



# SLOVENSKI STANDARD

## SIST EN 818-5:2001

01-februar-2001

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Short link chain for lifting purposes - Safety - Part 5: Chain slings - Grade 4

Short link chain for lifting purposes - Safety - Part 5: Chain slings - Grade 4

Kurzgliedrige Rundstahlketten für Hebezwecke - Sicherheit - Teil 5: Anschlagketten - Güteklasse 4

**iTeh STANDARD PREVIEW**

Chaînes de levage à maillons courts - Sécurité - Partie 5: Elingues en chaînes - Classe 4

Ta slovenski standard je istoveten z: **EN 818-5:1999**

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**ICS:**

53.020.30      Pribor za dvigalno opremo      Accessories for lifting equipment

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English version

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This European Standard was approved by CEN on 16 April 1999.

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

## Contents

	Page
Foreword	3
Introduction	4
1 Scope	4
2 Normative references	5
3 Terms and definitions	6
4 Hazards	9
5 Safety requirements	10
6 Verification of safety requirements	13
7 Marking	15
8 Manufacturer's certificate	16
9 Information for use	16
Annex A (normative) Alternative method of rating and marking a chain sling for a specific lifting application and not for use in general lifting purposes	17
Annex B (informative) Bases for calculation of working load limits	19
Annex C (informative) Designation system for chain slings - Grade 4	20
Annex D (informative) Identification tags for chain slings	21
Annex ZA (informative) Relationship of this European Standard with EU Directives	22

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## Foreword

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 November 1999, and conflicting national standards shall be withdrawn at the latest by November 1999.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this standard.

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.

The other Parts of EN 818 are:

- Part 1: General conditions of acceptance
- Part 2: Medium tolerance chain for chain slings - Grade 8
- Part 3: Medium tolerance chain for chain slings - Grade 4
- Part 4: Chain slings - Grade 8
- Part 6: Chain slings - Specifications for information for use and maintenance to be provided by the manufacturer
- Part 7: Fine tolerance chain for hoists, Grade T (types T, DAT, DT)

This is the first edition of this Part of EN 818.

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## Introduction

This European Standard has been prepared to be a harmonized standard to provide one means of complying with the essential safety requirements of the Machinery Directive and associated EFTA regulations.

The extent to which hazards are covered is indicated in the scope. In addition, lifting equipment shall conform as appropriate to EN 292 for hazards which are not covered by this standard.

## 1 Scope

This Part of EN 818 specifies the requirements related to safety, methods of rating and testing of single-, two-, three-, four-leg and endless chain slings, assembled by welding, using short link grade 4 medium tolerance chain conforming to EN 818-3 together with the appropriate range of components of the same grade in accordance with prEN 1677-5 and 6. These chain slings are intended for lifting objects, materials or goods.

NOTE: Instructions for use and maintenance of chain slings are covered by prEN 818-6.

The hazards covered by this Part of the standard are identified in clause 4.

Annex A gives an alternative method of rating and marking a chain sling for a specific lifting application

Annex B contains the bases for calculation of working load limits.

Annex C gives an example of a designation system for chain slings.

Annex D gives an example of identification tags for chain slings.

Annex ZA gives the relationship with EU Directives.

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## 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.

EN 292-1	Safety of machinery - Basic concepts - General principles for design Part 1: Basic terminology, methodology
EN 292-2: 1991 /A1: 1995	Safety of machinery - Basic concepts - General principles for design Part 2: Technical principles and specifications
EN 818-1	Short link chain for lifting purposes - Safety Part 1: General conditions of acceptance
EN 818-3	Short link chain for lifting purposes - Safety Part 3: Medium tolerance chain for chain slings - Grade 4
prEN 818-6	Short link chain for lifting purposes - Safety Part 6: Chain slings - Specification for information for use and maintenance to be provided by the manufacturer
prEN 1677-5	Components for slings - Safety Part 5: Forged steel lifting hooks with latch - Grade 4
prEN 1677-6	Components for slings - Safety Part 6: Links - Grade 4
EN ISO 9001: 1994	Quality systems - Model for quality assurance in design/development, production, installation and servicing (ISO 9001:1994)
EN 1050:1996	Safety of machinery - Principles for risk assessment

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### 3 Terms and definitions

For the purposes of this Part of EN 818 the terms and definitions given in EN 818-1 apply, together with the following.

#### 3.1 chain sling

An assembly consisting of chain or chains joined to upper and lower terminal suitable for attaching loads to the hook of a crane or other lifting machine. (See figures 1 to 4).

#### 3.2 nominal size of chain sling

The nominal size of short link chain, in millimetres, used in the manufacture of the chain sling.

#### 3.3 grade of chain sling

For the purpose of designation in accordance with annex C, is the same as the grade of the short link chain used in the manufacture of the chain sling i.e. 4.

