SLOVENSKI STANDARD
SIST EN 940:2000

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Safety of woodworking machines - Combined woodworking machines

Safety of woodworking machines - Combined woodworking machines

Sicherheit von Holzbearbeitungsmaschinen - Kombinierte Holzbearbeitungsmaschinen

Sécurité des machines pour le travail du bois - Machines combinées pour le travail du bois

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English version

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Sicherheit von Holzbearbeitungsmaschinen - Kombinierte Holzbearbeitungsmaschinen

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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 LIST

Foreword

This European Standard has been prepared by Technical Committee CEN/TC142 "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of an identical text or by endorsement, at the latest by November 1997, and conflicting national standards shall be withdrawn at the latest by November 1997.

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.

Organisations contributing to the preparation of this European standard include the European Association of Manufacturers of woodworking machines "EUMABOIS".

Normative and informative annexes to this Standard are listed in the contents.

The European Standards produced by CEN/TC142 are particular to woodworking machines and complement the relevant A and B Standards on the subject of general safety. (See the introduction of EN 292-1:1991 for a description of A, B and C Standards).

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 harmonised standard to provide one means of conforming with the essential Safety requirements of the Machinery Directive and associated EFTA Regulations and is a type C standard as defined in EN 292-1:1991.

The extent to which hazards are covered is indicated in the scope of this Standard, in addition, machinery shall comply as appropriate with EN 292 for hazards hazards which are not covered by this standard.

The requirements of this standard concern designers, manufacturers, suppliers and importers of combined woodworking machines.

This 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/or limit the risks on combined woodworking machines (a combination of two or more elements for surface planing, circular sawing, vertical spindle moulding, boring [mortising] and thickness planing) hereinafter referred to as machines, designed to cut solid wood, chipboard, fibreboard, plywood, and also these materials where they are covered with plastic laminates or edging or veneer.

Electrically driven machines excluded by clause (e) of the scope of this standard are covered by the requirements of prEN 60129-1: 1996, EN 61029-2-3: 1996 , prEN 61029-2-8: 1996 and EN 50144-1: 1995.

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

This European Standard does not apply to:

(a) combined machines which consist only of a surface planing element and a thickness planing element (see EN 861:1997)

(b) combined machines with a bandsaw element

(c) machines with any additional elements not specified in this standard

(d) hand held woodworking machines, or any adaptation permitting their use in a different mode, i.e. bench mounting

(e) 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 standard is primarily directed to machines which are manufactured after the date of issue of this standard.

2 Normative references

This European Standard incorporates by dated or undated references, 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 and methodology.
EN 292-2:1991	Safety of machinery – Basic concepts, general principles for design – Part 2: Technical principles and specifications.
EN 292-2:1991/A1:1995	Safety of machinery – Basic concepts, general principles for design – Part 2: Technical principles and specifications (Amendment 1).
EN 349:1993	Safety of machinery – Minimum gaps to avoid crushing of parts of the human body.
EN 418:1992	Safety of machinery – Emergency stop equipment, functional aspects – Principles for design.
EN 847-1:1997	Tools for woodworking – Safety requirements – Milling tools, Circular saw blades.
EN 848-1:1997	Safety of woodworking machines – One side moulding machines with rotating tool - Part 1: Single spindle vertical moulding machines
EN 859:1997	Safety of woodworking machines – Handfed surface planing machines
EN 860:1997	Safety of woodworking machines – One side thickness planing machines
EN 861:1997	Safety of woodworking machines – Surface planing and thicknessing machines
prEN 953:1993	Safety of machinery – General requirements for the design and construction of guards (fixed, movable)
EN 982:1996	Safety of machinery – Safety requirements for fluid power systems and components – Hydraulics.
EN 983:1996	Safety of machinery – Safety requirements for fluid power systems and components – Pneumatics.
EN 1088:1995	Safety of machinery - Interlocking devices with guards - Principles for design and selection
prEN 1870-1:1995	Safety of woodworking machines – Circular sawing machines – Part 1: Circular saw benches (with and without traveling table) and dimension saws
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 industrial machines – Part 1: General requirements.

prEN 60227-1 Polyvinyl chloride insulated cables of rated voltages up to and including 450/705V – Part 1: General requirements.

prEN 60245-1 Rubber insulated cables of rated voltages up to and including 450/750V – Part 1: General requirements.

