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Stroji in obrati za proizvodnjo, obdelavo in predelavo ravnega stekla - Varnostne zahteve - 5. del: Stroji in naprave za zlaganje in razlaganje

Machines and plants for the manufacture, treatment and processing of flat glass - Safety requirements - Part 5: Machines and installations for stacking and de-stacking

Maschinen und Anlagen zur Herstellung, Be- und Verarbeitung von Flachglas – Sicherheitsanforderungen - Teil 5: Maschinen und Einrichtungen zum Stapeln und Abstapeln

Machines et installations pour la production, le façonnage et la transformation du verre plat - Exigences de sécurité - Partie 5: Machines et installations à empiler et dépiler

Ta slovenski standard je istoveten z: EN 13035-5:2006/prA1

ICS:

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 \^!æ ã} [Á å •cá Equipment for the glass and ceramics industries

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English Version

**Machines and plants for the manufacture, treatment and
processing of flat glass - Safety requirements - Part 5: Machines
and installations for stacking and de-stacking**

Machines et installations pour la production, le façonnage
et la transformation du verre plat - Exigences de sécurité -
Partie 5: Machines et installations à empiler et dépiler

Maschinen und Anlagen zur Herstellung, Be- und
Verarbeitung von Flachglas - Sicherheitsanforderungen -
Teil 5: Maschinen und Einrichtungen zum Stapeln und
Abstapeln

This draft amendment is submitted to CEN members for unique acceptance procedure. It has been drawn up by the Technical Committee CEN/TC 151.

This draft amendment A1, if approved, will modify the European Standard EN 13035-5:2006. 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.

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

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Foreword

This document (EN 13035-5:2006/prA1:2009) has been prepared by Technical Committee CEN/TC 151 “Construction equipment and building material machines — Safety”, the secretariat of which is held by DIN.

This document is currently submitted to the Unique Acceptance Procedure.

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 Annexes ZA and ZB, which are integral parts of this document.

EN 13035-5:2006/prA1:2009 (E)**1 Modification to the Foreword**

Replace the 4th paragraph with:

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

2 Modification to the Introduction

In the last paragraph, replace “prEN 13035-1” with “EN 13035-1”.

3 Modification to the Scope

In 1.2, replace the 1st sentence with:

“This European Standard deals with the significant hazards, hazardous situations and events relevant to machines and installations for stacking and de-stacking flat glass when they are used as intended and under the conditions of misuse which are reasonably foreseeable by the manufacturer (see Clause 4).”

In 1.2, replace the 3rd sentence with:

“This European Standard specifies the appropriate technical measures to eliminate or reduce risks arising from the significant hazards during commissioning, operation and maintenance.”

Add the following new 1.7:

“1.7 Noise is not a significant hazard for this type of machinery. The A-weighted emission sound pressure level at workstations does not exceed 70 dB(A).”

4 Modification to Clause 2, Normative references

Delete:

“EN 294:1992, *Safety of machinery — Safety distance to prevent danger zones being reached by the upper limbs*”

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

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

“EN 1050:1996, *Safety of machinery — Principles for risk assessment*”

Replace “EN 60204-1:1997” with “EN 60204-1:2006, Safety of machinery — Electrical equipment of machines — Part 1: General requirements (IEC 60204-1:2005, modified)”.

Delete:

“prEN 61496-2:2005, *Safety of machinery — Electro-sensitive protective equipment — Part 2: Particular requirements for equipment using active opto-electronic protective devices (AOPDs) (IEC 61496-2:2005)*”

Add:

“CLC/TS 61496-2, *Safety of machinery — Electro-sensitive protective equipment — Part 2: Particular requirements for equipment using active opto-electronic protective devices (AOPDs) (IEC 61496-2:2006)*”

“EN ISO 13849-1:2008, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design (ISO 13849-1:2006)*”

EN ISO 13850, *Safety of machinery — Emergency stop — Principles for design (ISO 13850:2006)*

EN ISO 13857:2008, *Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs (ISO 13857:2008)*”

5 Modification to Clause 4, List of significant hazards

Replace Table 1 with the following:

"

Hazards		Danger zone/dangerous items	Preventive measures: see clause
4.1	Mechanical		
4.1.1	Crushing impact and	Machinery, fixed type: between moving loading and stacking mechanism with or without flat glass and fixed part of the machinery itself or other machines or transport devices, e.g. conveyors, stillages. Risk of impact only for cycles of less than 20 s.	5.2 to 5.5
4.1.2	Crushing impact and	Machinery, fixed type: by the back and forth movement and the rotation of platforms for stillages with or without stillage (loaden or unloaden)	5.2 to 5.5
4.1.3	Crushing impact and	Machinery, movable type: the same risks as for 4.1.1 and 4.1.2 apply.	5.2 to 5.4
4.1.4	Crushing impact and	Machinery, movable type, in addition: by the travelling movement of machinery and between the travelling machinery and fixed parts of the surroundings, e.g. parts of other machines, stillages (loaden or unloaden)	5.2 to 5.4; 5.15
4.1.5	Cutting	by glass being transported	5.2 to 5.5; 5.8 to 5.10; 7.2.3

