



# SLOVENSKI STANDARD

## SIST EN 1870-15:2012

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SIST EN 1870-15:2005+A1:2009

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**Varnost lesnoobdelovalnih strojev - Krožne žage - 15. del: Večlistne krožne žage za prečni rez z mehanskim pomikom obdelovanca in ročnim podajanjem in/ali odvzemom**

Safety of woodworking machines - Circular sawing machines - Part 15: Multi-blade cross-cut sawing machines with integrated feed of the workpiece and manual loading and/or unloading

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Sicherheit von Holzbearbeitungsmaschinen - Kreissägemaschinen - Teil 15: Mehrfachablängkreissägemaschinen mit mechanischem Vorschub für das Werkstück und Handbeschickung und/oder Handentnahme

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Sécurité des machines pour le travail du bois - Machines à scies circulaires - Partie 15: Machines à scier multi-lames pour tronçonnage à avance mécanisée de la pièce et chargement et/ou déchargement manuels

**Ta slovenski standard je istoveten z: EN 1870-15:2012**

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**ICS:**

25.080.60	Strojne žage	Sawing machines
79.120.10	Lesnoobdelovalni stroji	Woodworking machines

**SIST EN 1870-15:2012**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 1870-15**

October 2012

ICS 79.120.10

Supersedes EN 1870-15:2004+A1:2009

English Version

**Safety of woodworking machines - Circular sawing machines -  
Part 15: Multi-blade cross-cut sawing machines with integrated  
feed of the workpiece and manual loading and/or unloading**

Sécurité des machines pour le travail du bois - Machines à  
scies circulaires - Partie 15: Machines à scier multi-lames  
pour tronçonnage à avance mécanisée de la pièce et  
chargement et/ou déchargement manuels

Sicherheit von Holzbearbeitungsmaschinen -  
Kreissägemaschinen - Teil 15:  
Mehrfachablängkreissägemaschinen mit mechanischem  
Vorschub für das Werkstück und Handbeschickung  
und/oder Handentnahme

This European Standard was approved by CEN on 4 August 2012.

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## Contents

	Page
Foreword.....	4
Introduction .....	6
1 Scope .....	7
2 Normative references .....	7
3 Terms and definitions .....	9
3.1 General.....	9
3.2 Definitions .....	9
4 List of significant hazards .....	12
5 Safety requirements and/or measures .....	15
5.1 General.....	15
5.2 Controls .....	15
5.2.1 Safety and reliability of control systems.....	15
5.2.2 Position of controls .....	16
5.2.3 Starting .....	16
5.2.4 Normal stopping .....	17
5.2.5 Emergency stop .....	17
5.2.6 Integrated feed .....	18
5.2.7 Control duplication .....	18
5.2.8 Failure of the power supply .....	19
5.3 Protection against mechanical hazards .....	19
5.3.1 Stability .....	19
5.3.2 Risk of break-up during operation .....	19
5.3.3 Tool holder and tool design.....	20
5.3.4 Braking.....	22
5.3.5 Devices to minimise the possibility or the effect of ejection .....	23
5.3.6 Work-piece supports and guides .....	24
5.3.7 Prevention of access to moving parts.....	24
5.4 Protection against non-mechanical hazards .....	29
5.4.1 Fire .....	29
5.4.2 Noise .....	29
5.4.3 Emission of chips and dust .....	30
5.4.4 Electricity .....	31
5.4.5 Ergonomics and handling.....	31
5.4.6 Lighting.....	32
5.4.7 Pneumatic.....	32
5.4.8 Hydraulic.....	32
5.4.9 Electromagnetic compatibility.....	32
5.4.10 Laser .....	32
5.4.11 Static electricity .....	33
5.4.12 Errors of fitting.....	33
5.4.13 Isolation .....	33
5.4.14 Maintenance .....	34
6 Information for use .....	34
6.1 General.....	34
6.2 Warnings and warning devices .....	34
6.3 Marking .....	34
6.4 Instruction handbook .....	35
Annex A (normative) Saw spindle dimensional tolerances .....	39

