

Kraanad. Elektrilised vintsid ja tõstemehhanismid.
Osa 2: Elektrilised tõstukid KONSOLIDEERITUD TEKST

Cranes - Power driven winches and hoists - Part 2: Power driven hoists CONSOLIDATED TEXT

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 14492-2:2006+A1:2009 sisaldab Euroopa standardi EN 14492-2:2006+A1:2009 ingliskeelset teksti.

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English Version

Cranes - Power driven winches and hoists - Part 2: Power driven hoists

Appareils de levage à charge suspendue - Treuils et palans motorisés - Partie 2: Palans motorisés

Krane - Kraftgetriebene Winden und Hubwerke - Teil 2: Kraftgetriebene Hubwerke

This European Standard was approved by CEN on 11 October 2006 and includes Amendment 1 approved by CEN on 6 August 2009.

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Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN 14492-2:2006+A1:2009) has been prepared by Technical Committee CEN/TC 147 "Cranes - 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of an identical text or by endorsement, at the latest by March 2010, and conflicting national standards shall be withdrawn at the latest by March 2010.

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

This document includes Amendment 1, approved by CEN on 2009-08-06.

This document supersedes EN 14492-2:2006.

The start and finish of text introduced or altered by amendment is indicated in the text by tags **A1** **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).

A1 For relationship with EU Directive(s), see informative Annexes ZA, ZB and ZC, which are integral parts of this document. **A1**

This is the second part of the standard "Cranes — Power driven winches and hoists". The parts of the standard are:

Part 1: Power driven winches

Part 2: Power driven hoists

For the relationship with other European Standards for cranes, see Annex L.

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

[A1] This European standard is a harmonized standard to provide one means for power driven winches to conform to the essential health and safety requirements of the Machinery Directive 98/37/EC and the Machinery Directive 2006/42/EC. **[A1]**

The machinery concerned and the extent to which hazards, hazardous situations and events are covered are indicated in the scope of this European Standard.

This European Standard is a type C standard as stated in EN ISO 12100-1.

When provisions of this type C standard are different from those stated in type A or B standards, the provisions of this type C standard take precedence over the provision of the other standards, for machines that have been designed and built according to the provisions of this type C standard.

1 Scope

This European Standard is applicable to the design, information for use, maintenance and testing of power driven hoists with or without trolleys for which the prime mover is an electric, hydraulic or pneumatic motor. They are designed for the lifting and lowering of loads which are suspended on hooks or other load lifting attachments. Hoists can be used either in cranes, in other machines, e.g. rail dependent storage and retrieval equipment, monorail conveyors or by itself.

This European Standard is applicable to the following types of hoist:

- a) rope hoist;
- b) chain hoist;
- c) belt hoist, except belt hoist with steel belts as hoisting media;
- d) open type hoist;
- e) NGL building hoists including supporting structures.

This European Standard is not applicable of the following hazards:

- i) this European Standard does not cover hazards related to builders hoists for the transport of goods as defined in 2000/14/EC;
- ii) this European Standard does not cover hazards related to the lifting of persons.

NOTE The use of hoists for the lifting of persons may be subject to specific national regulations.

This European Standard does not specify additional requirements for hazards related to the use of hoists in explosive atmospheres in underground works.

The significant hazards covered by this European Standard are identified in Clause 4.

This document is not applicable to power driven hoists which are manufactured before the date of publication of this European Standard by CEN.

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 418:1992, *Safety of machinery — Emergency stop equipment, functional aspects — Principles for design*

EN 818-1:1996, *Short link chain for lifting purposes — Safety — Part 1: General conditions of acceptance*

EN 818-7:2002, *Short link chain for lifting purposes — Safety — Part 7: Fine tolerance hoist chain, Grade T (Types T, DAT and DT)*

[A₁] *deleted text [A₁]*

EN 982:1996, *Safety of machinery — Safety requirements for fluid power systems and their components — Hydraulics*

