SLOVENSKI STANDARD
oSIST prEN 15631:2007

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Stroji in obrati za pridobivanje in obdelavo naravnega kamna - Varnost - Zahteve za krožne žage

Machines and plants for mining and tooling of natural stone - Safety - Requirements for circular block saws

Maschinen und Anlagen zur Gewinnung und Bearbeitung von Naturstein - Sicherheit - Anforderungen für Blockkreissägen

Machines et installations pour l'extraction et l'usinage des pierres naturelles - Sécurité - Exigences pour les coupe-blocs a disque

Ta slovenski standard je istoveten z: **prEN 15631**

ICS:

25.080.60	Strojne žage	Sawing machines
73.120	Oprema za predelavo rudnin	Equipment for processing of minerals

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EUROPEAN STANDARD

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English Version

Machines and plants for mining and tooling of natural stone - Safety - Requirements for circular block saws

Machines et installations pour l'extraction et l'usinage des pierres naturelles - Sécurité - Exigences pour les coupe-blocs à disque

Maschinen und Anlagen zur Gewinnung und Bearbeitung von Naturstein - Sicherheit - Anforderungen für Blockkreissägen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 151.

If this draft becomes a European Standard, 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.

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

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Foreword

This document (prEN 15631:2007) 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 document is currently submitted to the CEN Enquiry.

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 EC Directive(s).

For relationship with EC Directives, see informative annex ZA, which is an integral part of this document.

Annex A is normative and contains pictograms.

Introduction

This European Standard 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 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.

1 Scope

This European Standard applies for stationary and on a rail system moveable circular block saws, consecutively called machines, designed to saw natural stone blocks, as e.g. granite and other natural stone-like materials.

This European Standard deals with all significant hazards, hazardous situations and events relevant to circular block saws, 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 which can arise from these significant hazards.

This European Standard does not deal with:

— machines which are intended for operation in a potentially explosive atmosphere;

— upstream and downstream conveying elements for transporting the workpieces.

This European Standard does not deal with the following:

— operation in severe environmental conditions (e. g. extreme temperatures, corrosive environment);

— supply by electrical networks with voltages, frequencies, tolerances, etc different from those of public suppliers;

— hazards due to errors in the software;

— cordless remote controls.

This European Standard does not cover machine operation in environments where electromagnetic disturbances are outside the range of those specified in EN 50082-2.

This European Standard does not deal with significant hazards associated with noise.

This European Standard is not applicable to machinery which are manufactured before the date of publication of this document by CEN.

2 Normative references

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 294:1992, *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 418:1992, *Safety of machinery — Emergency stop equipment, functional aspects — principles for design*

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

EN 981:1996, *Safety of machinery — System of auditory and visual danger and information signals*

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

prEN 61000-6-3:2006, *Electromagnetic compatibility (EMC) — Part 6-3: Generic standards; Emission standard for residential, commercial and light-industrial environments*

prEN 61000-6-4:2006, *Electromagnetic compatibility (EMC) — Part 6-4: Generic standards; Emission standard for industrial environments*

prEN 61000-6-1:2006, *Electromagnetic compatibility (EMC —- Part 6-1: Generic standards; Immunity for residential, commercial and light- industrial environments*

EN 61000-6-2:2005, *Electromagnetic compatibility (EMC) — Part 6-2: Generic standards; Immunity for industrial environments (IEC 61000-6-2:2005)*

EN 60204-1:2006, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements*

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

EN ISO 11145:2001, *Optics and optical instruments — Lasers and laser-related equipment — Vocabulary and symbols.*

EN ISO 11688-1:1998, *Acoustics — Recommended practice for the design of low-noise machinery and equipment — Part 1: Planning (ISO/TR 11688-1:1995)*

EN ISO 11688-2:2000, *Acoustics — Recommended practice for the design of low-noise machinery and equipment — Part 2: Introduction to the physics of low-noise design (ISO/TR 11688-2:1998)*

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)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 12100-1 apply.

3.1
circular block saw
circular block saws are machines mounted on a base or alternatively movable on a track system, which are operated on a certain place and mainly used to cut natural stone blocks

— with a stationary block circular saw, the infeed results from a horizontal support at the bridge which is fixed on a basement, while the adjustment of the workpiece is done by means of a stone block trolley;

— with a movable block circular saw, the infeed results from a horizontal support at the bridge which can be adjusted to different saw positions by means of running gears and a track system. The work piece is stationary;

