

# SLOVENSKI STANDARD SIST EN 15164:2008

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Machines and plants for mining and tooling of natural stone - Safety - Requirements for chain- and belt-slotting machines

Maschinen und Anlagen zur Gewinnung und Bearbeitung von Naturstein - Sicherheit - Anforderungen für Ketten- und Gurt-Steinschrämmmaschinen

Machines et installations d'extraction et d'usinage des pierres naturelles - Sécurité - Prescriptions relatives aux coupeuses à chaîne et à sangle

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ICS:

25.100.01 Rezalna orodja na splošno Cutting tools in general

73.120 Oprema za predelavo rudnin Equipment for processing of

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## **EUROPEAN STANDARD**

## EN 15164

# NORME EUROPÉENNE EUROPÄISCHE NORM

May 2008

ICS 73.120

#### **English Version**

## Machines and plants for mining and tooling of natural stone -Safety - Requirements for chain- and belt-slotting machines

Machines et installations d'extraction et d'usinage des pierres naturelles - Sécurité - Prescriptions relatives aux coupeuses à chaîne et à sangle Maschinen und Anlagen zur Gewinnung und Bearbeitung von Naturstein - Sicherheit - Anforderungen für Ketten- und Gurt-Steinschrämmmaschinen

This European Standard was approved by CEN on 18 April 2008.

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 CEN Management Centre or to any CEN member.

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EUROPEAN COMMITTEE FOR STANDARDIZATION COMITÉ EUROPÉEN DE NORMALISATION EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

COII	terris	Page
Forew	vord	4
ntrod	uction	[
1	Scope	
	Normative references	
_		
3	Terms and definitions	
4	List of significant hazards	10
5	Safety requirements and/or protective measures	10
5.1	General	10
5.2	Mechanical hazards	
5.2.1	Protection against moving parts	
5.2.2	Positioning and stabilizing devices for transportable machines	11
5.3	Movement of machines on the rails	
5.3.1	General requirements	
5.3.2	Requirements for transportable machines	12
5.3.3		
5.4	Requirements for machines with powered trolley movement	13
5.5	Transport and positioning of machines and sub-assemblies	13
5.5.1	Transport of the machines (standards iteh.ai)	13
5.5.2	Positioning of the machines	
5.4.3	Transport of rails sections	
5.4.4	Handling of the cutting arm	1!
5.6	Maintenance https://standards.iten.avcatalog/standards/sist/3bb09647-e8cd-4a02-a516-	1!
5.7	Handling of the cutting arm https://standards.iteh.avcatalog/standards/sist/36b09647-e8cd-4a02-a516- Maintenance azeca98cla36/sist-en-15164-2008 Ergonomic aspects	1!
5.8	Electrical equipment and energy supply	1/
5.8.1	Connectors and cables	
5.8.2	Cable-less remote control	
5.8.3	Electric plug and socket	
5.8.4	Emergency stop	
5.8.5	Safety-related parts of the control systems	۱۰۰۰۰۰۰۰ از ۱۲
5.8.6	Mode selector switch	
5.8.7	Supply disconnecting device	
5.8.8	Protection degree of the enclosures	
5.6.6 5.9	Electrical hazards	
5.9.1	General	
5.9.1 5.9.2		
	Safety requirements related to electromagnetic phenomena	
5.10	Power failure	
5.11	Hydraulic and pneumatic components	1
6	Verification of safety requirements and/or protective measures	17
7	Information for use	17
7.1	General	
7.2	Signals and warning devices	
7.3	Instruction handbook	
7.3.1	General	
7.3.2	Description of the machine	
7.3.3	Instructions for transport, handling and storage of the machine and its dismountable	
	parts	
7.3.4	Instructions for the installation and the use of the machine	
735	Maintenance instructions	20

