



SLOVENSKI STANDARD
SIST EN 14673:2007/kFprA1:2009

01-oktober-2009

JUfbcghgfc`Yj`!`JUfbcgfbY`nU` hYj` Y`nU` \]XfUj` `]` bc` [bUbY`ghg` Ub]W`dfcgrc`
_cj` Ub]` \]n`_cj` _cj` `nU`_cj` Ub`Y`Y`_U]b`bYj`Y`nb]` \ _cj`]b`

Safety of machinery - Safety requirements for hydraulically powered open die hot forging presses for the forging of steel and non-ferrous metals

Sicherheit von Maschinen - Sicherheitsanforderungen an hydraulisch angetriebene Warm-Freiformschmiedepressen zum Schmieden von Stahl und NE-Metallen

Sécurité des machines - Exigences de sécurité pour les presses à commande hydraulique de forgeage libre pour le formage à chaud de l'acier et des métaux non ferreux

Ta slovenski standard je istoveten z: EN 14673:2006/FprA1

ICS:

13.110	Varnost strojev	Safety of machinery
25.120.10	Kovaški stroji. Stiskalnice. Škarje	Forging equipment. Presses. Shears

SIST EN 14673:2007/kFprA1:2009 **en,de**

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

FINAL DRAFT
EN 14673:2006

FprA1

August 2009

ICS 25.120.10

English Version

**Safety of machinery - Safety requirements for hydraulically
powered open die hot forging presses for the forging of steel
and non-ferrous metals**

Sécurité des machines - Exigences de sécurité pour les
presses à commande hydraulique de forgeage libre pour le
forgeage à chaud de l'acier et des métaux non ferreux

Sicherheit von Maschinen - Sicherheitsanforderungen an
hydraulisch angetriebene Warm-Freiformschmiedepressen
zum Schmieden von Stahl und NE-Metallen

This draft amendment is submitted to CEN members for unique acceptance procedure. It has been drawn up by the Technical Committee CEN/TC 322.

This draft amendment A1, if approved, will modify the European Standard EN 14673:2006. If this draft becomes an amendment, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant national standard without any alteration.

This draft amendment was established by CEN 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.

CEN members are the national standards bodies of 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 United Kingdom.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.



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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword.....	3
1 Modification to the "Foreword"	4
2 Modification to Clause "2 Normative references"	4
3 Modification to "5.1.4 Safety layout"	5
4 Modification to "5.1.6 Railings"	6
5 Modification to "5.1.9 Warning devices and safety signs"	6
6 Modification to "5.1.11 Electrical equipment"	6
7 Modification to "5.1.13 Guards"	7
8 Modification to "5.1.14 Surface temperatures"	7
9 Modifications to "5.1.16 Hydraulic and pneumatic systems" and 5.1.17 Ergonomics"	7
10 Addition of "5.1.18 Vibrations", "5.1.19 Loss of energy" and "5.1.20 Linked equipment"	8
11 Modification to Table 1, "5.2.1.1 Mechanical hazards"	9
12 Modifications to Table 1, "5.2.1.2 Noise (see 5.4, Clause 6 and Annex C)"	10
13 Modification to Table 1, "5.2.1.5 [<i>new numbering</i>] Hazards due to materials and substances"	10
14 Modification to Table 1, "5.2.1.6 [<i>new numbering</i>] Ergonomic hazards"	10
15 Modification to Table 1, "5.2.1.9 [<i>new numbering</i>] Thermal hazards"	11
16 Modification to "7.1 General"	11
17 Modifications to "7.4 Marking"	11
18 Modifications to "7.5.3 Instructions about transportation and installation"	11
19 Modifications to Annex B.....	12
20 Modifications to Annex C.....	12
21 Addition of Annex ZB	13
22 Modification to the Bibliography.....	13

Foreword

This document (EN 14673:2006/FprA1:2009) has been prepared by Technical Committee CEN/TC 322 "Equipment for making and shaping of metals - Safety requirements", the secretariat of which is held by DIN.

This document is currently submitted to the Unique Acceptance Procedure.

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 Annexes ZA and ZB, which are integral parts of this document.

The new safety requirements as stated in this document comply with the additional relevant Essential Requirements of the new Machinery Directive 2006/42/EC complementing the existing Machinery Directive 98/37/EC.

EN 14673:2006/FprA1:2009 (E)**1 Modification to the "Foreword"**

Replace the 4th paragraph with:

"For relationship with EU Directive(s), see informative Annexes ZA and ZB, which are integral parts of this document."

2 Modification to Clause "2 Normative references"

Delete the following references:

"EN 294, *Safety of machinery — Safety distance to prevent danger zones being reached by the upper limbs*",

"EN 811, *Safety of machinery — Safety distances to prevent danger zones being reached by the lower limbs*".

and add the following reference:

"EN ISO 13857, *Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs (ISO 13857:2008)*".

Delete

"EN 418:1992, *Safety of machinery — Minimum gaps to avoid crushing of parts of the human body*"

and add the following reference:

"EN ISO 13850:2006, *Safety of machinery — Emergency stop — Principles for design (ISO 13850:2006)*".

Delete "EN 954-1¹, Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design"

and add the following reference:

"EN ISO 13849-1:2008, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design (ISO 13849-1:2008)*".

and delete footnote to text 1 "¹ Will be replaced by prEN ISO 13849-1." (not visible because it was a electronically linked footnote to text).

Delete "EN 1050, Safety of machinery — Principles for risk assessment"

and add the following reference:

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

Replace "EN 60825-1, Safety of laser products — Part 1: Equipment classification, requirements and user's guide (IEC 60825-1:1993)" with:

"EN 60825-1:2007, *Safety of laser products — Part 1: Equipment classification and requirements (IEC 60825-1:2007)*".

