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Dvigala (žerjavi) - Varnost - Snemljiva dvigalna sredstva - Dopolnilo A1

Cranes - Safety - Non-fixed load lifting attachments

Krane - Sicherheit - Lose Lastaufnahmemittel

Appareils de levage à charge suspendue - Sécurité - Accessoires de levage amovibles

Ta slovenski standard je istoveten z: EN 13155:2020/prA1

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ICS:

53.020.30 Pribor za dvigalno opremo Accessories for lifting
equipment

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EUROPEAN STANDARD
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English Version

Cranes - Safety - Non-fixed load lifting attachments

Appareils de levage à charge suspendue - Sécurité -
Accessoires de levage amovibles

Krane - Sicherheit - Lose Lastaufnahmemittel

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 13155:2020. 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 (EN 13155:2020/prA1:2023) 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 Annexe ZA, which is an integral part of EN 13155:2020.

The main modifications compared to EN 13155:2020 concern:

- there are two distinct verification methods, by calculation and test or by test only. The errors associated with each of these verification methods have been rectified;
- the verification by test only requires testing to the elastic condition, $2 \times WLL$ without permanent deformation and yielded condition, $3 \times WLL$ without releasing the load;
- the verification by calculation makes allowance for lower working coefficients for certain technically justified cases. The calculated results are supported by testing using a variable sliding scale of test loads for verification of the calculated mechanical strength has been included.

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EN 13155:2020/prA1:2023 (E)**1 Modification to Clause 1, "Scope"**

2nd paragraph after list, replace the reference to EN 13001-2:2014 with:

"EN 13001-2:2021".

2 Modifications to Clause 2, "Normative references"

Replace the following normative references:

"EN 349:1993+A1:2008, *Safety of machinery — Minimum gaps to avoid crushing of parts of the human body*"

and

"EN 13001-2:2014, *Cranes safety – General design – Part 2: Load actions*"

with these normative references:

"EN ISO 13854:2019, *Safety of machinery — Minimum gaps to avoid crushing of parts of the human body (ISO 13854:2017)*"

and

"EN 13001-2:2021, *Cranes safety – General design – Part 2: load actions*".

3 Modifications to Clause 3, "Terms and definitions"

In 3.7 replace the definition text with:

"verification carried out on every item produced or a sampling regime provided that the sampling regime is such that deviations from the required specification are detected and rectified".

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In the title of 3.22 add the acronym "(WLL)" to read:

"3.22 working load limit (WLL)".

Add an additional definition 3.25:

3.25

unintended tilt angle

unintended change in angle of the equipment caused by factors such as offset centre of gravity, sling lengths, load swing, etc."

4 Modifications to Clause 4 "List of significant hazards"

Table 1 Group 8.9 Human error during operation, 1.7 information, replace the relevant Clause into "Clause 7".

Table 1 Group 22.11 Inadequate selection of chains, ropes, lifting and accessories and their integration into the machine, 4.1.2.4 pulleys, drums, wheels, ropes and chains, add "5.1.5".

Table 1 Group 22.11 Inadequate selection of chains, ropes, lifting and accessories and their integration into the machine, 4.1.2.5 Lifting accessories and their components, add "5.1.2.1, 5.1.2.2, 5.1.2.3, 5.1.5, 5.1.7, 5.2.1.6, 5.2.1.7, Annex B".

Table 1 Group 22.11 Inadequate selection of chains, ropes, lifting and accessories and their integration into the machine, 4.3.1 chains, ropes and webbing, add "5.1.5".

Table Group 22.13 Abnormal conditions of assembly/use/maintenance, 4.4.1 lifting accessories, add "7.1".

Table 2 Group 8.9 Human error during operation, 1.7 information, replace with "Clause 7".

Table 3 Group 8.9 Human error during operation, 1.7 information, replace with "Clause 7".

Table 4 Group 8.9 Human error during operation, 1.7 information, replace with "Clause 7".

Table 5 Group 8.9 Human error during operation, 1.7 information, replace with "Clause 7".