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4.2	Electrical	direct or indirect contact	5.16; 5.22
4.3	Neglecting ergonomic principles		
4.3.1	Neglected use of personal protection equipment	sharp glass	7.2.3
4.3.2	Human error	all dangerous movements	5.17; 7.2.5
4.4	Unexpected start-up, malfunction from		
4.4.1	Failure of the control system	all dangerous movements	5.3; 5.6
4.4.2	Restoration of energy supply	all dangerous movements	5.20
4.4.3	Destruction of piping, hoses and power cables	all dangerous movements	5.13
4.4.4	Gravity fall	lifted loading or stacking mechanism	5.6; 5.13; 5.21.1
4.4.5	Errors in the software	all dangerous movements	5.19
4.5	Impossibility of stopping in the best possible conditions	all dangerous movements	5.6; 5.17; 5.18; 5.21.1; 5.22; 5.23; 7.2.7; 7.2.8
4.6	Failure of vacuum system	suckers	5.12
4.7	Break-up	pipe or hose	5.21.2; 7.2.4
4.8	Falling and ejected items	monolithic flat glass	5.7 to 5.14; 7.2.6

6 Modification to Clause 5, Safety requirements and/or protective measures

In 5.1, 3rd paragraph, replace "EN 418" with "EN ISO 13850" and "EN 954-1" with "EN ISO 13849-1".

In 5.2.1, 1st sentence, replace "Table 1 of EN 294:1992" with "EN ISO 13857:2008, Table 1".

Replace 5.2.2 with:

5.2.2 "electro-sensitive protective equipment employing active opto-electronic protective devices, detecting intrusion of the whole body in the danger zone. These devices shall be in accordance with EN 61496-1:2004, type 4, and CLC/TS 61496-2 with two separate beams in accordance with EN 999:1998, 6.1.4 positioned at a minimum safety distance $S = 1\ 600 \times T + 850$ mm. The beams shall be mounted at a height of 0,4 m and 0,9 m above floor level. A device with one single horizontal beam can be used if a risk assessment concludes, after taking account of the risk level in the danger zone, the possibility for bypassing a single beam and the possible reasons for such bypassing, the risk is low. The single beam shall be mounted at a height of 0,75 m above floor level and at a minimum safety distance $S = 1600 \times T + 1200$ mm in accordance with EN 999:1998, 6.1.5, or"

In 5.2.3, replace the 1st sentence with "a fixed distance guard (see EN 953:1997, 3.2.2) closer to the machinery with a height not less than 1,4 m with a movable interlocking guard for access with or without guard locking according to EN 953:1997, 3.3, 3.5 and 3.6, and with minimum safety distances according to EN ISO 13857:2008, Table 1, where there is no free space (room) to use methods of 5.2.1 or 5.2.2."

Replace 5.3 with:

5.3 "The parts of the control system related to guard interlocking shall as a minimum comply with performance level d in accordance with EN ISO 13849-1:2008 (see also examples in informative Annexes B and C). Where fixed guards are used, their fixing systems shall remain attached to the guards or to the machinery when the guards are removed."

Replace 5.6 with:

5.6 "The safety related parts of the control system related to stopping operations initiated by safety equipment (see for example 5.2) shall as a minimum comply with performance level c in accordance with EN ISO 13849-1:2008, e.g. by:

5.6.1 de-energizing using contacts (see EN 60204-1:2006, 9.2.2, stop category 0) and applying spring-loaded brakes to motor-driven machines, or

NOTE For hydraulic and pneumatic drives: see 5.21.1.

5.6.2 electronically controlled braking and the removal of power using contacts when the stop is achieved, e. g. via a timing element (see EN 60204-1:2006, stop category 1). The safety-related part of the control system shall be not less than EN ISO 13849-1, performance level d. In every case, the removal of power by using contacts shall be monitored e.g. electronically (see for example Annex D (informative)). Additional mechanical brakes shall be provided to prevent movement when there is a risk of movement by gravity."

Replace 5.9 and 5.10 with:

5.9 "The control corresponding to 5.7 and 5.8 shall comply at least with EN ISO 13849-1, performance level b.

5.10 Safety measures shall be provided to prevent the ejection of sheets or the falling out laterally of broken parts of monolithic glass onto work places and traffic routes for personnel, e.g. by protective guards with a maximum mesh width of 0,05 m (square pattern) or 0,03 m × 0,08 m or 0,025 m × 0,25 m (rectangular) and with a height equal to the maximum height of the glass sheets as they are elevated during transfer. A lateral falling-out of broken pieces is only expected for an angle of inclination of the glass of < 25° from the perpendicular (see Annex E (informative)). The guard (mesh frame) shall be fixed (see EN 953:1997, 3.2). If it is detachable without the use of tools, it shall be interlocked with the drive according to EN 953:1997, 3.5. The parts of the control system related to the interlocking shall as a minimum comply with performance level c in accordance with EN ISO 13849-1:2008."

Replace 5.16 with: