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Tööpinkide ohutus. Hüdraulilised painutuspressid

Safety of machine tools - Hydraulic press brakes

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 12622:2010 sisaldab Euroopa standardi EN 12622:2009 ingliskeelset teksti.	This Estonian standard EVS-EN 12622:2010 consists of the English text of the European standard EN 12622:2009.
Standard on kinnitatud Eesti Standardikeskuse 31.01.2010 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 31.01.2010 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.
Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 18.11.2009.	Date of Availability of the European standard text 18.11.2009.
Standard on kättesaadav Eesti standardiorganisatsioonist.	The standard is available from Estonian standardisation organisation.

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ICS 25.120.10

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EUROPEAN STANDARD

NORME EUROPÉENNE

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English Version

Safety of machine tools - Hydraulic press brakes

Sécurité des machines-outils - Presses plieuses hydrauliques

Sicherheit von Werkzeugmaschinen - Hydraulische Gesenkbiegepressen

This European Standard was approved by CEN on 17 October 2009.

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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 CEN Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN 12622:2009) 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of an identical text or by endorsement, at the latest by May 2010, and conflicting national standards shall be withdrawn at the latest by May 2010.

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 12622:2001.

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.

This European Standard constitutes a revision of EN 12622:2001 for which it has been technically revised. The main modifications are listed below:

— complete reorder of Clause 5 "Safety requirements and/or measures";

— description of safety functions and its safety related part of control systems with categories assignated and /or performance levels required (see Tables 2 and/or 3);

— addition of subclause 5.2.7 on the use of programmable electronic components (PES);

— addition of subclause 5.3.3 concerning production mode;

— addition of new safety functions and new safety devices: a stop work-piece support movement (see 5.2.5.6), monitoring of slow speed (see 5.2.5.7), laser actuated AOPD (see 5.1.1.5), AOPDDR scanner systems (see 5.1.1.7.1) and ESPE using AOPD used in automatic cycle as a trip device (see 5.1.1.8).

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

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Introduction

This European Standard is a C type standard as defined in EN ISO 12100-1:2003.

The machinery concerned and the extent to which hazards, hazardous situations and events are covered are indicated in the scope of this standard. When provisions of this C type standard are different from those which are stated in A or B standards, the provision of this C type standard take precedence over the provisions of the other standards for machines that have been designed and built according to the provisions of this C type standard.

In addition, press brakes comply as appropriate with EN ISO 12100-1 and EN ISO 12100-2 for hazards which are not covered by this standard.

The requirements of this European Standard concern designers, manufacturers, suppliers and importers of machines described in the scope.

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

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1 Scope

This European Standard specifies technical safety requirements and protective measures to be adopted by persons undertaking the design, manufacture and supply of hydraulic press brakes which are designed to work cold metal or material partly of metal and hereafter referred to as machines.

This European Standard also covers hydraulic press brakes, whose primary intended use is the cold working of metal, which are to be used in the same way to work other sheet materials such as cardboard or plastic.

The requirements in this European Standard take account of intended use, including foreseeable misuse as defined in 3.22 of EN ISO 12100-1:2003. This European Standard presumes access to the press brake from all directions, deals with the hazards described in Clause 4, and specifies the safety measures for both the operator and other exposed persons.

This European Standard also applies to:

— ancillary devices which are an integral part of the press brake, e.g. back gauges and adjustable front sheet supports;

— machines which are integrated into an automatic production line where the hazards and risk arising are comparable to those of machine working separately.

The requirements of this European Standard apply to all hydraulic press brakes whatever the technology used in their control system, e.g. electromechanical and/ or electronic.

This European Standard does not apply to machines whose principal designed purpose is:

a) sheet folding by rotary action;

b) tube and pipe bending by rotary action;

c) roll bending.

This European Standard applies to machines built after the date of issue of this European Standard.

This European Standard does not cover the safety aspect of automatic loading and unloading equipment.

Some guidance how to take into account additional automatic loading and unloading equipment can be found in ISO 11161.

