SLOVENSKI STANDARD
SIST EN 14492-2:2019/oprA1:2022

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Žerjavi - Motorni vitli in dvižni mehanizmi - 2. del: Motorni dvižni mehanizmi - Dopolnilo A1

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

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

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

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53.020.20 Dvigala Cranes

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EUROPEAN STANDARD

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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 motorises - Partie 2 : Palans et treuils de levage motorisés

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

This draft amendment is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 147.

This draft amendment A1, if approved, will modify the European Standard EN 14492-2:2019. If this draft becomes an amendment, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant national standard without any alteration.

This draft amendment was established by CEN 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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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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European foreword

This document (prEN 14492-2:2019/prA1:2022) has been prepared by Technical Committee CEN/TC 147 “Cranes-Safety”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document has been prepared under a Standardization Request given to CEN by the European Commission and the European Free Trade Association and supports essential requirements of EU Directive(s) / Regulation(s).

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

1 Modifications to the European foreword

Replace the 5th paragraph with the following:

"CEN/TC 147 WG 17 has reviewed EN 14492-2:2019 to adapt the standard to the technical progress, new requirements and changes in standards referenced; the main topics are:

— the standard references in Clause 2 and in the Bibliography are all dated;

— the Annex ZA is updated.".

2 Modifications to the Introduction

Replace the whole clause with the following:

"This document is a harmonized standard to provide one means for power driven hoists to conform to the essential health and safety requirements of the EU Directive 2006/42/EC (Machinery) and essential safety requirements of EU Directive 2014/34/EU (ATEX).

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

This document is of relevance, in particular, for the following stakeholder groups representing the market players with regard to machinery safety:

— machine manufacturers (small, medium and large enterprises);

— health and safety bodies (regulators, accident prevention organizations, market surveillance etc.).

Others can be affected by the level of machinery safety achieved with the means of the document by the above-mentioned stakeholder groups:

— machine users/employers (small, medium and large enterprises);

— machine users/employees (e.g. trade unions, organizations for people with special needs);

— service providers, e.g. for maintenance (small, medium and large enterprises);

— consumers (in case of machinery intended for use by consumers).

The above-mentioned stakeholder groups have been given the possibility to participate at the drafting process of this document.

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

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

3 Modifications to Clause 1, "Scope"

Replace the 2nd paragraph with the following:

"This document is applicable to the following types of hoists and applications:

a) rope hoists;

b) chain hoists;

c) belt hoists, except belt hoists with steel belts as hoisting media;

d) NGL building hoists including supporting structures;

e) winches used for lifting operation;

f) hoists designed for holding stationary loads above persons;

g) hoists designed for high risk applications.".

Add a new paragraph after the 2nd one:

"This document does not apply to belt hoists with steel belts as hoisting media.".

Replace the existing 3rd paragraph (now the 4th paragraph) with the following:

"This document is not applicable to the following hazards:

a) this document does not cover hazards related to builders hoists for the transport of goods as defined in Noise Outdoor Directive (OND) 2000/14/EC;

b) this document does not cover hazards related to the lifting of persons.".

4 Modifications to Clause 2, "Normative references"

Add dates to the following references in Clause 2 and throughout the text, as follows:

"EN 81-50:2020, *Safety rules for the construction and installation of lifts — Examinations and tests — Part 50: Design rules, calculations, examinations and tests of lift components*

EN 1127-1:2019, *Explosive atmospheres — Explosion prevention and protection — Part 1: Basic concepts and methodology*

EN 12644-2:2000+A1:2008, *Cranes — Information for use and testing — Part 2: Marking*

EN 13001-1:2015, *Cranes — General design — Part 1: General principles and requirements*

EN 13001-2:2021, *Crane safety — General design — Part 2: Load actions*

EN 13001-3-1:2012+A2:2018, *Cranes — General Design — Part 3-1: Limit States and proof competence of steel structure*

EN 13001-3-2:2014, *Cranes — General design — Part 3-2: Limit states and proof of competence of wire ropes in reeving systems*

EN 13001-3-3:2014, *Cranes — General design — Part 3-3: Limit states and proof of competence of wheel/rail contacts*

EN 13001-3-5:2016, *Cranes — General design — Part 3-5: Limit states and proof of competence of forged hooks*

