# Tööpinkide ohutus. Puurpingid

Safety of machine tools - Drilling machines

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

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| Käesolev Eesti standard EVS-EN 12717:2001 sisaldab Euroopa standardi EN 12717:2001 ingliskeelset teksti.<br><br>Käesolev dokument on jõustatud 19.12.2001 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.<br><br>Standard on kättesaadav Eesti standardiorganisatsioonist. | This Estonian standard EVS-EN 12717:2001 consists of the English text of the European standard EN 12717:2001.<br><br>This document is endorsed on 19.12.2001 with the notification being published in the official publication of the Estonian national standardisation organisation.<br><br>The standard is available from Estonian standardisation organisation. |

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| **Käsitlusala:**<br>This standard specifies the technical safety requirements and measures to be adopted by persons undertaking the design, construction and supply (including installation and dismantling, with arrangements for transport and maintenance) of stationary drilling machines. | **Scope:**<br>This standard specifies the technical safety requirements and measures to be adopted by persons undertaking the design, construction and supply (including installation and dismantling, with arrangements for transport and maintenance) of stationary drilling machines. |

**ICS** 25.080.40

**Võtmesõnad:** definitions, delivery, design, drilling machines, drilling-and boring machines, installations, machine tools, safety, safety requirements

# EUROPEAN STANDARD
# NORME EUROPÉENNE
# EUROPÄISCHE NORM

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**English version**

Safety of machine tools
## Drilling machines

Sécurité des machines-outils – Perceuses

Sicherheit von Werkzeugmaschinen – Bohrmaschinen

This European Standard was approved by CEN on 2001-03-07.

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

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CEN

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

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## Foreword

This European Standard has been prepared by Technical Committee CEN/TC 143 "Machine tools - Safety", the secretariat of which is held by SNV.

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 October 2001, and conflicting national standards shall be withdrawn at the latest by October 2001.

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 EC Directive(s).

This standard has been prepared to provide one means of conforming with the essential requirements of the Machinery Directive and associated EFTA regulations.

Annexes A, B and ZA are informative. This European Standard also contains a Bibliography.

For relationship with EC Directive(s), see informative Annex ZA, which is an integral part of this standard.

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 is a type C standard as stated in EN 292–1.

When provisions of this type C standard are different from those which are stated in type A or B standards, the provisions of this type C standard take precedence.

Drilling machines present a wide range of hazards, not least from their wide application as rotating tool, 'stationary' workpiece machine tools, for general purpose cutting of cold metal work material.

Protection of operators and other persons from contact with moving cutting tools, especially when being rapidly rotated in the spindle or from contact with fast–moving workpieces, is of great importance.

When power–operated mechanisms are provided for workpiece transfer, they can also create hazardous situations during loading/unloading and workpiece alignment or clamping.

On automatic drilling machines, total enclosure of the work zone using guards during cutting is the preferred method of safeguarding. Where this is not practicable (e.g. due to size of the workpiece, its geometry, or its special characteristics), operators may be safeguarded by other means (e.g. perimeter fencing, protective devices at the operating position). Operators may also benefit from pendant controls, which enable them to move about the machine.

The significant hazards covered by this standard are those listed in clause 4. The safety requirements and/or protective measures to prevent or minimize those hazards identified in table 1 and procedures for verification of these requirements or measures are found in clause 5.

The figures in annex A are examples only and are not intended to illustrate the only interpretation of the text.

## 1 Scope

**1.1** This standard specifies the technical safety requirements and measures to be adopted by persons undertaking the design, construction and supply (including installation and dismantling, with arrangements for transport and maintenance) of stationary drilling machines (see 3.1).

This standard covers both manual and automatic drilling machines. These include but are not limited to:

- pedestal drilling machines (see figure A.1);
- radial arm drilling machines (see figure A.2);
- coordinate table drilling machines (see figure A.3);
- horizontal spindle drilling machines (see figure A.4);
- multi–spindle drilling machines (see figure A.5)
- turret type drilling machines with manual control of turret index.

**1.2** This standard takes account of intended use including reasonably foreseeable misuse, maintenance, cleaning, and setting operations. It presumes access to the machine from all directions. It describes means to reduce risks to operators and other exposed persons.

**1.3** This standard also applies to workpiece transfer devices when they form an integral part of the machine.

**1.4** This standard deals with significant hazards relevant to drilling machines when they are used as intended and under the conditions foreseen by the manufacturer (see clause 4).

**1.5** Hazards arising from other metal working processes (e.g. milling, grinding, turning, forming, EDM, laser processing) are covered by other standards (see Bibliography).

**1.6** Automatic drilling machines with automatic tool changing capabilities are not covered by this standard (see prEN 12417:1996).

**1.7** This standard is not applicable to drilling machines, which were manufactured before the date of publication by CEN 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 (including amendments).

