SLOVENSKI STANDARD
SIST EN 861:2000

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Safety of woodworking machines - Surface planing and thicknessing machines

Safety of woodworking machines - Surface planing and thicknessing machines

Sicherheit von Holzbearbeitungsmaschinen - Kombinierte Abricht- und Dickenhobelmaschinen

Sécurité des machines pour le travail du bois - Machines combinées a raboter et dégauchir

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79.120.10	Lesnoobdelovalni stroji	Woodworking machines

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English version

Safety of woodworking machines - Surface planing and thicknessing machines

Sécurité des machines pour le travail du bois - Machines combinées à raboter et dégauchir

Sicherheit von Holzbearbeitungsmaschinen - Kombinierte Abricht- und Dickenhobelmaschinen

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart,36 B-1050 Brussels

Contents

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 142 "Woodworking machines - Safety", the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by January 1998, and conflicting national standards shall be withdrawn at the latest by January 1998.

This European Standard 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 standard.

Organisation contributing to the preparation of the European standard include the European Committee of Woodworking Machinery Manufacturers "EUMABOIS".

The European Standards prepared 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 292-1:1991 for description of A, B and C standards).

Common requirements for tooling are given in EN 847-1:1997.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

0 Introduction

This European Standard has been prepared to be a harmonized standard to provide one means of conforming to the essential safety requirements of the Machinery Directive and associated EFTA Regulations and is a type C standard as defined in EN 292:1991/A1:1995.

The extent to which hazards are covered is indicated in the scope of this standard.

The requirements of this European Standard concern designers, manufacturers, suppliers and importers of surface planing and thickness planing machines.

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

1 Scope

This European standard specifies the requirements and/or measures to remove the hazards and limit the risk on surface planing and thicknessing machines, hereinafter referred to as machines, designed to cut solid wood, chipboard, fibreboard, plywood and also these materials where they are covered with plastic laminate or edgings.

Electrically driven machines excluded from the scope of this standard are covered by the requirements of prEN 61029-1: 1996 or EN 50144-1: 1995 and prEN 61029-2-3: 1996.

This European standard covers all the hazards relevant to this machine. These hazards are listed in clause 4.

This Eurpoean Standard does not apply to machines set up on a bench or a table similar to a bench which are intended to carry out work in a stationary position and capable of being lifted by hand by one person.

This European Standard does not apply to hand held woodworking machines or any adaptation permitting their use in a different mode, i.e. bench mounting.

This European Standard applies to surface planing and thickness planing machines with manual loading and unloading and with cutterblock fixed in position fitted or not with demountable power feed unit.

It does not apply to surface planing and thickness planing machines where the cutterblock is adjustable for depth of cut setting.

It does not apply to machines where surfacing and thicknessing can be performed at the same time.

This European Standard is primarily applicable to machines which are manufactured after the date of issue of this standard.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 292-1:1991	Safety of machinery - Basic concepts, general principles for design - Part 1 : Basic Terminology, methodology
EN 292-2:1991 EN 292-2/A1:1995	Safety of machinery - Basic concepts, general principles for design - Part 2 : Technical principles and specifications
EN 294:1992	Safety of machinery - Safety distances to prevent danger zones being reached by upper limbs.
EN 418:1992	Safety of machinery - Emergency stop equipment - Functional aspects
EN 847-1:1997	Tools for woodworking machines - Safety requirements - Part 1: Milling tools, circular saw blades
prEN 953:1993	Safety of machinery - General requirements for the design and construction of guards (fixed, movable)
EN 982:1996	Safety requirements for fluid power systems and components - Hydraulics
EN 983:1996	Safety requirements for fluid power systems and components - Pneumatics
prEN 1005-2:1995	Safety of machinery - Human physical performance - Part 2: Manual handling of machinery and component parts of machinery
EN 1088:1995	Safety of machinery - Interlocking devices with and without guard locking - Principles for design and selection

