

## საქართველოს სტანდარტი

---

ფოლადის მავთულეზიანი ბაგირების ბოლოების ჩამაგრება-უსაფრთხოება-  
ნაწილი 3: რგოლები და უსაფრთხოების რგოლები

საქართველოს სტანდარტებისა და მეტროლოგიის  
ეროვნული სააგენტო  
თბილისი

საინფორმაციო მონაცემები

1 დამტკიცებულია და შემოღებულია სამოქმედოდ საქართველოს სტანდარტებისა და მეტროლოგიის ეროვნული სააგენტოს 2015 წლის 30 ოქტომბრის № 71 და 2015 წლის 09 ივლისის № 46 განკარგულებებით

2 მიღებულია გარეკანის თარგმნის მეთოდით სტანდარტიზაციის ევროპული კომიტეტის სტანდარტი ენ 13411-3:2004+A1:2008 „ფოლადის მავთულებიანი ბაგირების ბოლოების ჩამაგრება-უსაფრთხოება- ნაწილი 3: რგოლები და უსაფრთხოების რგოლები“

3 პირველად

4 რეგისტრირებულია საქართველოს სტანდარტებისა და მეტროლოგიის ეროვნული სააგენტოს რეესტრში: 2015 წლის 30 ოქტომბერი №268-1.3-8121

აკრძალულია ამ სტანდარტის გადაცემა მესამე პირებისათვის ან/და მისი სხვა ფორმით გავრცელება

საინფორმაციო ნაწილი. სრული ტექსტის სანახავად შეიძინეთ სტანდარტი.

English Version

## Terminations for steel wire ropes - Safety - Part 3: Ferrules and ferrule-securing

Terminaisons pour câbles en acier - Sécurité - Partie 3:  
Manchons et boucles manchonnées

Endverbindungen für Drahtseile aus Stahldraht - Sicherheit  
- Teil 3: Pressklemmen und Verpressen

This European Standard was approved by CEN on 16 April 2004 and includes Corrigendum 1 issued by CEN on 19 October 2005 and Amendment 1 approved by CEN 18 September 2008.

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 CEN 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 CEN Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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.



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

## Contents

	page
Foreword.....	4
1 Scope .....	6
2 Normative references .....	6
3 Terms and definitions .....	7
4 List of hazards.....	7
5 Safety requirements and/or measures .....	8
5.1 Ferrule-secured system .....	8
5.1.1 General.....	8
5.1.2 Type testing.....	8
5.1.3 Instructions to be provided by the ferrule-secured system designer.....	10
5.2 Ferrules.....	10
5.2.1 Material .....	10
5.2.2 Dimensions.....	10
5.2.3 Manufacture and quality control of ferrule .....	10
5.2.4 Certificate .....	11
5.2.5 Marking .....	11
5.3 Ferrule-securing.....	11
5.3.1 General.....	11
5.3.2 Matching of ferrule to wire rope .....	11
5.3.3 Forming the eye .....	11
5.3.4 Pressing the ferrule .....	13
5.3.5 Quality control after pressing of the ferrule .....	13
6 Verification of the safety requirements and/or measures .....	14
6.1 Qualification of personnel .....	14
6.2 Tensile type test (FSET system designer) .....	14
6.3 Fatigue type test (FSET system designer) .....	14
6.4 Fatigue type test of Flemish eye ferrule-secured termination of crane hoist rope (FSET system designer).....	14
6.5 Ferrule dimensions before pressing (Ferrule manufacturer).....	14
6.6 Manufacture and quality control of ferrule (Ferrule manufacturer).....	14
6.7 Ferrules (FSET or ferrule-secured endless loop manufacturer).....	14
6.8 Matching of ferrule to wire rope (FSET or ferrule-secured endless loop manufacturer) .....	14
6.9 Forming the eye (FSET or ferrule-secured endless loop manufacturer) .....	15
6.10 Pressing the ferrule (FSET or ferrule-secured endless loop manufacturer) .....	15
6.11 Quality control after pressing the ferrule(s) (FSET or ferrule-secured endless loop manufacturer).....	15
7 Information for use .....	15
7.1 Marking .....	15
7.2 Certificate .....	15
Annex A (informative) Specification for one design of turn-back eye ferrule-secured termination .....	16
A.1 General.....	16
A.2 Types of terminations .....	16
A.3 Ropes for this design of ferrule .....	18
A.3.1 General.....	18
A.3.2 Rope types.....	18
A.3.3 Metallic cross sectional area factor .....	18
A.3.4 Rope grade .....	18
A.3.5 Types of rope lay .....	18

