SLOVENSKI STANDARD
oSIST prEN ISO 16092-1:2014

01-december-2014

Varnost obdelovalnih strojev - Stiskalnice - 1. del: Splošne varnostne zahteve (ISO/DIS 16092-1:2014)

Machine tools safety - Presses - Part 1: General safety requirements (ISO/DIS 16092-1:2014)

Werkzeugmaschinien Sicherheit - Pressen - Teil 1: Allgemeine Sicherheitsanforderungen (ISO/DIS 16092-1:2014)

Sécurité des machines-outils - Presses - Partie 1: Exigences générales de sécurité (ISO/DIS 16092-1:2014)

Ta slovenski standard je istoveten z: **prEN ISO 16092-1**

ICS:

25.120.10	Kovaški stroji. Stiskalnice. Škarje	Forging equipment. Presses. Shears

oSIST prEN ISO 16092-1:2014 **en,de**

DRAFT INTERNATIONAL STANDARD

ISO/DIS 16092-1

ISO/TC **39**/SC **10** Secretariat: **SNV**

Voting begins on: **2014-09-11**

Voting terminates on: **2015-02-11**

Machine tools safety — Presses —

Part 1: General safety requirements

Sécurité des machines outils — Presses —

Partie 1: Exigences générales de sécurité

ICS: 25.080.01

ISO/CEN PARALLEL PROCESSING

This draft has been developed within the International Organization for Standardization (ISO), and processed under the **ISO lead** mode of collaboration as defined in the Vienna Agreement.

This draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel five month enquiry.

Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month approval vote in ISO and formal vote in CEN.

To expedite distribution, this document is circulated as received from the committee secretariat. ISO Central Secretariat work of editing and text composition will be undertaken at publication stage.

Reference number
ISO/DIS 16092-1:2014(E)

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 16092-1 was prepared by Technical Committee ISO/TC 39, *Machine tools safety*, Subcommittee SC 10, *Safety*.

ISO 16092 consists of the following parts, under the general title *Machine tools safety — Presses*:

— *Part 1: General safety requirements*

— *Part 2: Safety requirements for mechanical presses*

— *Part 3: Safety requirements for hydraulic presses*

— *Part 4: Safety requirements for pneumatic presses*

— *Part 5: Safety requirements for mechanical servopresses*

Introduction

This International Standard is a type C standard as stated in ISO 12100.

The machinery concerned and the extent to which hazards, hazardous situations and events are covered are indicated in the scope of this International Standard.

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 over the provisions of the other standards, for machines that have been designed and built according to the provisions of this type C standard.

The present part 1 of ISO 16092 is applied with at least one of the other specific parts (part 2 to part 5).

Machine tools safety — Presses — Part 1: General safety requirements

1 Scope

1.1 This International standard specifies technical safety requirements and measures to be adopted by persons undertaking the design, manufacture and supply of presses which are intended to work cold metal or material partly of cold metal.

NOTE The design of a machine includes the study of the machine itself, taking into account all phases of the "life" of the machine mentioned in ISO 12100:2010, 5.4, and the drafting of the instructions related to all the above phases.

The requirements in this International standard take account of intended use, as defined in 3.23 of ISO 12100:2010. This standard presumes access to the press from all directions, deals with the hazards during the various phases of the life of the machine described in Clause 4, and specifies the safety measures for both the operator and other exposed persons.

This International Standard also applies to ancillary devices which are supplied as an integral part of the press. This International standard also applies to machines which are part of an integrated manufacturing system where the hazards and risk arising are comparable to those of machines working separately.

The covered presses transmit force mechanically to cut, form, or work cold metal or other sheet materials by means of tools or dies attached to or operated by slides/ram in range in size from small high speed machines with a single operator producing small work-pieces to large relatively slow speed machines with several operators and large work-pieces.

This standard covers presses whose primary intended use is to work cold metal, but which may be used in the same way to work other sheet materials (e.g. cardboard, plastic, rubber, leather, etc.)

This part of ISO 16092 does not cover machines whose principal designed purpose is:

a) metal cutting by guillotine;

b) attaching a fastener, e.g. riveting, stapling or stitching;

c) bending or folding by press brakes or folding machines;

d) straightening;

e) turret punch pressing;

f) extruding;

g) drop forging or drop stamping;

h) compaction of metal powder;

i) single purpose punching machines designed exclusively for profiles, e.g. used in the construction industry;

j) spot welding;

k) tube bending;

l) working by pneumatic hammer;

This International standard does not cover hazards related to the use of presses in explosive atmospheres.

