



SLOVENSKI STANDARD
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**Stroji za izdelavo gradbenih proizvodov iz betona in apnenega peščenca - Varnost
- 5-1. del: Stroji za izdelavo cevi po navpični osi**

Machines for the manufacture of constructional products from concrete and calcium-silicate - Safety - Part 5-1: Pipe making machines manufacturing in the vertical axis

Maschinen für die Herstellung von Bauprodukten aus Beton und Kalksandsteinmassen - Sicherheit - Teil 5-1: Beton-Rohrmaschinen mit Fertigung in vertikaler Lage

Machines pour la fabrication de produits de construction en béton et silico-calcaire - Sécurité - Partie 5-1: Machines pour la fabrication de tuyaux dans l'axe vertical

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EUROPEAN STANDARD

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Machines for the manufacture of constructional products from concrete and calcium-silicate - Safety - Part 5-1: Pipe making machines manufacturing in the vertical axis

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This European Standard was approved by CEN on 3 November 2003 and includes Amendment 1 approved by CEN on 5 August 2010.

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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.

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Foreword

This document (EN 12629-5-1:2003+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of an identical text or by endorsement, at the latest by March 2011, and conflicting national standards shall be withdrawn at the latest by March 2011.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 12629-5-1:2003.

The start and finish of text introduced or altered by amendment is indicated in the text by tags \square_{A1} \square_{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).

\square_{A1} For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document. \square_{A1}

\square_{A1} The series "*Machines for the manufacture of constructional products from concrete and calcium – silicate – Safety*" consists of following parts:

Part 1: Common requirements [/standards.iteh.ai/catalog/standards/sist/dded1e30-9f32-4e77-b3a0-c42ff666734a/sist-en-12629-5-1-2004a1-2010](https://standards.iteh.ai/catalog/standards/sist/dded1e30-9f32-4e77-b3a0-c42ff666734a/sist-en-12629-5-1-2004a1-2010)

Part 2: Block making machines

Part 3: Slide and turntable machines

Part 4: Concrete rooftile making machines

Part 5.1: Concrete pipe machines manufacturing in the vertical axis

Part 5.2: Concrete pipe 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 the benched manufacture of prestressed products

Part 8: Machines and equipment for the manufacture of constructional products from calcium silicate (and concrete). \square_{A1}

\square_{A1} *deleted text* \square_{A1}

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 12629-5-1:2003+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 pipe making machines manufacturing in the vertical axis 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 vertical manufacture of pipes, manholes and similar elements from concrete.

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}

^{A1} *deleted text* ^{A1}

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

1.3 This European standard applies to the pipe making machines manufacturing in the vertical axis which may form an integral part of a pipe making process plant.

1.4 ^{A1} This document is not applicable to pipe making machines manufacturing in the vertical axis, which are manufactured before the date of publication of this document by CEN. ^{A1}

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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 1050:1996, *Safety of machinery — Principle for risk assessment*

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 12100-2:2003, *Safety of machinery — Basic concepts, general principles for design — Part 2: Technical principles (ISO 12100-2:2003)* ^{A1}

EN 12629-5-1:2003+A1:2010 (E)**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**

3.1 Product**3.1.1 pipe**

hollow body manufactured from concrete, which may or may not contain reinforcing material. It is predominantly used in conjunction with other concrete pipes as an underground pipeline, in order to convey liquids

A1 (See also EN 12629-1:2000+A1:2010, 3.1.7) **A1**

3.1.2 manhole

hollow body manufactured from concrete and e.g. used in conjunction with other manholes to form vertical access to an underground pipeline; or for conveying liquids to an underground pipeline. It is often manufactured with cast-in steps as means for access

3.2 pipe making machine

machine which fabricates pipes, manholes and similar elements

The vertical pipe making machines are divided into the following types as shown in annex A:

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- Type 1 Fully automatic machine type with auxiliary automation equipment – for pipes and similar elements (See Figure A.1)
- Type 2 Semi-automatic type of machine (works with crane for demoulding) that can have more casting stations – for pipes, manholes and similar elements (See Figure A.2)
- Type 3 Fully automatic machine type with auxiliary automation equipment – mainly for manholes (See Figure A.3)
- Type 4 Fully automatic machine type with auxiliary automation equipment (works with crane or forklift truck for demoulding) – for pipes (See Figure A.4)