- EN 983:1996, *Safety of machinery — Safety requirements for fluid power systems and their components — Pneumatics*
- EN 1127-1:1997, *Explosive atmospheres — Explosion prevention and protection — Part 1: Basic concepts and methodology*
- EN 12077-2:1998, *Cranes safety — Requirements for health and safety — Part 2: Limiting and indicating devices*
- EN 12644-2:2000, *Cranes — Information for use and testing — Part 2: Marking*
- EN 13001-2:2004, *Cranes — General design — Part 2: Load actions*
- EN 13411-3:2004, *Terminations for steel wire ropes — Safety — Part 3: Ferrules and ferrule securing*
- EN 13411-4:2002, *Terminations for steel wire ropes — Safety — Part 4: Metal and resin socketing*
- EN 13411-6:2004, *Terminations for steel wire ropes — Safety — Part 6: Asymmetric wedge socket*
- EN 13411-7:2003, *Terminations for steel wire ropes — Safety — Part 7: Symmetric wedge socket*
- EN 13463-1:2001, *Non-electrical equipment for potentially explosive atmospheres — Part 1: Basic method and requirements*
- EN 13463-5:2003, *Non-electrical equipment intended for use in potentially explosive atmospheres — Part 5: Protection by constructional safety "c"*
- EN 13557:2003, *Cranes — Controls and control stations*
- EN 50020:2002, *Electrical apparatus for potentially explosive atmospheres — Intrinsic safety 'i'*
- EN 60034-1:2004, *Rotating electrical machines — Part 1: Rating and performance (IEC 60034-1:2004)*
- EN 60034-5:2000, *Rotating electrical machines — Part 5: Degrees of protection provided by the integral design of rotating electrical machines (IP code); Classification (IEC 60034-5:2000)*
- EN 60079-0:2004, *Electrical apparatus for explosive gas atmospheres — Part 0: General requirements (IEC 60079-0:2004)*
- EN 60079-1:2004, *Electrical apparatus for potentially explosive gas atmospheres — Part 1: Flameproof enclosure 'd' (IEC 60079-1:2003)*
- EN 60079-7:2003, *Electrical apparatus for explosive gas atmospheres — Part 7: Increased safety 'e' (IEC 60079-7:2001)*
- EN 60204-32:1998, *Safety of machinery — Electrical equipment of machines — Part 32: Requirements for hoisting machines (IEC 60204-32:1998)*
- EN 60529:1991, *Degrees of protection provided by enclosures (IP code) (IEC 60529:1989)*
- EN ISO 3744:1995, *Acoustics — Determination of sound power levels of noise sources using sound pressure — Engineering method in an essentially free field over a reflecting plane (ISO 3744:1994)*
- EN ISO 4871:1996, *Acoustics — Declaration and verification of noise emission values of machinery and equipment (ISO 4871:1996)*
- EN ISO 11201:1995, *Acoustics — Noise emitted by machinery and equipment — Measurement of emission sound pressure levels at a work station and at other specified positions — Engineering method in an essentially free field over a reflecting plane (ISO 11201:1995)*

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

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

EN ISO 13732-1:2006, *Ergonomics of the thermal environment - Methods for the assessment of human responses to contact with surfaces - Part 1: Hot surfaces (ISO 13732-1:2006)*

EN ISO 13849-1, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design (ISO 13849:2006)* ^{A1}

ISO 606:2004, *Short-pitch transmission precision roller and bush chains, attachments and associated chain sprockets*

ISO 4301-1:1986, *Cranes and lifting appliances — Classification — Part 1: General*

ISO 4308-1:2003, *Cranes and lifting appliances — Selection of wire ropes — Part 1: General*

ISO 12482-1:1995, *Cranes — Condition monitoring — Part 1: General*

IEC 60072-1:1991, *Dimensions and output series for rotating electrical machines — Part 1: frame numbers 56 to 400 and flange numbers 55 to 1080*

FEM 1.001:1998, *Rules for the design of hoisting appliances, booklets 1, 2, 3, 4, 5, 8 and 9*

FEM 9.901:1991, *Rules for the design of series lifting equipment and cranes equipped with series lifting equipment*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 12100-1:2003 and the following apply.

3.1

anchorage

complete device to anchor the hoisting media to a fixed point

3.2

belt drive

system of belts, belt pulleys, belt drums and belt anchorages

3.3

stall torque (of an a.c. motor)

maximum steady-state asynchrony torque which the motor develops without an abrupt drop in speed, when the motor is supplied at the rated voltage and frequency

3.4

chain drive

system of fine tolerance steel link chains, roller chains, driven and non-driven chain wheels and chain anchorages

3.5

working coefficient for ropes, chains and belts

ratio between the minimum breaking force and the static rated tensile force

3.6

direct control

main power circuit is directly controlled by the hand controlled actuator without additional means between the actuator and the main power circuit