<b>Annex B (normative) Stability test for the deterring/impeding device required in 5.3.7.1.2</b> .....	<b>40</b>
<b>Annex C (normative) Operating conditions for noise emission measurement</b> .....	<b>41</b>
<b>Annex D (normative) Braking tests</b> .....	<b>43</b>
<b>D.1 Conditions for all tests</b> .....	<b>43</b>
<b>D.2 Tests</b> .....	<b>43</b>
<b>D.2.1 Un-braked run-down time</b> .....	<b>43</b>
<b>D.2.2 Braked run-down time</b> .....	<b>43</b>
<b>Annex E (normative) Impact test method for guards</b> .....	<b>44</b>
<b>E.1 General</b> .....	<b>44</b>
<b>E.2 Test method</b> .....	<b>44</b>
<b>E.2.1 Preliminary remarks</b> .....	<b>44</b>
<b>E.2.2 Testing equipment</b> .....	<b>44</b>
<b>E.2.3 Projectile for guards</b> .....	<b>44</b>
<b>E.2.4 Sampling</b> .....	<b>44</b>
<b>E.2.5 Test procedure</b> .....	<b>44</b>
<b>E.3 Results</b> .....	<b>45</b>
<b>E.4 Assessment</b> .....	<b>45</b>
<b>E.5 Test report</b> .....	<b>45</b>
<b>E.6 Test equipment for impact test</b> .....	<b>45</b>
<b>Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC</b> .....	<b>47</b>
<b>Bibliography</b> .....	<b>50</b>

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[SIST EN 1870-15:2012](https://standards.iteh.ai/catalog/standards/sist/794337e2-2d09-4a91-a955-d0439bb5843f/sist-en-1870-15-2012)

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**EN 1870-15:2012 (E)****Foreword**

This document (EN 1870-15:2012) has been prepared by Technical Committee CEN/TC 142 "Woodworking machines - Safety", the secretariat of which is held by UNI.

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 April 2013, and conflicting national standards shall be withdrawn at the latest by April 2013.

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 supersedes EN 1870-15:2004+A1:2009.

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.

The main technical modification to the 2009 edition relates to the introduction of performance levels (PL).

Organisations contributing to the preparation of this document include European Committee of Woodworking Machinery Manufacturers Association "EUMABOIS" (standards.iteh.ai)

EN 1870, *Safety of woodworking machines* — *Circular sawing machines*, consists of the following parts:

- *Part 1: Circular saw benches (with and without sliding table), dimension saws and building site saws;*
- *Part 3: Down cutting cross-cut saws and dual purpose down cutting cross-cut saws/circular saw benches;*
- *Part 4: Multiblade rip sawing machines with manual loading and/or unloading;*
- *Part 5: Circular sawbenches/up-cutting cross-cut sawing machines;*
- *Part 6: Circular sawing machines for firewood and dual purpose circular sawing machines for firewood/circular saw benches, with manual loading and/or unloading;*
- *Part 7: Single blade log sawing machines with integrated feed table and manual loading and/or unloading;*
- *Part 8: Single blade edging circular rip sawing machines with power driven saw unit and manual loading and/or unloading;*
- *Part 9: Double blade circular sawing machines for cross-cutting with integrated feed and with manual loading and/or unloading;*
- *Part 10: Single blade automatic and semi-automatic up-cutting cross-cut sawing machines;*
- *Part 11: Semi-automatic and automatic horizontal cross-cut sawing machines with one saw unit (radial arm saws);*
- *Part 12: Pendulum cross-cut sawing machines;*
- *Part 13: Horizontal beam panel sawing machines;*