EN ISO 3746:1995	Acoustics - Determination of sound power levels of noise sources using sound pressure - Survey method using an enveloping measurement surface over a reflecting plane (ISO 3746:1995)
EN ISO 9614-1:1995	Acoustics - Determination of sound power levels of noise sources using sound intensity - Part 1: Measurement at discreet points (ISO 9614-1:1993)
EN ISO 11202:1995	Acoustics - Noise emitted by machinery and equipment - Measurement of emission sound pressure levels at the work station and at other specified positions survey method in situ (ISO 11202:1995)
EN ISO 11204:1995	Acoustics - Noise emitted by machinery and equipment - Measurement of emission sound pressure levels at the work station and at other specified positions method requiring environmental corrections (ISO 11204:1995)
EN 50144-1:1995	Safety of hand held electric motor operated tools - Part 1: General requirements
EN 60204-1:1992	Safety of machinery - Electrical equipment of machines - Part 1: General requirements
prEN 60227-1	Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V - Part 1: General requirements
prEN 60245-1	Rubber insulated cables of rated voltages up to and including 450/750 V - Part 1: General requirements
EN 60439-1 prA11:1995	Low voltage switchgear and control gear assemblies - Part 1: Type tested and partially type tested assemblies
EN 60529:1991	Degree of protection provided by enclosure (IP code) (IEC 529:1989)
EN 60947-4-1:1992	Low voltage switch gear and control gear - Part 4 : Contactors and motors starters - Section 1: Electromechanical contactors and motor starters (IEC 947-4-1:1990)
EN 60947-5-1:1991	Low voltage switch gear and control gear - Part 5 : Control circuits devices and switching elements - Section 1: Electromechanical control circuit devices (IEC 947-5-1:1990)
EN 61029-1: 1995	Safety of transportable motor operated electric tools - Part 1: General requirements (IEC 1029-1:1990 modified)
prEN 61029-2-3: 1996	Safety of transportable motor operated electric tools - Part 2 - Section 3: Particular requirements for planers and thicknessers
EN ISO 3743-1:1995	Acoustics - Determination of sound power levels of noise sources. Engineering methods for small movable sources in reverberant fields - Part 1 : Comparison method for hard-walled test rooms (ISO 3743-1:1994)
EN ISO 3743-2:1995	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 reverberant test rooms (ISO 3743-2:1994)
EN ISO 3744:1995	Acoustics - Determination of sound power levels of noise sources using sound pressure - Engineering method in an essentially free field over a reflecting plane (ISO 3744:1994)
ISO 3745:1977	Acoustics - Determination of sound power levels of noise sources - Precision methods for anechoic and semi-anechoic rooms
ISO 1940:1986	Mechanical vibrations - Balance quality requirements of rigid rotors - Part 1: Determination of permissible residual unbalance
ISO 7568:1986	Woodworking machines - Thickness planing machines with rotary cutter block for one side dressing - Nomenclature and acceptance conditions
ISO 7571:1986	Woodworking machines - Surface planing machines with cutterblock for one side dressing - Nomenclature and acceptance conditions
ISO 7960:1995	Airborne noise emitted by machine tools - Operating conditions for woodworking machines
ISO 7984:1988	Woodworking machines - Technical classification of woodworking machines and auxiliary machines for woodworking
ISO TR 11688:1995	Acoustics - Recommended practice for the design of low-noise machinery and equipment - Part 1: Planning

3 Definitions and terminology

3.1 Definitions

For the purposes of this European standard, the following definitions apply :

3.1.1 Surface planing and thicknessing machine

A combined machine designed to plane a surface and to give a workpiece a set thickness by means of a horizontally rotating cutterblock.

When surfacing, the workpiece is passed over the cutterblock and the lower surface is planed. The infeed table of the surface planing unit is adjustable in height.

When thicknessing, the surfacing tables are raised or pivoted. The workpiece rests on the height adjustable thicknessing table and passes below the cutterblock. Its upper surface is planed.

3.1.2 Thicknessing table

A thicknessing table may comprise an assembly of rollers, belts or other fixed or moving mechanical elements which are used to support the workpiece at the machine.

3.1.3 Cutterblock

The machine component designated to hold the cutting knives or cutting blades.

3.1.4 Tool

A complex tool as defined in EN 847-1:1997 which consist of the cutterblock, the cutting blades and their fixings.

3.1.5 Hand feed

The manual holding and/or guiding of the workpiece. Handfeed includes the use of a demountable power feed unit.

3.1.6 Demountable power feed unit

A feed mechanism which is mounted on the machine that can be moved from its working position without the use of a spanner or similar additional device.

3.1.7 Integrated feed

A feed mechanism for the workpiece which is integrated with the machine and where the workpiece is held and controlled mechanically during the machining operation.