EN 60439-1 prA 11:1995 Low voltage switch gear and control gear assemblies – Part 1: Type tested and partially type tested assemblies.

EN 60529:1991 Degrees of protection provided by enclosures (IP Code).

EN 60947-4-1:1992 Low voltage switchgear and control gear – Part 4: Contactors and motor starters – Section 1: Electromechanical contactors and motor starters.

EN 60947-5-1:1991 Low voltage switchgear and control gear – Part 5: Control circuit devices and switching elements – Section 1: Electromechanical control circuit devices.

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 2-3: Particular requirements planers and thicknessers

prEN 61029-2-8: 1996 Safety of transportable motor-operated electric tools - Part 2-8: Particular requirements vertical spindle moulding machines

ISO 7960:1995 Airborne noise emitted by machine tools – Operating conditions for woodworking machines.

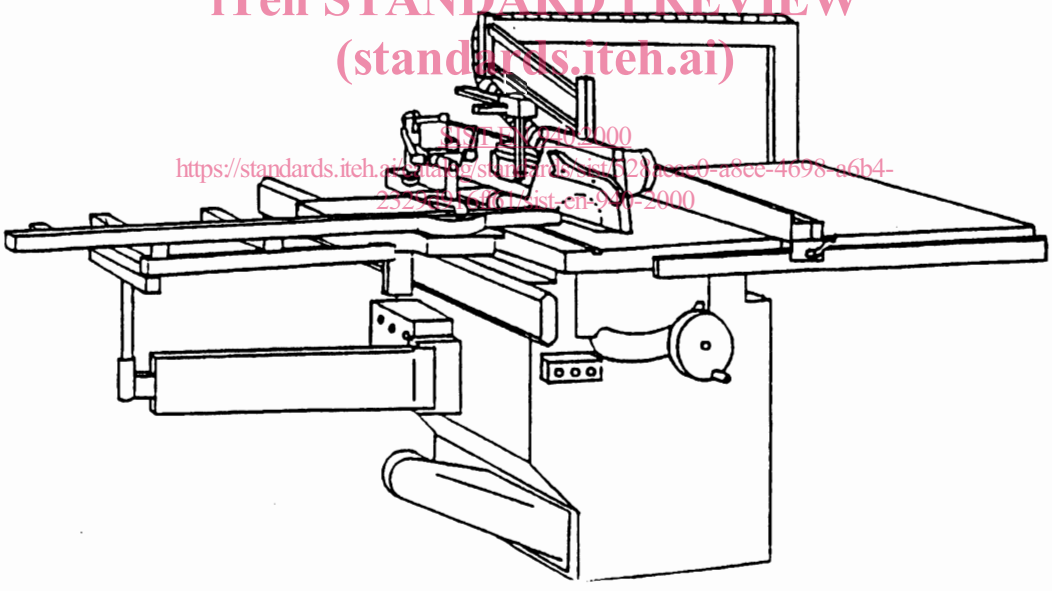
3 Definitions and terminology

3.1 Definitions

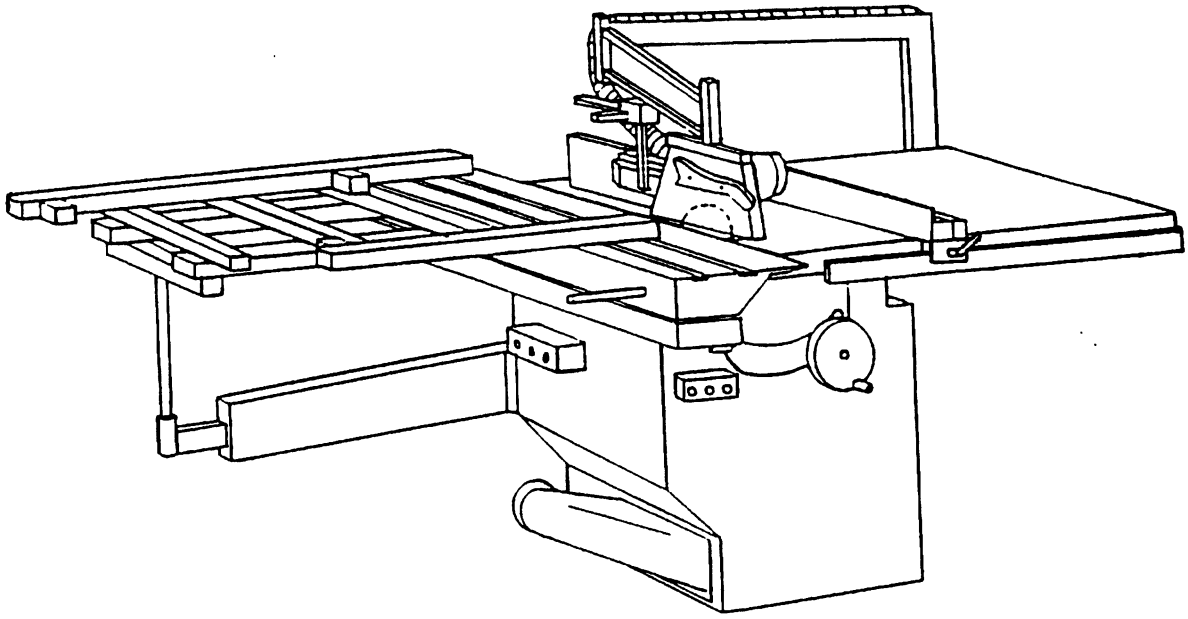
For the purposes of this standard 3.1 of EN 847-1:1997 and the following definitions apply:

3.1.1 Combined machine

A machine incorporating two or more elements such as planer, circular saw, spindle moulder, thicknesser, mortiser and is designed and constructed in such a way as to enable each element to be used separately, where the workpiece is primarily fed by hand and manually removed between each operation as illustrated in Figures 1a, 1b and 2a, 2b.

