

**Betoonist ja kaltsiumsilikaadist  
konstruktsioonelementide  
valmistamiseks mõeldud masinad.  
Ohutus. Osa 7: Statsionaarsed ja  
liikuvad seadmed eelpingestatud  
toodete valmistamisel pikal liinil**

Machines for the manufacture of constructional  
products from concrete and calcium-silicate - Safety  
- Part 7: Stationary and mobile equipment for the  
benched manufacture of prestressed products

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 12629-7:2004 sisaldab Euroopa standardi EN 12629-7:2004 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 18.05.2004 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 12629-7:2004 consists of the English text of the European standard EN 12629-7:2004.</p> <p>This document is endorsed on 18.05.2004 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p><b>Käsitlusala:</b></p> <p>This European Standard is intended to be used together with EN 12629-1 "Machines for the manufacture of constructional products from concrete and calcium-silicate - Safety - Part 1: Common requirements", which specifies general requirements of machines for the manufacture of constructional products from concrete and calcium-silicate.</p>	<p><b>Scope:</b></p> <p>This European Standard is intended to be used together with EN 12629-1 "Machines for the manufacture of constructional products from concrete and calcium-silicate — Safety — Part 1: Common requirements", which specifies general requirements of machines for the manufacture of constructional products from concrete and calcium-silicate.</p>
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ICS 91.220

English version

**Machines for the manufacture of constructional products from  
concrete and calcium-silicate - Safety - Part 7: Stationary and  
mobile equipment for long line manufacture of prestressed  
products**

Machines pour la fabrication de produits de construction en  
béton et silico-calcaire - Sécurité - Partie 7: Equipements  
fixes et mobiles pour la fabrication sur bancs de produits en  
béton précontraint

Maschinen für die Herstellung von Bauprodukten aus Beton  
und Kalksandsteinmassen - Sicherheit - Teil 7: Stationäre  
und fahrbare Einrichtungen für die Herstellung von  
Spannbetonelementen

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

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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 Central Secretariat has the same status as the official versions.

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## Foreword

This document (EN 12629-7:2004) 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 August 2004, and conflicting national standards shall be withdrawn at the latest by August 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.

Annexes A, B, C, D, E, F, G and H are informative.

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 roof tile making machines;
- Part 5: Pipe making 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 pre-stressed products;
- Part 8: Machines and equipment for the manufacture of constructional products from calcium silicate (and concrete).

This document is complementary to part 1 and is intended to be used in combination with that part.

Annex A is informative and contains "Pre-stressing bed", annex B is informative and contains "Bed sweeper, vacuum cleaner, oiler, wire-guide machine", annex C is informative and contains "Bed layout machine", annex D is informative and contains "Strand pushing/pulling machine", annex E is informative and contains "Vibrodistributor, spinner, extruder", annex F is informative and contains "Tarpaulin paying out and winding in machine", annex G is informative and contains "Sawing machine".

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.

## Introduction

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

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

This European Standard specifies the additional requirements to and/or the deviations from EN 12629-1 specific for the Stationary and mobile equipment for long line manufacture of pre-stressed products as defined in clause 3.

With the aim of clarifying the intentions of the standard 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 standard 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.

## 1 Scope

**1.1** This European Standard is intended to be used together with EN 12629-1 "*Machines for the manufacture of constructional products from concrete and calcium-silicate — Safety — Part 1: Common requirements*", which specifies general requirements of machines for the manufacture of constructional products from concrete and calcium-silicate.

The manufacturing bed is a machine with which other associated machines work simultaneously. Moreover, these machines are generally used on beds installed in parallel.

**1.2** This standard gives particular requirements for the design of the following machines:

- Pre-stressing bed (schematic representation is given in annex A);
- Bed sweeper, vacuum cleaner, oiler, wire-guide machine (schematic representation is given in annex B);
- Bed layout machine (schematic representation is given in annex C);
- Strand pushing/pulling machine (schematic representation is given in annex D);
- Spinner, extruder, vibrodistributor (schematic representation is given in annex E);
- Tarpaulin paying out and winding in machine (schematic representation is given in annex F);
- Sawing machine (schematic representation is given in annex G).

**NOTE** The manufacturing operations include some or all of the following:

- treating pre-stressing bed with release agent;
- "marking out" the elements (slabs, plain slabs, etc.) to be made;
- running the pre-stressing strands;
- pre-tensioning;
- installing the shutterings, (formwork, side shutters, end plates and inserts)
- fixing reinforcement;
- tensioning;
- concrete distribution and compaction;
- winding out the tarpaulin;
- heating;
- detensioning;
- removal of shettering, formwork, etc. ;
- strands cutting or sawing;
- removal of final products;
- bed cleaning.