#### 3.4 master link

A link forming the upper terminal of a chain sling by means of which the chain sling is attached to the hook of a crane or other lifting machine. (See figures 1 to 4).

#### 3.5 length of a chain sling

For a finished chain sling, the length from the lower bearing point of the lower terminal to the upper bearing point of the upper terminal (see figures 1 to 4).

#### 3.6 intermediate master link

A link used to connect one or two legs of a chain sling to a master link used during the assembly of a three- or four-leg chain sling (see figures 3 and 4).

#### 3.7 lower terminal

A link, hook or other device fitted at the end of a leg of a chain sling, remote from the master link or upper terminal.

#### 3.8 joining link

A welded link fitted to the end of a chain to connect it either directly or through an intermediate link to an upper or lower terminal or intermediate master link (see figures 1 to 4) or in the case of an endless chain sling to the other end of the chain.

#### 3.9 intermediate link

A welded link used to form a connection between the terminal and the joining link fitted to the chain (see figures 1 to 4).

#### 3.10 manufacturing proof force (MPF) of a chain sling

A force applied, during manufacture, as a test to the whole chain sling or a force applied as a test to a section of a chain sling.

#### 3.11 working load limit (WLL) of a chain sling

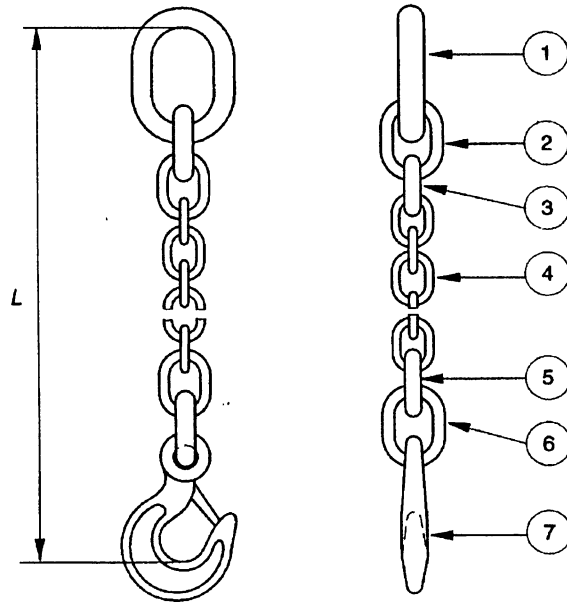
The maximum mass which a chain sling is authorized to sustain in general lifting service.

#### 3.12 competent person

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

NOTE: 4.18 of EN ISO 9001:1994 gives guidance on training.



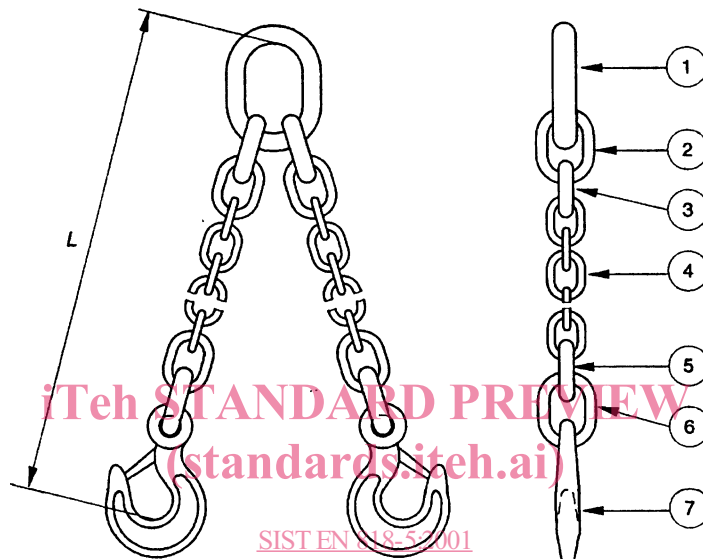


- 1. Master link
- 2. Intermediate link (if required)
- 3. Joining link
- 4. Chain

- 5. Joining link
- 6. Intermediate link (if required)
- 7. Hook or other lower terminal

