SLOVENSKI STANDARD
SIST EN 280:2013/kprA1:2015

01-junij-2015

Premične dvižne delovne ploščadi - Konstrukcijski izračuni - Kriteriji stabilnosti - Konstrukcije - Varnost - Pregledi in preskusi

Mobile elevating work platforms - Design calculations - Stability criteria - Construction - Safety - Examinations and tests

Fahrbare Hubarbeitsbühnen - Berechnung - Standsicherheit - Bau - Sicherheit - Prüfungen

Plates-formes élévatrices mobiles de personnel - Calculs de conception - Critères de stabilité - Construction - Sécurité - Examens et essais

Ta slovenski standard je istoveten z: **EN 280:2013/FprA1**

ICS:

53.020.99	Druga dvigalna oprema	Other lifting equipment

SIST EN 280:2013/kprA1:2015 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

FINAL DRAFT
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ICS 53.020.99

English Version

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This draft amendment is submitted to CEN members for formal vote. It has been drawn up by the Technical Committee CEN/TC 98.

This draft amendment A1, if approved, will modify the European Standard EN 280:2013. 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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Foreword

This document (EN 280:2013/FprA1:2015) has been prepared by Technical Committee CEN/TC 98 “Lifting platforms”, the secretariat of which is held by DIN.

This document is currently submitted to the Formal Vote.

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).

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

1 Modification to Clause 2 "Normative references"

Add the following new standards:

"EN 13001-3-1:2012+A1:2013, *Cranes — General design — Part 3-1: Limit states and proof competence of steel structure*",

"EN 62061, *Safety of machinery — Functional safety of safety-related electrical, electronic and programmable electronic control systems (IEC 62061)*" *and*

"ISO/TR 23849:2010, *Guidance on the application of ISO 13849-1 and IEC 62061 in the design of safety-related control systems for machinery*".

2 Modification to 5.1.2

Replace the word "operated" *by* "powered".

3 Modification to 5.2.2 "Loads and forces"

Replace

"b) structural loads (see 5.2.3.2)"

by

"b) dead weights (see 5.2.3.2)".

4 Modification to 5.2.3.2 "Structural loads"

Replace the existing text by the following text:

"**5.2.3.2 Dead weights**

The masses of the components of the MEWP when they are not moving shall be taken to be static dead weights.

The masses of the components of the MEWP when they are moving shall be taken to be dynamic dead weights."

5 Modification to 5.2.3.5 “Special loads and forces”

In the second paragraph, replace "structural load" *by* "dead weight".

6 Modification to 5.2.4 "Stability calculations"

In the key of Figure 6 c), 6 d), 7 a), 8 a) and 8 b) change the definition of "M" *to* "manual force".

7 Modification to 5.2.5.2 “Calculation methods”

Replace the existing text before the figures by the following text:

"The strength of load bearing steel structures shall be calculated and proofed in accordance with EN 13001-3-1. When EN 13001-3-1 is not applicable, e.g. the fatigue strength of welded connections with plates thinner than 3 mm, the calculation and proof of the load bearing structures shall follow the principles of EN 13001-3-1, and appropriate limits states shall be obtained from relevant sources.

Requirements laid down in 5.2.2, 5.2.3 and 5.2.4 above are to be considered for the determination of loads and forces to be used in the calculations.

The elastic deformations of slender components shall be taken into account.

The analysis defined in 5.2.5.3 shall be made for the worst load combinations and shall include the effects of the overload test (see 6.1.4.3) and the functional test (see 6.1.4.5)."

8 Modification to 5.2.5.2 “Calculation methods”, Table 2

In the heading row of the table replace "Structural loads" *by* "Dead weights".

9 Modification to 5.2.5.2 "Calculation methods"

Move Figure 5 a) to Figure 8 b) and Table 2 between last subclause of 5.2.4 (i.e. 5.2.4.4) and 5.2.5.

Additionally move Figure 5 a) to Figure 8 b) after Table 2.

10 Modification to 5.2.5.3 “Analysis”

Replace the text of the whole subclause by the following text:

"5.2.5.3 Strength analysis

5.2.5.3.1 Static strength analysis

All load bearing components and joints shall be proofed against failure by yielding or fracture. All load bearing components subjected to compressive loads shall be proofed against failure by elastic instability (e.g. buckling or crippling).

Loads can be considered to be either regular or occasional.