The concrete supply interface which is taken into account for safety is also considered.

The sequence of these operations can be different according to the manufacturing process used in the factory and to the various types of products.

**1.3** This European Standard deals with the significant hazards pertinent to these machines, when they are used as intended under the conditions foreseen by the manufacturer (see clause 4), except noise hazards which are partly dealt with and hazards due to handling the package of cut wires and placing them on beds.

**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 European Standard specifies the appropriate technical measures to eliminate or reduce risks arising from the significant hazards.

1.4 Sub-clause 1.3 of EN 12629-1:2000 applies.

1.5 Sub-clause 1.4 of EN 12629-1:2000 applies.

NOTE At the designing stage, in complement to this standard, other type C standards dealing with similar hazards can be used for some of the machines and equipment mentioned in this standard. EN 13862 for Floor sawing machines or EN 1454 on portable saws can be a help to design the saws described in this standard.

1.6 This document is applicable to equipment for long-line manufacture of pre-stressed product which are manufactured after the date of publication of this document by CEN.

## 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 294, *Safety of machinery — Safety distances to prevent danger zones being reached by the upper limbs.*

EN 349:1993, *Safety of machinery — Minimum gaps to avoid crushing of parts of the human body.*

EN 457, *Safety of machinery — Auditory danger signals — General requirements, design and testing (ISO 7731:1986, modified).*

EN 811:1996, *Safety of machinery — Safety distances to prevent danger zones being reached by the lower limbs.*

EN 842, *Safety of machinery — Visual danger signals — General requirements, design and testing.*

EN 953:1997, *Safety of machinery — Guards — General requirements for the design and construction of fixed and movable guards.*

EN 954-1:1996, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design.*

EN 982, *Safety of machinery — Safety requirements for fluid power systems and their components — Hydraulics.*

EN 1050:1996, *Safety of machinery — Principles for risk assessment.*

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

EN 1088, *Safety of machinery — Interlocking devices associated with guards — Principles for design and selection.*

EN 1760-2, *Safety of machinery — Pressure sensitive protective devices — Part 2: General principles for the design and testing of pressure sensitive edges and pressure sensitive bars.*

EN 13862:2001, *Floor cutting-off machines — Safety.*

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

EN 60204-1, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements (IEC 60204-1:1997).*

EN 60529, *Degrees of protection provided by enclosures (IP Code) (IEC 60526:1989).*

EN ISO 14122-1, *Safety of machinery — Permanent means of access to machinery — Part 1: Choice of a fixed means of access between two levels (ISO 14122-1:2001).*



EN ISO 14122-2:2001, *Safety of machinery — Permanent means of access to machinery — Part 2: Working platforms and gangways (ISO 14122-2:2001)*.

EN ISO 14122-3, *Safety of machinery — Permanent means of access to machinery — Part 3: Stairways, stepladders and guard-rails (ISO 14122-3:2001)*.

prEN ISO 14122-4, *Safety of machinery — Permanent means of access to machinery — Part 4: Fixed ladders (ISO/FDIS 14122-4:2002)*.

### 3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 1070:1998 and EN 12629-1:2000 apply.

Additional definitions specifically needed for this European Standard are added below:

#### 3.1 Products

##### 3.1.1

##### **hollow core flooring slab**

pre-stressed slabs incorporating longitudinal hole used in the construction of floors. They are considered as structural elements

##### 3.1.2

##### **beam**

pre-stressed concrete element used in building or bridge structures. It has a supporting function; their section can be that of an I, T, Y, U,  $\Pi$  a rectangle, a trapezium, etc.

##### 3.1.3

##### **joist**

pre-stressed concrete element forming the supporting part of complex flooring. Its inverted T-shape section provides a support for infill blocks or slabs and in-situ concrete screed (compression slab)

##### 3.1.4

##### **lintel**

part constructed of pre-stressed concrete, prismatic in shape with a generally rectangular section. It forms the top part of openings in walls and ensure support for masonry mounted above

##### 3.1.5

##### **plain slab**

thin pre-stressed concrete elements designed to form the reinforced section of complex flooring. The compression slab is cast in situ

##### 3.1.6

##### **transmission line pole**

pre-stressed concrete post designed to support overhead electric energy or communication cables

##### 3.1.7

##### **lighting column**

rectilinear pre-stressed concrete post, designed to support public lighting (streets, parks, sports grounds, etc.)

##### 3.1.8

##### **railway sleeper**

trapezium-shaped element of pre-stressed concrete designed to support the rails and maintain them at the required gauge