SLOVENSKI STANDARD
SIST EN 15163:2008

01-september-2008

Stroji in oprema za pridobivanje in predelavo naravnega kamna - Varnost - Zahteve za žage z diamantno žico

Machines and installations for the exploitation and processing of natural stone - Safety - Requirements for diamond wire saws

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

Machines et installations d'extraction et d'usinage des pierres naturelles - Sécurité - Prescriptions relatives aux scies à fil diamanté

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25.100.01	Rezalna orodja na splošno	Cutting tools in general
73.120	Oprema za predelavo rudnin	Equipment for processing of minerals

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EUROPEAN STANDARD

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EN 15163

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ICS 73.120

English Version

Machines and installations for the exploitation and processing of natural stone - Safety - Requirements for diamond wire saws

Machines et installations d'extraction et d'usinage des pierres naturelles - Sécurité - Prescriptions relatives aux scies à fil diamanté

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

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

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

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Foreword

This document (EN 15163:2008) 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of an identical text or by endorsement, at the latest by November 2008, and conflicting national standards shall be withdrawn at the latest by November 2008.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.

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.

1 Scope

This European Standard applies to diamond wire saws being used in quarries as well as in processing plants for cutting marble, granite and other stones out of a mass of rocks in a quarry or of blocks having been already extracted. The machines can be either stationary or travelling on rails during operation.

Diamond wire saws in the scope have an electric main motor. This standard deals with machines working in one main axis as well as in several axes. Furthermore, this standard does not deal with problems caused by an irregular structure of the stones to be cut.

Diamond wire saws are intended to be used with diamond cutting wires also referred to as tools in this standard.

For transportable machines, this standard deals only with machines using coated wire tools.

This standard deals with all significant hazards, hazardous situations and events relevant to diamond wire 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 deals with the hazards during transport, commissioning, use and maintenance.

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

This European Standard does not deal with:

— operation under extreme ambient conditions (outside the limits defined in EN 60204-1);

— upstream and downstream conveying elements for transporting the work-pieces.

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

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

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 60825-1:1994, *Safety of laser products — Part 1: Equipment classification, requirements and user's guide (IEC 60825-1:1993)*

EN 60825-4:2006, *Safety of laser products — Part 4: Laser guards (IEC 60825-4:2006)*

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 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)*

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

3 Terms and definitions

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

3.1
diamond wire saw
machinery for cutting marble, granite and other natural stones from stone deposits or already extracted stone into blocks and slabs using a suitable diamond wire as tool. During the cutting operation, the tool can be cooled by water. In that case, the water also serves for the suppression of dust emission during the cutting operation.

The diamond wire saws in the scope have an electric motor as main drive.

Different types of diamond wire saws:

— transportable diamond wire saws (mining of natural stone) (see Figure 1);

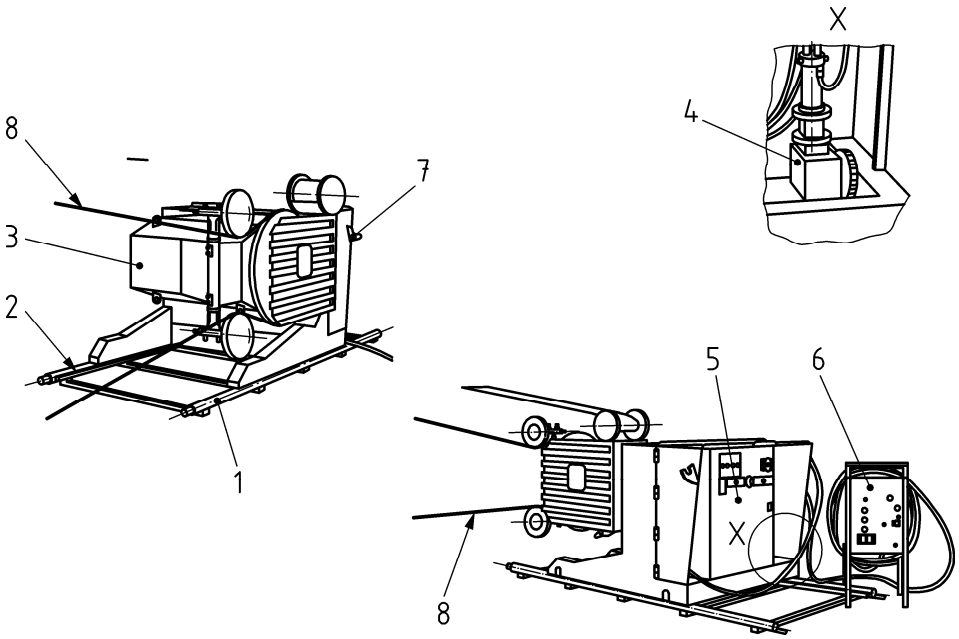
— travelling diamond wire saws (see Figure 2);