საინფორმაციო ნაწილი. სრული ტექსტის სახსრავად შეიძინეთ სტანდარტი.

A.4	Tubing.....	18
A.4.1	General.....	18
A.4.2	Material .....	18
A.4.3	Straightness .....	18
A.4.4	Wall thickness.....	19
A.5	Identification and dimensions of ferrules (unpressed) .....	19
A.6	Matching wire rope to ferrule .....	22
A.7	Making the eye termination .....	25
A.7.1	Positioning of ferrule (Types A and B).....	25
A.7.2	Pressing the ferrule.....	25
A.7.3	Ferrules after pressing.....	25
A.8	Information for use.....	27
A.8.1	Identification marks.....	27
A.8.2	Temperature limits.....	27
<b>Annex ZA (informative) <math>\square_{A1}</math> Relationship between this European Standard and the Essential Requirements of EU Directive 98/37/EC <math>\square_{A1}</math>.....</b>		
<b>Annex ZB (informative) <math>\square_{A1}</math> Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC <math>\square_{A1}</math>.....</b>		
<b>Bibliography.....</b>		

## Foreword

This document (EN 13411-3:2004+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 April 2009, and conflicting national standards shall be withdrawn at the latest by December 2009.

This document supersedes EN 13411-3:2004.

This document includes Amendment 1, approved by CEN on 2008-09-18 and includes Corrigendum 1 issued by CEN on 19 October 2005.

The start and finish of text introduced or altered by amendment is indicated in the text by tags  $\boxed{A1}$   $\boxed{A1}$ .

The modifications of the related CEN Corrigendum have been implemented at the appropriate places in the text and are indicated by the tags  $\boxed{AC}$   $\boxed{AC}$ .

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).

$\boxed{A1}$  For relationship with EU Directive(s), see informative Annexes ZA and ZB, which are integral parts of this document.  $\boxed{A1}$

Annex A is informative.

EN 13411 consists of the following parts:

- Part 1: Thimbles for steel wire rope slings
- Part 2: Splicing of eyes for wire rope slings
- Part 3: Ferrules and ferrule-securing
- Part 4: Metal and resin socketing
- Part 5: U-bolt wire rope grips
- Part 6: Asymmetric wedge socket
- Part 7: Symmetric wedge socket

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.

საინფორმაციო ნაწილი. სრული ტექსტის სანახავად შეიძინეთ სტანდარტი.

## Introduction

This European Standard is a Type C Standard as stated in EN 1070.

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

Purchasers ordering to this standard are advised to specify in their purchasing contract that the supplier operates an independently verified quality assurance system to ensure themselves that products claimed to comply consistently achieve the required level of quality.

It is understood that type testing of a ferrule-secured eye termination system is the responsibility of the ferrule-secured eye termination system designer.

It is also understood that the ferrule supplier is responsible for ensuring that the material, design and quality of the ferrule is in accordance with the ferrule-secured eye system designer's specification.

Ferrule-secured eyes manufactured by the ferrule-secured eye termination producer in accordance with this standard are permitted for use as rope terminations in the production of steel wire rope slings. They are also used as terminations for steel wire rope assemblies for raising, lowering and supporting loads.

The steel wire rope terminations concerned and the extent to which hazards, hazardous situations and events are covered are indicated in the scope of this document.

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 steel wire rope terminations that have been designed and produced according to the provisions of this type C standard.