



SLOVENSKI STANDARD
SIST EN 13102:2006+A1:2009
01-januar-2009

Glf c'j'nU_YfUa]_c'!'JUfbcghi!'BUrcj Uf'Ub'Y'j]b'fUhrj Uf'Ub'Y'Z]b] \ '_YfUa] b] \ 'd`cý]W

Ceramic machines - Safety - Loading and unloading of fine clay tiles

Keramikmaschinen - Sicherheit - Beladen und Entladen von feinkeramischen Platten

Machines de la céramique - Sécurité - Chargement et déchargement de carreaux
 céramiques

iteh STANDARD PREVIEW
 (standards.iteh.ai)

Ta slovenski standard je istoveten z: EN 13102:2005+A1:2008

<https://standards.iteh.ai/catalog/standards/sist/457b4f6e-639f-457f-a1cf-8892e53bc388/sist-en-13102-2006a1-2009>

ICS:

81.100	U] ^ { aaÁÁc\ æ•\ [Á \^!æ ã} [Á á•dÁ	Equipment for the glass and ceramics industries
--------	--------------------------------------------	----------------------------------------------------

SIST EN 13102:2006+A1:2009 **en**

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 13102:2006+A1:2009

<https://standards.iteh.ai/catalog/standards/sist/457b4ffe-639f-457f-a1cf-8892e53bc388/sist-en-13102-2006a1-2009>

EUROPEAN STANDARD

EN 13102:2005+A1

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2008

ICS 81.100

Supersedes EN 13102:2005

English Version

Ceramic machines - Safety - Loading and unloading of fine clay tiles

Machines de la céramique - Sécurité - Chargement et déchargement de carreaux céramiques

Keramikmaschinen - Sicherheit - Beladen und Entladen von feinkeramischen Platten

This European Standard was approved by CEN on 12 October 2005 and includes Amendment 1 approved by CEN on 12 October 2008.

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.



iTeh STANDARD PREVIEW
(standards.iteh.ai)
<https://standards.iteh.ai/catalog/standards/sist/457b4ffe-639f-457f-a1cf-8892e53bc388/sist-en-13102-2006a1-2009>



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

	Page
Foreword.....	3
Introduction	4
1 Scope	5
2 Normative references	5
3 Terms and definitions – Symbols and abbreviated terms.....	6
4 List of significant hazards	7
5 Safety requirements and/or protective measures	8
6 Verification of the safety requirements and/or protective measures.....	11
7 Information for use	12
Annex A (informative) Examples of loading/unloading machines	14
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directives 98/37/EC	16
Annex ZB (informative)  Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC 	17

[SIST EN 13102:2006+A1:2009](https://standards.iteh.ai/catalog/standards/sist/457b4ffe-639f-457f-a1cf-8892e53bc388/sist-en-13102-2006a1-2009)

<https://standards.iteh.ai/catalog/standards/sist/457b4ffe-639f-457f-a1cf-8892e53bc388/sist-en-13102-2006a1-2009>

Foreword

This document (EN 13102:2005+A1:2008) 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 May 2009, and conflicting national standards shall be withdrawn at the latest by December 2009.

This document includes Amendment 1, approved by CEN on 2008-10-12.

This document supersedes EN 13102:2005.

The start and finish of text introduced or altered by amendment is indicated in the text by tags $\boxed{A_1}$ $\boxed{A_1}$.

This European Standard 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).

$\boxed{A_1}$ For relationship with EU Directive(s), see informative Annexes ZA and ZB, which are integral parts of this document. $\boxed{A_1}$

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.

<https://standards.iteh.ai/catalog/standards/sist/457b4ffe-639f-457f-a1cf-8892e53bc388/sist-en-13102-2006a1-2009>

EN 13102:2005+A1:2008 (E)**Introduction**

This European Standard is a type C standard as stated in EN ISO 12100-1:2003.

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 compiling this standard it was assumed that:

- only trained persons work at the machine;
- components without specific requirements are:
 - a) designed in accordance with the usual engineering practice and calculation codes, including all failure modes;
 - b) of solid mechanical and electrical construction;
 - c) made of materials with adequate strength and of suitable quality;
- general electrical hazards according to electrical safety standard EN 60204-1:1997;
- general hazards due to hydraulic, pneumatic equipment are dealt with according to relevant standards for common use such as EN 982:1996 and EN 983:1996;
- components are kept in good repair and working order, so that the required characteristics remain despite wear;
- specifications have been met about interface with other machinery.

A1 *deleted text* **A1**

When provisions of this type C standard are different from those which are 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.

1 Scope

1.1 This European Standard applies to:

- machines for stacking or deacking fired or unfired fine clay wall tiles and floor tiles on/from fixed or movable supports (see Figure A.1);
- machines for loading or unloading fired or unfired fine clay wall tiles and floor tiles into/from containers (see Figures A.2 and A.4);
- machines for loading or unloading fired or unfired fine clay wall tiles and floor tiles on/from stackable frames (see Figure A.3).