— the main drive of a block circular saw results from an electric motor

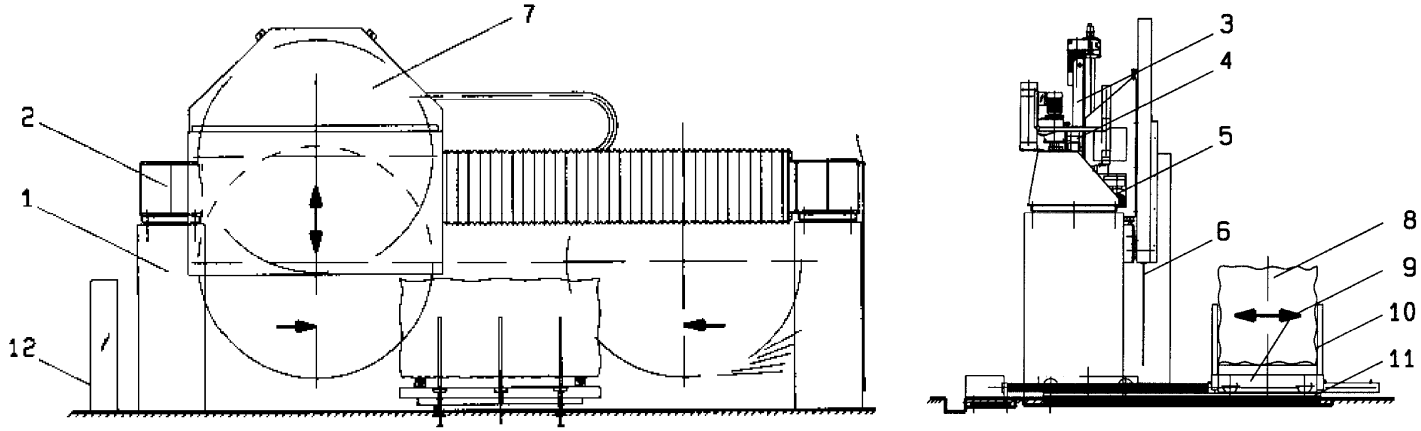
3.2
types of circular block saws
block circular saws which are classified in three types characterised below:

— type 1: machine with stationary bridge and movable support with cutting-off wheel. The adjustment of the workpiece is done by means of a block trolley;

— type 2: machine with adjustable bridge, movable support with cutting-off wheel and stationary workpiece;

— type 3: combination from Type 1 and Type 2, where e. g. the infeed results from a movable block trolley whereas the bridge is stationary

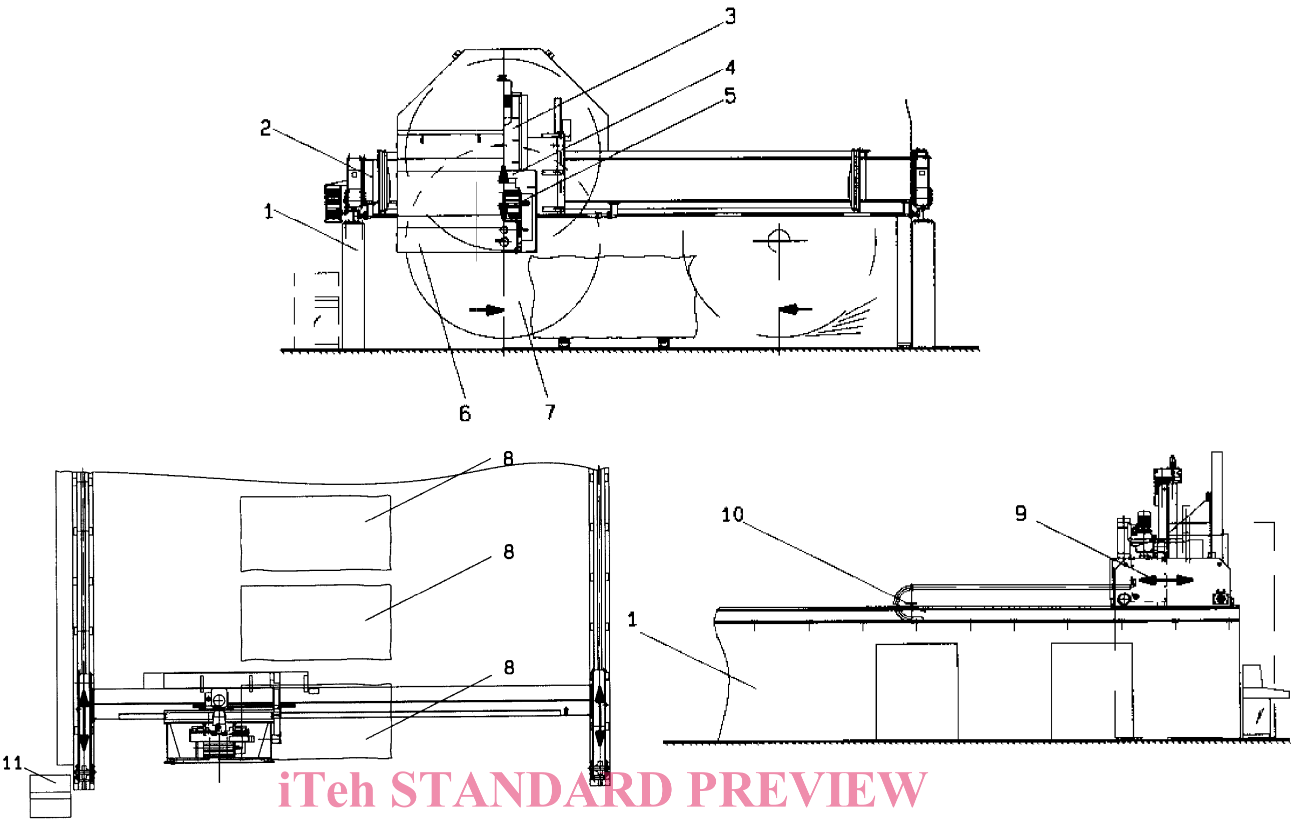
3.3
illustration of the different types of block circular saws



