



SLOVENSKI STANDARD
SIST EN 12629-5-1:2004
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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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91.220 Gradbena oprema Construction equipment

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EUROPEAN STANDARD
NORME EUROPÉENNE
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English version

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

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

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

This European Standard was approved by CEN on 3 November 2003.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (EN 12629-5-1:2003) 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 2004, and conflicting national standards shall be withdrawn at the latest by June 2004.

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).

The series "Machines for the manufacture of constructional products from concrete and calcium - silicate - Safety" consists of following parts :

Part 1: Common requirements

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).

Annex A is informative and contains "Definitions of terms", annex B is informative and contains "Hazard zones".

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

EN 12629-5-1:2003 (E)**Introduction**

This European Standard is a Type C-standard as stated in EN 1070.

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

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.

Reference to pertinent standards of this kind is made were such standards are applicable and so far necessary.

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1 Scope

1.1 This European Standard applies to machines for vertical manufacture of pipes, manholes and similar elements from concrete.

1.2 This European Standard deals with the significant hazards listed in clause 4, when used as intended under the conditions foreseen by the manufacturer. This European Standard specifies the appropriate technical measures to eliminate or reduce risks arising from the significant hazards, except noise hazards.

NOTE Amendment is under preparation to deal with noise, in particular for measures to reduce noise at source and a noise test code including noise declaration.

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 See 1.4 of EN 12629-1:2000.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 1050:1996, *Safety of machinery - Principle for risk assessment.*

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EN 1070:1998, *Safety of machinery – Terminology.*

EN 12629-1:2000, *Machines for the manufacture of constructional products from concrete and calcium-silicate – Safety – Part 1: Common requirements.*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 1070:1998 and the following apply. Other, more general, terms and definitions are contained in EN 12629-1 "Common requirements"

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

(See also 3.1.7 of EN 12629-1:2000)

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

EN 12629-5-1:2003 (E)**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 :

- 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.

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.

Mechanical hazards - see informative annex B. The annex illustrates examples of common machine types.

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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 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