SLOVENSKI STANDARD
SIST EN 13626:2003

01-september-2003

Embalaža - Boks palete – Splošne zahteve in preskusne metode

Packaging - Box pallets - General requirements and test methods

Verpackung - Boxpaletten - Allgemeine Anforderungen und Prüfverfahren

Emballage - Caisses palettes - Exigences générales et méthodes d'essai

Ta slovenski standard je istoveten z: **EN 13626:2003**

ICS:

55.180.20 Veļ namenske palete General purpose pallets

SIST EN 13626:2003 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 13626

April 2003

ICS 55.180.20

English version

Packaging - Box pallets - General requirements and test methods

Emballage - Caisses palettes - Exigences générales et méthodes d'essai

Verpackung - Boxpaletten - Allgemeine Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 2 January 2003.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, 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

Ref. No. EN 13626:2003 E

Contents

page

Foreword

This document (EN 13626:2003) 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of an identical text or by endorsement, at the latest by October 2003, and conflicting national standards shall be withdrawn at the latest by October 2003.

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

Introduction

Box pallets are intended for repeated use while maintaining their service ability and their safe handling.

They may be used for:

- Mechanical handling by fork-lift and hand-pallet trucks.
- Bulk storage in stacks storage where, for safety reasons, it is not advisable to stack box pallets to a height exceeding seven times the smaller horizontal dimension of the box pallet.
- Transport:

This standard is performance-based, i.e. no minimum values are fixed. It reflects ISO 8611-1 in this respect. Box pallets should be tested in accordance with the claimed performances. The standard evaluates performances in relation to the load capacity of a box pallet carrying a uniformly distributed load used as test load and called the nominal load. However, it is recognised that the actual safe working load for a box pallet could vary with the type of load carried and that, for a specific type of load, the maximum working load may be smaller or larger than the nominal load of a box pallet. Therefore, the allowable maximum load for a given design of box pallet vary according to the characteristics of the type of load carried.

1 Scope

This European Standard sets out definitions and specifies general requirements and test methods regarding the use of reusable box pallets.

This draft European Standard applies to box pallets, post pallets and cage pallets, but excludes tank or silo pallets, as defined in EN ISO 445. They can be fixed, collapsible or demountable. This European Standard only applies to the above mentioned products which are handled with fork lift trucks or pallet trucks and no other lifting devices.

Tests for storage in racks and specific transportation conditions are not addressed by this European Standard.

NOTE For the purposes of this standard, the term box pallet covers box pallets, post pallets and cage pallets, as defined in 3.1.1.

2 Normative references

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).

EN 13183-1. *Moisture content of a piece of sawn timber - Part 1: Determination by oven dry method*

EN 13183-2 *Moisture content of a piece of sawn timber - Part 2: Estimation by electrical resistance method*

EN 13382, *Flat pallets for materials handling — Principal dimension.*

EN 22206, *Packaging - Complete, filled transport packages - Identification of parts when testing (ISO 2206:1987).*

EN 22248, *Packaging - Complete, filled transport packages - Vertical impact test by dropping (ISO 2248:1985).*

EN ISO 445, *Pallets for materials handling – Vocabulary (ISO 445:1996).*

EN ISO 2233, *Packaging - Complete, filled transport packages and unit loads - Conditioning for testing (ISO 2233:2000)*

EN ISO 2234, *Packaging - Complete, filled transport packages and unit loads - Stacking tests using a static load (ISO 2234:2000)*

EN ISO 2244, *Packaging - Complete, filled transport packages and unit loads - Horizontal impact tests (ISO 2244:2000)*

EN ISO 2247, *Packaging - Complete, filled transport packages and unit loads - Vibration tests at fixed low frequency (ISO 2247:2000)*

3 Terms, definitions, symbols and abbreviations

3.1 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply:

3.1.1
box pallet
box pallet, post pallet or cage pallet, as defined in EN ISO 445, whether fixed, collapsible or demountable. (see Figures 1 to 5)