Regular loads occur frequently under normal operation. Regular loads are:

— rated load;

— dead weights.

Occasional loads occur infrequently, and are usually neglected in fatigue assessment. Occasional loads are:

— loads due to in-service wind;

— manual force.

These loads are combined into two load combinations, load combination A comprising only regular loads and load combination B comprising both regular and occasional loads. The static strength of the structure shall be assessed for both load combination A and B. The loads and forces defined in 5.2.3 shall thereby be multiplied by the partial safety factors γ_p given in Table 3.

Table 3 — Partial load factors

Clause	Loading	Partial safety factors γ_p	
		Load combination A	Load combination B
5.2.3.1	Rated load	1.34	1.22
5.2.3.2	Dead weights	1.22	1.16
5.2.3.3	Wind loads	–	1.22
5.2.3.4	Manual force	–	1.22

Dead weights that are acting favourably (e.g. counterweights that reduce forces and stresses) in some load carrying parts, shall be assigned the value $\gamma_p = 1$ when calculating those load carrying parts.

NOTE Load combinations from EN 13001-2 are not applicable within this standard."

5.2.5.3.2 Fatigue strength analysis

The fatigue stress analysis is the proof against failure by fatigue due to stress fluctuations. The analysis shall be made for all load bearing components and joints which are critical to fatigue taking into account the constructional details, the degree of stress fluctuation and the number of stress cycles. The number of stress cycles can be a multiple of the number of load cycles. Other stress variations during use, caused by movements (e.g. slewing, raising or travelling), can also contribute to the number of stress cycles. Usually, only regular loads need to be considered and the partial safety factors γ_p shall be set to 1. Loads due to misuse need not be considered.

NOTE 1 Due to the requirements in 5.4.6 and 5.6.13, no fatigue assessment is needed for stresses caused by vibrations during transport.

For the proof, the different parts of the load bearing structure shall be assigned to S classes in accordance with 6.3 of EN 13001-3-1:2012+A1:2013 (see also H.1). The S classes may be established either:

— by direct selection from H.2;

— by directly applying the formulae in EN 13001-3-1:2012+A1:2013 (see also H.3.2);

— in a simplified way described in H.3.3;

— by experience with technical justification.

NOTE 2 For the design of wire rope drive systems see Annex D.

Verification of the requirements of 5.2 — by design check, static tests and overload test"

11 Modification to 5.6.14

Add the following new point:

"d) be positioned not more than 750 mm above the floor of the work platform."

12 Modification to 5.7.9

Replace the existing text by the following new structured text:

"5.7.9 Overriding of emergency stop and/or safety functions/devices

5.7.9.1 General

Overriding of emergency stops and safety functions/devices shall not be possible at the same time, except in the case described in 5.7.9.4.

5.7.9.2 Overriding of emergency stop

Overriding of emergency stop according to 5.7.5 shall only be allowed:

— at a control station which is not in use (e.g. outrigger control station with ground control selected or ground control with platform control selected and vice-versa) and/or

— for rescuing a trapped and/or incapacitated operator on the platform.

Verification — by design check and functional test.

5.7.9.3 Overriding of safety functions/devices

Safety functions/devices may be overridden to recover the operator where a safety device has been tripped (e.g. moment sensing system, load sensing system or position control).

Overriding of safety functions/devices is permitted only by the use of a mode selection device that is independent from the control station selection device. Such a mode selection device is a safety device that shall be operated by hold-to-run controls, at reduced speed, one motion at a time and be protected against unauthorised use.

Features shall be provided to protect against misuse of the overriding safety functions/devices and to give visible evidence that they have been used or tampered with. This evidence shall remain until the features are returned to the condition they were in prior to the safety device(s) being operated or accessed. Resetting the evidence of overriding to its original condition shall require the use of a tool (e.g. password or physical tool).

Verification — by design check and functional test.

5.7.9.4 Overriding load sensing system and emergency stop

For rescuing a trapped and/or incapacitated operator it is permissible to override the emergency stop and the load sensing system at the same time. Overriding of the load sensing system shall allow motion of the platform sufficient to rescue the operator.

Verification — by design check and functional test."

13 Modification to 5.8.6

Replace the text of the first paragraph by the following text:

"The machines shall have sufficient immunity to electromagnetic disturbances to enable them to operate safely as intended in the expected environment of use. They shall not fail to danger when exposed to the