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**Stroji za izdelavo gradbenih proizvodov iz betona in apnenega peščenca - Varnost
- 3. del: Drsni in vrtljivi stroji**

Machines for the manufacture of constructional products from concrete and calcium-silicate - Safety - Part 3: Slide and turntable machines

Maschinen für die Herstellung von Bauprodukten aus Beton und Kalksandsteinmassen - Sicherheit - Teil 3: Drehtischmaschinen

Machines pour la fabrication de produits de construction en béton et silico-calcaire - Sécurité - Partie 3: Machines à table coulissante et tournante

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Machines for the manufacture of constructional products from concrete and calcium-silicate - Safety - Part 3: Slide and turntable machines

Machines pour la fabrication de produits de construction en
béton et silico-calcaire - Sécurité - Partie 3: Machines à
table coulissante et tournante

Maschinen für die Herstellung von Bauprodukten aus Beton
und Kalksandsteinmassen - Sicherheit - Teil 3:
Drehtischmaschinen

This European Standard was approved by CEN on 1 November 2002 and includes Amendment 1 approved by CEN on 5 August 2010.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Foreword

This document (EN 12629-3:2002+A1:2010) 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of an identical text or by endorsement, at the latest by March 2011, and conflicting national standards shall be withdrawn at the latest by March 2011.

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 2010-08-05.

This document supersedes EN 12629-3:2002.

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

$\boxed{A_1}$ 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).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document. $\boxed{A_1}$

$\boxed{A_1}$ The series "*Machines for the manufacture of constructional products from concrete and calcium – silicate – Safety*" consists of the following parts:

Part 1: Common requirements [/standards.iteh.ai/catalog/standards/sist/187dbf80-d4aa-4b8c-b22a-354463bcc3cd/sist-en-12629-3-2004a1-2010](https://standards.iteh.ai/catalog/standards/sist/187dbf80-d4aa-4b8c-b22a-354463bcc3cd/sist-en-12629-3-2004a1-2010)

Part 2: Block making machines

Part 3: Slide and turntable machines

Part 4: Concrete roof tile making machines

Part 5.1: Pipe making machines manufacturing in the vertical axis

Part 5.2: Pipe making machines manufacturing in the horizontal axis

Part 5.3: Pipe prestressing machines

Part 5.4: Concrete pipe coating machines

Part 6: Stationary and mobile equipment for the manufacture of precast reinforced products

Part 7: Stationary and mobile equipment for long line manufacture of prestressed products

Part 8: Machines and equipment for the manufacture of constructional products from calcium silicate (and concrete) $\boxed{A_1}$

$\boxed{A_1}$ *deleted text* $\boxed{A_1}$

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, Croatia, 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 12629-3:2002+A1:2010 (E)**Introduction**

A1 This European Standard is a Type C-standard as stated in EN ISO 12100.

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

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

This document specifies the additional requirements to and/or the deviations from EN 12629-1:2000+A1:2010 specific for the slide and turntable machines as described in 1.1.

With the aim of clarifying the intentions of the document it should be noticed that the following assumptions were made when producing it:

- specific conditions of use or environmental conditions out of the scope of the document shall be the subject of negotiations between the manufacturer and the user/owner,
- the equipment will only be used by competent and designated persons,
- the place of use/installation is adequately lit,
- all operations are carried out by specially trained operators. **A1**

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1 Scope

1.1 **A1** This part of EN 12629, taken together with EN 12629-1:2000+A1:2010, applies to machines for the manufacture of constructional products of calcium-silicate or concrete, where the mould(s) is(are) mounted on a turning or slide table. The motive power for compressing the mixture is effected either mechanically (Annexes A, B), or hydraulically (Annexes C and D).

EN 12629-1:2000+A1:2010 specifies general requirements applicable to machines for the manufacture of constructional products from concrete and calcium-silicate.

This document specifies the additional requirements to and/or the deviations from EN 12629-1:2000+A1:2010 specific to the machines it covers. **A1**

1.2 **A1** This European Standard deals with all significant hazards pertinent to these machines, when they are used as intended and under conditions of misuse which are reasonably foreseeable by the manufacturer (see Clause 4). This European Standard specifies the appropriate technical measures to eliminate or reduce risks arising from the significant hazards. **A1**

1.3 This European Standard applies to the machines from the point at which the mixture enters the machine (see point 1 of annexes A, B, C, D) and the point where the pallets for concrete products are brought to the assembly (see point 8 at annexes C and D) until the point where the green products are removed from the machine to the curing system (see point 2 of annexes A, B, C, D).