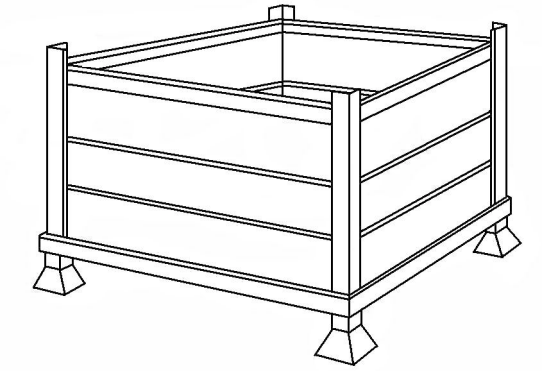

Figure 1 - Box pallet

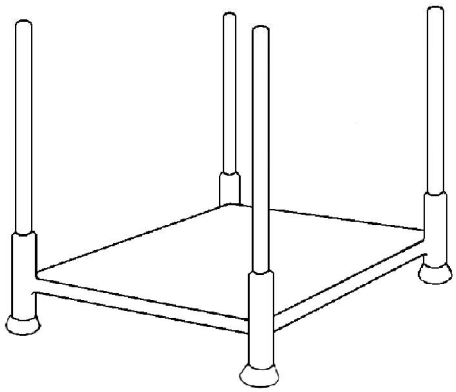

Figure 2 - Post pallet

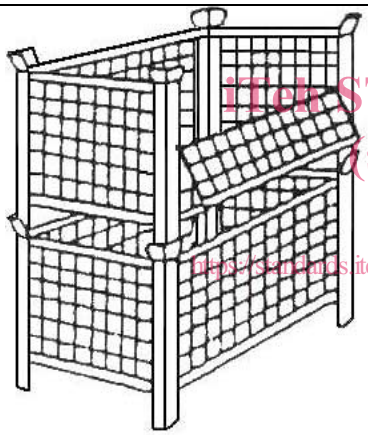

Figure 3 - Cage pallet

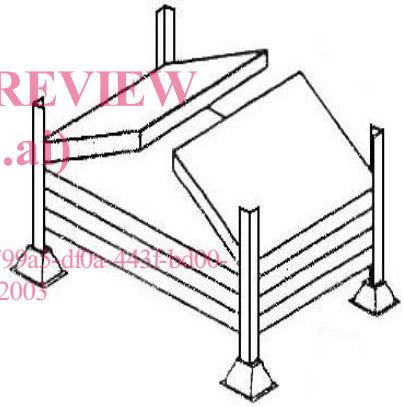

Figure 4 - Collapsible box pallet

Figure 5 - Demountable box pallet

3.1.2
nominal load
maximum permitted load which may be placed in the box pallet. It is expressed in kilograms and assumes a uniformly distributed load (when the box pallet is not tested with the actual product or family of products but with the dummy ballast set in 5.2)

3.1.3
nominal stacking load
maximum permitted load which may be placed on the box pallet resting on the ground (of a storage area for instance). It is expressed in kilograms and, if appropriate, in the number of box pallets which may be stacked on the one resting on the ground. In the latter case, the following abbreviation is used: 1/1 (stack of two box pallets), 2/1 (stack of three box pallets), etc. It assumes a uniformly distributed load (when the box pallet is not tested with the actual product or family of products but with the dummy ballast set in 5.2)

3.1.4
dynamic load
test load used in the vibration test in order to simulate an average transportation situation

3.1.5
test load
load applied during test in or on the box pallet in order to simulate storage and transport conditions

3.2 Symbols and abbreviations

F_l	Force applied parallel to the length of the box pallet in the lift truck stacking test, in newtons
F_w	Force applied parallel to the width of the box pallet in the lift truck stacking test, in newtons
g	9,81 ms^{-2}
H	Height of the box pallet in metres
l	Length of the box pallet in metres
n	Number of box pallets to be stacked on top of a box pallet submitted to tests
w	Width of the box pallets in metres
μ	Coefficient of static friction

4 Requirements

4.1 Stacking devices

Box pallets shall be designed or equipped in order to allow stacking.

