

STN	Stroje a zariadenia na ťažbu a spracovanie prírodného kameňa Bezpečnosť Požiadavky na diamantové lanové píly	STN EN 15163 27 7943
------------	---	--

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

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 11/17

Obsahuje: EN 15163:2017

Oznámením tejto normy sa ruší
STN EN 15163 (27 7943) z októbra 2008

125716

Úrad pre normalizáciu, metrológiu a skúšobníctvo Slovenskej republiky, 2017
Podľa zákona č. 264/1999 Z. z. o technických požiadavkách na výrobky a o posudzovaní zhody a o zmene a doplnení niektorých zákonov v znení neskorších predpisov sa slovenská technická norma a časti slovenskej technickej normy môžu rozmnožovať alebo rozširovať len so súhlasom slovenského národného normalizačného orgánu.

EUROPEAN STANDARD

EN 15163

NORME EUROPÉENNE

EUROPÄISCHE NORM

June 2017

ICS 73.120

Supersedes EN 15163:2008

English Version

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

Machines et installations pour l'exploitation et la transformation de la pierre naturelle - Sécurité - Exigences pour les 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 17 March 2017.

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-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents		Page
European foreword.....		5
Introduction		6
1	Scope	7
2	Normative references	7
3	Terms and definitions	9
4	List of significant hazards	16
5	Safety requirements and/or protective measures	19
5.1	General.....	19
5.2	Controls.....	19
5.2.1	Safety and reliability of control systems	19
5.2.2	Position of controls.....	19
5.2.3	Starting.....	21
5.2.4	Normal stop.....	21
5.2.5	Emergency stop.....	22
5.2.6	Mode-selector switch.....	23
5.2.7	Machine-setting mode of operation	23
5.2.8	Failure of power supply	25
5.2.9	Failure of the control system	26
5.3	Protection against mechanical hazards	26
5.3.1	Transport of the machine.....	26
5.3.2	Installation and stability of machine	26
5.3.3	Rotation of the machine head of transportable diamond wire saws	26
5.3.4	Protection against moving parts for transportable diamond wire saws.....	27
5.3.5	Protection against moving parts for stationary diamond mono-wire saws and stationary diamond multi-wire saws	27
5.4	Protections against no mechanical hazards.....	31
5.4.1	Fire.....	31
5.4.2	Noise	31
5.4.3	Electrical hazards.....	32
5.4.4	Electromagnetic compatibility.....	33
5.4.5	Laser radiation.....	33
5.4.6	Ergonomic.....	33
5.4.7	Lighting.....	33
5.4.8	Hydraulic and pneumatic components	34
5.4.9	Supply-disconnecting devices	34
5.4.10	Maintenance.....	34
5.4.11	Hazardous materials and substances	34
5.4.12	Risk of slipping, tripping or falling	34
5.4.13	Lightning	36
6	Information for use	36
6.1	Signals and warning devices	36
6.2	Warning of residual risks and safety signs	37
6.3	Marking.....	37
6.4	Instruction handbook.....	37

6.4.1	General.....	37
6.4.2	Description of the machine	38
6.4.3	Instructions for transport, handling and storage of the machine and its dismountable parts.....	38
6.4.4	Instructions for the installation and the use of the machine	38
6.4.5	Maintenance instructions	40
Annex A (normative) Noise test code.....		41
A.1	Introduction.....	41
A.2	Measurement of the A-weighted emission sound pressure level at the operator's positions or other specified positions.....	41
A.2.1	Basic standards.....	41
A.2.2	Measurement procedure and positions.....	41
A.2.3	Measurement uncertainty	42
A.3	Determination of A-weighted sound power level	42
A.3.1	Measurement procedure and positions.....	42
A.3.2	Measurement uncertainty	43
A.4	Installation, mounting and operating conditions for noise emission measurement.....	43
A.5	Information to be recorded and reported	44
A.6	Declaration and verification of noise emission values.....	56
A.6.1	General.....	56
A.6.2	Example of a declaration and verification of noise emission values in the instruction handbook for transportable diamond wire saws.....	57
A.6.3	Example of a declaration and verification of noise emission values in the instruction handbook for stationary diamond mono-wire saws and stationary diamond multi-wire saws.....	58
Annex B (informative) Types of granites for noise test measurement.....		60
Annex C (normative) Safety distances for transportable diamond wire saws.....		62
Annex ZA (informative) Relationship between this European Standard and the essential requirements of Directive 2006/42/EC machinery, and amending Directive 95/16/EC (recast) [2006 L157] aimed to be covered.....		64
Bibliography.....		65

