



**SLOVENSKI STANDARD**  
**SIST EN 13199-1:2001**  
**01-februar-2001**

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**Embalaza - Sistemi nosilk za male obremenitve - 1. del: Splosne zahteve in preskusne metode**

Packaging - Small Load Carrier Systems - Part 1: Common requirements and test methods

Verpackung - Kleinladungsträgersysteme - Teil 1: Allgemeine Anforderungen und Prüfverfahren

Emballage - Systemes de transport de petites charges - Partie 1: Exigences communes et méthodes d'essai

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**Ta slovenski standard je istoveten z: EN 13199-1:2000**

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**ICS:**

55.160      Zae[ bÄ \ ae^ Ü|æ cã } ä      Cases. Boxes. Crates  
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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

EN 13199-1

July 2000

ICS 55.160

English version

## Packaging - Small Load Carrier Systems - Part 1: Common requirements and test methods

Emballage - Systèmes de transport de petites charges -  
Partie 1: Exigences communes et méthodes d'essai

Verpackung - Kleinladungsträgersysteme - Teil 1:  
Allgemeine Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 30 June 2000.

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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

Central Secretariat: rue de Stassart, 36 B-1050 Brussels



## Foreword

This European Standard 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 January 2001, and conflicting national standards shall be withdrawn at the latest by January 2001.

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, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

No existing European standard is superseded by this standard

This draft standard is part of a series of standards for Small Load Carrier Systems (SLC systems).

The other parts are entitled as follows:

- Part 2: Column stackable system (CSS)
- Part 3: Bond stackable system (BSS)

## Introduction

The exchange of goods between national and international partners is increasingly dependent upon "just-in-time" shipments, total quality requirements and across-the-border delivery organizations.

In order to rationalize the flow of products, it is necessary to use a restricted number of harmonized, standard, durable and reusable boxes, especially designed to meet customer and supplier needs, as well as the technical and environmental requirements of the logistic chain.

One of the main goals of the Directive on Packaging and Packaging Waste is to create and promote an overall open system for packaging and equipment for unit loads to facilitate free border crossing exchange of goods.

This leads to the condition of the more restricted use of standardized packages and unit loads as the main elements of the transportation and distribution of goods and unit loads, "the modular system".

This European standard specifies the elements of SLC modular systems which are designed to promote reusable primary and transport packaging to protect the environment.

It has to be recognized that a single overall system is unlikely to cover all aspects of the distribution chain. For this reason this standard specifies different systems which are dependent on different specification requirements.

Handling and transportation technologies are taken into account by specifying different types of SLC systems.

These boxes and the other system elements are designed for handling, storage and transport operations in order to meet the requirements of the transportation chain most efficiently.

## 1 Scope

This Part of EN 13199 specifies the essential characteristics and the common requirements and test methods for small load carrier systems used in the handling, transport and storage of non-food products. The application of such systems is described in Annex C.

This Part of EN 13199 is to be read in conjunction with the particular Part which specifies the chosen system.

This standard is based on performance requirements and thus does not include specific design features. However it includes essential requirements to allow for third-party assessment and certification of the products specified.

## 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 13199-2:2000

Packaging – Small Load Carrier Systems – Part 2: Column Stackable System (CSS)

EN 22234

Packaging – Complete, filled transport packages – Stacking test using static load (ISO 2234:1985)

EN 22247

Packaging – Complete, filled transport packages – Vibration test at fixed flow frequency (ISO 2247:1985)

EN 22248

Packaging – Complete, filled transport packages – Vertical impact test by dropping (ISO 2248:1985)

## 3 Terms and definitions

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

### 3.1 cover

rigid accessory to close the top of a SLC unit load.

### 3.2 ends

two shortest vertical walls of an SLC.

### 3.3 foldable SLC

SLC which can be folded when empty to reduce stacking volume.

### 3.4 functional features

features of the SLC, or its accessories, which enable interaction within the system or other sub-systems of the transportation chain due to their specific shape and position.

### 3.5 lid

accessory which fits inside or over the top rim of the SLC.

### 3.6 nestable SLC

SLC which can be partly placed upright inside another empty SLC in order to reduce stacking volume.

### 3.7 nominal load

recommended maximum weight of the contents of an SLC.

### 3.8 nominal stacking load

recommended maximum weight applied to the top of the lowest SLC in a stack.

### 3.9 security plate

accessory placed on a pallet to prevent lateral movement of the SLCs

### 3.10 sides

two longest vertical walls of an SLC.

### 3.11 SLC capacity

usable inner volume calculated by multiplying the usable inner length by the usable inner width (both measured at the half way height) and the usable inner height.

### 3.12 SLC unit load

load consisting of a SLC fitted for handling, transporting, stacking and storing as a unit.

### 3.13 small load carrier (SLC)

open-topped, durable, reusable, rigid, rectangular, modular box which can be handled manually and/or mechanically and is the central element of a small load carrier system.

### 3.14 stacking dimensions

vertical projection of the basic external dimensions of an SLC (length and width).

### 3.15 standard palletized load

grouping of several standard SLCs on a commonly used durable or re-usable pallet to be used for transport and

storage.

### 3.16 system

collection of elements which are interdependent and which interlock and interact together.

### 3.17 tray

accessory to allow the grouping of SLCs or other packages.

### 3.18 usable filling capacity

part of the inner volume of the SLC determined by parameters which ensure the correct function of the SLC in the SLC system.

### 3.19 use in a pool

common use of system elements by several partners.

## 4 Dimensions

All SLC systems shall be based on the area module 600 mm × 400 mm. They shall be compatible with the international standardized unit load sizes 1200 mm × 800 mm and/or 1200 mm × 1000 mm.