- *Part 14: Vertical panel sawing machines;*
- *Part 15: Multi-blade cross-cut sawing machines with integrated feed of the workpiece and manual loading and/or unloading;*
- *Part 16: Double mitre sawing machines for V-cutting;*
- *Part 17: Manual horizontal cutting cross-cut sawing machines with one saw unit (radial arm saws);*
- *Part 18: Dimension saws (at Enquiry stage at the time of publication of the present document);*
- *Part 19: Circular saw benches (with and without sliding table) and building site saws (at Enquiry stage at the time of publication of the present document).*

The European Standards produced by CEN/TC 142 are particular to woodworking machines and complement the relevant A and B Standards on the subject of general safety (see introduction of EN ISO 12100:2010 for a description of A, B and C standards).

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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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**EN 1870-15:2012 (E)****Introduction**

This document has been prepared to be a harmonised standard to provide one means of conforming to the essential 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 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 C type standard take precedence over the provisions of 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 authorised representatives of multi-blade cross-cut sawing machines with integral feed of the work-piece and manual loading and/or unloading. It is also useful for designers and importers.

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

Common requirements for tooling are given in EN 847-1:2005+A1:2007.

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## 1 Scope

This European Standard specifies all requirements and/or measures to reduce the hazards and limit the risks on multi-blade cross-cut sawing machines (with minimum two saw unit) with integrated feed of the work-piece and manual loading and/or unloading fitted with a saw blade drive motor for each saw unit, hereinafter referred to as “machines”, designed to cut solid wood, chipboard, fibreboard, plywood and also these materials where they are covered with plastic edging and/or plastic/light alloy laminates, when they are used as intended and under the conditions foreseen by the manufacturer including reasonably foreseeable misuse.

This document deals with all significant hazards, hazardous situations and events which are relevant to these machines as stated in Clause 4. It does not deal with any hazards relating to the mechanical loading and/or unloading of the work-piece or which result from the combination of the machine with any other.

This document does not cover machines designed for climb cutting (see 3.2.10).

The requirements of this document apply to all machines whatever their method of control e.g. electromechanical and/or electronic and/or pneumatic.

This document is not applicable to multi-blade cross-cut sawing machines with integrated feed of the work-piece and manual loading and/or unloading which are manufactured before the date of its publication as EN.

NOTE Machines covered by this document are listed under 1.3 of Annex IV of the Machinery Directive.

## 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 614-1:2006+A1:2009, *Safety of machinery — Ergonomic design principles — Part 1: Terminology and general principles*

EN 614-2:2000+A1:2008, *Safety of machinery — Ergonomic design principles — Part 2: Interactions between the design of machinery and work tasks*

EN 847-1:2005+A1:2007, *Tools for woodworking — Safety requirements — Part 1: Milling tools, circular saw blades*

EN 894-1:1997+A1:2008, *Safety of machinery — Ergonomics requirements for the design of displays and control actuators — Part 1: General principles for human interactions with displays and control actuators*

EN 894-2:1997+A1:2008, *Safety of machinery — Ergonomics requirements for the design of displays and control actuators — Part 2: Displays*

EN 894-3:2000+A1:2008, *Safety of machinery — Ergonomics requirements for the design of displays and control actuators — Part 3: Control actuators*

EN 1005-1:2001+A1:2008, *Safety of machinery — Human physical performance — Part 1: Terms and definitions*

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

EN 1005-3:2002+A1:2008, *Safety of machinery — Human physical performance — Part 3: Recommended force limits for machinery operation*

**EN 1870-15:2012 (E)**

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 1088:1995+A2:2008, *Safety of machinery — Interlocking devices associated with guards – Principles for design and selection*

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

EN 12779:2004+A1:2009, *Safety of woodworking machines — Chip and dust extraction systems with fixed installation — Safety related performances and safety requirements*

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 60204-1:2005, modified)*

EN 60439-1:1999,<sup>1)</sup> *Low-voltage switchgear and controlgear assemblies — Part 1: Type-tested and partially type-tested assemblies (IEC 60439-1:1999)*

EN 60529:1991,<sup>2)</sup> *Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989)*

EN 60825-1:2007, *Safety of laser products — Part 1: Equipment classification and requirements (IEC 60825-1:2007)*

EN 61310-1:2008, *Safety of machinery — Indication, marking and actuation — Part 1: Requirements for visual, acoustic and tactile signals (IEC 61310-1:2007)*

EN 61800-5-2:2007, *Adjustable speed electrical power drive systems — Part 5-2: Safety requirements — Functional (IEC 61800-5-2:2007)*

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 method in an essentially free field over a reflecting plane (ISO 3744:2010)*

EN ISO 3745:2009,<sup>3)</sup> *Acoustics — Determination of sound power levels of noise sources using sound pressure — Precision methods for anechoic and semi-anechoic rooms (ISO 3745:2003)*

1) EN 60439-1:1999 is amended by EN 60439-1:1999/A1:2004, based on IEC 60439-1:1999/A1:2004.

2) EN 60529:1991 is amended by EN 60529:1991/A1:2000, based on IEC 60529:1989/A1:1999.

3) EN ISO 3745:2009 is superseded by EN 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 9614-1:2009, *Acoustics — Determination of sound power levels of noise sources using sound intensity — Part 1: Measurements at discrete points (ISO 9614-1:1993)*

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

ISO 7960:1995, *Airborne noise emitted by machine tools — Operating conditions for woodworking machines*

### 3 Terms and definitions

#### 3.1 General

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

#### 3.2 Definitions

##### 3.2.1

##### **multi-blade cross-cut sawing machine with integrated feed of the work-piece and manual loading and/or unloading**

machine with two or more saw spindles located below the work-piece support, where each saw unit is equipped with a saw-spindle drive motor, the distance between the saw units is adjustable either manually or under power

## EN 1870-15:2012 (E)

Note 1 to entry: The position of the saw-blade(s) is fixed during cutting. The work-piece is fed to the saw-blades by chains and held down during cutting by a top pressure device combined with the upper saw blade guard or mounted separately (see Figure 1).

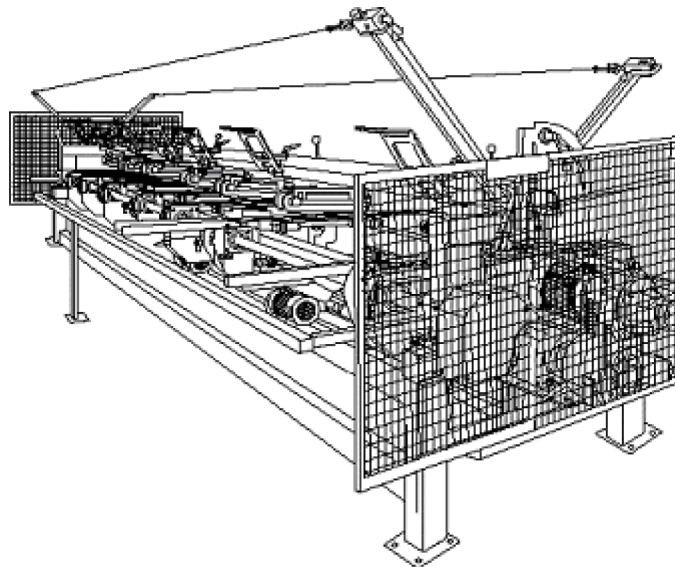


Figure 1 — Example of multi-blade cross-cut sawing machine with integrated feed of the work-piece and manual loading and/or unloading (guards are partially not represented for clarity)

## 3.2.2

**top pressure device**

device located above each saw-blade which holds the work-piece against the chains e.g. by belts or rollers

## 3.2.3

**saw unit**

part(s) of the machine incorporating the saw spindle with its drive motor, the top pressure device and a chain/chains for the feed of the work-piece

Note 1 to entry: The saw spindle may be fixed or retractable manually or under power to a non-cutting position.