Figures

Figure 1	— Example of a transportable diamond wire saw.....	10
Figure 2	— Example of a travelling diamond mono-wire saw	11
Figure 3	— Example of a stationary block diamond mono-wire saw with block trolley.....	11
Figure 4	— Example of a stationary block diamond mono-wire saw without block trolley	12
Figure 5	— Example of a stationary-mobile combined diamond mono-wire saw.....	12
Figure 6	— Example of a stationary diamond multi-wire saw with a single drive-wheel	13
Figure 7	— Example of a stationary diamond multi-wire saw.....	14
Figure 8	— Example of a vertical cut.....	24

Figure 9 — Example of a horizontal cut	24
Figure 10 — Example of an overhead underslung cut	25
Figure 11 — Example of a peripheral enclosure for stationary diamond mono-wire saws and stationary diamond multi-wire saws	28
Figure 12 — Example of a guard installed to minimize risks due to whiplash	30
Figure 13 — Example of ladders, platforms and boarding means for stationary diamond multi-wire saws	36
Figure C.1 — Example of marking in vertical cut.....	62
Figure C.2 — Example of marking in horizontal cut	63

Tables

Table 1 — List of significant hazards	17
Table A.1 — Noise test code - General Data Sheet for Transportable diamond wire saws.....	45
Table A.2 — Noise test code - General Data Sheet for Stationary diamond mono-wire saws.....	47
Table A.3 — Noise test code - General Data Sheet for Stationary diamond multi-wire saws with at least 16 coated diamond wires	49
Table A.4 — Noise test code - General Data Sheet for Stationary diamond multi-wire saws with at least 32 coated diamond wires	51
Table A.5 — Noise test code - General Data Sheet for Stationary diamond multi-wire saws with at least 56 coated diamond wires	53
Table A.6 — Noise test code - General Data Sheet for Stationary diamond multi-wire saws with at least 72 coated diamond wires	55
Table B.1 — Granites.....	60
Table ZA.1 — Correspondence between this European Standard and Directive 2006/42/EC [2006 L157]	64

European foreword

This document (EN 15163:2017) 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 December 2017, and conflicting national standards shall be withdrawn at the latest by December 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 15163:2008.

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 Annex ZA, which is an integral part of this document.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

This document has been prepared to be a harmonized standard to provide one means of conforming to the essential health and safety requirements of the Machinery Directive and associated EFTA Regulations.

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

This document is of relevance, in particular, for the following stakeholder groups representing the market players with regard to machinery safety:

- machine manufacturers (small, medium and large enterprises);
- health and safety bodies (regulators, accident prevention organizations, market surveillance, etc.)

Others can be affected by the level of machinery safety achieved with the means of the document by the above-mentioned stakeholder groups:

- machine users/employers (small, medium and large enterprises);
- machine users/employees (e.g. trade unions, organizations for people with special needs);
- service providers, e.g. for maintenance (small, medium and large enterprises);
- consumers (in case of machinery intended for use by consumers).

The above-mentioned stakeholder groups have been given the possibility to participate at the drafting process of this document.

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

When requirements of this type-C standard are different from those which are stated in type-A or type-B standards, the requirements of this type-C standard take precedence over the requirements of the other standards for machines that have been designed and built according to the requirements of this type-C standard.

1 Scope

This European Standard deals with all significant hazards, hazardous situations and events, as listed in Clause 4, which are relevant to diamond wire saws, as defined and listed in Clause 3.

Diamond wire saws may be used in quarries or in sawmill for cutting natural stones (e.g. marble, granite), 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 arising from the significant hazards.

This European Standard deals only with diamond wire saws using coated diamond wire as tool.

This European Standard deals all significant hazards that may occur within the expected lifetime of the machinery including the phases of transport, assembly, dismantling, disabling and scrapping.

This European Standard does not deal with the significant hazards arising by the use of other facilities/devices not described in this document, that may be fitted on the machines or that may be used during the work cycle.