This International standard covers the safety requirements related to the use of programmable electronic systems (PES) and programmable pneumatic systems (PPS).

This International standard is not applicable to presses which are manufactured before the date of its publication.

NOTE For the safeguarding of integrated manufacturing systems using presses, see also ISO 11161.

1.2 This International standard deals with the common significant hazards, hazardous situations and events relevant to presses and ancillary devices which are intended to work cold metal or material partly of cold metal when they are used as intended and under the conditions foreseen by the manufacturer (see Clause 4). This part of ISO 16092 defines the common safety requirements for presses defined in 1.1 and should be used in connection with other parts of the ISO 16092.

Specific hazards which are related to the type presses used are dealt with in ISO 16092, parts 2, 3 , 4 and 5.

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.

ISO 230-5:2003, Test code for *machine tools — Part 5: Determination of the noise emission*

ISO 4413:2010, *Hydraulic fluid power — General rules and safety requirements relating to systems and their components*

ISO 4414:2010, *Pneumatic fluid power — General rules and safety requirements relating to systems and their components*

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

ISO 9355-1:1999, *Ergonomic requirements for the design of displays and control actuators — Part 1: Human interactions with displays and control actuators.*

ISO 9355-2:1999, *Ergonomic requirements for the design of displays and control actuators — Part 2: Displays*

ISO 9355-3:2006, *Ergonomic requirements for the design of displays and control actuators — Part 3: Control actuators*

ISO 11202:2010, *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 11228-1: *Ergonomics — Manual handling Part 1: Lifting and carrying*

ISO 12100:2010, *Safety of machinery — General principles for design — Risk assessment and risk reduction*

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

ISO 13849-1:2009, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design*

ISO 13849-2:2012, *Safety of machinery — Safety-related parts of control systems — Part 2: Validation*

ISO 13850:2007, *Safety of machinery — Emergency stop — Principles for design*

ISO 13851:2002, *Safety of machinery — Two-hand control devices — Functional aspects and design principles*

ISO 13854:1996, *Safety of machinery — Minimum gaps to avoid crushing of parts of the human body*

ISO 13855:2012, *Safety of machinery — Positioning of safeguards with respect to the approach speeds of parts of the human body*

ISO 13857:2008, *Safety of machinery — danger zones to prevent hazard zones being reached by upper and lower limbs*

ISO 14118:2000, *Safety of machinery — Prevention of unexpected start-up*

ISO 14119:2013 *Safety of machinery — Interlocking devices associated with guards — Principles for design and selection*

ISO 14120:2002[1], *Safety of machinery — Guards — General requirements for the design and construction of fixed and movable guards*

ISO 14122-1:2001, *Safety of machinery — Permanent means of access to machinery — Part 1: Choice of fixed means of access between two levels and ISO 14122-1/A1:2010*

ISO 14122-2:2001, *Safety of machinery — Permanent means of access to machinery Part 2: Working platforms and walkways and ISO 14122-2/A1:2010*

ISO 14122-3:2001, *Safety of machinery — Permanent means of access to machinery — Part 3: Stairs, stepladders and guard-rails and ISO 14122-3/A1:2010*

ISO 14122-4:2004, *Safety of machinery — Permanent means of access to machinery — Part 4: Fixed ladders and ISO 14122-4/A1:2010*

ISO 15534-1:2000, *Ergonomic design for the safety of machinery — Part 1: Principles for determining the dimensions required for openings for whole-body access into machinery*

ISO 15534-2:2000, *Ergonomic design for the safety of machinery — Part 2: Principles for determining the dimensions required for access openings*

IEC 60204-1:2009, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements*

IEC 60529:2001, *Degrees of protection provided by enclosures (IP Code)*

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

IEC 61496-1:2012, *Safety of machinery — Electro-sensitive protective equipment — Part 1: General requirements and test*

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1 *Under revision*

IEC 61496-2:2013, *Safety of machinery —Electro-sensitive protective equipment — Part 2: Particular requirements for equipment using active opto-electronic protective devices (AOPDs)*

IEC 61496-3:2008, *Safety of machinery — Electro-sensitive protective equipment — Part 3: Particular requirements for Active Opto-electronic Protective Devices responsive to Diffuse Reflection (AOPDDR)*