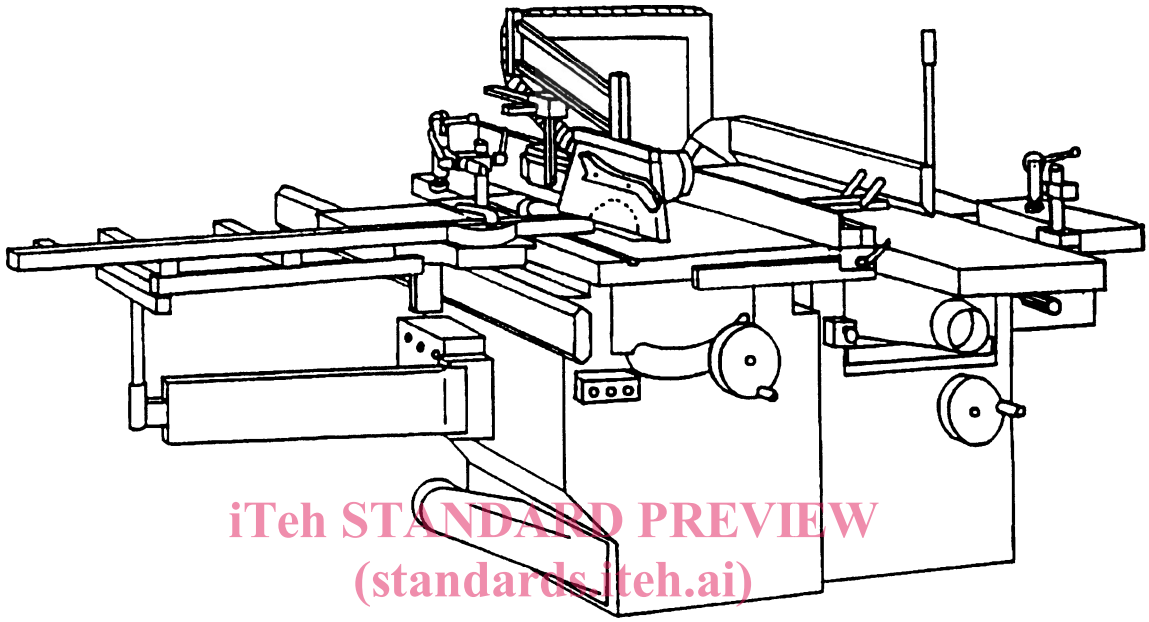


1 a) without panel saw table

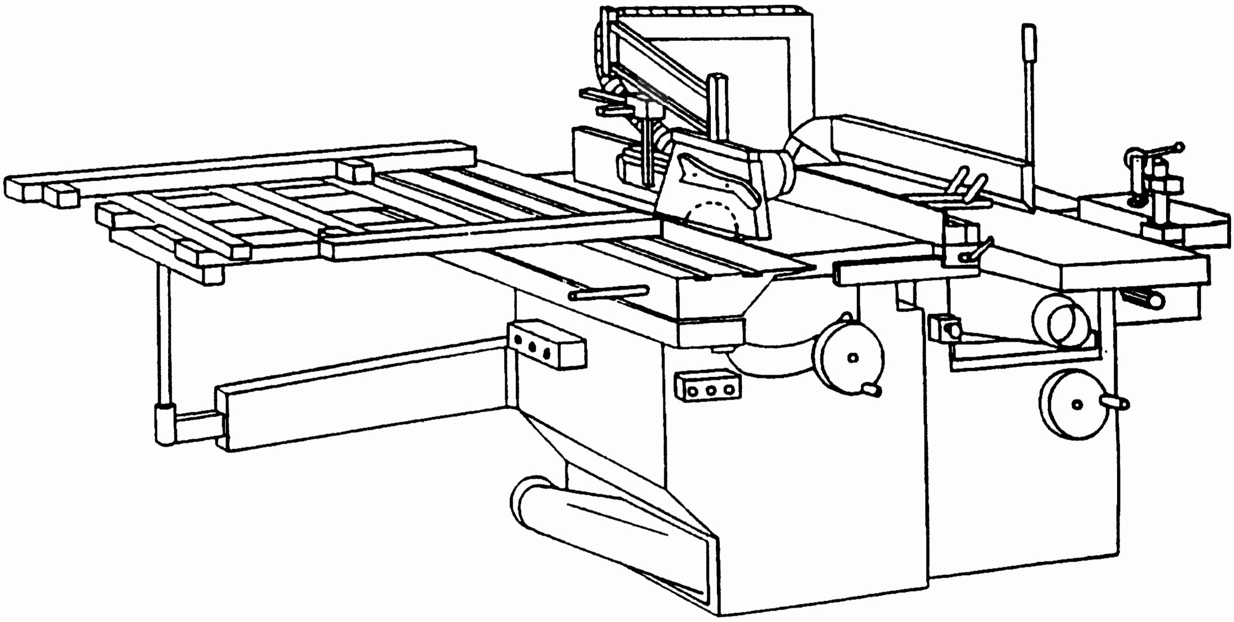


1 b) with panel saw table

Figure 1: Combined machine with saw and moulding element



2 a) without panel saw table



2 b) with panel saw table

Figure 2: Combined machine with surface planing, thicknessing, mortising, saw and moulding element

3.1.2 **Surfacing planing element**

That element of a combined machine as described in the definition of a surface planing machine shown in EN 859:1997.

3.1.3 **Thicknesser element**

That element of a combined machine as described in the definition for a thicknessing machine shown in EN 860:1997.

3.1.4 **Circular saw element**

That element of a combined machine as described in the definition for a circular sawing machine shown in prEN 1870-1:1995.

3.1.5 **Vertical spindle moulder element**

That element of a combined machine as described in the definition for a vertical spindle moulding machine shown in EN 848-1:1997.

3.1.6 **Mortising element (Drilling)**

That element of a combined machine which is used for slot boring (mortising) or boring by means of a single rotating tool. The tool holding device e.g. chuck, is either mounted on an extension of the cutter block or on a separately driven spindle.