7.3.6 7.4	Spare parts list	
Annex	ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 98/37/EC	22
Annex	ZB (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC	23
Figure	es	
Figure	e 1 — Transportable chain- or belt-slotting machine for open-cast quarries	8
Figure	2 — Chain-slotting machine for underground quarries	8
Figure	e 3 — Stationary chain- or belt-slotting machine	9
Figure	e 4 — Gantry chain- or belt-slotting machine	9
Figure	e 5 — Fixed and adjustable guards	11
Figure	e 6 — Stabilizing and positioning devices	12
Figure	e 7 — Machine-lifting by ropes	13
Figure	e 8 — Machine-lifting by a rocker arm(standards.iteh.ai)	14
Figure 9 — Example of rails-lifting points		14
	SIST EN 15164:2008 https://standards.iteh.ai/catalog/standards/sist/3bb09647-e8cd-4a02-a516-a2eca98cfa36/sist-en-15164-2008	
Tables		
Table	1 — List of significant hazards	10

EN 15164:2008 (E)

#### **Foreword**

This document (EN 15164:2008) 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 November 2008, and conflicting national standards shall be withdrawn at the latest by November 2008.

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 Annexes ZA and ZB, which are integral parts of this document.

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, 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.

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### Introduction

This document is a type C standard as stated in EN ISO 12100-1.

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

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.

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### 1 Scope

This standard applies to chain- or belt-slotting machines to be used in open or underground quarries. Chain- or belt-slotting machines are used for cutting marble, granite and other stones loose or at the face. They can be stationary or can be moved on rails during work.

This standard deals with slotting machines with electric main motor and equipped with one main sawing head. This European Standard covers only machines for plain cutting (with one axis) and does not cover the difficulties arising from the geomorphology of the stone to be cut.

This standard does not deal with noise as a significant hazard.

This standard deals with all significant hazards, hazardous situations and events relevant to chain- and belt-slotting 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 deals with the hazards during transport, commissioning, use and maintenance.

This European Standard does not deal with:

- operation under extreme ambient conditions (outside the limits defined in EN 60204-1);
- operation in a potentially explosive atmosphere.

This document is not applicable to machines which are manufactured before the date of its publication as EN.

## 2 Normative references

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The following referenced documents are indispensable for the application of this document. For dated references, only the edition of the referenced document (including any amendments) applies.

EN 294:1992, Safety of machinery — Safety distances to prevent danger zones being reached by the upper limbs

EN 547-1:1996, Safety of machinery — Human body measurements — Part 1: Principles for determining the dimensions required for openings for whole body access into machinery

EN 547-2:1996, Safety of machinery — Human body measurements — Part 2: Principles for determining the dimensions required for access openings

EN 547-3:1996, Safety of machinery — Human body measurements — Part 3: Anthropometric data

EN 614-1:2006, Safety of machinery — Ergonomic design principles — Part 1: Terminology and general principles

EN 614-2:2000, Safety of machinery — Ergonomic design principles — Part 2: Interactions between the design of machinery and work tasks

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

EN 982:1996, Safety of machinery — Safety requirements for fluid power systems and their components — Hydraulics

EN 983:1996, Safety of machinery — Safety requirements for fluid power systems and their components — Pneumatics

EN 1037:1995, Safety of machinery — Prevention of unexpected start-up

EN 1088:1995, Safety of machinery — Interlocking devices associated with guards — Principles for design and selection

EN 1760-2:2001, 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 60204-1:2006, Safety of machinery — Electrical equipment of machines — Part 1: General requirements (IEC 60204-1:2005, modified)

EN 60529:1991, Degrees of protection provided by enclosures (IP code) (IEC 60529:1989)

EN 61310-1:1995, Safety of machinery — Indication, marking and actuation — Part 1: Requirements for visual, auditory and tactile signals (IEC 61310-1:1995)

EN 61496-1:2004, Safety of machinery — Electro-sensitive protective equipment — Part 1: General requirements and tests (IEC 61496-1:2004, modified)

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)

EN ISO 13849-1:2006, Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design (ISO 13849-1:2006)

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EN ISO 13850:2006, Safety of machinery — Emergency stop — Principles for design (ISO 13850:2006)

EN ISO 14122-1:2001, Safety of machinery — Permanent means of access to machinery — Part 1: Choice of 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 walkways (ISO 14122-2:2001)

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

EN ISO 14122-4:2004, Safety of machinery — Permanent means of access to machinery — Part 4: Fixed ladders (ISO 14122-4:2004)

#### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 12100 and the following apply.

