



# SLOVENSKI STANDARD

## SIST EN 12195-3:2001

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### Naprave za varovanje tovora na cestnih vozilih - Varnost - 3. del: Zategovalne verige

Load restraint assemblies on road vehicles - Safety - Part 3: Lashing chains

Ladungssicherungseinrichtungen auf Straßenfahrzeugen - Sicherheit - Teil 3: Zurrketten

Dispositifs d'arrimage des charges a bord des véhicules routiers - Sécurité - Partie 3: Chaînes d'amarrage

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#### ICS:

53.080	Ú æž }æ  ]!^ { æ	Storage equipment
55.180.99	Drugi standardi v zvezi z distribucijo blaga s prevozom	Other standards related to freight distribution of goods

**SIST EN 12195-3:2001**

**en**

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ICS 53.080; 55.180.99

English version

## Load restraint assemblies on road vehicles - Safety - Part 3: Lashing chains

Dispositifs d'arrimage des charges à bord des véhicules  
routiers - Sécurité - Partie 3: Chaînes d'amarrage

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Sicherheit - Teil 3: Zurrketten

This European Standard was approved by CEN on 20 January 2001.

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, 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

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## Foreword

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This European Standard has been prepared by Technical Committee CEN/TC 168 "Chains, ropes, webbing, slings and accessories - Safety", the secretariat of which is held by BSI.

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 2001, and conflicting national standards shall be withdrawn at the latest by October 2001.

The annexes A and B are normative.

The Parts of EN 12195 – Load restraint assemblies on road vehicles are:

- Part 1: Calculation of lashing forces
- Part 2: Web lashings made from man-made fibres
- Part 3: Lashing chains
- Part 4: Wire lashing ropes

This is the first edition of this Part of EN 12195.

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.

## Introduction

This European Standard has been prepared to provide one means of conforming with the essential safety requirements on lashing chains in the Common European Market and thus enabling the free movement of goods.

The extent to which hazards are covered is indicated in the scope of this standard. In addition lashing chains for securing of loads on vehicles should conform as appropriate to EN 292 for hazards which are not covered by this Standard.

## 1 Scope

This Part of EN 12195 specifies safety requirements for lashing chains and lashing combinations with chain for the safe surface transport of goods on load carriers, e.g. trucks and trailers which are used on roads or located on vessels or on rail waggons and/or combinations thereof. The standard includes only tensioning devices to be hand driven with a maximum handforce of 500 N. It does not give requirements for multi-purpose lever blocks other than to the type of fine tolerance chain and the additional marking of the maximum hand-operating force .

This Part of EN 12195 deals with hazards which could occur when lashing chains are in use as intended and under conditions foreseen by the manufacturer (see clause 4 and Annex A).

## 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).

[SIST EN 12195-3:2001](https://standards.iteh.ai/catalog/standards/sist/71c0abac-ccd9-42cb-8fea-958690c00783/en-12195-3-2001)

- EN 292-1:1991 <https://standards.iteh.ai/catalog/standards/sist/71c0abac-ccd9-42cb-8fea-958690c00783/en-12195-3-2001>  
Safety of machinery – Basic concepts, general principles for design – Part 1: Basic terminology, methodology
- EN 292-2:1991  
Safety of machinery – Basic concepts, general principles for design – Part 2: Technical principles and specifications
- EN 818-1:1996  
Short link chain for lifting purposes – Safety – Part 1: General conditions of acceptance
- EN 818-2:1996  
Short link chain for lifting purposes – Safety – Part 2: Medium tolerance chain for chain slings – Grade 8
- prEN 818-7:1998  
Short link chain for lifting purposes – Safety – Part 7: Fine tolerance chain for hoists, Grade T (Types T, DAT and DT)
- EN 1677-1  
Components for slings – Safety – Part 1: Forged steel components, Grade 8
- EN 1677-2  
Components for slings – Safety – Part 2: Forged steel lifting hooks with latch, Grade 8
- EN 1677-4  
Components for slings – Safety – Part 4: Links, Grade 8
- prEN 12195-1:2000  
Load restraint assemblies on road vehicles – Safety – Part 1: Calculation of lashing forces
- prEN 13157:1998  
Cranes – Safety - Hand powered cranes

### 3 Terms and definitions

For the purposes of this Part of EN 12195 the following terms and definitions apply.

Examples are given in Figure 1.

#### 3.1

##### **load restraint assembly**

systems and devices for the securing of loads [prEN 12195-1:2000].

