



SLOVENSKI STANDARD

SIST EN 15571:2015

01-februar-2015

Stroji in obrati za pridobivanje in obdelavo naravnega kamna - Varnost - Zahteve za stroje za dodelavo površine

Machines and plants for mining and tooling of natural stone - Safety - Requirements for surface finishing machines

Maschinen und Anlagen zur Gewinnung und Bearbeitung von Naturstein - Sicherheit - Anforderungen an Flächenschleifmaschinen

Machines et installations d'extraction et d'usinage des pierres naturelles - Sécurité - Prescriptions relatives aux machines de finition de surface

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Ta slovenski standard je istoveten z: EN 15571:2014

ICS:

25.080.50	Brusilni in polirni stroji	Grinding and polishing machines
73.120	Oprema za predelavo rudnin	Equipment for processing of minerals

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EUROPEAN STANDARD

EN 15571

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2014

ICS 25.080.50; 73.120

English Version

Machines and plants for mining and tooling of natural stone - Safety - Requirements for surface finishing machines

Machines et installations d'extraction et d'usinage des
pierres naturelles - Sécurité - Prescriptions relatives aux
machines de finition de surface

Maschinen und Anlagen zur Gewinnung und Bearbeitung
von Naturstein - Sicherheit - Anforderungen an
Flächenschleifmaschinen

This European Standard was approved by CEN on 13 September 2014.

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

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

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Foreword

This document (EN 15571:2014) 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of an identical text or by endorsement, at the latest by May 2015 and conflicting national standards shall be withdrawn at the latest by May 2015.

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

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 2006/42/EC, see informative Annex ZA, which is an integral part 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, 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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EN 15571:2014 (E)**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 defined in EN ISO 12100:2010.

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.

The requirements of this document are directed to manufacturers and their authorized representatives of surface finishing machines. It is also useful for designers.

This also includes examples of information to be provided by the manufacturer to the user.

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1 Scope

This European Standard applies to stationary surface finishing machines, with stationary work piece (see 3.1) or with moving work piece (see 3.2), which are used to grind or polish horizontal surfaces of slabs, strips or tiles of natural stone and engineered stone (e.g. agglomerated stone) as defined by EN 14618:2009.

This European Standard deals with all significant hazards, hazardous situations and events relevant to surface finishing 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 specifies the appropriate technical measures to eliminate or reduce risks arising from the significant hazards.

This European Standard deals with the foreseeable lifetime of the machinery including the phases of transport, assembly, dismantling, disabling and scrapping.

This European Standard does not deal with:

- hand-held grinding machines;
- machines intended for operation in a potentially explosive atmosphere;
- operation in severe environmental conditions (e.g. extreme temperatures, corrosive environment);
- machines intended for outdoor operation.

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

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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 349:1993+A1:2008, *Safety of machinery - Minimum gaps to avoid crushing of parts of the human body*

EN 953:1997+A1:2009, *Safety of machinery - Guards - General requirements for the design and construction of fixed and movable guards*

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 14618:2009, *Agglomerated stone - Terminology and classification*

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

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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 60204-1:2005, mod.)*

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

EN 61439-1:2011, *Low-voltage switchgear and controlgear assemblies - Part 1: General rules (IEC 61439-1:2011)*

EN 61496-1:2013, *Safety of machinery - Electro-sensitive protective equipment - Part 1: General requirements and tests (IEC 61496-1:2012)*

EN 82079-1:2012, *Preparation of instructions for use - Structuring, content and presentation - Part 1: General principles and detailed requirements (IEC 82079-1:2012)*

EN ISO 3743-1:2010, *Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure - Engineering methods for small movable sources in reverberant fields - Part 1: Comparison method for a hard-walled test room (ISO 3743-1:2010)*

EN ISO 3743-2:2009, *Acoustics - Determination of sound power levels of noise sources using sound pressure - Engineering methods for small, movable sources in reverberant fields - Part 2: Methods for special reverberation test rooms (ISO 3743-2:1994)*

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 3745:2012, *Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure - Precision methods for anechoic rooms and hemi-anechoic rooms (ISO 3745:2012)*

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 11200:2014, *Acoustics - Noise emitted by machinery and equipment - Guidelines for the use of basic standards for the determination of emission sound pressure levels at a work station and at other specified positions (ISO 11200:2014)*

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 13849-1:2008, *Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design (ISO 13849-1:2006)*

EN ISO 13850:2008, *Safety of machinery - Emergency stop - Principles for design (ISO 13850:2006)*

EN ISO 13856-2:2013, *Safety of machinery - Pressure-sensitive protective devices - Part 2: General principles for design and testing of pressure-sensitive edges and pressure-sensitive bars (ISO 13856-2:2013)*

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)*

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3 Terms and definitions

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For the purposes of this document, the terms and definitions given in EN ISO 12100:2010 and the following apply.