The plan view dimensions of the system elements specified shall be subdivisions or multiples of the area module, with the following nominal sizes e.g.:

300 mm × 200 mm  
400 mm × 300 mm  
600 mm × 400 mm

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NOTE: Vertical dimensions, not being modular, are specified in the Parts pertaining to the respective individual systems. Heights are also used as nominal sizes. The terminology used to describe various vertical dimensions is illustrated in figure 1.

## 5 SLC system elements designation

The SLC designation code shall consist of a four-digit number, as follows:

- the first digit denoting outer length;
- the second digit denoting outer width;
- the third and fourth digit denoting outer height;

together with the abbreviation of the type of the system and the EN number.

EXAMPLE: An SLC 600 mm long, 400 mm wide and 280 mm high conforming to EN 13199-3:

SLC EN 13199-3 – 6428 – BSS

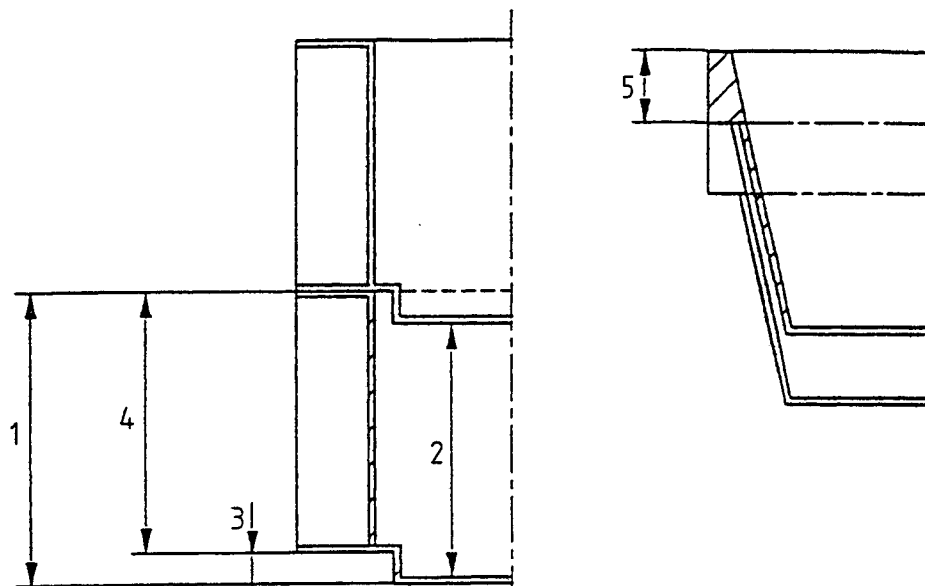
## 6 Loads

The maximum loads shall be as follows:

- for column stackable SLCs: 20 kg;
- for bond stackable SLCs: 50 kg except for 3217 and 3214.

NOTE: SLCs are equally suited for bulk and precisely located component loads.





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**Key**

- 1 overall height
- 2 usable inner height
- 3 location height
- 4 stacking height
- 5 stacking height when nested

**Figure 1 - SLC Dimension terminology**

## 7 Requirements

### 7.1 Safety in handling

SLC elements shall be free of sharp edges and burrs which may cause injury to those working with them.

When tested in accordance with **A.2.1**, no open crack or any other deformation which impairs the functioning of the SLC shall appear.

NOTE: Unopen cracks at the impact points are permissible.

### 7.2 Safety in stacking

#### 7.2.1 Stack stability

There shall be no risk of stacked SLC units collapsing when operated either in unit loads or single stack columns. This applies both to static and dynamic situations.

When tested in accordance with **A.2.2**:

- the stack formed by the three SLCs shall keep its equilibrium during and after the test;
- the deflection over the height of the stack under load, defined as the average value of the reduction between the first and second measurement, shall be less than 2 % of the height;
- the residual deflection over the height of the stack, defined as the average value of the reduction between the first and the third measurement, shall be less than 1 % of the height.

NOTE: For dynamic situations, consideration should be given to the vibration test in Annex B (normative).

#### 7.2.2 Base deflection

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When tested in accordance with **A.2.3**:

- the deflection under load at the test temperature of  $(23 \pm 2)$  °C defined as the ratio of the difference between the second and first measurement over the bottom diagonal of the SLC, shall not exceed 2 % of this diagonal.

EXAMPLE: The maximum allowable deflection for a 300 mm × 200 mm SLC is 7,2 mm.

- the residual deflection at  $(23 \pm 2)$  °C, defined as the ratio of the difference between the third and first measurement over the bottom diagonal of the SLC, shall be less than 1 % of this diagonal.

EXAMPLE: The maximum allowable residual deflection for a 300 mm × 200 mm SLC is 3,6 mm.

## 8 Material

The material used shall be recoverable.

The user and the supplier shall agree that the operating temperature and the resistance to chemicals, e.g. acids, oils, coolants, brake fluids and especially to washing agents, are compatible with the element material specified.

The SLC manufacturer shall ensure that any colouring agent used is compatible with the raw material.

NOTE: Information on the use of colour as a means of identification is given in Annex D (informative).

## 9 Marking and labelling

### 9.1 Marking

At least the following information shall be moulded into each system element:

- \_ SLC system elements designation;
- \_ identification of manufacturer;
- \_ month and year of manufacture;
- \_ tare weight (in kg, expressed to two decimal places).

### 9.2 Labelling

SLCs shall be provided with at least one area for labelling. The location of the labels shall be such as to permit scanning and automatic affixing.

NOTE: Label size and location are specified in the EN 13199-2 and EN 13199-3.

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