SLOVENSKI STANDARD
SIST EN 280:2002/A1:2004

01-november-2004

Premiļne dvigne delovne ploģļadi ï Izraļuni - Merila stabilnosti - Konstrukcijske izvedbe ï 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 - Critere de stabilité - Construction - Sécurité - Examens et Essais

Ta slovenski standard je istoveten z: **EN 280:2001/A1:2004**

ICS:

53.020.99 Druga dvigalna oprema Other lifting equipment

SIST EN 280:2002/A1:2004 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 280:2001/A1

July 2004

ICS 53.020.99

English version

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

Plates-formes élévatrices mobiles de personnel - Calculs de conception – Critère de stabilité - Construction - Sécurité - Examens et Essais

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

This amendment A1 modifies the European Standard EN 280:2001; it was approved by CEN on 13 May 2004.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This amendment 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (EN 280:2001/A1:2004) has been prepared by the Technical Committee CEN/TC 98 "Lifting platforms", the secretariat of which is held by DIN.

This Amendment to the European Standard EN 280:2001 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2005, and conflicting national standards shall be withdrawn at the latest January 2005

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).

In the discussions about the French Appeal on prEN 280:1998 the proposal was made to refer to EN 954-1 and EN ISO 13849-2:2003. This proposal was adopted by TC 98 and its WG 1 was given the task to prepare an amendment. This decision was based on the following criteria:

The incorporation of this proposal into the draft standard would have required another CEN Enquiry into the whole document with the consequence that the publication of EN 280 would have been further delayed. This delay was not acceptable to the interested parties. The splitting between the formal vote of the modified EN 280 according to the appeal and the elaboration of an amendment was regarded as an acceptable way to solve this problem.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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.

The following references were added:

EN 954-1:1996, *Safety of machinery — Safety related parts of control systems — Part 1: General principles for design.*

EN ISO 13849-2:2003, *Safety of machinery — Safety related parts of control systems — Part 2: Validation.*

CR 954-100:1999, *Safety of machinery — Safety related parts of control systems — Part 100: Guide on the use and application of EN 954-1:1996.*

The following reference was deleted:

EN 60947-5-1:1997, *Low-voltage switchgear and controlgear — Part 5-1: Control circuit devices and switching elements - Electromechanical control circuit devices (IEC 60947-5-1:1997).*

4 List of hazards

In Table 1 the following references will be deleted:

in 10.1 the references 5.7.7 and 5.11.3

in 11.3 the reference 5.11.3 and 5.11.6

In Table 1 the following references will be changed:

in 10.1 the reference 5.7.9 into 5.7.8

in 10.3 the reference 5.7.8 into 5.7.7

in 11.3 the reference 5.7.9 into 5.7.7

in 13 the reference 5.7.10 into 5.7.9

in 21.1 the reference 5.7.10 into 5.7.9

5.3 Chassis and stabilisers

5.3.2

The text will be replaced by:

Every MEWP shall have a safety device in accordance with 5.11 (e.g. spirit level) to indicate whether the inclination of the chassis is within the limits permitted by the manufacturer. This device shall be protected against damage and accidental change of its setting.

For MEWPs with power driven stabilisers the indication shall be clearly visible from each control position of the stabilisers.

On MEWPs of type 3 reaching the extreme limits of inclination this shall be indicated by an acoustic signal audible at the work platform.

Verification: - by functional test

5.3.8 Use of stabilisers

This sub-clause will be restructured as follows:

5.3.8.1 MEWPs shall be fitted with a safety device in accordance with 5.11 which prevents the work platform operating outside permitted positions unless the stabilisers are set in accordance with the operating instructions.

Verification: - by design check and functional test

5.3.8.2 MEWPs which are constructed for operation without stabilisers for a limited range of operation shall be equipped with safety devices in accordance with 5.11 which prevent operation outside that limited range without stabilisers.

Verification: - by design check and functional test

5.3.16

The text will be replaced by:

By the use of safety device(s) in accordance with 5.11 it shall not be possible to exceed the following travel speeds with manned work platforms out of the transport position on MEWPs of types 2 and 3:

a) 1,5 m/s for vehicle mounted MEWPs when using the travelling controls inside the cab;

b) 3,0 m/s for rail mounted MEWPs;

c) 0,7 m/s for all other self-propelled MEWPs of types 2 and 3.

Verification: - by design check and functional test

5.4 Extending structure

5.4.1.3.1

As the non-mechanical stops are dealt with in 5.4.1.3.3 with reference to 5.11 the text will be replaced by:

To avoid overturning of the MEWP or exceeding the permissible stresses in the structure of the MEWP, the permissible positions of the extending structure shall be limited automatically by mechanical stops (see 5.4.1.3.2) or non-mechanical limiting devices (see 5.4.1.3.3).