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3.1

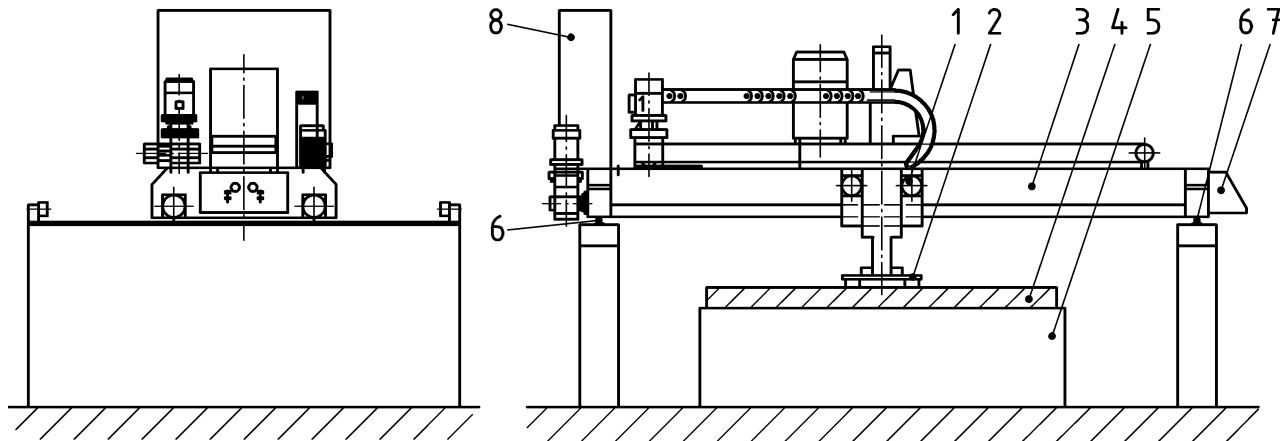
surface finishing machine with fixed table and mobile transversal bridge (track machines)

integrated fed machine, with stationary work piece table and a movable bridge, designed for grinding or polishing horizontal surfaces of stone slabs (see Figure 1 and Figure 2) by the use of grinding or polishing head water cooled during the working process having at least two squared axes which the working head moves over

Note 1 to entry: This machine can be equipped with the following facilities:

- a) automatic grinding or polishing head change system with tool – magazine;
- b) grinding or polishing head change system with bayonet locking;
- c) accessory units for calibrating;
- d) accessory units for polishing.

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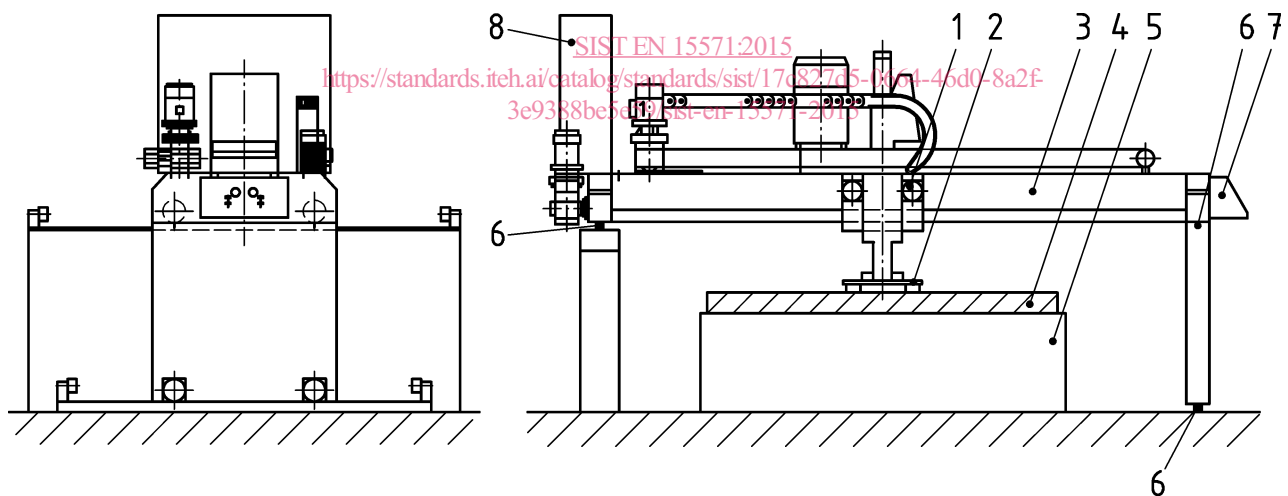


