



# SLOVENSKI STANDARD

## SIST EN 12629-5-3:2004

01-september-2004

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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 Röhren

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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**Ta slovenski standard je istoveten z: EN 12629-5-3:2003**

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#### **ICS:**

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EUROPEAN STANDARD

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NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2003

ICS 91.220

English version

## 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.

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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## Foreword

This document (EN 12629-5-3:2003) 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).

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

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 12629-5-3:2003 (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 pipe prestressing machines.

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 concrete pipe prestressing machines 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.*

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 apply. Other, more general, terms and definitions are contained in EN 12629-1, "Common requirements"

### 3.1

#### **longitudinal prestressing machine**

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

### 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

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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

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

<b>List of hazards</b>	<b>Hazardous situations</b>	<b>HAZARDS ZONES in Figure B.1</b>
<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

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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, 4, 5, 6, 7
	– In the transmission of braking pulley assembly	