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**Stroji za izdelavo gradbenih proizvodov iz betona in apnenega peščenca - Varnost  
- 5-3. del: Stroji za izdelavo cevi iz prednapetega betona**

Machines for the manufacture of constructional products from concrete and calcium-silicate - Safety - Part 5-3: Pipe prestressing machines

Maschinen für die Herstellung von Bauprodukten aus Beton und Kalksandsteinmassen - Sicherheit - Teil 5-3: Maschinen zum Vorspannen von Rohren

Machines pour la fabrication de produits de construction en béton et silico-calcaire - Sécurité - Partie 5-3: Machines pour la précontrainte des tuyaux

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**EN 12629-5-3:2003+A1**

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**Machines for the manufacture of constructional products from  
concrete and calcium-silicate - Safety - Part 5-3: Pipe  
prestressing machines**

Machines pour la fabrication de produits de construction en  
béton et silico-calcaire - Sécurité - Partie 5-3: Machines  
pour la précontrainte des tuyaux

Maschinen für die Herstellung von Bauprodukten aus Beton  
und Kalksandsteinmassen - Sicherheit - Teil 5-3:  
Maschinen zum Vorspannen von Rohren

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 12629-5-3:2003+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of an identical text or by endorsement, at the latest by March 2011, and conflicting national standards shall be withdrawn at the latest by March 2011.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 12629-5-3:2003.

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 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).

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

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

Part 1: Common requirements <https://standards.iteh.ai/catalog/standards/sist/350643b4-f76b-48a0-a414-45ca98e1d27b/sist-en-12629-5-3-2004a1-2010>

Part 2: Block making machines

Part 3: Slide and turntable machines

Part 4: Concrete roof tile 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 benching 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.

## 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 prestressing machines as defined in Clause 3.

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 <sup>A1</sup> This part of EN 12629, taken together with EN 12629-1:2000+A1:2010, applies to pipe prestressing machines as defined in Clause 3.

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. <sup>A1</sup>

1.2 <sup>A1</sup> 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. <sup>A1</sup>

<sup>A1</sup> *deleted text* <sup>A1</sup>

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

1.3 This European standard applies to the concrete pipe prestressing machines which may form an integral part of a pipe making process plant.

1.4 <sup>A1</sup> This document is not applicable to pipe prestressing machines, which are manufactured before the date of publication of this document by CEN. <sup>A1</sup>

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## 2 Normative references

<sup>A1</sup> 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 7731:2008, *Ergonomics — Danger signals for public and work areas — Auditory danger signals* (ISO 7731:2003)

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) <sup>A1</sup>

## 3 Terms and definitions

<sup>A1</sup> 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. <sup>A1</sup>

### 3.1

#### **longitudinal prestressing machine**

machine used to prestress longitudinal steel wires inside the mould before casting the pipe

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## 3.2

**pipe radial prestressing machine**



machine used for radial prestressing of concrete pipes by winding with pretensioned high tensile steel wire.

It incorporates a drive for the pipe rotation, a wire tensioning device, travelling wire distribution equipment and a wire delivery system.

NOTE This machine works, as post-tensioning, on a hardened pipe longitudinally prestressed or not.

**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.

 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. 

**Table 1 — Longitudinal prestressing machines - List of hazards and hazardous situations**

List of hazards	Hazardous situations	HAZARDS ZONES in Figure B.1
<b>1.2 Shearing hazards</b>	Between the mould and the wheels of the machine	1
<b>17 Hazards from ejection – prestressing wire breaking</b>	Prestressing wire breaking due to a defective wire or an excessive wire tensioning	2



Table 2 — Radial prestressing machines - List of hazards and hazardous situations

List of hazards as per annex A of EN 1050:1996	List of hazards and hazardous situations	HAZARD ZONES (See Informative annex B, Fig. B.2)
<b>1 Mechanical hazards</b>		
<b>1.1 Crushing hazards</b>	– Between the wire distributor carriage and the contrasting wheel support	1, 2
	– Between pipe and support wheels	
	– Between pipe and contrasting wheels	
<b>1.2 Shearing hazards</b>	– Between the mould and the wheels of the machine	1, 2, 3, 4, 6
	– Between the steel wire and wire distributing pulley	
	– Between the steel wire and the pipe to be wound	
	– Between the steel wire and transmission pulley	
	– Between the steel wire and the wire tension checking pulley	
	– Between the steel wire and braking pulley	
	– Between carriage chain and crown wheels	
<b>1.4 Entanglement hazards</b>	– On the wire distributing pulley	1, 2, 3,
	– On pipe rotation transmission device	4, 5, 6, 7
	– On the braking pulley transmission	1, 2, 3, 4, 5, 6, 7
	– On the wire tension checking pulley	
	– On the electric transmission of the pipe rotation motor	
	– On the electric transmission of distributing carriage translation motor	
	– On the wire unwinding coil	
<b>1.5 Drawing in - or trapping hazards</b>	– In the wire distributing carriage	1, 2, 3,
	– Between the pipe and the support wheels	4, 5, 6, 7
	– Between the pipe and the contrasting wheels	1, 2, 3,
	– In the transmission of braking pulley assembly	4, 5, 6, 7