5.4.2

The text will be replaced by:

When the extending structure needs to be extended or retracted in a specific sequence to avoid overloading and/or overturning, this sequence shall be automatic. The automatic sequence shall be part of the position control (see 5.4.1.3) or moment sensing system (see 5.4.1.4).

Verification: - by design check and functional test

5.4.4

The text will be replaced by:

Trapping and shearing points between parts of the extending structure, the chassis and work platform shall be avoided by providing guarding or safe clearances in accordance with EN 349.

Trapping and shearing points need only be considered at those areas within reach of persons on the work platform or standing adjacent to the MEWP at ground level, or at other points of access. For areas such as:

— turntables crossing stabilisers / chassis;

— resting points for extending structures in transport position;

— stabilisers moving into transport position

where neither safe clearance in accordance with EN 349 nor guarding is possible, warning notices shall be fitted (see 7.2.13).

Instead of a rigid or flexible guard on MEWPs designed to pass through openings with a width of about 1,2 m and a height of about 2 m the following solution is permitted:

The downward movement shall be automatically stopped by a safety device in accordance with 5.11 in a position, where between the outer ends of the scissors the vertical distance is not less than 50 mm, so that crushing and shearing of fingers cannot occur. Further downward movement shall only be possible after a suitable time delay, giving the operator the opportunity to see, whether persons beside the MEWP could be injured, and a further command of the operator.

Verification: - by measurement and visual examination

5.5 Extending structure drive systems

5.5.2.1a

The text will be replaced by:

a) a mechanical device operating by engaging with the extending structure. This safety device shall gradually bring the work platform plus the rated load to a stop and hold it in the event of the wire rope drive system failing. The average deceleration shall not exceed 1,0 g_n. The proper functioning of the device shall be demonstrated by calculation and test(s). Any spring operating this device shall be a guided compression spring with secured ends, or with wire diameter more than half the pitch in the operating condition, to limit the shortening of the spring if it should fail, or

5.5.3.1.a

The text will be replaced by:

a) a chain drive system with a working coefficient of at least 5 plus a mechanical device operating by engaging with the extending structure. This safety device shall gradually bring the work platform plus the rated load to a stop and hold it in the event of the drive system failing. The average deceleration shall not exceed 1.0 g_n. The proper functioning of the device shall be demonstrated by calculation and test(s). Any spring operating this device shall be a guided compression spring with secured ends, or with wire diameter more than half the pitch in the operating condition, to limit the shortening of the spring if it should fail, or

5.5.5.2

The text will be replaced by:

Rack and pinion drives shall have a safety device in accordance with 5.11 actuated by an over-speed governor. This safety device shall gradually bring the work platform plus rated load to a stop and hold it in the event of the lifting mechanism failing. The average deceleration shall not exceed 1,0 g_n.

If this safety device is actuated, the power supply shall be interrupted automatically.

Verification: - by design check and functional test

5.6 Work platform

5.6.1

The text will be replaced by:

The level of the work platform shall not vary by more than 5 ° from the horizontal or the plane of the chassis or any turn table during movements of the extending structure, or due to loads and forces during operation

The levelling system shall incorporate a safety device in accordance with 5.11 which in case of a failure within the system keeps the platform level within further 5 °.

Verification: - by design check and functional test

Mechanical levelling systems using rods or levers fulfil this requirement if they are designed to take at least twice the load imposed to them. For wire ropes and chains see 5.5.2.1 and 5.5.3.1.

Verification: - by design check

Hydraulic cylinders in hydraulic levelling systems shall comply with 5.10.2.

Verification: - by functional test

5.6.3

The text will be replaced by:

Any part of the protection movable for the purpose of access to the work platform shall not fold or open outwards. It shall be so constructed as to either return automatically to the closed and fastened position, or be interlocked by a safety device in accordance with 5.11 to prevent operation of the MEWP until it is closed and fastened. Inadvertent opening shall not be possible. Sliding or vertically hinged intermediate guard-rails which return automatically to their protective position do not need fastening and interlocking.

Verification: - by visual examination

5.7 Controls

5.7.2

The text will be replaced by:

On MEWPs of types 2 and 3 it shall not be possible for the travelling controls to be operated simultaneously with any other controls. This does not apply to rail mounted MEWPs. This shall be achieved by a safety device in accordance with 5.11.

Verification: - by design check and functional test

5.7.4

The text will be replaced by:

The control devices shall be situated on the work platform. This does not preclude the provision of duplicate controls operated from the base or ground level. Duplicate controls shall be protected against unauthorised operation and may be used to serve as the emergency device (see 5.7.9).

If movement can be controlled from different control positions, the controls shall be interlocked at the duplicate control position in such a way that control is only possible from one pre-selected control position. This shall be achieved by a safety device in accordance with 5.11.

Verification: - by functional test and visual examination