3.1.8 Loading the machine

The manual or automatic placing of the workpiece on to a carriage, magazine, lift, hopper, moveable bed, conveyor or the presentation of the workpiece to an integrated feed device.

3.1.9 Ejection

The unexpected movement of the workpiece, parts of it or part of the machine from the machine during processing.

3.1.10 Kickback

A particular form of ejection describing the unexpected movement of the workpiece, parts of it or parts of the machine opposite to the direction of feed during processing.

3.1.11 Anti-kickback device

A device which either reduces the possibility of kickback or arrests the motion during kickback of the workpiece, parts of it or parts of the machine.

3.1.12 Run-up time

The elapsed time from the actuation of the start control device until the spindle reaches the actual speed related to the intended speed.

3.1.13 Run-down time

The elapsed time from the actuation of the stop control device to spindle stand still.

3.1.14 Operator position

The position in which the operator stands to feed the workpiece to the tool.

3.1.15 Confirmation

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

3.1.16 Machine actuator

A power mechanism used to effect motion of the machine.

3.1.17 Transportable machine

A machine which is located on the floor, stationary during use, and equipped with a device, normally wheels, which allows it to be moved between locations.

3.2 Terminology

The names of the main parts of the machine are shown in table 1 and figure 1.

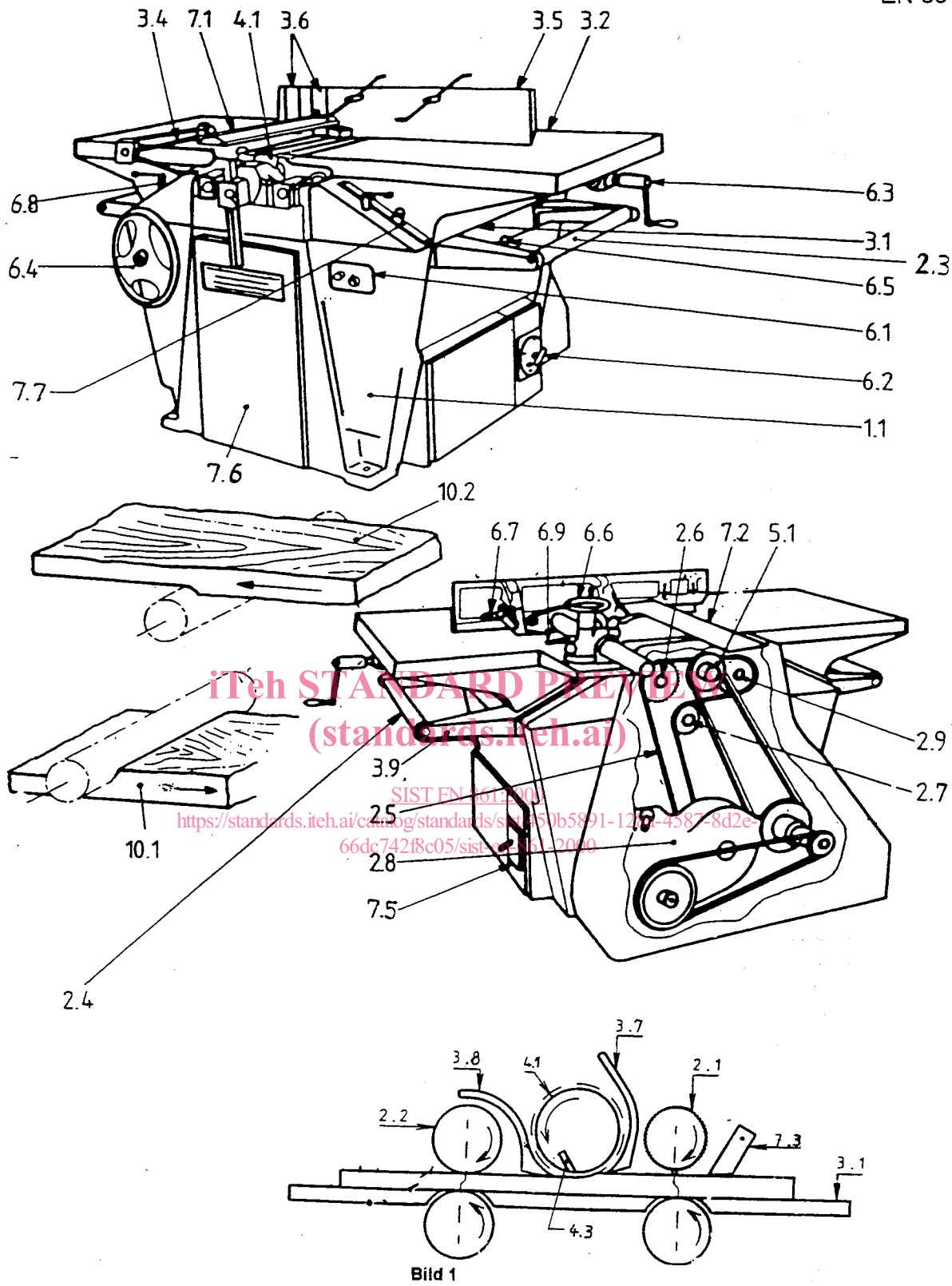

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Figure 1: Surface planing and thicknessing machine

Table 1 : Main components of surface planing and thicknessing machines

Reference	English Surface planing and thickness planing machines	French Machines combinées à raboter et dégauchir	German Kombinierte Abricht- und Dickenhobelmaschinen
1	**Framework**	**Ossature**	**Ständer**
1.1	Main frame	Bâti	Gestell
2	**Feed of workpiece and/or tools**	**Déplacement des pièces et/ou outils**	**Vorschub von Werkstück und/oder Werkzeug**
2.1	Infeed feed roller	Cylindre d'entrée	Einzugswalze
2.2	Outfeed feed roller	Cylindre de sortie	Auszugswalze
2.3	Thicknessing table roller	Cylindre de la table de rabotage	Dickentischwalze
2.4	Table extension roller	Cylindre de la rallonge de table de rabotage	Stützwalze in der Dickentischverlängerung
2.5	Feed roller drive chain	Chaîne d'entraînement des cylindres d'entrée	Antriebskette für Vorschubwalzen
2.6	Feed roller drive sprockets	Pignon du cylindre d'entrée	Kettenritzel der Einzugswalze
2.7	Tensioning roller sprockets	Pignon du tendeur de chaîne	Kettenspannrad
2.8	Speed reduction gearbox or variable speed gear	Réducteur ou variateur de vitesse	Geschwindigkeitsreduziergetriebe oder Getriebe zur Änderung der Geschwindigkeit