Safeguarding devices are not illustrated

Key

1	spindle	5	material support plan
2	tool	6	track
3	bridge	7	control panel
4	workpiece	8	electric panel

Figure 1 — Example of a surface finishing machine with fixed table and mobile transversal bridge "PORTAL"



Safeguarding devices are not illustrated

Key

1	spindle	5	material support plan
2	tool	6	track
3	bridge	7	control panel
4	workpiece	8	electric panel

Figure 2 — Example of a surface finishing machine with fixed table and mobile transversal bridge "SEMI-PORTAL"

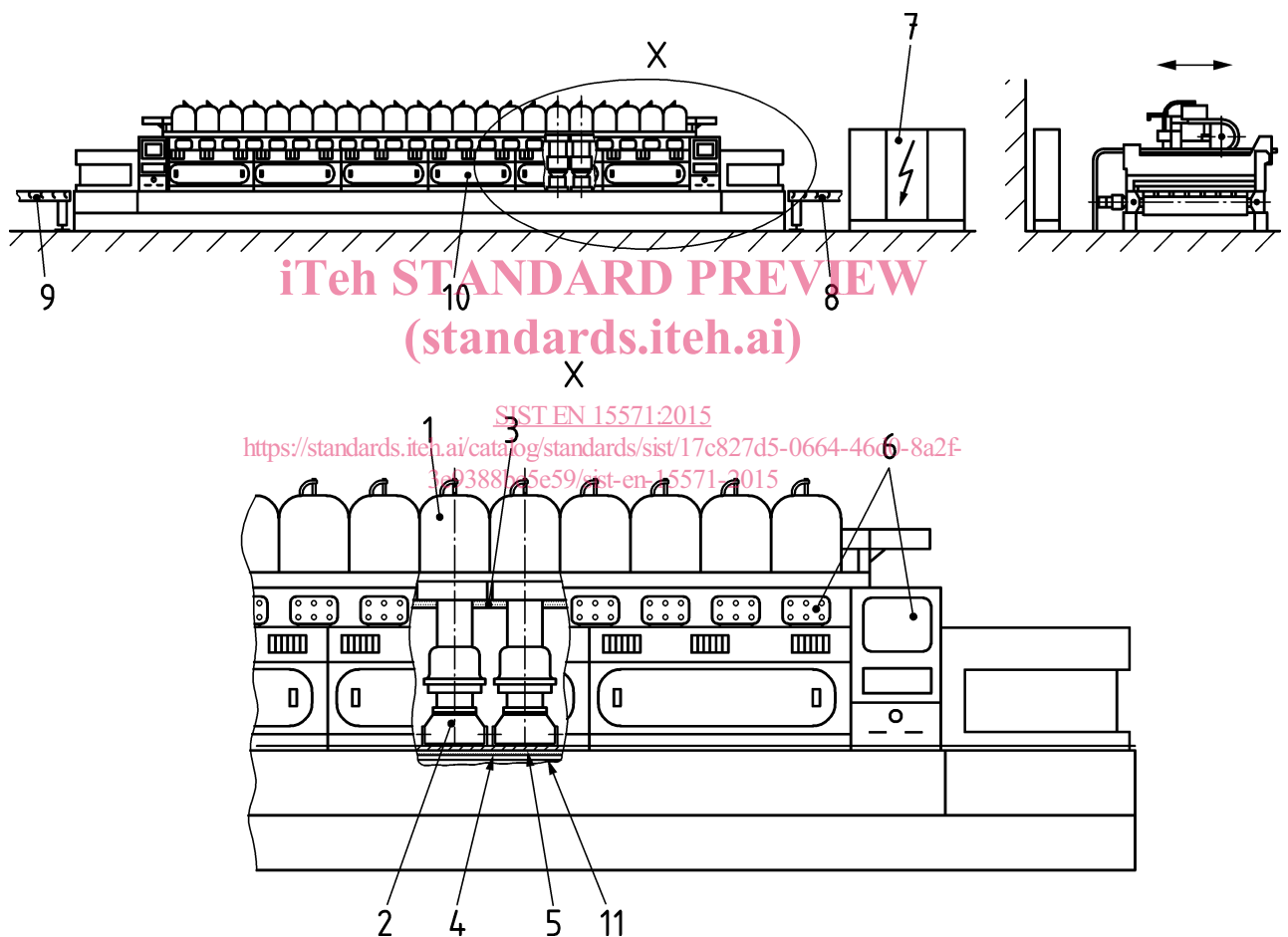
3.2

surface finishing machine with belt conveyor and fixed or mobile spindles-holding beam

integrated fed machine, with continuous operating belt and a spindles-holding beam, designed for grinding or polishing horizontal surfaces of stone slabs (see Figure 3) by the use of grinding or polishing head water cooled during the working process having at least two squared axes which the working head moves over

Note 1 to entry: This machine can be equipped with the following facilities:

- a) grinding or polishing head change system with bayonet locking;
- b) accessory units for calibrating;
- c) accessory units for polishing.