This European Standard does not deal with:

- operation under extreme ambient conditions (outside the limits defined in EN 60204-1:2006);
- upstream and downstream conveying elements, not integrated with diamond wire saws, for transporting of the work-pieces.

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

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 166:2001, *Personal eye-protection - Specifications*

EN 207:2017, *Personal eye-protection equipment — Filters and eye-protectors against laser radiation (laser eye-protectors)*

EN 863:1995, *Protective clothing - Mechanical properties - Test method: Puncture resistance*

EN 1005-2:2003+A1:2008, *Safety of machinery - Human physical performance - Part 2: Manual handling of machinery and component parts of machinery*

EN 1005-4:2005+A1:2008, *Safety of machinery - Human physical performance - Part 4: Evaluation of working postures and movements in relation to machinery*

EN 1037:1995+A1:2008, *Safety of machinery - Prevention of unexpected start-up*

EN 1837:1999+A1:2009, *Safety of machinery - Integral lighting of machines*

EN 13087-3:2000, *Protective helmets - Test methods - Part 3: Resistance to penetration*

EN 15163:2017 (E)

EN 50370-1:2005, *Electromagnetic compatibility (EMC) - Product family standard for machine tools - Part 1: Emission*

EN 50370-2:2003, *Electromagnetic compatibility (EMC) - Product family standard for machine tools - Part 2: Immunity*

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

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

EN 60825-1:2014, *Safety of laser products - Part 1: Equipment classification and requirements (IEC 60825-1:2014)*

prEN 61439-1:2016, *Low-voltage switchgear and controlgear assemblies - Part 1: General rules (IEC 61439-1:2016)*

EN ISO 3744:2010, *Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure - Engineering methods for an essentially free field over a reflecting plane (ISO 3744:2010)*

EN ISO 3746:2010, *Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure - Survey method using an enveloping measurement surface over a reflecting plane (ISO 3746:2010)*

EN ISO 4413:2010, *Hydraulic fluid power - General rules and safety requirements for systems and their components (ISO 4413:2010)*

EN ISO 4414:2010, *Pneumatic fluid power - General rules and safety requirements for systems and their components (ISO 4414:2010)*

EN ISO 4871:2009, *Acoustics - Declaration and verification of noise emission values of machinery and equipment (ISO 4871:1996)*

EN ISO 11201:2010, *Acoustics - Noise emitted by machinery and equipment - Determination of emission sound pressure levels at a work station and at other specified positions in an essentially free field over a reflecting plane with negligible environmental corrections (ISO 11201:2010)*

EN ISO 11202:2010, *Acoustics - Noise emitted by machinery and equipment - Determination of emission sound pressure levels at a work station and at other specified positions applying approximate environmental corrections (ISO 11202:2010)*

EN ISO 11204:2010, *Acoustics - Noise emitted by machinery and equipment - Determination of emission sound pressure levels at a work station and at other specified positions applying accurate environmental corrections (ISO 11204:2010)*

EN ISO 11688-1:2009, *Acoustics - Recommended practice for the design of low-noise machinery and equipment - Part 1: Planning (ISO/TR 11688-1:1995)*

EN ISO 12100:2010, *Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010)*

EN ISO 13849-1:2015, *Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design (ISO 13849-1:2015)*

EN ISO 13850:2015, *Safety of machinery - Emergency stop function - Principles for design (ISO 13850:2015)*

EN ISO 13857:2008, *Safety of machinery - Safety distances to prevent hazard zones being reached by upper and lower limbs (ISO 13857:2008)*

EN ISO 14119:2013, *Safety of machinery - Interlocking devices associated with guards - Principles for design and selection (ISO 14119:2013)*

EN ISO 14120:2015, *Safety of machinery - Guards - General requirements for the design and construction of fixed and movable guards (ISO 14120:2015)*

EN ISO 14122-2:2016, *Safety of machinery - Permanent means of access to machinery - Part 2: Working platforms and walkways (ISO 14122-2:2016)*

EN ISO 14122-3:2016, *Safety of machinery - Permanent means of access to machinery - Part 3: Stairs, stepladders and guard-rails (ISO 14122-3:2016)*

EN ISO 14122-4:2016, *Safety of machinery - Permanent means of access to machinery - Part 4: Fixed ladders (ISO 14122-4:2016)*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN