

**Transportation loads - Measurement and
analysis of dynamic mechanical loads - Part
1: General requirements**

Transportation loads - Measurement and
analysis of dynamic mechanical loads - Part 1:
General requirements

EESTI STANDARDI EESSÕNA**NATIONAL FOREWORD**

<p>Käesolev Eesti standard EVS-EN 15433-1:2008 sisaldab Euroopa standardi EN 15433-1:2007 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 15433-1:2008 consists of the English text of the European standard EN 15433-1:2007.</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>
--	---

ICS 55.180.01**Võtmesõnad:****Standardite reprodutseerimis- ja levitamisoigus kuulub Eesti Standardikeskusele**

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonilisse süsteemi või edastamine ükskõik millises vormis või millisel teel on keelatud ilma Eesti Standardikeskuse poolt antud kirjaliku loata.

Kui Teil on küsimusi standardite autorikaitse kohta, palun võtke ühendust Eesti Standardikeskusega:
 Aru 10 Tallinn 10317 Eesti; www.evs.ee; Telefon: 605 5050; E-post: info@evs.ee

ICS 55.180.01

English Version

Transportation loads - Measurement and evaluation of dynamic mechanical loads - Part 1: General requirements

Charges de transport - Mesurage et analyse des charges mécaniques dynamiques - Partie 1 : Exigences générales

Transportbelastungen - Messen und Auswerten von mechanisch-dynamischen Belastungen - Teil 1: Allgemeine Anforderungen

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

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 CEN Management Centre 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 CEN Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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.



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

Page

Foreword	3
Introduction	4
1 Scope	5
2 Normative references	5
3 Requirements	5
3.1 Fundamental requirements	5
3.2 Location of measuring points	5
3.3 Source data	6
3.4 Care during data acquisition and documentation	6
3.5 Measuring report	6
3.6 Measurement on a transported item	6
3.7 Data validity check	6
3.8 Data analysis	6
3.9 Derivation of test specifications	7
3.10 Transportation monitoring with automatic recording equipment	7
Bibliography	8

Foreword

This document (EN 15433-1:2007) 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.

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 the United Kingdom.

Introduction

This standard was originally prepared by working group NAVp-1.4, Requirements and Testing, of the German Standardisation 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.

This standard describes the basics and principles to be applied when measuring and analysing transportation loads.

1 Scope

This standard specifies the general requirements to be observed during the measurement and evaluation of dynamic-mechanical transportation loads, should the results raise a claim of generalization and be incorporated in this series of standards as fundamental data.

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 15433-2, *Transportation loads — Measurement and evaluation of dynamic-mechanical loads — Part 2: Data acquisition and general requirements for measuring equipment*

EN 15433-3, *Transportation loads — Measurement and evaluation of dynamic-mechanical data — 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*

EN 15433-5, *Transportation loads — Measurement and evaluation of dynamic-mechanical loads — Part 5: Derivation of test specifications*

EN 15433-6, *Transportation loads — Measurement and evaluation of dynamic-mechanical loads — Part 6: Automatic recording systems for measuring randomly occurring shock during monitoring of transports*

3 Requirements

3.1 Fundamental requirements

Transportation loads shall be measured on the transportation means, and independently of the items to be transported.

NOTE Transportation loads depend on technical equipment (e.g. transportation means, handling equipment and conveyers), handling (e.g. topple, throw-down operation and stowing), and environmental conditions (e.g. temperature, humidity, sunlight and air pollution), and can evoke stress on or inside the transported item, which can lead to damage. The type and intensity of the damage depend upon the nature of the goods (e.g. temperature and shock sensitivity) and their packing and therefore can as a rule, only be determined and assessed from isolated cases. To determine the transportation capability, more post-laboratory tests are performed, during which standardized transportation loads have to be simulated.

3.2 Location of measuring points

To achieve compatibility between different transportation means, the location of the measuring points shall be the interface between the transportation means and the transported item, i.e., as a rule, on the cargo platform. If it can be assured that the transmissibility between load input and location of the measuring points is adequately known and the influence of the package on the measured values is not taken into consideration, then instead of the cargo platform a different location of the measuring point (e.g. inside the package) can be chosen for specific transport and handling proceedings.

NOTE For the compatibility and generalisation of transportation loads, it is necessary that these are determined independently of the properties of the cargo, although a dynamic mechanical reaction of the specific transported item onto the oscillatory and shock behaviour cannot be excluded.