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

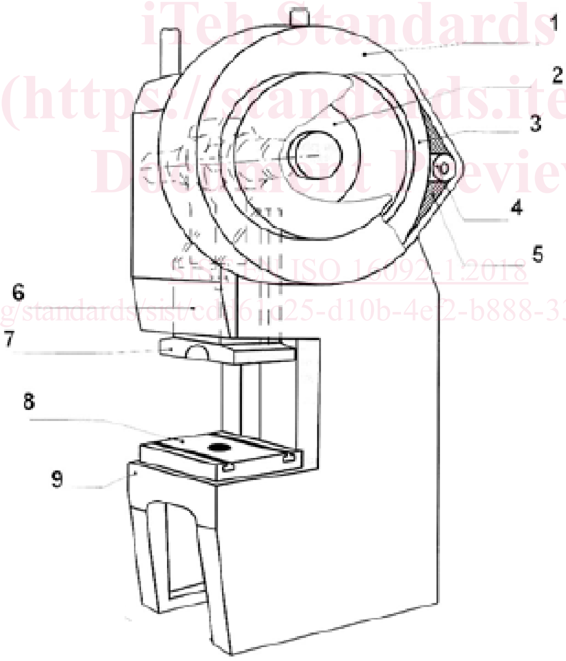
3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 12100 and in ISO 13849 and the following apply.

3.1 Groups of presses defined in the different parts of ISO 16092

3.1.1
press
machine designed or intended to transmit energy to a tool for the purpose of the working (e.g. forming or shaping) of cold metal or material partly of cold metal between the tools

3.1.2
mechanical press
press designed or intended to transmit energy from a prime mover to a tool by mechanical means using a clutch mechanism which transmits torque to impart motion of the flywheel to the slide

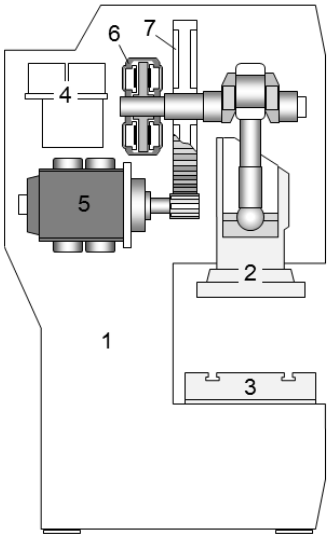


Key

1 flywheel guard
2 friction clutch, part revolution clutch
3 flywheel
4 motor pulley
5 belt
6 slide
7 slide flange, tool holder
8 bolster/bed-plate
9 bed

Figure 1 — Example of a friction clutch (part revolution clutch) press (tools area safeguards not shown)

3.1.3
mechanical servo press
press designed or intended to transmit energy to a tool by mechanical means using a servo drive mechanism without clutch mechanism to generate torque to impart motion to the slide

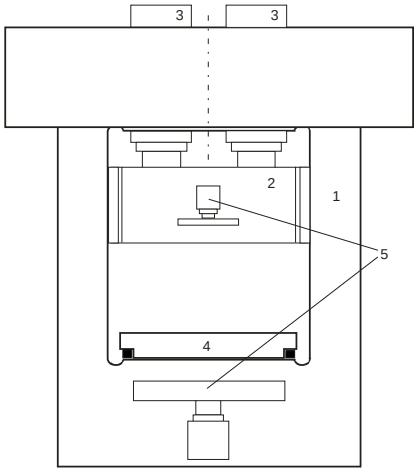


Key
1 Frame
2 Slide/Ram
3 Bolster
4 Servo drive (controller)
5 Servo motor
6 Mechanical brake
7 Gear

Figure 2 — Example of a mechanical servo press

3.1.4
hydraulic press
press designed or intended to transmit energy by linear movement between closing tools by hydraulic means.

Note 1 to entry: Such energy is produced by the effects of hydrostatic pressure (see Figure 3).



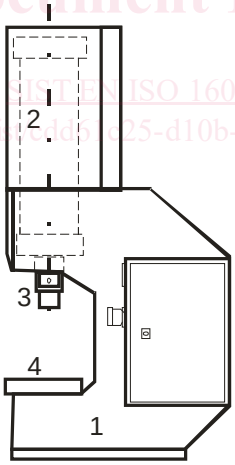
Key

1 Frame
2 Slide/Ram
3 Main cylinder
5 Die cushion
4 (Moving) bolster

Figure 3 — Example of a down-stroking hydraulic press

3.1.5
pneumatic press
stationary press designed or intended to transmit energy by linear movement between closing tools by pneumatic means.

Note 1 to entry: Such energy is produced by the effects of aerostatic pressure (see Figure 4).



Key

1 Frame
2 Main cylinder

Figure 4 — Example of a down-stroking pneumatic press