Terminations for steel wire ropes - Safety - Part 4: Metal and resin socketing

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 13411-4:2021 sisaldab Euroopa standardi EN 13411-4:2021 ingliskeelset teksti.	This Estonian standard EVS-EN 13411-4:2021 consists of the English text of the European standard EN 13411-4:2021.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 22.12.2021.	Date of Availability of the European standard is 22.12.2021.
Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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English Version

Terminations for steel wire ropes - Safety - Part 4: Metal and resin socketing

Terminaisons pour câbles en acier - Sécurité - Partie 4 : Manchonnage à l'aide de métal et de résine

Endverbindungen für Drahtseile aus Stahldraht - Sicherheit - Teil 4: Metallvergüsse und Kunstharzvergüsse

This European Standard was approved by CEN on 15 November 2021.

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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-CENELEC Management Centre has the same status as the official versions.

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

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European foreword

This document (EN 13411-4:2021) 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of an identical text or by endorsement, at the latest by June 2022, and conflicting national standards shall be withdrawn at the latest by June 2022.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 13411-4:2011.

This third edition incorporates both technical and editorial amendments, with the main changes compared to the previous edition as follows:

— re-draft hazards clause;

— include requirements to remove non-metallic components in the rope brush 5.2.7;

— deletion of heat distortion property requirement B.2;

— comment on cone draw C.3;

— delete Annex ZA and re-draft document to reflect change in status to a de-harmonized standard.

EN 13411, under the general title “Terminations for steel wire ropes — Safety”, 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;

— Part 8: Swage terminals and swaging;

— Part 9: Solid thimbles.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria,

Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

This document is a type C standard as stated in EN ISO 12100.

The procedures 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 B standards, the provisions of this type C standard take precedence over the provisions of the other standards, for machines that have been designed and built according to the provisions of this type C standard.

The methods of socketing described in this standard are based on established procedures and following them is considered to result in a rope termination having an efficiency of 100 % based on the minimum breaking force of the rope.

It is assumed that the socket is:

— suitable for heating without changing the characteristics of the socket material when the socketing medium is molten metal;

— strong enough for the rope;

— suitable for the purpose for which it is intended.

1 Scope

This document specifies the minimum requirements for the molten metal and resin socketing of steel wire ropes within the scopes of EN 12385-4:2002+A1:2008; EN 12385-5:2021; EN 12385-6:2004; EN 12385-7:2002; EN 12385-8:2002; EN 12385-9:2002 and EN 12385-10:2003+A1:2008.

The document is applicable only to those requirements that ensure that the socketing is strong enough to withstand a force of at least 100 % of the minimum breaking force of the rope (i.e. socket termination efficiency factor K_T = 1,0).

NOTE Rope terminations made by socketing in accordance with this document can be used for determining the breaking force of wire ropes in accordance with EN 12385-1:2002+A1:2008, Annex A.

Socketing by the methods and materials described in this standard are for use within the temperature limits given in normative Annex E.

This document deals with all significant hazards, hazardous situations and events relevant to metal and resin socket terminations, when they are used as intended and under conditions of misuse which are reasonably foreseeable (see Clause 4).

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 59, *Glass reinforced plastics — Determination of indentation hardness by means of a Barcol hardness tester*

EN 1774:1997, *Zinc and zinc alloys — Alloys for foundry purposes — Ingot and liquid*

EN 12385-1:2002+A1:2008, *Steel wire ropes — Safety — Part 1: General requirements*

EN 12385-2, *Steel wire ropes — Safety — Part 2: Definitions, designation and classification*

EN ISO 604, *Plastics — Determination of compressive properties (ISO 604)*

EN ISO 3838, *Crude petroleum and liquid or solid petroleum products — Determination of density or relative density — Capillary-stoppered pyknometer and graduated bicapillary pyknometer methods (ISO 3838)*

EN ISO 12100:2010, *Safety of machinery — General principles for design — Risk assessment and risk reduction (ISO 12100:2010)*

3 Terms and definitions

For the purpose of this document, the terms and definitions given in EN ISO 12100, EN 12385-2 and the following apply.

3.1
socket
type of wire rope termination incorporating a *socket basket* (3.2)