A1 deleted text **A1**

A1

1.4 This European Standard deals with the hazards listed in Clause 4 which can arise during the operation and maintenance, including the interfaces, of the slide and turntable machines, when carried out in accordance with the specifications given by the manufacturer or his authorised representative.

This standard establishes safety requirements and/or methods of protection which apply to these machines. **A1**

A1

1.5 This document is not applicable to side and turntable machines, which are manufactured before the date of publication of this document by CEN. **A1**

2 Normative references

A1 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 12629-1:2000+A1:2010, *Machines for the manufacture of constructional products from concrete and calcium-silicate — Safety — Part 1: Common requirements*

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 12100-1:2003, *Safety of machinery — Basic concepts, general principles for design — Part 2: Technical principles (ISO 12100-2:2003)* **A1**
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3 Terms and definitions

A1 For the purposes of this document, the terms and definitions given in EN ISO 12100-1:2003, EN 12629-1:2000+A1:2010 and the following apply. **A1**

For additional information, see also annexes A, B, C and D.

3.1 table

movable part of the machine in which the mould is fixed, recirculating mould machines (turntable) or forwards-backwards (slide table)

3.2 ram

movable part of the machine which brings the compression force to the mixture in the mould

3.3 transmission levers

those parts of the machine that convert rotary motive power into reciprocal movement through gears and cams

3.4 take off device

integral part of the machine, that takes off the formed products (green) and puts them on a green product collection system or arranges them into formation for removal from the machine

EN 12629-3:2002+A1:2010 (E)**3.5****green product collection system**

integral transport system which is part of the machine that carries the green product from the take off device to the stacking equipment, or to the point where the green product is removed from the machine

3.6**stacking equipment**

transport system which is an integral part of the machine that takes the green products from either the green product collection system or the take off device and arranges them into formation for removal from the machine

3.7**drawing box**

container having the shape of a box with an open or movable bottom. The drawing box fills the mould with the mixture

3.8**feed hopper**

device, only used with concrete product machines, that contains the mixture which is transported to the drawbox or mould by a discharge gate

3.9**front mix dosing installation**

device that doses the plastic or fluid face into the mould before the drawbox fills the back mix. It is only required when producing two layer concrete slabs

3.10**brick wagon pusher**

transport system which is an integral part of the machine which pushes the brick wagons from one position to the other within the area of the stacking equipment. It is only used at machines producing calcium-silicate products

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3.11**pallet pusher**

transport system which is an integral part of the assembly of the machine which pushes the pallets from one position to an other or direct to the area where the take off device arranges the formed products into formation on the pallets. It is only used at machines producing concrete products

3.12**pallet feeding unit**

device only used with concrete product producing machines, which automatically supplies pallets or plates to the pallet pusher or to the take off device from a store in the immediate proximity of the machine

4 List of significant hazards

This clause contains all hazards, as far as they are dealt with in this European Standard, identified by risk assessment significant for this type of machinery and which require action to eliminate or reduce risk.

A1 deleted text **A1**

4.1 Mechanical hazards (see informative annexes E, F, G, H)

Annexes E, F, G and H (informative) illustrate examples of common machine types.

In accordance with **A1** Clause 4 of EN 12629-1:2000+A1:2010 **A1** the hazard zones, marked 1-12 at annexes A to D of this standard, are described in the following table (see also 4.1.1 to 4.1.8 for detailed mechanical hazards).

Table 1 — Mechanical hazards and hazard zones

Hazard zones	Hazard	See subclause 4
1	Crushing	4.1.1
2	Shearing Cutting-severing	4.1.2 4.1.3
3	Shearing Cutting-severing Drawing-in or trapping	4.1.2 4.1.3 4.1.5
4	Crushing Shearing Cutting-severing Drawing-in or trapping	4.1.1 4.1.2 4.1.3 4.1.5
5	Entanglement hazards	4.1.4
6	Crushing Drawing-in or trapping Impact	4.1.1 4.1.5 4.1.6
7	Shearing Cutting or severing Entanglement Drawing-in or trapping	4.1.2 4.1.3 4.1.4 4.1.5
8	Cutting or severing Drawing-in or trapping	4.1.3 4.1.5
9	Cutting or severing	4.1.3
10	Cutting or severing	4.1.3
11	Crushing Shearing Cutting or severing	4.1.1 4.1.2 4.1.3
12	Shearing Entanglement Drawing in or trapping	4.1.2 4.1.4 4.1.5
Equipment	High pressure	4.1.7
Floor	Slip, trip or fall	4.1.8
Around the machine	Vibration	4.3

4.1.1 Crushing hazards

Between the ram and the innermould (see hazard zone 1, annexes E, F, G, H).