— stationary diamond wire saws with block trolley (see Figure 3);

— stationary diamond wire saws without block trolley (Figure 4);

— diamond wire saws for contour (two and more axes) (see Figure 5);

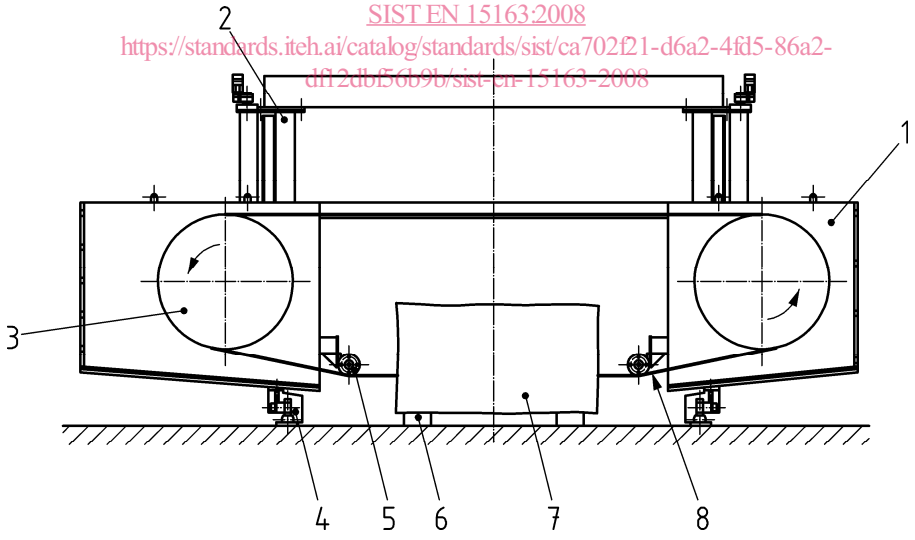
— multi-wire saws (see Figure 6).



Key

1 rails
2 rack
3 drive unit for the tool
4 unit to shift the machine on rails
5 control unit
6 control unit (remote control)
7 supports for electrical cables
8 diamond wire

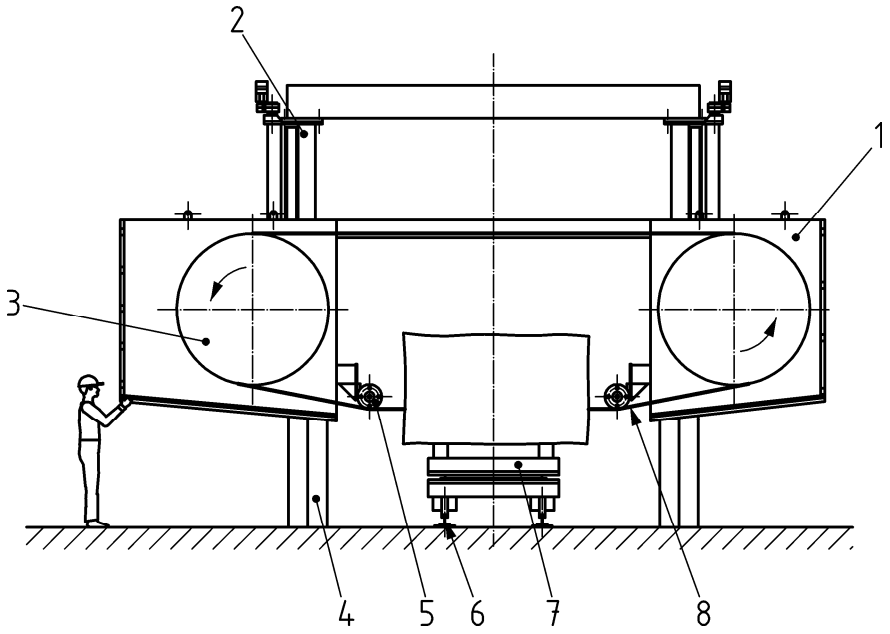
Figure 1 — Transportable diamond wire saw



Key

1 guard
2 machine frame
3 wire wheel
4 carriage
5 guide wheel
6 sill
7 block
8 diamond wire

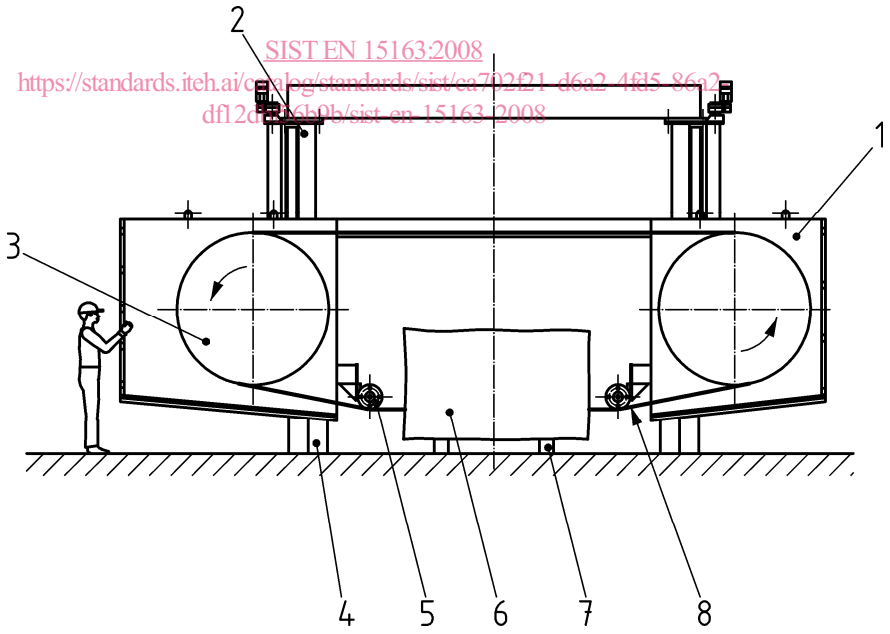
Figure 2 — Travelling diamond wire saw



Key

1 guard
2 machine frame
3 wire wheel
4 foundations
5 guide wheel
6 rails for block trolley
7 block
8 diamond wire

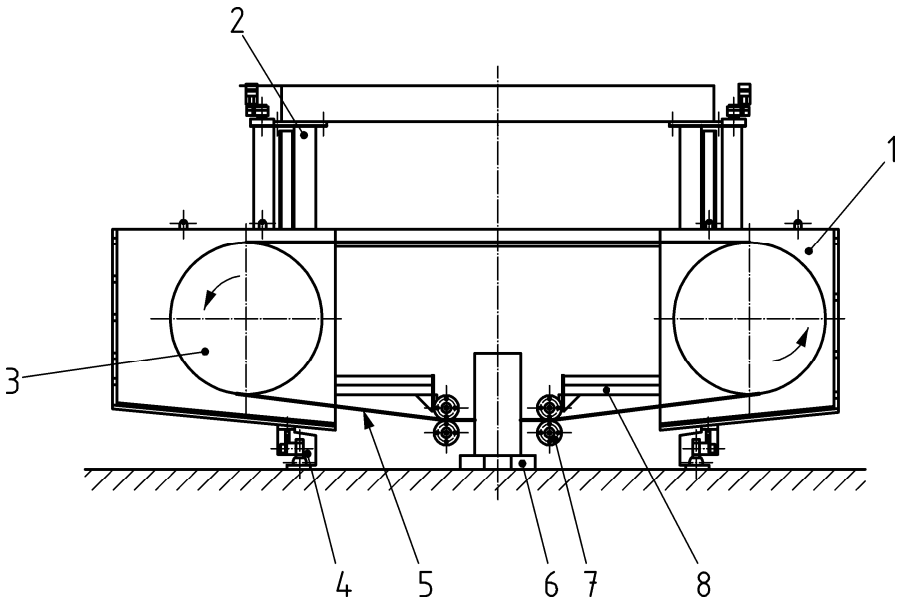
Figure 3 — Stationary block wire saw with block trolley



Key

1 guard
2 machine frame
3 wire wheel
4 foundations
5 guide wheel
6 block
7 sill
8 diamond wire

Figure 4 — Stationary block wire saw without block trolley



Key

1 guard
2 machine frame
3 wire wheel
4 carriage
5 diamond wire
6 sill
7 guide wheels
8 guide-wheel carrier

Figure 5 — Contour wire saw