



# SLOVENSKI STANDARD SIST EN 15571:2021

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Nadomešča:  
SIST EN 15571:2015

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## 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 15571:2020**

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### **ICS:**

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

**SIST EN 15571:2021**

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EUROPEAN STANDARD

EN 15571

NORME EUROPÉENNE

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## 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 28 September 2020.

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**EN 15571:2020 (E)****European foreword**

This document (EN 15571:2020) 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of an identical text or by endorsement, at the latest by May 2021, and conflicting national standards shall be withdrawn at the latest by month year of May 2021.

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 15571:2014.

The following major changes were introduced:

- list of the significant hazards has been moved from Clause 4 to Annex A, according to 6.10.3.1 of CEN Guide 414;
- normative references have been modified and updated to Clause 2;
- terms and definitions have been introduced to Clause 3 (e.g. control power on, telecontrol, teleservice);
- requirements related to position of controls have been added or modified to 4.2.2.1;
- requirements related to hand-held control sets have been added to 4.2.2.2;
- requirements related to starting have been added or modified to 4.2.3;
- requirements related to normal stop have been added or modified to 4.2.4;
- requirements related to emergency stop have been added or modified to 4.2.5;
- requirements related to operational stop have been added or modified to 4.2.6;
- requirements related to teleservice have been added to 4.2.10;
- requirements related to transport and installation of machine have been added to 4.3.1;
- requirements related to stability have been added to 4.3.2;
- requirements related to prevention of access to moving parts and safeguards to minimize the effect of ejection have been added or modified to 4.3.4;
- specific requirements related to surface-finishing machines with fixed table and mobile transversal bridge (track machines) have been modified to 4.3.5;
- requirements related to tool changing have been added or modified to 4.3.6;
- requirements related to noise have been added or modified to 4.4.2 and Annex C;
- requirements related to electrical hazards have been added or modified to 4.4.3;

- requirements related to unintended movements have been added to 4.4.7;
- requirements related to information for use have been added or modified to Clause 5;
- requirements related to rigid guards on machines and impact test method have been added to Annex B;
- Annex ZA has been modified according to the last edition of CEN Guide 414.

This document has been prepared under a standardization request 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, 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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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**EN 15571:2020 (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 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 and 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 document 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 document 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 document specifies the appropriate technical measures to eliminate or reduce risks arising from the significant hazards.

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

This document 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 document 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

[SIST EN 15571:2021](https://standards.iteh.ai/catalog/standards/sist/7e63639d-b0df-49dc-946e-34c2b90dc0/sist-en-15571-2021)

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 166:2001, *Personal eye-protection — Specifications*

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

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 60204-1:2018, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements (IEC 60204 1:2016, mod.)*

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

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EN 60529:1991/A1:2000, *Degrees of protection provided by enclosures (IP Code)*  
(IEC 60529:1989/A1:1999)

EN 60529:1991/A2:2013, *Degrees of protection provided by enclosures (IP Code)*  
(IEC 60529:1989/A2:2013)

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

EN 61800-5-2:2017, *Adjustable speed electrical power drive systems — Part 5-2: Safety requirements — Functional* (IEC 61800-5-2:2016)

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 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 3747:2010, *Acoustics — Determination of sound power levels and sound energy levels of noise sources using sound pressure — Engineering/survey methods for use in situ in a reverberant environment* (ISO 3747:2010)

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 13855:2010, *Safety of machinery — Positioning of safeguards with respect to the approach speeds of parts of the human body (ISO 13855:2010)*

EN ISO 13857:2019, *Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs (ISO 13857:2019)*

EN ISO 14118:2018, *Safety of machinery — Prevention of unexpected start-up (ISO 14118:2017)*

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)*

### 3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <http://www.iso.org/obp>

— IEC Electropedia: available at <http://www.electropedia.org/>  
<http://www.electropedia.org/0df-49dc-946e-54c2f9b90dc0/sist-en-15571-2021>

#### 3.1

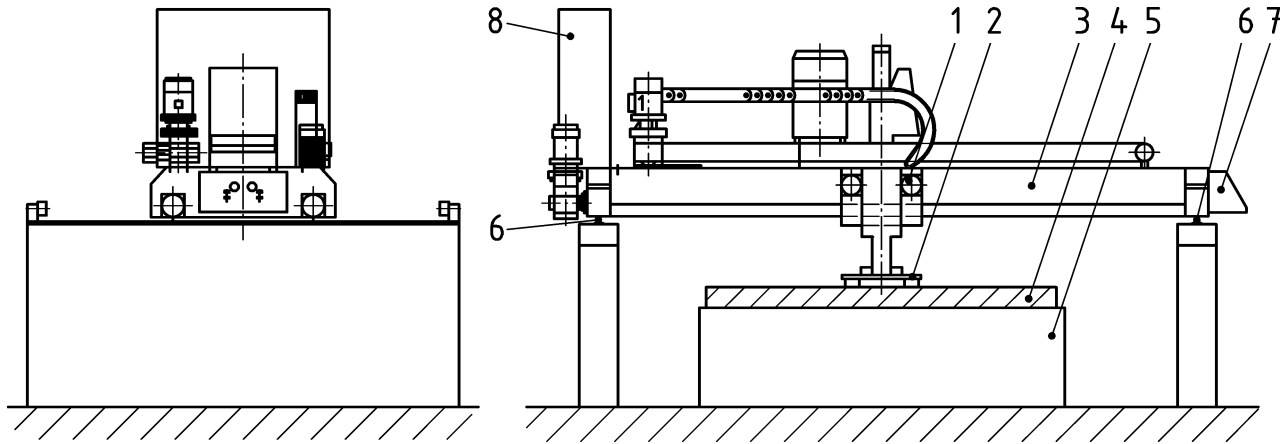
##### **surface-finishing machine with fixed table and mobile transversal bridge (track machines)**

