



**SLOVENSKI STANDARD**  
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Tools for woodworking - Safety requirements - Part 3: Clamping devices

Maschinen-Werkzeuge für Holzbearbeitung - Sicherheitstechnische Anforderungen -Teil  
3: Spannzeuge

Outils pour le travail du bois - Exigences de sécurité - Partie 3: Outils de serrage

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 847-3**

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## Tools for woodworking - Safety requirements - Part 3: Clamping devices

Outils pour le travail du bois - Exigences de sécurité -  
Partie 3: Outils de serrage

Maschinen-Werkzeuge für Holzbearbeitung -  
Sicherheitstechnische Anforderungen -Teil 3: Spannzeuge

This European Standard was approved by CEN on 2 February 2004.

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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 Central Secretariat has the same status as the official versions.

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## Foreword

This document (EN 847-3:2004) has been prepared by the Technical Committee CEN/TC 142 "Woodworking machines — Safety", the secretariat of which is held by BSI.

Organizations contributing to the preparation of this document include:

CEO-Comité Européen de l'Outillage (European Tools Committee).

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of an identical text or by endorsement, at the latest by February 2005, and conflicting national standards shall be withdrawn at the latest by February 2005.

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

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**EN 847-3:2004 (E)**

## **Introduction**

This document specifies general requirements for the safety of clamping devices for machine tools for woodworking.

It is addressed to manufacturers and it is useful for end users.

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## 1 Scope

This document applies to hazards arising from the design and application of clamping devices for the fastening of milling tools and circular saw blades on woodworking machines and specifies the methods for the elimination or reduction of these hazards by the design of the clamping device and by the provision of information. This document does not apply to arbors for spindle moulding machines in accordance with EN 848-1 as well as clamping flanges for circular sawing blades to be used on circular sawing machines in accordance with the standard series EN 1870 and does not cover hazard related to the connection of the clamping device with the machine. Bore mounted tools which are mounted or clamped on an adapter, an arbor or a mandrel shall be considered as a shank mounted tool.

NOTE Definition of woodworking machines see EN 847-1.

## 2 Normative references

The following referenced documents are indispensable for the application 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 847-1:1997, *Tools for woodworking — Safety requirements — Part 1: Milling tools and circular saw blades.*

EN 847-2:2001, *Tools for woodworking — Safety requirements — Part 2: Requirements for the shank of shank mounted milling tools.*

EN 848-1, *Safety of woodworking machines — One side moulding machines with rotating tool — Part 1: Single spindle vertical moulding machines.*

EN 1870-1, *Safety of woodworking machines — Circular sawing machines — Part 1: Circular saw benches (with and without sliding table) and dimension saws.*

EN 1870-2, *Safety of woodworking machines — Circular sawing machines — Part 2: Horizontal beam panel saws and vertical panel saws.*

EN 1870-3, *Safety of woodworking machines — Circular sawing machines — Part 3: Down cutting cross-cut saws and dual purpose down cutting cross-cut saws/circular saw benches.*

EN 1870-4, *Safety of woodworking machines — Circular sawing machines — Part 4: Multiblade rip sawing machines with manual loading and/or unloading.*

EN 1870-5, *Safety of woodworking machines — Circular sawing machines — Part 5: Circular saw-benches/upcutting cross-cut sawing machines.*

EN 1870-6, *Safety of woodworking machines — Circular 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.*

EN 1870-7, *Safety of woodworking machines — Circular sawing machines — Part 7: Single blade log sawing machines with integrated feed table and manual loading and/or unloading.*

EN 1870-8, *Safety of woodworking machines — Circular sawing machines — Part 8: Single blade edging circular rip saws with power driven saw unit and manual loading and/or unloading.*

EN 1870-9, *Safety of woodworking machines — Circular sawing machines — Part 9: Double blade circular sawing machines for cross-cutting with integrated feed and with manual loading and/or unloading.*

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ISO 1940-1, *Mechanical vibration — Balance quality requirements for rotors in a constant (rigid) state — Part 1: Specification and verification of balance tolerances.*

ISO 3002-1, *Basic quantities in cutting and grinding — Part 1: Geometry of the active part of cutting tools — General terms, reference systems, tool and working angles, chip breakers.*

ISO 10897, *Collets and tool holders with taper ratio 1:10 — Collets, holders, nuts.*

ISO 15488, *Collets with 8 degree setting angle for tool shanks — Collets, nuts and fitting dimensions.*

**3 Definitions**

For the purpose of this document the definitions given in EN 847-1:1997 and the following definitions apply

**3.1****shank mounted tool**

a tool with a shank

**3.2****bore mounted tool**

a tool with a bore for mounting

**3.3****shank**

the part of the tool by which it is held [ISO 3002-1]

**3.4****tool bore**

the part of the tool by which it can be positioned and fixed by a spindle, arbor or mandrel [ISO 3002-1]

**3.5****clamping device**

an element for fixing the tool on the driving spindle of the woodworking machine, for transferring the torque of the driving spindle and for positioning of the tool

**3.5.1****friction lock clamping device**

a clamping device where the connection between tool and clamping device as well as the positioning of the tool is achieved by friction lock fixing elements (e.g. by spring tensions, gripping elements, hydrostatic clamping elements)

**3.5.1.1****clamping device with mechanical clamping fixture**

a clamping device where gripping of the tool in the clamping device is performed mechanically, e.g. by spring tension, gripping elements

**3.5.1.2****clamping device with hydrostatic clamping fixture**

a clamping device where gripping of the tool in the clamping device is performed hydrostatically, e.g. by hydrostatic clamping elements

**3.5.1.2.1****hydrostatic clamping element**

an element which neutralises tolerances between the woodworking tool and the clamping device by elastic deformation. The deformation is generated by hydrostatic pressure



**3.5.1.2.2****open system clamping device**

a clamping device where the clamping medium (incompressible fluid, e.g. oil, grease) can escape when released and is supplied from the outside when clamped

**3.5.1.2.3****close system clamping device**

a clamping device where the clamping medium is permanently and pressure-tightly retained in the system

**3.5.2****form lock clamping device**

a clamping device where the connection between tool and clamping device is achieved by form lock fixing elements, e.g. bayonet type clamping, flatted cylindrical shanks

**3.6****maximum rotational speed**

the maximum rotational speed for the operation for which the clamping device is designed

**4 List of significant hazards****Table 1 — Significant hazards**

<b>Hazard</b>	<b>Condition or causes of the hazard related to the clamping device</b>	<b>Relevant clauses in the standard</b>
Projection of parts	Incorrect assembly of the clamping device	5.4
	Modification of tool position relative to the clamping device	A.1, A.2.1, A.2.2, A.2.3
	Dynamic unbalance of the clamping device while rotating	5.2.3.2, 5.2.3.3
	Loosening of the tool in/on the clamping device during machining	A.1, A.2.1, A.2.2, A.2.3
	Fastening of the clamping device on the driving spindle	A.1, A.2.1, A.2.2, A.2.3
Vibrations	Dynamic unbalance of the clamping device	5.2.3.2, 5.2.3.3

**5 Design requirements****5.1 General requirements for clamping devices****5.1.1 General**

Clamping devices shall be designed and made of such materials that they withstand the forces and loads to be expected during operation.

Verification: By test procedure described in 5.3.3.

**5.1.2 Hydrostatic clamping devices with open system**

Hydrostatic clamping devices with open system shall be safeguarded to retain the tool on the clamping device in the event of the loss of pressure.

Verification: By checking the relevant drawings and visual inspection of the clamping device.