4.2 Dimensions

The structure shall allow handling from the bottom using fork lift trucks and/or pallet trucks with entries conforming to EN 13382. In addition, the height of the box pallet shall not exceed twice the smallest base dimension to ensure stability of the product.

4.3 Nominal Load - Nominal Stacking Load - Dynamic Load

4.3.1 Nominal Load - Nominal Stacking Load

The values of nominal load and nominal stacking load shall be those given in the manufacturer's specifications or those marked on the product. The manufacturer may also stipulate a value before the test.

4.3.2 Dynamic Load

Dynamic load shall be specified by the manufacturer in accordance with any transportation limits on vehicles. For example, a value of 2000 kg/m² is commonly observed and thus limits the dynamic capacity of box pallets.

5 Tests

5.1 Sampling for the tests

The number of box pallets required for the tests is at least one for each test, except in 5.4 where two are needed.

NOTE 1 It is recommended for repeatability and quality of the tests to use more than one sample.

NOTE 2 The full range of tests can be done on the same sample if the effects of the tests are clearly identified.

It is necessary to ensure that the box pallet subjected to the tests is complete and, when appropriate, fitted with the accessories expected to be used (covers, toggle-fasteners etc. ...) as if it were ready for use.

5.2 Ballast

The ballast is made up of:

— either the actual product to be transported or a product having the same physical characteristics.

  In this case, the test certificate is only valid for such product;

— or one of the following dummy ballasts:

  — ballast n°1: sand,

  — ballast n°2: plastic granules,

Unless otherwise specified, the test load, consisting of receptacles filled with ballast n°1 or 2, shall be uniformly spread and shall occupy more than 80 % of the capacity of the box pallet.

5.3 Climatic conditioning

No climatic conditioning is required as a general rule for all-metal box pallets. For box pallets consisting completely or partially of other materials, it is necessary to apply the conditioning specifications mentioned in Table 1 (in accordance with EN ISO 2233) before testing. Unless otherwise specified, the tests shall be carried out at the temperature given in Table 1.

Table 1 — Conditioning before testing

Material	Temperature °C	Humidity (RH) %	Moisture content %	Minimum duration h
Plastic [b]	+23 ± 2	--	--	48
Wood	+23 ± 2	--	20 ± 2 [a]	24
Wood based panels	+20 ± 2	50 ± 5[c]	--	48

[a] In the event that end use is not known then the moisture content should be 20 ± 2 %. If the moisture content is outside this value, the tests may proceed provided that the moisture content of critical components is recorded at the beginning and end by non-destructive means (by portable electrical resistance-type moisture meter which enables corrections to be made when reporting according with EN 13183-2) prior to the use of EN 13183-1 (oven drying method) which shall be used shortly after the test programme.

[b] For plastics, if the variation of the raw material performances at the temperature of use are greater than 20 % from the ones at temperature determined in Table 1, the test shall be conducted at that temperature (for instance drop test at (- 20 ± 2) °C or stacking test at (40 ± 2) °C). In this event, conditioning for the test shall last at least 24 hours in order to have homogeneous temperature through the material.

[c] For wood based panels, it is acknowledged that humidity may change widely the performances of the pallet. High relative humidity conditions of use imply tests with relevant parameters (higher temperature and/or higher relative humidity).

5.4 Stacking test using a static load

5.4.1 General

The test shall be performed in accordance with EN ISO 2234, using an unguided load (see Figure 6).

5.4.2 Standard calculation — Equation 1

The test load shall be calculated in accordance with equation 1:

$$\text{Test Load} = 1{,}5 \times n \times (\text{Tare weight} + \text{Nominal load}) \quad (1)$$

where:

n : number of box pallets to be stacked on top of a box pallet submitted to tests

5.4.3 Folded box pallets — Equation 2

The test load for foldable box pallets shall be calculated in accordance with equation 2 :

NOTE Empty foldable box pallets are usually stored in a folded position in high stacks. This situation may lead to damage of the foldable parts which make the product unable to fulfil its original use.

$$\text{Test Load} = 1{,}5 \times n \times \text{Tare weight} \quad (2)$$

where:

n : number of box pallets to be stacked on top of a box pallet submitted to tests