3.3 mixture feed equipment

equipment which is integral with the pipe making machine for the receiving and transfer of the mixture to the casting station

3.4 casting mould

component consisting of a pallet or base ring, inner former and an outer shell, the concrete pipe is formed in the space between the inner former and the shell

3.5 packerhead

rotating device which passes through the mould to distribute and compact the concrete within the casting mould

3.6 casting station

part of the pipe-making machine which consists of the casting mould(s) and associated fixtures where the pipes are formed

3.7 machine pit

part of the machine which is below floor level and can contain part of the casting station

3.8**automatic pallet feeding unit**

device which is an integral part of the machine, which automatically supplies pallets or base rings to the casting mould or casting station

3.9**automatic reinforcing material feeder**

device which is an integral part of the machine, which automatically supplies reinforcing elements to the casting station

3.10**automatic pipe accessory feeder**

device which is an integral part of the machine, which automatically supplies pipe accessories which are not concrete (i.e. step-irons, lifting anchors) to positions within the casting station

3.11**integrated pipe off-bearer/transportation unit**

device which is an integral part of the machine, which automatically removes the finished pipe from the casting station

3.12**rotating platform**

device which is an integral part of the machine, which automatically removes the finished pipe. On some machines it removes the pipe, which is still in the casting mould, and at the same time inserts an empty casting mould into the casting station

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4 List of significant hazards (standards.iteh.ai)

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 In accordance with Clause 4 of EN 12629-1:2000+A1:2010 the hazard zones described in the following tables are illustrated in Annex B. **A1**

Table 1 — List of hazards and hazardous situations

Mechanical hazards as per annex A of EN 1050:1996	List of hazards and hazardous situations	HAZARD ZONES (see informative annex B)			
		Figure B.1 (Type 1)	Figure B.2 (Type 2)	Figure B.3 (Type 3)	Figure B.4 (Type 4)
1.1 Crushing hazards	– Between fixed and moving parts in the mixture feed mechanism area	1	1	1	1
	– Between fixed and moving parts within the casting area	2	3	2, 5	4
	– Between fixed and moving parts within the machine pit	3	2	3	2
	– Between fixed and moving parts in the automatic pallet feed area	4	-	4, 5	-
	– Between fixed and moving parts in the area of automated equipment for feeding reinforcing elements and pipe accessories i.e. step irons	5	-	2, 4, 5	-
	– Struck by falling pipe/mould during removal from casting area	6	-	6	3, 4
	– Between fixed and moving parts in the pipe off-bearer area	6	-	6	-
	– Between fixed and moving parts in the rotating platform area	-	-	-	2, 3, 4
1.2 Shearing hazard	– Between fixed and moving parts in the mixture feed mechanism area	1	1	1	1
	– Between fixed and moving parts within the casting area	2	3	2, 5	4
	– Between fixed and moving parts within the machine pit	3	2	3	2

Mechanical hazards as per annex A of EN 1050:1996	List of hazards and hazardous situations	HAZARD ZONES (see informative annex B)			
		Figure B.1 (Type 1)	Figure B.2 (Type 2)	Figure B.3 (Type 3)	Figure B.4 (Type 4)
	– Between fixed and moving parts in the automatic pallet feed area	4	-	4, 5	-
	– Between fixed and moving parts in the area of automated equipment for feeding reinforcing elements and pipe accessories i.e. step irons	5	-	2, 4, 5	-
	– Between fixed and moving parts in the pipe off-bearer area	6	-	-	-
	– Between fixed and moving parts in the rotating platform area	-	-	-	2, 3, 4
1.3 Cutting and severing hazards	– Between fixed and moving parts in the area of automated equipment for feeding reinforcing elements and pipe accessories i.e step irons	5	-	2	-
	– Between fixed and moving parts within the casting area	2	3	2, 5	4
1.4 Entanglement hazards	– Contact with the moving parts in the concrete feed mechanism	1	1	1	1
	– Contact with rotary concrete distributor or packerhead within the casting station	2	-	-	4
	– Contact with moving parts of the power transmission to the vibrator or packerhead	3	2	3	2, 4
	– Contact with moving parts of the rotating platform	-	-	-	2, 3, 4
1.5 Drawing in - or trapping hazards	– Contact with the concrete feed mechanism	1	1	1	1