2.9	Outfeed drive roller sprocket	Pignon du cylindre de sortie	Kettenritzel der Auszugswalze
3	**Workpiece support and clamp guide**	**Support, maintien et guidage des pièces**	**Werkstückauflage, -halterung und -führung**
3.1	Thicknessing table	Table de rabotage	Dickenhobeltisch
3.2	Infeed surfacing table	Table d'entrée de dégauchissage	Abricht-Aufgabetisch
3.4	Outfeed surfacing table	Table de sortie de dégauchissage	Abricht-Abnahmetisch
3.5	Tilting fence	Guide inclinable	Schrägstellbarer Anschlag
3.6	Fence gauge plates	Plaques de guide	Anschlagplatten
3.7	Infeed pressure bar	Presseur d'entrée	Einzugsdruckbalken
3.8	Outfeed pressure bar	Presseur de sortie	Auszugsdruckbalken
3.9	Table extension support arm	Rallonge de table	Tischverlängerung
4	**Tool holders and tools**	**Porte-outils et outils**	**Werkzeugträger und Werkzeug**
4.1	Cutterblock	Broche porte-outil	Hobelmesserwelle
4.3	Blades	Lame	Streifenhobelmesser
5	**Workheads and tool drives**	**Unité de travail et son entraînement**	**Einbauteile und Teile für den Werkzeugantrieb**
5.1	Cutterblock bearing	Palier de roulement	Hobelmesserwellenlager
6	**Controls**	**Commandes**	**Stellteile**
6.1	Starting switch	Commutateur	Betätigungsschalter
6.2	Isolating switch	Interrupteur	Hauptschalter
6.3	Surfacing table vertical adjustment	Réglage vertical de la table de dégauchissage	Höhenverstellung des Abrichttisches
6.5	Thicknessing table rollers vertical adjustment	Réglage vertical des cylindres de la table de rabotage	Höhenverstellung der Dickentischwalzen
6.6	Fence fine adjustment	Réglage micrométrique du guide	Feineinstellung des Anschlags
6.7	Fence canting adjustment	Réglage d'inclination du guide	Einstellung der Anschlagneigung
6.8	Surfacing table drawback lock	Verrouillage de la table de dégauchissage	Blockierung des Abrichttisches
6.9	Fence traverse lock	Verrouillage du déplacement du guide	Blockierung der Anschlagverstellung
7	**Safety devices**	**Dispositifs de sécurité**	**Sicherheitseinrichtungen**
7.1	Cutterblock guard (bridge guard)	Protecteur du porte-outil	Messerwellenverdeckung vor dem Anschlag
7.2	Cutterblock rear guard	Protecteur arrière du porte-outil	Hintere Messerwellenverdeckung
7.3	Anti-kick-back fingers	Linguet antirecul	Rückschlagsicherung
7.5	Dust extraction outlet	Buse d'aspiration	Absaugstutzen
7.6	Access door to control gear	Porte d'accès aux organes mécaniques	Öffenbare Maschinenverkleidung
7.7	Scale for thicknessing	Règle micrométrique	Skala für Hobeldickeneinstellung
9	(clause free)	(chapitre libre)	(Kapitel frei)
10	**Examples of worK**	**Exemples de travail**	**Arbeitsbeispiele**
10.1	Thicknessing	Rabotage	Dickenhobeln
10.2	Planing	Dégauchissage	Abrichten

4 List of hazards

This standard deals with all the hazards relevant to the machines as defined in the scope.

- For significant hazards by defining safety requirements and/or measures or by reference to relevant type B standards.

- For hazards which are not significant e.g. general, minor or secondary hazards see relevant type A standards, especially EN 292-1:1991 and EN 292-2:1991.

These hazards are listed in table 2 in accordance with annex A of EN 292-2:1991/A1:1995.

Table 2 : List of hazards

HAZARD	Relevant clause of this standard
1 Mechanical hazards (caused for example by : - shape - relative location - mass and stability (potential energy of elements) - mass and velocity (kinetic energy of elements) - inadequacy of the mechanical strength - accumulation of Potential energy by : - elastic elements (springs), or - liquids or gases under pressure, or - vacuum of the machine parts or workpieces	
1.1 Crushing hazard	5.2.7
1.2 Shearing hazard	5.2.7
1.3 Cutting or severing hazard	5.2.7
1.4 Entanglement hazard	5.2.7
1.5 Drawing in or trapping hazard	5.2.7
1.6 Impact hazard	Not relevant
1.7 Stabbing or puncture hazard	Not relevant
1.8 Friction or abrasion hazard	Not relevant
1.9 High pressure fluid injection hazard	Not relevant
1.10 Ejection of parts (of machinery and processed materials/workpieces)	5.2.3, 5.2.5
1.11 Loss of stability of machinery and machine parts	5.2.1
1.12 Slip, trip and fall hazards in relationship with machinery (because of their mechanical nature)	Not relevant
2 Electrical hazards, caused for example by :	
2.1 Electrical contact (direct or indirect)	5.3.4
2.2 Electrostatic phenomena	Not relevant

(continued)

Table 2 (continued)

HAZARD	Relevant clause of this standard
2.3 Thermal radiation or other phenomena such as ejection of molten particles, and chemical effects from short circuits, overloads, etc.	Not relevant
2.4 External influences on electrical equipment	5.3.12
3 Thermal hazards resulting in :	
3.1 Burns and scalds, by a possible contact of persons, by flames or explosions and also by the radiation of heat sources	Not relevant
3.2 Health damaging effects by hot or cold work environment	Not relevant
4 Hazards generated by noise, resulting in :	
4.1 Hearing loss (deafness), other physiological disorders (e.g. loss of balance, loss or awareness)	5.3.2
4.2 Interference with speech communication, acoustic signals, etc.	Not relevant
5 Hazards generated by vibration (resulting in variety of neurological and vascular disorders)	Not relevant
6 Hazards generated by radiation, especially by :	
6.1 Electrical arcs	Not relevant
6.2 Lasers	Not relevant
6.3 Ionising radiation sources	Not relevant
6.4 Machines making use of high frequency electro magnetic fields	Not relevant
7 Hazards generated by materials and substances processed, used or exhausted by machinery for example :	
7.1 Hazards resulting from contact or inhalation of harmful fluids, gases, mists, fumes and dusts	5.3.3
7.2 Fire and explosion hazard	5.3.1
7.3 Biological and microbiological (viral and bacterial) hazards	Not relevant

(continued)