NOTE:  $L$  = length of chain sling

Figure 1: Single-leg chain sling



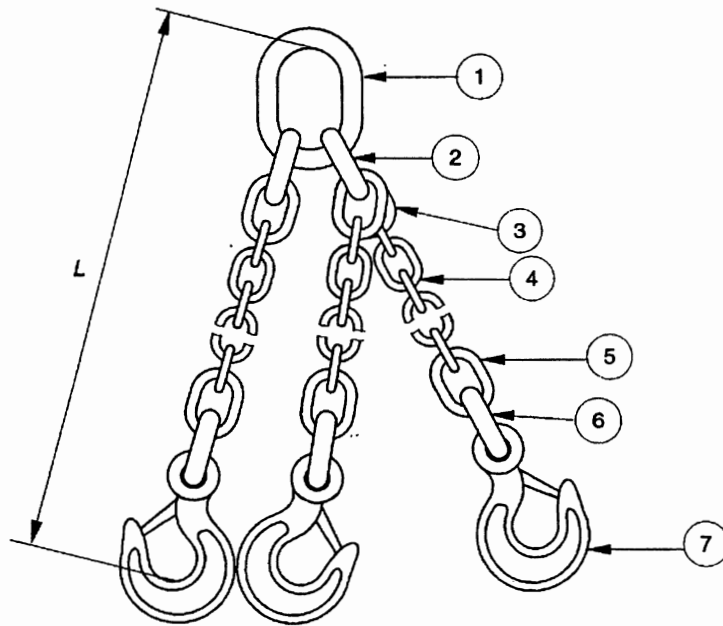
- 1. Master link
- 2. Intermediate link (if required)
- 3. Joining link
- 4. Chain

- 5. Joining link
- 6. Intermediate link (if required)
- 7. Hook or other lower terminal

NOTE:  $L$  = length of chain sling

Figure 2: Two-leg chain sling

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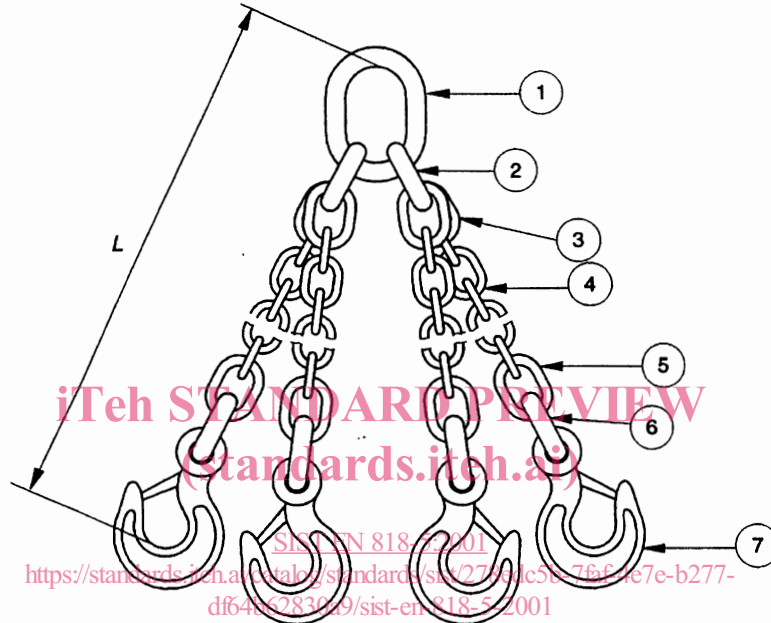


- 1. Master link
- 2. Intermediate master link
- 3. Joining link
- 4. Chain

- 5. Joining link
- 6. Intermediate link (if required)
- 7. Hook or other lower terminal

NOTE:  $L$  = length of chain sling

Figure 3: Three-leg chain sling



- 1. Master link
- 2. Intermediate master link
- 3. Joining link
- 4. Chain

- 5. Joining link
- 6. Intermediate link (if required)
- 7. Hook or other lower terminal

NOTE:  $L$  = length of chain sling

Figure 4: Four-leg chain sling

## 4 Hazards

The release of a load due to failure of lifting accessories such as chain slings or their component parts puts at risk either directly or indirectly the safety or health of those persons within the danger zone of lifting equipment.

In order to provide the necessary strength and durability of lifting accessories this Part of EN 818 lays down requirements for the design, manufacture and testing to ensure that specified levels of performance are met.

Fatigue failure has not been identified as a hazard when chain slings having the specified levels of performance given in this Part of EN 818 are used in general lifting service.

Since failure can be caused by the incorrect choice of grade and specification of lifting accessories this Part of EN 818 also gives the requirements for marking and the manufacturer's certificate.

Errors in fitting together of welded chain slings can also lead to premature failure and this European Standard contains dimensional requirements to allow correct fit.

Those aspects of safe use associated with good practice are given in prEN 818-6.

Table 1 contains those hazards, which require action to reduce risk identified by risk assessment as being specific and significant for chain slings grade 4.

**Table 1: Hazards and associated requirements**

Hazards identified in annex A of EN 1050: 1996		Relevant clause of annex A of EN 292-2: 1991/A1: 1995	Relevant clause/sub-clause this Part of EN 818
1 e)	Mechanical hazard due to inadequacy of strength	1.3.2	5
		4.1.2.3	5
		4.1.2.5	5
		4.2.4	6
		1.7.3	7
		4.2.4	8
15	Errors of fitting hazard	1.5.4	5.2

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