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 349, *Safety of machinery — Minimum gaps to avoid crushing of parts of the human body*

EN 574:1996, *Safety of machinery — Two-hand control devices — Functional aspects — Principles for design*

EN 614-1, *Safety of machinery — Ergonomic design principles — Part 1: Terminology and general principles*

EN 894-1, *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, *Safety of machinery — Ergonomics requirements for the design of displays and control actuators — Part 2: Displays*

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

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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 1: 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 999:1998, *Safety of machinery — The positioning of protective equipment in respect of approach speeds of parts of the human body*

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

EN 1005-2, *Safety of machinery — Human physical performance — Part 2: Manual handling of machinery and components parts of machinery*

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

EN 1005-4, *Safety of machinery — Human physical performance — Part 4: Evaluation of working postures and movements in relation to machinery*

EN 1037:1995, *Safety of machinery — Prevention of unexpected start-up*

EN 1088:1995, *Safety of machinery — Interlocking devices associated with guards — Principles for design and selection*

EN 1837, *Safety of machinery — Integral lighting of machines*

EN 50370-1, *Electromagnetic compatibility (EMC) — Product family standard for machine tools — Part 1: Emission*

EN 50370-2, *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 60529:1991, *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 60947-5-1:2004, *Low-voltage switchgear and controlgear — Part 5-1: Control circuit devices and switching elements — Electromechanical control circuit devices (IEC 60947-5-1:2003)*

EN 60947-5-3, *Low-voltage switchgear and controlgear — Part 5-3: Control circuit devices and switching elements — Requirements for proximity devices with defined behaviour under fault conditions (PDF) (IEC 60947-5-3:1999)*

EN 61310-2, *Safety of machinery — Indication, marking and actuation — Part 2: Requirements for marking (IEC 61310-2:2007)*

EN 61496-1:2004, *Safety of machinery — Electro-sensitive protective equipment — Part 1: General requirements and tests (IEC 61496-1:2004, modified)*

EN 62061:2005, *Safety of machinery — Functional safety of safety-related electrical, electronic and programmable electronic control systems (IEC 62061:2005)*

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)*

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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 4871:1996, *Acoustics — Declaration and verification of noise emission values of machinery and equipment (ISO 4871:1996)*

EN ISO 9614 (all parts), *Acoustics — Determination of sound power levels of noise sources using sound intensity (ISO 9614)*

EN ISO 11202:1995, *Acoustics — Noise emitted by machinery and equipment — Measurement of emission sound pressure levels at a work station and at other specified positions — Survey method in situ (ISO 11202:1995)*

EN ISO 11688-1:1998, *Acoustics — Recommended practice for the design of low-noise machinery and equipment — Part 1: Planning ((ISO/TR 11688-1:1995)*

EN ISO 11688-2, *Acoustics — Recommended practice for the design of low-noise machinery and equipment — Part 2: Introduction to the physics of low-noise design (ISO/TR 11688-2:1998)*

EN ISO 12100-1:2003, *Safety of machinery — Basic concepts, general principles for design — Part 1: Basic terminology, methodology (ISO 12100-1:2003)*

EN ISO 12100-2:2003, *Safety of machinery — Basic concepts, general principles for design — Part 2: Technical principles (ISO 12100-2:2003)*

EN ISO 13732-1, *Ergonomics of the thermal environment — Methods for the assessment of human responses to contact with surfaces — Part 1: Hot surfaces (ISO 13732-1:2006)*

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 13849-2, *Safety of machinery — Safety-related parts of control systems — Part 2: Validation ((ISO 13849-2:2003)*

EN ISO 13850, *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 the upper and lower limbs (ISO 13857:2008)*

EN ISO 14121-1, *Safety of machinery — Risk assessment — Part 1: Principles (ISO 14121-1:2007)*

EN ISO 14122-1, *Safety of machinery — Permanent means of access to machinery — Part 1: Choice of fixed means of access between two levels (ISO 14122-1:2001)*

EN ISO 14122-2, *Safety of machinery — Permanent means of access to machinery — Part 2: Working platforms and walkways (ISO 14122-2:2001)*

EN ISO 14122-3, *Safety of machinery — Permanent means of access to machinery — Part 3: Stairs, stepladders and guard-rails (ISO 14122-3:2001)*

EN ISO 14122-4, *Safety of machinery — Permanent means of access to machinery — Part 4: Fixed ladders (ISO 14122-4:2004)*

EN ISO 14738, *Safety of machinery — Anthropometric requirements for the design of workstations at machinery (ISO 14738:2002*)

CLC/TS 61496-2:2006, *Safety of machinery — Electro-sensitive protective equipment — Part 2: Particular requirements for equipment using active opto-electronic protective devices (AOPDs) (IEC 61496-2:2006)*

CLC/TS 61496-3, *Safety of machinery — Electro-sensitive protective equipment — Part 3: Particular requirements for Active Opto-electronic Protective Devices responsive to Diffuse Reflection (AOPDDR)*

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