## 3.2.4

**integrated feed of multi-blade cross-cut sawing machines**

feed mechanism for the work-piece or saw blade which is integrated with the machine and where the work-piece or machine element with incorporated tool is held and controlled mechanically during the machining operation

## 3.2.5

**stationary machine**

machine designed to be located on or fixed to the floor or other parts of the structure of the premises and to be stationary during use

## 3.2.6

**displaceable machine**

machine which is located on the floor, stationary during use and equipped with devices, such as wheels, which allows it to be moved between locations

## 3.2.7

**cutting area of the saw-blade**

area of the saw-blade which is covered by the work-piece during the cutting process

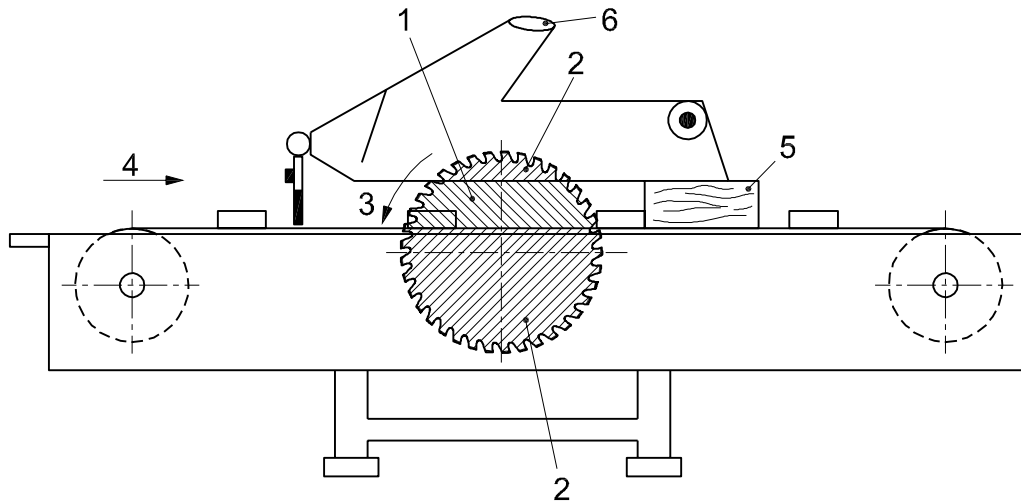
Note 1 to entry: See Figure 2.

### 3.2.8

#### non-cutting area of the saw-blade

area of the saw-blade which is not covered by the work-piece during the cutting process

Note 1 to entry: See Figure 2.



#### Key

- 1 cutting area of the saw-blade
- 2 non-cutting area of the saw-blade
- 3 direction of saw-blade rotation
- 4 feed direction
- 5 work-piece
- 6 extraction outlet

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**Figure 2 — Cutting/non-cutting area of the saw-blade**

### 3.2.9

#### non-cutting position of the saw blade

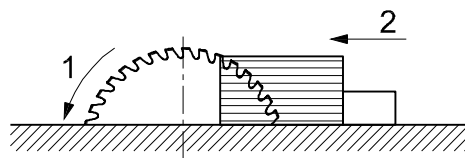
position of a saw unit with its saw blade outside the maximum cutting width for which the machine is designed or where the saw blade is retracted to a position such that the saw blade with the maximum saw blade diameter for which the machine is designed does not protrude over the work-piece support

### 3.2.10

#### climb cutting

event where the rotation of the saw-blade and the movement of the work-piece are in the same direction

Note 1 to entry: See Figure 3.