Key

1	basis	7	cover for cutting-off wheel
2	bridge	8	work piece
3	carriage	9	block trolley
4	support	10	stanchions
5	main drive	11	track system for trolley
6	cutting-off wheel	12	switch cabinet

Figure 1 — Stationary circular block saw with block trolley (type 1)



Key

1	basis	7	cover for cutting-off wheel
2	bridge	8	workpiece
3	carriage	9	bridge-running gear
4	support	10	track system for bridge
5	main drive	11	control panel
6	cutting-off wheel		

Figure 2 — Movable circular block saw (type 2)

3.4
other terms

3.4.1
block
a block is a cuboid natural stone created by the machining as a semi-finished product in the quarrying process

3.4.2
tranche/slab
a tranche/slab is a disc-shaped work piece cut off a block by means of a saw, designated for further processing

3.4.3
slide rail (track)
guide element for the bridge, usually stationary embedded in the base plate/base wall

3.4.4
bridge carriage
the carriage is the guide element on the slide rail (track) and carries the bridge

3.4.5
bridge
the bridge is the connection between the right and the left bridge bearing. It is the truss of the guides for the horizontal support

3.4.6
main drive
the main drive generates the tool action

3.4.7
infeed drive
the infeed drives serve as drive for the adjustment axis (height adjustment, infeed, etc.)

3.4.8
horizontal support
guide element for vertical and horizontal adjustment

3.4.9
height support
component for the vertical adjustment of the spindle (main drive)

3.4.10
cut-off wheel
tool (cutting blade) consisting of a steel body, diamond-studded at the circuit

3.4.11
rated speed
speed of the drive spindle without tool (no working process) in rotations per minute (min^{-1}) with the nominal operation values stated by the manufacturer

3.4.12
nominal mass
the mass of the machine with all demountable parts, but without cut-off wheel

4 List of significant hazards

This clause contains all the significant hazards, hazardous situations and events, as far as they are dealt with in this European Standard, identified by risk assessment as significant for this type of machinery and which require action to eliminate or reduce the risk.

Table 1 — List of significant hazards

Clause	Hazards ( ) = reference number of EN 1050:1996, Table A.1	Relevant sub-clauses
4.1	Crushing hazard	5.2.2; 5.2.4.2; 5.2.4.3.; 5.2.4.5
4.2	Shearing hazard	5.2.1; 5.2.4.3; 5.2.4.5
4.3	Cutting or severing hazard	5.2.1; 5.2.4.2; 5.2.4.
4.4	Entanglement hazard	5.2.4.1; 5.2.4.4
4.5	Drawing-in or trapping hazard	5.2.4.1; 5.2.4.2; 5.2.4.4
4.6	Crashing hazard	5.2.4
4.7	Hazards from contact with fluids	5.2.4.4; 5.5
4.8	Falling or ejected objects (material/work pieces)	5.2.4.4; 5.2.5
4.9	Loss of stability (machines and machine parts)	5.2.2; 5.2.3
4.10	Slip, trip and fall of persons (related to machinery)	5.2.6
4.11	Direct or indirect electrical contact	5.3
4.20	Power failure (of energy and/or control systems)	5.4
4.21	Failure or disorder of the control system	5.5
4.22	Hazards generated by erections defects	5.2.3
4.23.1	All kinds of guards	5.2.1
4.23.2	All kinds of safety guards	5.2.7.2
4.23.3	On/off-Devices	5.2.7.1; 5.2.7.2
4.24	Hazards generated by noise	7.4
4.25	Hazards generated by dust particles bound in water vapour	7.4

5 Safety requirements and/or protective measures

5.1 General

Machinery shall comply with the safety requirements and/or protective measures of this clause.

In addition, the machine shall be designed according to the principles of EN ISO 12100 for hazards relevant but not significant which are not dealt with by this document (e. g. sharp edges).

Covering each significant hazard is sufficient for covering combinations of hazards.

5.2 Mechanical hazards

5.2.1 General

All accessible parts, the diamond tool(s) excepted, shall be free of sharp edges and burrs which could generate hazards when setting up, using, handling and maintaining the machine. Burrs from e. g. manufacturing, casting and welding shall be eliminated, sharp edges shall be smoothed.