurement of dynamic mechanical transportation loads

4.1 General

Measurements shall be performed independently of the transported item and performed at the site where the load is inserted into the cargo, i.e. as a rule on the cargo platform of the various transportation vehicles.

NOTE Exceptions are measurements during storage, handling, and in-plant transportation (see Annex C).

4.2 Fundamental requirements

Dynamic mechanical loads shall whenever possible be acquired and recorded in an unbiased form as source data, i.e. without immediate processing, such as frequency analysis. An immediate