#### 3.1

#### chain- and belt-slotting machines

range of machines designed, made and fitted to cut solid stone masses, stone boulders and square blocks by means of abrasive tools which are stationary or moveable on rails.

Chain- and belt-slotting machines are characterised as follows:

- the cuts can be vertical and horizontal;
- the chain-slotting machine has a moveable arm for carrying a chain with cutting tools;

- the belt-slotting machine has a moveable arm for carrying a belt with abrasive tools (e.g. diamond grid);
- the arms of those machines can be of different dimensions.

The machines in the scope can be of one of the following types:

#### 3.1.1

#### transportable chain- and belt-slotting machine for open cast quarries

machine which consists of a trolley carrying the arm holder and the drive and moving on rails. The translation movement of the trolley on the rails is the feeding movement for cutting. The complete machine is intended to be moved frequently from one cutting position to another

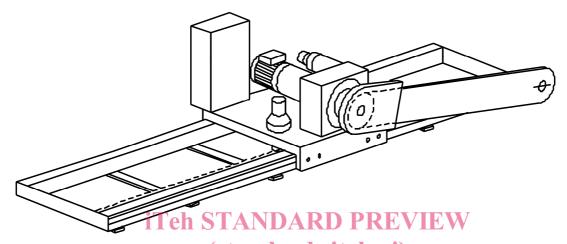


Figure 1 — Transportable chain or belt-slotting machine for open-cast quarries

### 3.1.2 <u>SIST EN 15164:2008</u>

chain-slotting machine for underground quarries /standards/sist/3bb09647-e8cd-4a02-a516-machine which is intended to cut and extract\_blocks of stone of regular form in underground quarries (see Figure 2). Those machines can be stationary or self-propelled

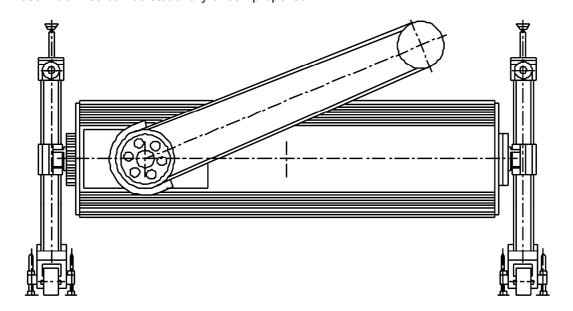
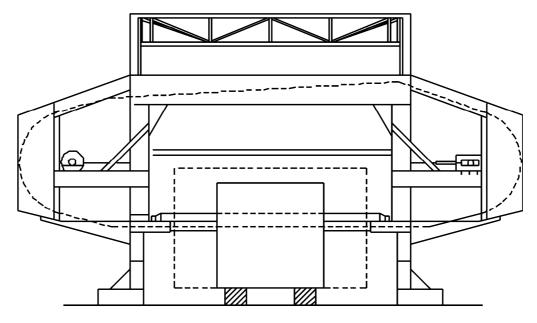


Figure 2 — Chain-slotting machine for underground quarries

# 3.1.3 stationary gantry chain- and belt-slotting machine

machine which is intended to cut stone blocks and smaller squared blocks using a chain or diamond belt (see Figure 3)



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Figure 3 — Stationary chain- or belt-slotting machine
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# 3.1.4 moveable gantry chain- or belt-slotting machine

machine which is intended to make vertical cuts for dividing and squaring hard or abrasive stone blocks using a chain or diamond belt (see Figure 4). The machine can be positioned relative to the blocks by a trolley or by a mobile gantry guided by rails on the ground 36/sist-en-15164-2008

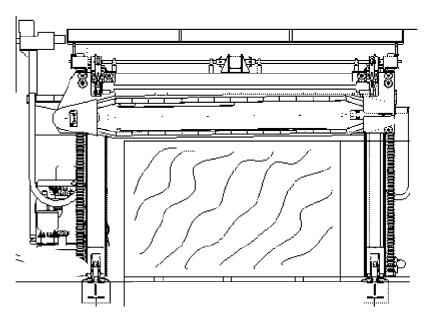


Figure 4 — Gantry chain- or belt-slotting machine