3.1.7 **Surface planer/Thicknesser element**

That element of a combined machine as described in the definition for a surface planing and thicknessing machine shown in EN 861:1997.

3.1.8 **Machine actuator**

A power mechanism used to effect motion of the machine.

3.1.9 **Hand feed**

The manual holding and/or guiding of the workpiece or of a machine element incorporating a tool. Hand feed includes the use of a hand operated carriage on which the workpiece is placed manually or clamped (as illustrated in Figure 7) and the use of a demountable power feed unit.

3.1.10 **Demountable power feed unit**

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

3.1.11 **Stationary machine**

A 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.

3.1.12 **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.

3.1.13 **Safety appliance**

An additional device which is not an integral part of the machine but which assists the operator in the safe feeding of the workpiece.

3.1.14 **Ejection**

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

3.1.15 **Kickback**

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

3.1.16 **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.

3.1.17 **Run-down time**

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

3.1.18 **Cutting area of the tool**

The area where the tool can be involved in the cutting process.

3.1.19 **Non-cutting area of the tool**

The area where the tool is not involved in the cutting process.

3.1.20 **Integrated feed**

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

3.1.21 **Speed range**

The speeds within which the tool spindle or tool is designed to operate.

3.1.22 **Tenoning sawing mode**

Use of the sawing and vertical spindle moulder elements simultaneously and a sliding table with workpiece clamping arrangements to produce tenons.

3.2 Terminology

3.2.1 **General**

The elements of combined machines and their terminology are illustrated in 3.2 of EN 848-1:1997, EN

859:1997, EN 860:1997, EN 861:1997 and prEN 1870-1:1995.

3.2.2 **Mortising element**

The main parts of the mortising element and their terminology are illustrated in Figure 3.

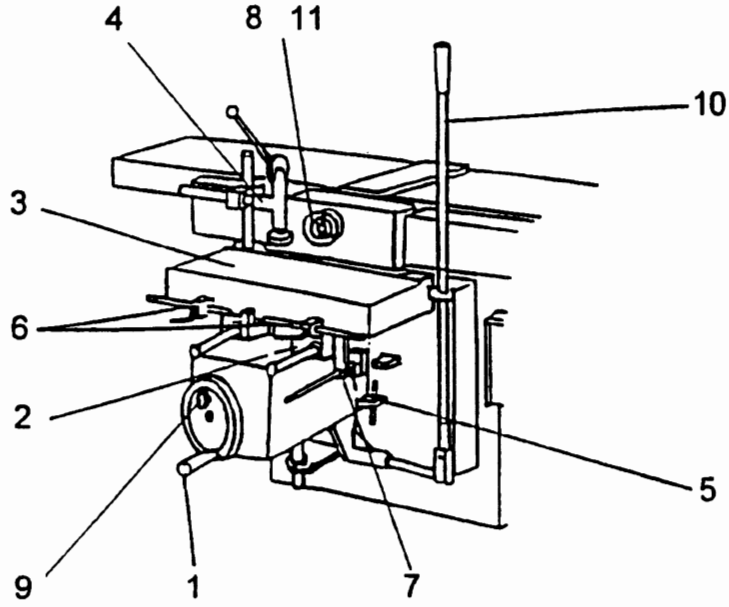


Figure 3: Mortising element

Table 1

Reference Number	English	French	German
1	Vertical adjustment	Réglage vertical	Höhenverstellung
2	Infeed slide	Chariot d'avance	Vorschub-Schlitten
3	Table	Table	Tisch
4	Workpiece clamp	Bridage de la pièce	Werkstück-Klemmung
5	Height stop	Butée supérieure	Höhenanschlag
6	Horizontal length stops	Butées de fin de course	Stirnanschlag
7	Horizontal depth stop	Butée de profondeur de mortaise	Horizontaler Tiefenanschlag
8	Chuck	Mandrin	Bohrfutter
9	Vertical adjustment lock	Commande de verrouillage du réglage vertical	Fixierung der Höheneinstellung
10	Table movement control lever	Levier de commande de mouvement de table	Bedienungshebel für Tischbewegung
11	Chuck guard	Protecteur de mandrin	Bohrfutterabdeckung