EN 13135:2013+A1:2018, *Cranes — Safety — Design — Requirements for equipment*

EN 13411-3:2004+A1:2008, *Terminations for steel wire ropes — Safety — Part 3: Ferrules and ferrule-securing*

EN 13411-4:2011, *Terminations for steel wire ropes — Safety — Part 4: Metal and resin socketing*

EN 13411-6:2004+A1:2008, *Terminations for steel wire ropes — Safety — Part 6: Asymmetric wedge socket*

EN 13411-7:2006+A1:2008, *Terminations for steel wire ropes — Safety — Part 7: Symmetric wedge socket*

EN 60034-5:2001[1)], *Rotating electrical machines — Part 5: Degrees of protection provided by the integral design of rotating electrical machines (IP code) — Classification (IEC 60034-5:2000)*

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1) As impacted by EN 60034-5:2001/A1:2007.

EN 60079-0:2018, *Explosive atmospheres — Part 0: Equipment — General requirements (IEC 60079-0:2011)*

EN 60079-14:2014, *Explosive atmospheres — Part 14: Electrical installations design, selection and erection (IEC 60079-14:2013)*

EN 60529:1991[2)], *Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989)*

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2) As impacted by EN 60529:1991/A1:2000 and EN 60529:1991/A2:2013.

EN 61000-6-2:2019, *Electromagnetic compatibility (EMC) — Part 6-2: Generic standards — Immunity for industrial environments (IEC 61000-6-2)*

EN 61000-6-3:2007[3)], *Electromagnetic compatibility (EMC) — Part 6-3: Generic standards — Emission standard for residential, commercial and light-industrial environments (IEC 61000-6-3:2006)*

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3) As impacted by EN 61000-6-3:2007/A1:2011.

EN 61000-6-4:2014, *Electromagnetic compatibility (EMC) — Part 6-4: Generic standards — Emission standard for industrial environments (IEC 61000-6-4)*

EN ISO 4414:2010, *Pneumatic fluid power — General rules and safety requirements for systems and their components (ISO 4414)*

EN ISO 4871:2009, *Acoustics — Declaration and verification of noise emission values of machinery and equipment (ISO 4871)*

EN ISO 11688-1:2009, *Acoustics — Recommended practice for the design of low-noise machinery and equipment — Part 1: Planning (ISO/TR 11688-1)*

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

EN ISO 13732-1:2008, *Ergonomics of the thermal environment — Methods for the assessment of human responses to contact with surfaces — Part 1: Hot surfaces (ISO 13732-1)*

EN ISO 13849-1:2015, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design (ISO 13849-1)*

EN ISO 80079-36:2016, *Explosive atmospheres — Part 36: Non-electrical equipment for explosive atmospheres — Basic method and requirements (ISO 80079-36)*

EN ISO 80079-37:2016, *Explosive atmospheres — Part 37: Non-electrical equipment for explosive atmospheres — Non-electrical type of protection constructional safety ''c'', control of ignition sources ''b'', liquid immersion ''k'' (ISO 80079-37)*

ISO 606:2015, *Short-pitch transmission precision roller and bush chains, attachments and associated chain sprockets*

ISO 4306-1:2016, *Cranes — Vocabulary — Part 1: General*

ISO 4309:2017, *Cranes — Wire ropes — Care and maintenance, inspection and discard*

ISO 12482:2014, *Cranes — Monitoring for crane design working period*".

*After reference "*EN 12077-2*", add the following new reference*:

"EN 12644-1:2001+A1:2008, *Cranes — Information for use and testing — Part 1: Instructions*".

After reference "EN 13411-7", *add the following new reference:*

"EN 13586:2020, *Cranes — Access".*

5 Modifications to Clause 3, "Terms, definitions and symbols "

In 3.1, 1st paragraph, replace "EN ISO 12100" *and* "ISO 4306-1" *with* "EN ISO 12100:2010" and "ISO 4306-1:2016".

In 3.1.7, Figure 1 Key, replace the explanation for β_L, β_R *with the following:*

" **Key**

β_L, β_R fleet angles on the sheave

".

In 3.1.21, Note 2 to entry, replace "EN 13001-2" *with* "13001-2:2021".

Replace the term 3.1.29 "construction winch" with the following:

"**3.1.29**
traction hoist
hoist where the hoist drive torque is transformed into hoist rope force through friction between the rope and the driving sheaves".