#### Key

- 1 direction of saw-blade rotation
- 2 work-piece feed

**Figure 3 — Climb cutting**

**EN 1870-15:2012 (E)****3.2.11****ejection**

unexpected movement of the work-piece or parts of it or part of the machine from the machine during processing

**3.2.12****kickback**

particular form of ejection describing the unexpected movement of the work-piece or parts of it or parts of the machine opposite to the direction of feed during processing

**3.2.13****run-up time**

time elapsed from the actuation of the start control device until the spindle reaches the intended speed

**3.2.14****run-down time**

time elapsed from the actuation of the stop control device up to the spindle standstill

**3.2.15****machine actuator**

power mechanism used to effect the motion of the machine

**3.2.16****information from the supplier**

statements, sales literature, leaflets or other documents, where a manufacturer (supplier) declares either the characteristics of a material or product or the compliance to a relevant standard

**3.2.17****performance level****PL**

discrete level used to specify the ability of safety-related parts of control systems to perform a safety function under foreseeable conditions

[SOURCE: EN ISO 13849-1:2008, 3.1.23]

**4 List of significant hazards**

This clause contains all significant hazards, hazardous situations and events (see EN ISO 12100:2010), identified by risk assessment as significant for the machines as defined in the scope and which require action to eliminate or reduce the risk.

This document deals with these significant hazards by defining safety requirements and/or measures or by reference to relevant standards.

These hazards are listed in Table 1.

Table 1 — List of significant hazards

No	Hazards, hazardous situations and hazardous events	EN ISO 12100:2010	Relevant clause of this document
<b>1</b>	<b>Mechanical hazards</b> due to: - machine parts or work-pieces:		
	a) shape;	6.2.2.1, 6.2.2.2, 6.3	5.3.2, 5.3.7
	b) relative location;		5.3.2, 5.3.3, 5.3.7, Annex A
	c) mass and stability (potential energy of elements which may move under the effect of gravity);		5.3.1, Annex B
	d) mass and velocity (kinetic energy of elements in controlled or uncontrolled motion);		5.3.3, 5.3.5, 5.3.7, 6.2
	e) mechanical strength.		5.3.2, 5.3.3, Annex B
	- accumulation of energy inside the machinery:		
f) elastic elements (springs); g) liquids and gases under pressure	6.2.10, 6.3.5.4	5.3.4 5.4.7, 5.4.8	
1.1	Crushing hazard	STANDARD PREVIEW (standards.iteh.ai) SIST EN 1870-15:2012 <a href="https://standards.iteh.ai/catalog/standards/sist/794337e2-2d09-4a91-a955-d0439bb5843f/sist-en-1870-15-2012">https://standards.iteh.ai/catalog/standards/sist/794337e2-2d09-4a91-a955-d0439bb5843f/sist-en-1870-15-2012</a>	5.3.3, 5.3.7
1.2	Shearing hazard		5.3.3, 5.3.7
1.3	Cutting or severing hazard		5.3.3, 5.3.4, 5.3.7
1.4	Entanglement hazard		5.3.7
1.5	Drawing-in or trapping hazard		5.3.7
1.6	Impact hazard		5.3.5, 6.2 a)
1.8	Friction or abrasion hazard		5.3.4
<b>2</b>	<b>Electrical hazards</b> due to:		
2.1	Contact of persons with live parts (direct contact)	6.2.9, 6.3.5.4	5.4.4, 5.4.13
2.2	Contact of persons with parts which have become live under faulty conditions (indirect contact)	6.2.9	5.4.4, 5.4.13
2.3	Approach to live parts under high voltage	6.2.9, 6.3.5.4	5.4.4, 6.4
2.4	Electrostatic phenomena	6.2.9	5.4.11
<b>4</b>	<b>Hazards generated by noise</b> , resulting in:		
4.1	Hearing loss (deafness), other physiological disorders (loss of balance, loss of awareness)	6.2.2.2, 6.3	5.4.2
4.2	Interference with speech communication, acoustic signals		5.4.2
<b>6</b>	<b>Hazards generated by radiation</b>		
6.5	Lasers	6.3.4.5	5.4.10