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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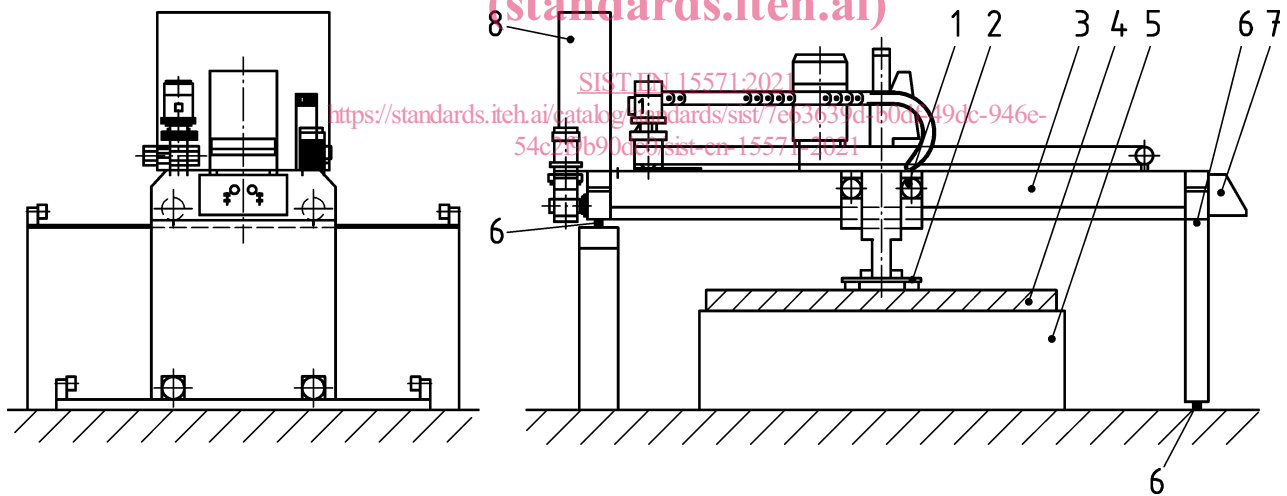