Beneath descending stacking equipment (see hazard zone 4, annexes E, F).

Between moving pallets and fixed structure (see hazard zone 11, annexes G, H).

Between transmission levers and fixed parts (see hazard zone 6, annexes E, F, G, H).

EN 12629-3:2002+A1:2010 (E)**4.1.2 Shearing hazards**

Between the inner mould and the outside mould (see hazard zone 2, annexes E, F, G, H).

Between the take off device and other machine parts (see hazard zone 3, annexes E, F, G, H).

The whole area where the stacking equipment is moving (see hazard zone 4, annexes E, F).

Between fixed and movable parts of the pallet feeding unit or fixed and movable parts of the pallet pusher (see hazard zone 11, annexes G, H).

All moving parts of power transmission (see hazard zone 7, annexes E, F, G, H).

Between fixed parts of the front mix dosing installation and the moving table (see hazard zone 12, annex G).

4.1.3 Cutting or severing hazards

See 4.1.2 and, for example, hazard zones 2, 3, 4 and 8, annexes E, F, G, and H.

The part of the machine where the table moves (see hazard zone 8, annexes E, F, G, and H).

Between the moving drawing box and edge of the mould (see hazard zone 9, annexes G and H).

Between fixed and movable parts of the pallet feeding unit or the pallet pusher and descending pallets (see hazard zone 11, annexes G, H).

Between fixed parts of the feed hopper with dosing installation and the moving discharge gate (see hazards zone 9, annexes G, H).

In the area where the brick wagons are moving between the brick wagon pusher and fixed parts of the assembly (see hazard zone 10, annexes E, F).

All moving parts of power transmission (see hazard zone 7, annexes E, F, G, H).

4.1.4 Entanglement hazards

The area around the stirrer, near the front mix dosing installation (see hazard zone 12, annex G).

The area where the mixture is forced into the mould(s) (see hazard zone 5, annexes E, F).

All moving parts of power transmission (see hazard zone 7, annexes E, F, G, H).

4.1.5 Drawing-in or trapping hazards

The area where the stirrers of the front mix dosing installation are turning (see hazard zone 12, annex G).

The area where the table moves (see hazard zone 8, annexes E, F, G, H).

The area where the drawing box and/or feed hopper moves (see hazard zone 6, annexes G, H).

The area where the take off device reciprocates (see hazard zone 3, annexes E, F, G, H).

The area where the stacking equipment moves (see hazard zone 4, annexes E, F).

4.1.6 Impact hazards

The area where the transmission levers driving the machine parts are moving (see hazard zone 6, annexes E, F, G, H).

4.1.7 High pressure injection hazard

Hydraulic and pneumatic equipment of the machine.

4.1.8 Slip, trip or fall hazard

The floor in or surrounding the assembly manufacturing concrete products.

4.2 Electrical hazards

Installation and equipment of the machine.

4.3 Hazards generated by vibration

The whole area on or around the machine.

4.4 Hazards generated by materials and products

By contact with wet concrete that can cause skin injury or allergic including dermatitis.

By inhalation of oil spray and contact with oil from product mould release agent.

4.5 Hazards generated by neglecting ergonomic principles

From the lack of the integration of automatic handling which leads to manual handling injury. See <https://standards.iteh.ai/catalog/standards/sist/187dbf80-d4aa-4b8c-b22a-5374050cc51d/sist-en-12629-3-2004-a1-2010>. (standards.iteh.ai)

4.6 Hazards caused by the failure of energy supply

Failure of energy supply could lead to machine parts moving to settled position.

Failure of energy supply may lead to dropping of products from the take off device or stacking equipment.

5 [A1](#) Safety requirements and/or protective measures [A1](#)

[A1](#) Machinery shall comply with the safety requirements and/or protective measures of this clause and, unless otherwise specified in this standard, with the relevant requirements of EN 12629-1:2000+A1:2010. In addition, the machine shall be designed according to the principles of EN ISO 12100 for hazards relevant but not significant, which are not dealt with by this document. [A1](#)

NOTE For hazards which are to be reduced by the application of an A or B-level standard such as [A1](#) EN ISO 13850, EN ISO 13857 [A1](#), EN 60204-1, and for hydraulic, pneumatic or other machinery dealt with in standards for common uses, the manufacturer should carry out a risk assessment to establish the requirements of the A or B-level or other standard which are to be applied. This specific risk assessment should be part of the general risk assessment of the machine.

[A1](#) *deleted text* [A1](#)

Where it is known that the installation site already contains elements that can be considered as risk reduction means, the design of the machine may take these elements into consideration (see also clause 7).