SLOVENSKI STANDARD
SIST EN 818-1:1999+A1:2008

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Kratkoļ lene okrogle verige za dvigovalne namene - Varnost - 1. del: Sploġni prevzemni pogoji

Short link chain for lifting purposes - Safety - Part 1: General conditions of acceptance

Kurzgliedrige Rundstahlketten für Hebezwecke - Sicherheit - Teil 1: Allgemeine Abnahmebedingungen

Chaînes de levage à maillons courts - Sécurité - Partie 1: Conditions générales de réception

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53.020.30	Pribor za dvigalno opremo	Accessories for lifting equipment

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English Version

Short link chain for lifting purposes - Safety - Part 1: General conditions of acceptance

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Foreword

This document (EN 818-1:1996+A1:2008) 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of an identical text or by endorsement, at the latest by October 2008 and conflicting national standards shall be withdrawn at the latest by October 2008.

This document includes Amendment 1, approved by CEN on 2008-02-10.

This document supersedes EN 818-1:1996.

The start and finish of text introduced or altered by amendment is indicated in the text by tags [A1> <A1].

The modifications of the related CEN Corrigendum have been implemented at the appropriate places in the text and are indicated by the tags [AC> <AC].

[A1> This document 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 Annexes ZA and ZB, which are integral parts of this document. <A1]

The other parts of EN 818 are:

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 5: Chain slings – Grade 4

[A1> Part 6: Chain slings – Specification for information for use and maintenance to be provided by the manufacturer <A1]

[A1> Part 7: Fine tolerance hoist chain, Grade T (Types T, DAT and DT) <A1]

A further part or parts will cover fine tolerance chains for chain hoists and other lifting appliances.

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 United Kingdom.

Introduction

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

This Directive stipulates that where chain with welded links is used for lifting accessories it is to be of short link type and for the purposes of this standard this is chain having a ratio of nominal pitch to nominal size of 3:1.

Chains covered by this European Standard are divided into grades which relate to the mechanical properties of the finished product and not simply to the strength of the material. Each grade is identified by a letter for fine tolerance chain or number for medium tolerance chain in the series: M,4; P,5; S,6: T,8; V,10 (see note 1 to table 0). The letter or number indicates the mean stress at the minimum breaking force as shown in table 0.

The extent to which hazards are covered is indicated in the scope of this Part of EN 818. In addition, lifting equipment shall comply as appropriate with ⟦A1⟩ EN ISO 12100 ⟨A1⟧ for hazards which are not covered by this standard.

⟦A1⟩ This standard is a Type C standard as stated in EN ISO 12100.

When provisions of this type C standard are different from those which are stated in type A or B standards, the provisions of this type C standard take precedence over the provisions of the other standards, for equipment that have been designed and build according to the provisions of this type C standard. ⟨A1⟧

Table 0 — Basis of grade symbols

Grade		Mean Stress at the specified minimum breaking force, N/mm^2
Fine tolerance	Medium tolerance	
M	4	400
P	5	500
S	6	630
T	8	800
V	10	1000

NOTE: Chains in all of these grades may not be the subjects of European Standards.

This grading system has also been applied to hooks, links, shackles and other accessories, indicating their strength compatibility with the appropriate grade of chain.

The stresses in a chain link are not uniform and at the extrados at the crown particularly, the maximum fibre stress is considerably greater than the mean stress obtained by dividing the force by the total cross-sectional area of both legs of the link.

1 Scope

This part of EN 818 specifies the general conditions of acceptance related to safety for electrically welded round steel short link chain for lifting purposes. It includes:

a) medium tolerance chain for use in chain slings and for general lifting service and;

b) fine tolerance chain for use with hoists and other similar lifting appliances.

The hazards covered by this Part of EN 818 are identified in clause 4.

Annex C gives proposals for clauses covering inspection, inspection marking and steel makers cast analysis which may be included in a form of contract.

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.

〉A1〈 *deleted text* 〉A1〈

〉A1〈 EN 818-6:2000+A1 〉A1〈, *Short link chain for lifting purposes - Safety - Part 6: Chain slings, instructions for use and maintenance*

〉A1〈 EN 1050 〉A1〈, *Safety of machinery - Risk assessment*

EN 10002-2, *Metallic materials - Tensile testing - Part 2: Verification of the force measuring system of the tensile testing machines*

〉A1〈 EN ISO 12100-1, *Safety of machinery - Basic concepts, general principles for design - Part 1: Basic terminology, methodology (ISO 12100-1:2003)*

EN ISO 12100-2, *Safety of machinery - Basic concepts, general principles for design - Part 2: Technical principles (ISO 12100-2:2003)* 〉A1〈

3 〉A1〈 Terms and definitions 〉A1〈

〉A1〈 For the purposes of this document, the following terms, definitions and symbols apply. 〉A1〈

3.1
nominal size (d_n)
nominal diameter of the round section steel wire or bar from which the chain is made

3.2
material diameter (d_m)
diameter of the material in the chain link as measured

3.3
weld diameter (d_s)
diameter at the weld as measured

3.4
length dimensionally affected by welding (e)
length on either side of the centre of the link, affected by welding

3.5
pitch (p)
internal length of a link as measured

3.6
manufacturing proof force (MPF) of chain
force to which during manufacture the whole of the chain is subjected

3.7
breaking force (BF)
maximum force which the chain withstands during the course of a static tensile test to destruction

3.8
working load limit (WLL) of chain
maximum mass which the chain hanging vertically is authorized to sustain in general lifting service.

3.9
total ultimate elongation (A)
total extension at the point of fracture of the chain expressed as a percentage of the internal length of the test sample

3.10
processing
any treatment of the chain subsequent to welding, for example, heat treatment, polishing or dimensional calibration

3.11
lot
specified quantity from which test sample(s) is/are selected

[A1] 3.12
competent person
designated person, suitably trained and qualified by knowledge and practical experience and with the necessary instructions to enable the required tests and examination to be carried out

NOTE EN ISO 9001:2000, 6.2 gives guidance on training. [/A1]

4 Hazards

[A1] Accidental release of a load, or release of a load due to [A1] failure of lifting accessories such as slings or their component parts puts at risk either directly or indirectly the [A1] safety or health [A1] 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, selection of materials of construction and testing to ensure that specified levels of performance are met.

Fatigue failure has not been identified as a hazard for all types of chain having the specified levels of performance given in this Part of EN 818 when 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.

The risk of injury due to sharp edges, sharp angles or rough surfaces when handling is also covered by this Part of EN 818.

Those aspects of safe use associated with good practice are given in [A1] EN 818-6:2000+A1 [A1].

Table 1 contains [A1] those hazards [A1], which require action to reduce risk identified by risk assessment as being specific and significant for short link chain.

Table 1 — Hazards and associated requirements

Hazards identified in annex A of [A1] EN 1050 [A1]			Relevant clause/sub-clause of this Part of EN 818
[A1] 1 e) [A1]	Mechanical hazard due to inadequacy of strength	[A1] *deleted text* [A1]	5 6 7 8 9
[A1] 1.3 [A1]	Cutting hazard		5.2
[A1] 1.8 [A1]	Friction or abrasion hazard		5.2