Safeguarding devices are not illustrated

Key

1	spindle	5	workpiece	9	unloading roller track
2	grinding or polishing head	6	control panel	10	front cover (sliding door)
3	spindles-holding beam	7	electric board	11	work bench
4	belt Conveyor	8	loading roller track		

Figure 3 — Example of a surface finishing machine with belt conveyor and fixed or mobile spindles-holding beam

EN 15571:2014 (E)**3.3****slab machines**

machine described in 3.1 or 3.2, designed for polishing slabs normally roughly sawn with a processing width of more than 1 m

3.4**strip or tile machines**

machine described in 3.1 or 3.2, designed for polishing processed workpieces and having a processing width of less than 1 m

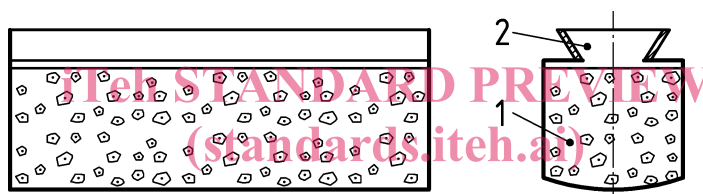
3.5**running gear**

guide element on the track and carries the bridge

3.6**grinding or polishing segment**

removes the material of the workpiece to be processed

Note 1 to entry: During this process, they also undergo a wear.

**Key**

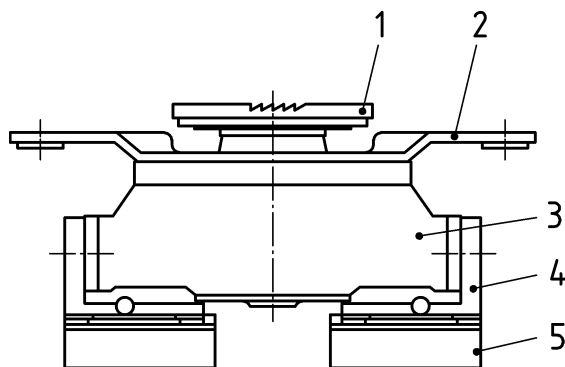
- 1 grinding or polishing segment 2 holder saddle with dovetail

Figure 4 — Grinding or polishing segment

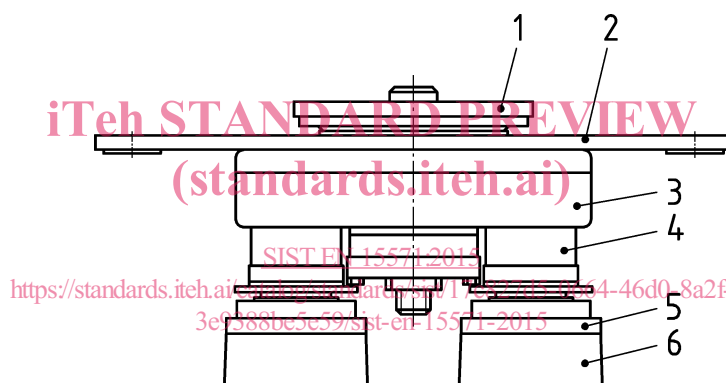
3.7**grinding or polishing head**

different types of grinding or polishing heads are used to pick up the proper grinding or polishing segments

Note 1 to entry: These heads can be designed for different additional movements between grinding or polishing segment and workpiece (swing, planetary, ...).

**Key**

- | | | | |
|---|---------------------------------------|---|--------------------------------------|
| 1 | toothed wheel | 4 | grinding or polishing segment holder |
| 2 | grinding or polishing head carrier | 5 | grinding or polishing segment |
| 3 | housing of grinding or polishing head | | |

Figure 5 — Swing grinding or polishing head**Key**

- | | | | |
|---|---------------------------------------|---|--------------------------------------|
| 1 | toothed wheel | 4 | flange bearing |
| 2 | grinding or polishing head carrier | 5 | grinding or polishing segment holder |
| 3 | housing of grinding or polishing head | 6 | grinding or polishing segment |

Figure 6 — Planetary grinding or polishing head