1.2 **A1** This European Standard deals with the significant hazards, hazardous situations and events relevant to ceramic machines for loading and unloading of fine clay tiles, when they are used as intended and under the conditions of misuse which are reasonably foreseeable by the manufacturer (see Clause 4). This European Standard does not deal with noise. This European Standard deals with the preventive measures to minimise these hazards arising from the commissioning, the operation and maintenance. **A1**

1.3 The interface with the transport system for stacks, containers is covered by this European Standard for some examples not for all possibilities (see e.g. 5.6.4, 5.6.7).

1.4 This European Standard is not applicable to:

- machines for setting and deacking of split tiles and roof tiles;
- auxiliary machinery such as vacuum generators

1.5 This European Standard is not applicable to machines, which are manufactured before the date of publication of this European Standard by CEN.

2 Normative references

The following referenced documents are indispensable for the application of this European Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

- EN 294:1992, *Safety of machinery — Safety distance to prevent danger zones being reached by the upper limbs*
- EN 349:1993, *Safety of machinery — Minimum gaps to avoid crushing of parts of the human body*
- EN 418:1992, *Safety of machinery — Emergency stop equipment, functional aspects — Principles for design*
- EN 619:2002, *Continuous handling equipment and systems — Safety and EMC requirements for equipment for mechanical handling of unit loads*
- EN 953:1997, *Safety of machinery — Guards — General requirements for the design and construction of fixed and movable guards*
- EN 954-1:1996, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design*
- EN 982:1996, *Safety of machinery — Safety requirements for fluid power systems and their components — Hydraulics*

EN 13102:2005+A1:2008 (E)

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

EN 999:1998, *Safety of machinery — The positioning of protective equipment in respect of approach speeds of parts of the human body*

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

EN 1088:1995, *Safety of machinery — Interlocking devices associated with guards — Principles for design and selection*

EN 1525:1997, *Safety of industrial trucks — Driverless trucks and their systems*

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)*

EN ISO 14122-2:2001, *Safety of machinery — Permanent means of access to machinery — Part 2: Working platforms and walkways (ISO 14122-2:2001)*

EN ISO 14122-4:2004, *Safety of machinery — Permanent means of access to machinery - Part 4: Fixed ladders (ISO 14122-4:2004)*

EN 60204-1:1997, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements (IEC 60204-1:1997)*

EN 61310-1:1995, *Safety of machinery — Indication, marking and 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)*

3 Terms and definitions – Symbols and abbreviated terms

For the purposes of this European Standard, the terms and definitions given in EN ISO 12100-1:2003 apply.

Additional definitions specifically needed for this European Standard are added below:

3.1**tiles**

fired or unfired fine clay articles for the use as ceramic cover of walls and floors

3.2**grab**

device used to pick up items, e.g. stackable frames

3.3**container**

movable rack used for transport and/or as a buffer store for tiles awaiting further processing

3.4**movable stacker**

automatic device, being able to change position in two or more directions, designed for building columns of frames or tiles

3.5**compensator**

equipment being able to collect surplus tiles and to deliver them if required

3.6**pushing or pulling mechanism**

device for moving containers from the waiting position to the working position (setting, deacking, loading, unloading) and vice-versa

3.7**vacuum lift**

device used to take tiles by suction (see Figure A.1)

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 standard, identified by risk assessment as significant for ceramic machines for loading and unloading of fine clay tiles and which require action to eliminate and reduce the risk.

Table 1 — List of significant hazards

	Hazards	Danger zone/Dangerous item	Preventive measures see clause
4.1	Setting in stacks on fixed or movable supports (see Figure A.1)		
4.1.1	Crushing, entanglement and impact	movement of the movable stacker (setting/deacking device, vacuum device)	5.2.1, 5.4
4.1.2	Falling objects	carried tiles from the vacuum device	5.3
4.2	Loading into containers		
4.2.1	Crushing, entanglement	between rollers and devices which form rows or between roller and horizontal rods of containers	5.5.1
4.2.2	Crushing	downward movement of containers or of compensator or of roller and telescopic arm	5.2.1, 5.5.2
4.2.3	Crushing, shearing, entanglement and being trapped	horizontal movement of containers	5.6
4.3	Setting on stackable frames		
4.3.1	Crushing, entanglement and impact	movement of the stacker with or without frames	5.2.1
4.4	Platforms accessible to persons		
4.4.1	Crushing	by running machinery, between fixed and vertically moving parts	5.7.2, 5.7.4
4.5	General		
4.5.1	Impossibility of stopping in the best possible conditions, unexpected start-up	vacuum, external devices for container movement, machinery	5.3.3, 5.6.7, 5.7.2
4.5.2	Crushing, drawing-in	conveyors	5.2.3
4.5.3	Break-up	suspended parts	5.2.2, 5.7.3
4.5.4	Trip and fall	persons	5.7.1, 5.8.1, 5.8.2