#### 3.2

##### **lashing equipment**

device designed to be attached to the lashing points in order to secure the cargo on a load carrier. The lashing equipment consists of tensioning elements (e.g. webbing, chain, wire rope), tensioning devices (e.g. wrench, ratchet, spanner, tension jack) and connecting components, if required (e.g. hook, terminal link).

#### 3.3

##### **lashing chain**

device for securing the load, consisting of a tensioning device and a chain with or without connecting components.

#### 3.4

##### **connection and tensioning device**

device for connection and tensioning (e.g. spindle loadbinders, multi-purpose lever blocks); see C in Figure 1.

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#### 3.5

##### **combined lashing**

device for securing a load, consisting of tensioning device and a chain combined with textile webbings or steel wire ropes, with or without connecting components. [SIST EN 12195-3:2001](https://standards.iteh.ai/catalog/standards/sist/71c0abac-ccd9-42cb-8fea-358b8b9eb8bc/sist-en-12195-3-2001)

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#### 3.6

##### **connecting component**

device between the chain and/or the tensioning device and the lashing point and/or the load.

#### 3.7

##### **tension force indicator**

device which indicates the force in the lashing system (see E1 in Figure 1).

#### 3.8

##### **lashing point**

securing device on a load carrier to which a lashing may be directly attached. A lashing point can be for example an oval link, a hook, a D-ring, a lashing rail.

#### 3.9

##### **lashing capacity (LC)**

maximum force for use in straight pull that a lashing is designed to sustain in use [prEN 12195-1:2000].

#### 3.10

##### **breaking force (BF)**

maximum force that the lashing chain can withstand, when tested in the form of a representative lashing, i.e. complete with load binder and connecting components.

#### 3.11

##### **tension force**

force in the lashing chain created by tensioning of the tensioning device.

### 3.12

#### **standard tension force ( $S_{TF}$ )**

residual force after physical release of the handle of the tensioning device.

### 3.13

#### **hand-operating force ( $H_F$ )**

force applied to the handle of the tensioning device which creates the tension force in the lashing.

### 3.14

#### **standard hand force ( $S_{HF}$ )**

residual force at a standard hand force of 500 N or the maximal force at the labelled hand force given on the tensioning device.

### 3.15

#### **competent person**

designated person, suitably trained qualified by knowledge and practical experience and with the necessary instructions to enable the required tests and examinations to be carried out.

### 3.16

#### **traceability code**

series of letters and/or numbers marked on a component which enables its manufacturing history, including identity of the cast steel used, to be traced.

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## 4 Hazards

The general hazards caused by the load or parts of load during improper use of lashing chains or the non use of load securing devices are given in Annex A.

Hazards described in the following refer to persons, who can be endangered directly when handling the lashing chains, e.g. during tensioning and unloading.

Hazards shall be evaluated in accordance with EN 292-1:1991.

The requirements of clause 5, the test in clause 6 and the user's instructions have been harmonized such that chains and tensioning devices conforming to this European Standard are designed and dimensioned such that the following hazards are taken into account, if they are used in accordance with the manufacturers instructions :

- a) Hazards of being hit, losing one's balance or falling during application of force, due to defective equipment, sudden breakage or malfunction of the tensioning leading to the sudden absence of the hand reaction force.
- b) Injuries by pinching and shearing, hand and arm injuries during manipulation of tensioning devices due to sharp edges of the chain and tensioning devices .
- c) Hazards to the unloading personnel due loads having moved during transport, because of inadequate securing, malfunction like recoil or breakage of equipment or defective equipment and then may fall onto the personnel, especially when opening the side-panels.
- d) Hazards due to wrong combinations made up by the operator.

The ergonomic requirements are taken into account by the fact that the maximum hand force has been defined in 5.2 and clause 7. Some persons, however, are able to apply with both hands or unpermitted levers considerably higher forces. Accordingly reference is made in the user's instruction to the hand force having a value of  $\leq 500$  N.

Table A.1 gives a survey of all hazards and the corresponding requirements.

## 5 Safety requirements

### 5.1 Components of a lashing chain

#### 5.1.1 Chain

The chain shall conform to

EN 818-2:1996

or in multi-purpose lever block complying to prEN 13157:1998 and to

prEN 818-7:1998, type T.

Lashing chains for timber transport (Long timber or round timber) only shall be in accordance with EN 818-2:1996, but with a maximum pitch of  $6 \times d_n$ . The bend deflection  $f$  shall be increased in accordance with Table 1.

**Table 1 - Bend deflection of some nominal sizes**

$d_n$	6	9	11	mm
$f$	9	13	16	mm