In 3.2, Table 1, replace the symbol explanation with the following (6th from the last row):

"

β_L, β_R	fleet angles on the sheave

".

In 3.2, Table 1, replace the symbol explanation with the following (5th from the last row):

“

r	is the distance from the operator position to the noise source [m]

”.

6 Modifications to Clause 4, "List of significant hazards "

Replace the 1st paragraph and NOTES with the following:

"Table 2 contains all the significant hazards, hazardous situations and events, identified by risk assessment as significant for this type of machinery and which require measures to eliminate or reduce the risk associated with the identified hazards.

NOTE 1 n.a. considered during risk assessment analysis and decided to be not significant.

NOTE 2 The significant hazards are based upon EN ISO 12100:2010.".

In Table 2, modify the rows as follows:

1.10	Slipping, tripping and falling	5.1
6.5	Lasers	n.a.
19	**Slip, trip and fall of persons (related to machinery)**	5.1, I.4.1
28.1	From lightning	5.13, 7.2

7 Modifications to Clause 5, " Safety requirements and/or protective measures "

In 5.1, in the 1st and the 2nd paragraphs, replace “EN ISO 12100”, “EN 13001-1” *and* “EN 13001-3-2” *with* “EN ISO 12100:2010”, “EN 13001-1:2015” *and* “EN 13001-3-2:2014”.

In 5.1, in paragraphs 7 to 9, replace “EN 13001-2”, “EN 13001-3-1”, “EN 13135” *and* “EN 60204-32” *with* “EN 13001-2:2021”, “EN 13001-3-1:2012+A2:2018”, “EN 13135:2013+A1:2018” *and* “EN 60204-32:2008”.

In 5.1, add the following new paragraph after the 11th paragraph (after list item e)):

"Hoists shall be such that access is possible to all areas as necessary due to operation, inspection and maintenance. Access may rely on external means and equipment. Where integral means of access attached to the hoist are provided, those shall be in accordance with EN 13586:2020.".

In 5.1, in the penultimate paragraph, replace “EN ISO 13732-1” *with “*EN ISO 13732-1:2008”.

In 5.2.2.1, in the 4th paragraph, replace “EN 12077-2” *with* “EN 12077-2:1998+A1:2008.".

In 5.2.2.1, replace the 6th paragraph with the following:

"For hoists for which the rated capacity does not vary with the position of the load, rated capacity indicators as defined in EN 12077-2:1998+A1:2008 are not required.".

In 5.2.2.3.1, replace the 3rd paragraph with the following:

"The maximum force $F_{max,L}$ shall be assigned to load combination C as specified in EN 13001-2:2021.".

In 5.2.2.3.3, replace the Formula (7) with the following:

"$F_{max,L} = (\phi_{IAL} \times m_{RC} + m_H - m_{RC}) \times g$".

In 5.2.2.3.3, in the NOTE after Table 3, replace "EN 13001-2:2014" *with* "EN 13001-2:2021".

In 5.2.3, add a new paragraph after the first one:

"The emergency stop function shall have similar and simultaneous effect on all movements of the hoist assembly, e.g. hoisting movement, trolley movement and movements of any load lifting attachments.".

In 5.2.4.1, replace the 4th up to the 7th paragraphs with the following:

" The following prescriptions shall apply in addition to those stated in EN 12077-2:1998+A1:2008:

— electromechanical limiters shall have a direct opening action (definition as in EN 60204-32:2008, 3.19);

— after operation of a limiter, it shall be ensured that the limiter does not return to its original position until the corresponding restricted area has been left by the actuating part;

— the lowering limiter shall ensure that the minimum engagement of the lifting medium is maintained at all times during operation. The lowering limiter shall also stop the motion to prevent unwanted coiling in the reverse direction.".

In 5.2.5, replace the whole clause with the following:

"All safety related functions of control systems shall fulfil the performance level of EN ISO 13849-1:2015 as follows:

— control circuits built with electromechanical, hydraulic and pneumatic components shall fulfil at least Performance Level c and category 1;

— control circuits built with electronic or programmable components, respectively, shall fulfil at least Performance Level c and category 2.

At least the following safety related functions shall be addressed:

— overload protection;

— limiting of motions (hoisting, traversing);

— emergency stop function;

— over speed control of variable speed hoisting drives, see EN 60204-32:2008, 9.4.4.

In the following applications, all safety-related functions of control systems shall conform to at least Performance Level d: