



**SLOVENSKI STANDARD**  
**SIST EN 13035-7:2007+A1:2010**  
**01-februar-2010**

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**Stroji in obrati za proizvodnjo, obdelavo in predelavo ravnega stekla - Varnostne zahteve - 7. del: Stroji za rezanje lepljenega stekla**

Machines and plants for the manufacture, treatment and processing of flat glass - Safety requirements - Part 7: Cutting machines for laminated glass

Maschinen und Anlagen zur Herstellung, Be- und Verarbeitung von Flachglas - Sicherheitsanforderungen - Teil 7: Schneidmaschinen für Verbundglas

Machines et installations pour la production, le façonnage et la transformation du verre plat - Exigences de sécurité - Partie 7: Machines à couper le verre feuilleté

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**Ta slovenski standard je istoveten z: EN 13035-7:2006+A1:2009**

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**ICS:**

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**SIST EN 13035-7:2007+A1:2010 en,fr**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 13035-7:2006+A1**

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English Version

**Machines and plants for the manufacture, treatment and  
processing of flat glass - Safety requirements - Part 7: Cutting  
machines for laminated glass**

Machines et installations pour la production, le façonnage  
et la transformation du verre plat - Exigences de sécurité -  
Partie 7: Machines à couper le verre feuilleté

Maschinen und Anlagen zur Herstellung, Be- und  
Verarbeitung von Flachglas - Sicherheitsanforderungen -  
Teil 7: Schneidmaschinen für Verbundglas

This European Standard was approved by CEN on 24 May 2006 and includes Amendment 1 approved by CEN on 24 October 2009.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

This European Standard 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 CEN Management Centre has the same status as the official versions.

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

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

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## Foreword

This document (EN 13035-7:2006+A1:2009) 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 European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2010, and conflicting national standards shall be withdrawn at the latest by June 2010.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document includes Amendment 1, approved by CEN on 2009-10-24.

This document supersedes EN 13035-7:2006.

The start and finish of text introduced or altered by amendment is indicated in the text by tags **A1** and **A1**.

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).

**A1** For relationship with EU Directive(s), see informative Annexes ZA and ZB, which are integral parts of this document. **A1**

It is one of a series concerning machinery for the treatment and processing of flat glass (see Bibliography).

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

**EN 13035-7:2006+A1:2009 (E)****Introduction**

This European Standard is a type C standard as stated in EN ISO 12100-1.

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

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

The processing steps at machines for cutting laminated glass as a whole are slower than those at machines for cutting monolithic flat glass. Whereas the positioning, cutting and separating process with modern machines proceeds all-automatically, the loading and unloading of the glass is mainly performed by hand so that operational access is usual, and generally there is no link with other machinery.

For possible tiltable parts, reference to the ad-hoc standard EN 13035-4 can be made. The considerable hazards by the fast-moving cutting bridges at machines for cutting monolithic glass do not exist with machines for cutting laminated glass having static cutting bridges only for x-cuts.

When compiling this European Standard, it was assumed that the existing ad-hoc standards for components are applied, e.g. EN 619, when conveyors are integrated.

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## 1 Scope

**1.1** This European Standard applies for cutting machines for laminated glass including the following steps: transport and positioning, synchronous cutting (scoring) from both sides, break-out, electrical heating and separation.

**1.2** A1 This European Standard deals with the significant hazards, hazardous situations and events relevant to cutting machines for laminated glass when they are used as intended and under the conditions of misuse which are reasonably foreseeable by the manufacturer (see Clause 4). A1 Those hazards, which are dealt with in the ad-hoc standard EN 619 for conveyors are excepted. A1 This European Standard specifies the appropriate technical measures to eliminate or reduce risks arising from the significant hazards during commissioning, operation and maintenance. A1 Hazards from noise are not considered to be significant.

**1.3** This European Standard is not applicable to cutting (scoring) and break-out of monolithic glass (see EN 13035-3 and EN 13035-6).

**1.4** This European Standard is not applicable to the cutting of laminated glass by sawing or by the use of high-pressure liquid.

**1.5** This European Standard is not applicable to the significant hazards of conveyors and machines for the manufacture, treatment and processing of flat glass such as tilting tables.

**1.6** This European Standard is not applicable to cutting machines for laminated glass which are manufactured before the date of publication of this European Standard by CEN.

## 2 Normative references

<https://standards.iteh.ai/catalog/standards/sist/4ed132d0-7833-41ba-9554-78115f851d5e/en-13035-7:2006+a1:2009>

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.

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

A1 *deleted text* A1

EN 953:1997, *Safety of machinery — Guards — General requirements for the design and construction of fixed and movable guards*

A1 *deleted text* A1

EN 983:1996, *Safety of machinery — Safety requirements for fluid power systems and their components — Pneumatics*

EN 1037:1995, *Safety of machinery — Prevention of unexpected start-up*

A1 *deleted text* A1

EN 1760-2:2001, *Safety of machinery — Pressure sensitive protective devices — Part 2: General principles for the design and testing of pressure sensitive edges and pressure sensitive bars*

A1 EN 60204-1:2006, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements (IEC 60204-1:2005, modified)*

**EN 13035-7:2006+A1:2009 (E)**

EN 61310-1:1995, *Safety of machinery — Indication, marking, actuation — Part 1: Requirements for visual, auditory and tactile signals (IEC 61310-1:1995)*

EN 61496-1:2004, *Safety of machinery — Electro-sensitive protective equipment — Part 1: General requirements and tests (IEC 61496-1:2004, modified)*

**A1** *deleted text* **A1**

**A1** EN ISO 4871:2009, *Acoustics — Declaration and verification of noise emission values of machinery and equipment (ISO 4871:1996)*

EN ISO 11201:2009, *Acoustics — Noise emitted by machinery and equipment — Measurement of emission sound pressure levels at a work station and at other specified positions — Engineering method in an essentially free field over a reflecting plane (ISO 11201:1995, including Cor 1:1997)*

EN ISO 11202:2009, *Acoustics — Noise emitted by machinery and equipment — Measurement of emission sound pressure levels at a work station and at other specified positions — Survey method in situ (ISO 11202:1995)*

EN ISO 11204:2009, *Acoustics — Noise emitted by machinery and equipment — Measurement of emission sound pressure levels at a work station and at other specified positions — Method requiring environmental corrections (ISO 11204:1995, including Cor 1:1997)* **A1**

EN ISO 12100-1:2003, *Safety of machinery — Basic concepts, general principles for design — Part 1: Basic terminology, methodology (ISO 12100-1:2003)*

EN ISO 12100-2:2003, *Safety of machinery — Basic concepts, general principles for design — Part 2: Technical principles (ISO 12100-2:2003)*

**A1** 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 13732-1:2006)*

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)*

CLC/TS 61496-2:2006, *Safety of machinery — Electro-sensitive protective equipment — Part 2: Particular requirements for equipment using active opto-electronic protective devices (AOPDs) (IEC 61496-2:2006)* **A1**

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 12100-1:2003 and the following apply:

- 3.1 laminated (glass)**  
(flat) glass composed of layers of flat glass joined together by plastic layers
- 3.2 break-out**  
method to open a cut (score) by generating strain, e.g. by mechanical devices
- 3.3 carriage**  
mounting assembly for moving the cutting heads with the cutting tools in the axis of the (fixed) cutting bridge



**3.4****cutting bridge**

fixed horizontal guide for the carriage

**3.5****separation**

operation of drawing apart two sheets of laminated glass after scoring, break-out and heating

**3.6****clamp (bar)**

device to hold down the glass from above against a supporting surface, e.g. table

**3.7****gripping device**

equipment to grasp the glass at an edge usually for separation by drawing apart

**3.8****stops**

mechanical devices to limit movements, e.g. of carriages in case of a failure of the operational stop

**3.9****positioning bridge**

movable horizontal guide with stops to hold the glass in a definite place

**4 List of significant hazards**

This clause contains all the significant hazards, hazardous situations and events, as far as they are dealt with in this European Standard, identified by risk assessment as significant for cutting machines for laminated glass and which require action to eliminate or reduce the risk.

Before using this European Standard, it is important to carry out a general risk assessment of the machine in question.