Table 6 Group 1.1, 1.3.3 risks due to falling or ejected objects, replace the relevant clauses with "5.2.6.2.1, 5.2.6.2.2, 5.2.6.3.1, 5.2.6.3.2, 5.2.6.4.2".

Table 7 Group 8.9 Human error during operation, 1.7 information, replace with "Clause 7".

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

In 5.1.2.1, replace the text of the subclause with:

"The coefficients mentioned below cover the uncertainties of the value of the actual load and the impact factor for hoisting a grounded load (dynamic effect) in general applications. The proof of fatigue strength is not necessary, it is covered by the global safety of the proof of static strength.

— Verification by calculation.

The mechanical load bearing parts shall be designed to withstand a static load of two times the working load limit without permanent deformation.

If technically justified this factor can be reduced further but not less than 1.65. A technical justification would be accurate estimation of a lower dynamic factor imposed by the specific rigging and lifting machinery being used.

NOTE The factor two above covers all cases of any combinations of partial safety factor (γ_p), dynamic factor and resistance factor (γ_m) (see EN 13001 series).

— Verification by test only

The mechanical load bearing parts shall be designed to withstand a static load of two times the working load limit without permanent deformation.

The mechanical load bearing parts shall be designed to withstand a static load of three times the working load limit without releasing the load even if permanent deformation occurs."

In 5.1.2.2, replace all text in the subclause with the following:

"The proof of the static strength regarding elastic and yielded condition shall meet 5.1.2.1. Fatigue strength shall be proved in accordance with the methods stated in EN 13001-1:2015, EN 13001-2:2021 and EN 13001-3-1:2012+A2:2018. Consideration to other parts of the EN 13001 series that would be applicable to the specific device shall be included, for example EN 13001-3-5:2016+A1:2021, *Cranes - General design - Part 3-5: Limit states and proof of competence of forged and cast hooks*."

In 5.1.2.3, replace all text in the subclause with the following:

"Load lifting attachments should be designed for an unintended tilt angle of ± 6 degrees deviation from the maximum working angle.

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If technically justified an unintended tilt angle less than 6 degrees can be used.“.

In 5.1.5, replace the list of standards with the following:

"

- EN 818-4:1996+A1:2008;
- EN 818-5:1999+A1:2008;
- EN 1492-1:2000+A1:2008;
- EN 1492-2:2000+A1:2008;
- EN 1492-4:2004+A1:2008;
- EN 1677-1:2000+A1:2008;
- EN 1677-2:2000+A1:2008;
- EN 1677-3:2001+A1:2008;
- EN 1677-4:2000+A1:2008;
- EN 1677-5:2001+A1:2008;
- EN 1677-6:2001+A1:2008;
- EN 13414-1:2003+A2:2008;
- EN 13889:2003+A1:2008;
- EN ISO 3266:2010+A1:2015.

".

In 5.1.7, replace the reference to EN ISO 5817 with "EN ISO 5817:2014".

In 5.2.3.4.3, replace the reference to EN 349 with "EN ISO 13854:2019" to read:

"The control for operating the magnet in accordance with EN 13854:2019 with regard to the place for the operator's hands."

In 5.2.3.5.2 replace the second paragraph with:

"The monitoring device shall comply with a minimum performance level c, control category 3 of EN ISO 13849-1:2015."

In 5.2.5.3 add the following paragraph and NOTE after the second indent: "

Where whole load containment is needed by a secondary means, the correct system should be selected, e.g. using a brick box, cage or full containment for an unsecure pallet of blocks. A crane fork with load-resistant net should not be selected, as this is not a suitable or safe method of lifting.

NOTE A load-resistant net is not designed to contain a whole load. Also, any damage to the net significantly reduces its load carrying capacity."

In 5.2.6 Lifting beams, add a new subclause at beginning as follows. All subsequent clauses renumbered accordingly:

“5.2.6.1 Static strength and elastic stability

The mechanical load bearing parts shall have a mechanical strength to fulfil requirements of 5.1.2.”.