Safeguarding devices are not illustrated

**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"**

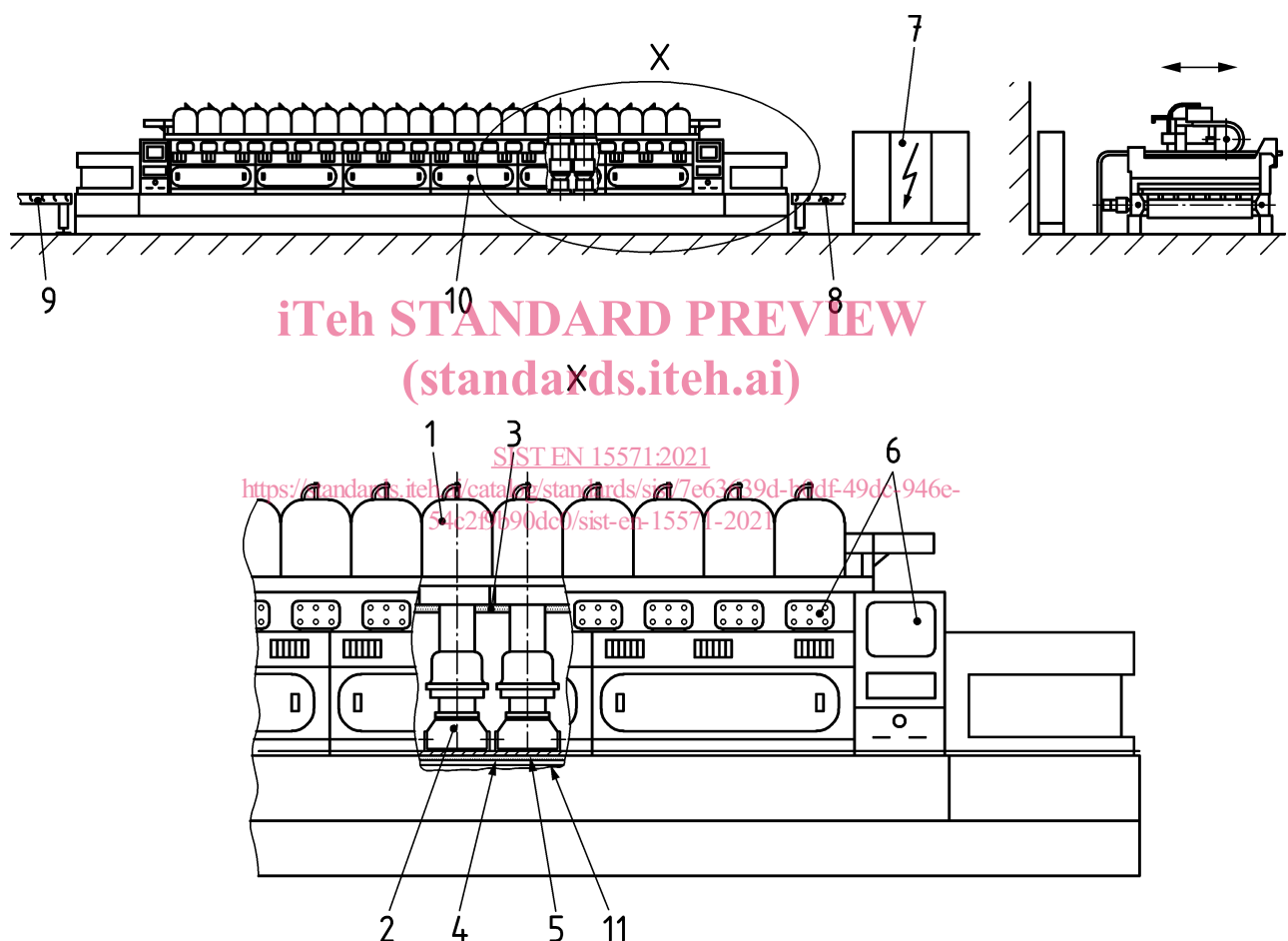
### 3.2

#### 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:

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



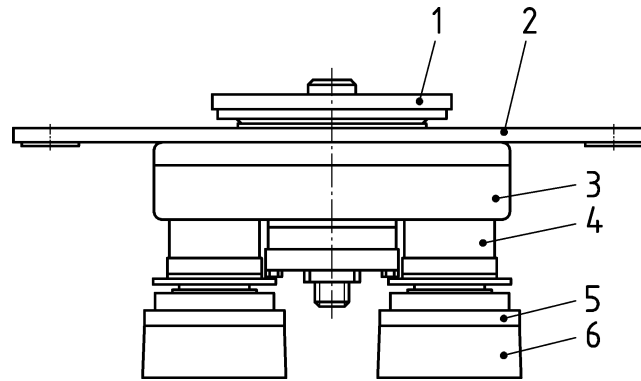
Safeguarding devices are not illustrated

#### Key

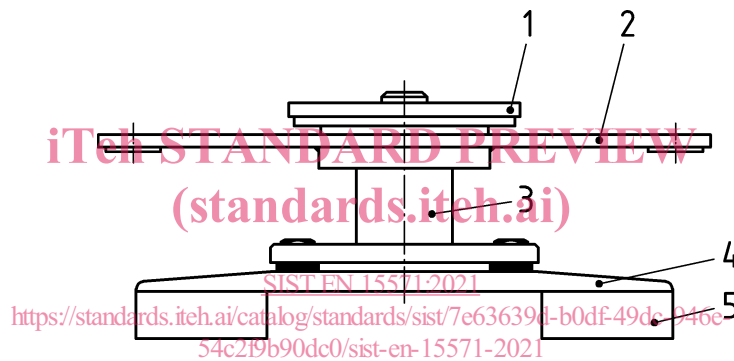
1	spindle	5	workpiece	9	unloading roller track
2	grinding or polishing head	6	control panel	10	front cover (sliding door)
3	spindles-holding beam	7	electric board	11	work bench
4	belt conveyor	8	loading roller track		

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



**Key**

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

**Figure 6 — Example of a planetary grinding or polishing head****Key**

- |   |                                    |   |                               |
|---|------------------------------------|---|-------------------------------|
| 1 | toothed wheel                      | 4 | grinding or polishing tool    |
| 2 | grinding or polishing disk carrier | 5 | grinding or polishing segment |
| 3 | grinding or polishing disk flange  |   |                               |

**Figure 7 — Example of a disk grinding or polishing head****3.5****spindle**

special shaft powered by a motor which holds the grinding or polishing head in rotation

**3.6****spindles-holding beam**

beam that supports all the spindles and allows the alternative movement of translation

**3.7****work bench**

bench on which the conveyor belt drives the workpiece (slabs or strips)

**3.8****machine actuator**

power mechanism used to affect motion of the machine