EN 292-1: 1991 and EN 292-2/A1:1995 *Safety of machinery - Basic concepts, general principles for design - Part 1: Basic terminology, methodology*

EN 292-2: 1991 *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 the upper limbs*

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| EN 349 | *Safety of machinery – Minimum gaps to avoid crushing of parts of the human body* |
| EN 457 | *Safety of machinery - Auditory danger signals - General requirements, design and testing (ISO 7731:1986 modified)* |
| EN 574 | *Safety of machinery - Two hand control devices – Functional aspects – Principles for design* |
| EN 614 | *Safety of machinery - Ergonomic design principles –*<br>Part 1: *Terminology and general principles*<br>Part 2: *Interaction between machinery design and work tasks* |
| EN 626 | *Safety of machinery – Reduction of risks to health from hazardous substances emitted by machinery* |
| EN 894:1997 | *Safety of machinery –Ergonomics requirements and data for the design of displays and control actuators-*<br>Part 1: *Human interactions*<br>Part 2: *Displays* |
| EN 894:2000 | Part 3: *Control actuators* |
| EN 953:1997 | *Safety of machinery – Guards – General requirements for the design and construction of fixed and movable guards* |
| EN 954-1 | *Safety of machinery - Safety-related parts of control systems - Part l: General principles for design* |
| EN 982:1996 | *Safety of machinery - Safety requirements for fluid power systems and their components - Hydraulics* |
| EN 983:1996 | *Safety of machinery - Safety requirements for fluid power systems and their components - Pneumatics* |
| EN 999 | *Safety of machinery – The positioning of protective equipment in respect of approach speeds of parts of the human body* |
| prEN 1005:1998 | *Safety of machinery – Human physical performance –*<br>Part 1: *Terms and definitions*<br>Part 2: *Manual handling of heavy weights associated with machinery*<br>Part 3: *Recommended force limits for machinery operation* |
| EN 1037:1995 | *Safety of machinery – Prevention of unexpected start-up* |
| EN 1050:1996 | *Safety of machinery - Principles for risk assessment* |
| EN 1088:1995 | *Safety of machinery - Interlocking devices associated with guards – Principles for design and selection* |
| EN 1127–1:1997 | *Explosive atmospheres - Explosion prevention and protection – Part 1: Basic concepts and methodology* |
| EN 1760–1:1997 | *Safety of machinery - Pressure sensitive protective devices – Part 1: General principles for the design and testing of pressure sensitive mats and pressure sensitive floors* |
| EN 1837 | *Safety of machinery – Integral lighting of machines* |

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| EN ISO 3744:1995 | *Acoustics – Determination of sound power level of noise sources using sound pressure – Engineering method in an essentially free field over a reflecting plane* |
| EN ISO 3746:1995 | *Acoustics – Determination of sound power level of noise sources using sound pressure – Survey method using an enveloping measurement surface over a reflecting plane* |
| EN ISO 4871 | *Acoustics – Declaration and verification of noise emission values of machinery and equipment* |
| EN ISO 9614-1:1995 | *Acoustics – Determination of sound power level of noise sources using sound intensity – Part 1: Measurement at discrete points* |
| EN ISO 11202:1995 | *Acoustics – Noise emitted by machinery and equipment – Measurement method of emission sound power levels at the work station and at other specified positions – Survey method in situ* |
| EN ISO 11204:1995 | *Acoustics - Noise emitted by machinery and equipment – Method requiring environmental corrections* |
| EN ISO 14122 | *Permanent means of access to machines and industrial plants*<br>Part 2: *Working platforms and gangways*<br>Part 3: *Stairways, stepladders and guard-rails* |
| prEN 13478:1999 | *Safety of machinery - Fire prevention and protection* |
| EN ISO 11688-1 | *Acoustics – Recommended practice for the design of low–noise machinery and equipment - Part 1:Planning* |
| ISO/TR 11688-2:1998 | *Acoustics – Recommended practice for the design of low–noise machinery and equipment - Part 2: Introduction to the physics of low-noise design* |
| EN 60204-1:1997 | *Safety of machinery - Electrical equipment of machines - Part 1: General requirements* |
| EN 60529:1991 | *Degrees of protection provided by enclosures (IP Code)* |
| EN 61496-1:1997 | *Safety of machinery - Electrosensitive protective equipment - Part 1 - General requirements and tests* |
| IEC 61496-2 | *Safety of machinery – Electro-sensitive protective equipment – Part 2: Particular requirements for equipment using active opto-electronic protective devices (AOPDs)* |
| EN 50081-2 | *Electromagnetic compatibility - Generic emission standard – Part 2: Industrial environment* |
| EN 61000-6-2 | *Electromagnetic compatibility (EMC) – Part 6-2: Generic standards - Immunity for industrial environments (IEC 61000-6-2:1999)* |