Renumber the subsequent subclauses accordingly.

In 5.2.6.3.1, now changed as above to 5.2.6.4.1, replace the text of the subclause as follows:

“5.2.6.4.1 If the lifting beam is intended to tilt, the manufacturer shall indicate the maximum permissible angle of tilt from the horizontal. If the lifting beam is intended for horizontal use, the design shall tolerate a tilt according to 5.1.2.3 from the horizontal.”.

In 5.2.6.3.2, now changed as above to 5.2.6.4.2, replace the text of the subclause as follows:

“5.2.6.4.2 Moving parts of the structure shall have devices to hold them in position when loaded. These devices shall be effective up to the maximum tilting angle specified in 5.1.2.3 for the lifting beam. If these devices operate on a friction basis the safety factor to prevent the load from slipping shall be at least 2.”.

In 5.2.6.3.4, now changed as above to 5.2.6.4.4, replace the standards reference “EN 349” with “EN ISO 13854:2019”.

In 5.2.8.2, replace the standards reference “EN 13369” with “EN 13369:2018”.

In 5.2.8.5, add the word “uniform” to the last sentence to read:

“The measured uniform elongation at failure A_{gt} shall be at least 5 %.”.

In 5.2.8.6, replace the undated standards references as follows:

“EN 12385:2002+A1:2008 and EN 13414-1:2003+A1:2008”.

6 Modifications to Clause 6, "Verification of the safety requirements and/or protective measures"

In Clause 6, add as new fourth paragraph the following:

"For load lifting attachment produced in series, where the production techniques employed and the application of a duly documented quality control system, e.g. EN ISO 9001, to make it possible to guarantee that every load lifting attachment produced will have identical characteristics, for example material properties, when fully assembled, static tests on adequate samples of the load lifting attachment can be considered as fulfilling the requirement of individual verification before being put into service."

In Clause 6, Table 9, amend as follows:

Plate clamps...

"

Mechanical load bearing parts ≤ 16 000 load bearing cycles	5.1.2.1	(A.1 + A.5) or A2	(A.1 + A.5) or A.3
Mechanical load bearing parts > 16 000 load bearing cycles	5.1.2.2	A.1 + A.5	A.1 + A.5
Tilting limit	5.1.2.3	(A.1 + A.5) or A2	(A.1 + A.5) or A.3

"

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Vacuum lifters...

"

Mechanical load bearing parts ≤ 16 000 load bearing cycles	5.1.2.1	(A.1 + A.5) or A.2	(A.1 + A.5) or A.3
Mechanical load bearing parts > 16 000 load bearing cycles	5.1.2.2	A.1 + A.5	A.1 + A.5

"

Battery fed lifting magnets...

"

Mechanical load bearing parts ≤ 16 000 load bearing cycles	5.1.2.1	(A.1 + A.5) or A.2	(A.1 + A.5) or A.3
Mechanical load bearing parts > 16 000 load bearing cycles	5.1.2.2	A.1 + A.5	A.1 + A.5
Tilting limit	5.1.2.3	(A.1 + A.5) or A.2	(A.1 + A.5) or A.3

"

Mains fed lifting magnets...

"

Mechanical load bearing parts ≤ 16 000 load bearing cycles	5.1.2.1	(A.1 + A.5) or A.2	(A.1 + A.5) or A.3
Mechanical load bearing parts > 16 000 load bearing cycles	5.1.2.2	A.1 + A.5	A.1 + A.5
Tilting limit	5.1.2.3	(A.1 + A.5) or A.2	(A.1 + A.5) or A.3

"

Permanent lifting magnets...

"

Mechanical load bearing parts ≤ 16 000 load bearing cycles	5.1.2.1	(A.1 + A.5) or A.2	(A.1 + A.5) or A.3
Mechanical load bearing parts > 16 000 load bearing cycles	5.1.2.2	A.1 + A.5	A.1 + A.5
Tilting limit	5.1.2.3	(A.1 + A.5) or A.2	(A.1 + A.5) or A.3

"