Whole document:

Replace "EN 294" with "EN ISO 13857" and "EN 294, EN 811" with "EN ISO 13857".

Replace "EN 418" with "EN ISO 13850" and "EN 418:1992" with "EN ISO 13850:2006".

Replace "EN 954-1" with "EN ISO 13849-1".

Replace "EN 1050" with "EN ISO 14121-1".

Replace "EN 60825-1:1994" with "EN 60825-1:2007".

Add the following new standards:

"EN 614-2, Safety of machinery — Ergonomic design principles — Part 2: Interactions between the design of machinery and work tasks",

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

"EN 12198-3, Safety of machinery — Assessment and reduction of risks arising from radiation emitted by machinery — Part 3: Reduction of radiation by attenuation or screening",

"EN 13861, Safety of machinery — Guidance for the application of ergonomics standards in the design of machinery

EN 14253, Mechanical vibration — Measurement and calculation of occupational exposure to whole-body vibration with reference to health — Practical guidance

EN 50171, Central power supply systems",

"EN 60073:2002, Basic and safety principles for man-machine interface, marking and identification — Coding principles for indicators and actuators (IEC 60073:2002)",

"EN 60447, Basic and safety principles for man-machine interface — Marking and identification — Actuating principles",

"EN ISO 11203, Acoustics — Noise emitted by machinery and equipment — Determination of emission sound pressure levels at a work station and at other specified positions from the sound power level (ISO 11203:1995)".

3 Modification to "5.1.4 Safety layout"

Replace 5.1.4 with

"The manufacturer shall prepare a safety layout document of the hydraulically powered open die hot forging press. The aim of the safety layout is to give information (normally by means of one or more drawings) about the physical position of safety related elements like, e.g.:

- a) isolators according to EN 60204-1;*
- b) emergency stop buttons, according to the requirements of EN ISO 13850;*
- c) escape routes (if necessary, e.g. for large plants);*
- d) other safety-related safety marking, according to the requirements of EN ISO 7731 and EN 842;*

EN 14673:2006/FprA1:2009 (E)

- e) segregating devices (guards, fences, trip devices etc.) intended to prevent access to danger areas of the plant according to the requirements of EN ISO 13857, EN 953 and EN ISO 14122-2;
- f) doors and other points of access to the plant (where required with related locking and/or interlocking devices);
- g) warning devices and safety signs (warning signs for, e.g. forbidden access, X-rays);
- h) fire precautions.

The safety layout shall be included into the manufacturer's instructions for use."

4 Modification to "5.1.6 Railings"

Replace the text of the headline of 5.1.6 with:

"Guard-rails".

Replace the text of 5.1.6 with:

"Guard-rails shall conform to EN ISO 14122-3.

Guard-rails are to be considered as means to deter or impede access to hazardous areas, i.e. a physical obstacle which only reduces the probability of access (but not totally prevents it), offering an obstruction to free access (see 3.27 of EN ISO 12100-1:2003). Guard-rails can be used as a measure to prevent unintentional access of unauthorised persons to zones where residual risks exist.

Therefore, guard-rails are not permitted as the sole measure of safeguarding hazardous areas in case of significant risks (e.g. from moving machinery or processed material). Guard-rails shall be used for cases where the hazards of slips, trips and falls are involved.

The evaluation of the degree of risk associated to a specific hazardous situation shall be performed during individual risk assessment by the manufacturer in compliance with Clause 8 of EN ISO 14121-1:2007. However, guard-rails, are not to be considered as sufficient measures of safeguarding to address hazardous situations included in Table 1, where only significant hazards are dealt with.

In addition, the manufacturer shall give information in the instructions for use (see Clause 7) about the foreseen restrictions for access to the areas surrounded by the guard-rails and about the nature of the existing residual risks."

5 Modification to "5.1.9 Warning devices and safety signs"

Add after the 5th paragraph the following new one:

"Warning signs about non-ionising radiation for persons with implanted medical devices shall be fixed where applicable."

6 Modification to "5.1.11 Electrical equipment"

Replace the existing paragraph with:

"Electrical equipment shall conform to EN 60204-1 and withstand the hazards identified in the risk assessment required at the design stage and taking into account the requirement set out in Annex B.

Safety devices shall be protected against damages. In particular they shall be robust to withstand damages while continuous operation in the respective area."

7 Modification to "5.1.13 Guards"

Replace the text of the sub-clause with:

"Guards shall be provided to prevent access to a danger zone. They shall be selected as appropriate for the degree and frequency of access to be permitted, e.g. an enclosing guard or distance guard, fixed or movable with interlock. This selection shall be made according to EN 953. Interlock systems shall meet the requirements of EN 1088.

The requirements for guards shall conform to Clause 5 of EN 953:1997, EN ISO 13857 and EN 349.

At zones, where risks due to potentially dangerous movements of equipment exist, operation of manual modes shall be made by means of hold-to-run devices from control stands with full overview of the driving elements."

8 Modification to "5.1.14 Surface temperatures"

Replace the text of the headline of 5.1.14 with:

"Surface temperatures and heat radiation".

Replace the existing paragraph with:

"Surfaces which are accessible and could be touched shall have temperatures not exceeding the burn threshold for contact time and material specified in EN ISO 13732-1. Where these limits can not be kept, additional technical measures shall be applied, e.g. isolation, distance guard. These measures shall be supplemented by warning instructions and wearing of PPE, if necessary.

Where the risk of heat radiation at permanent workplaces is given, protection walls/shields with isolating material shall be provided. EN 12198-3 shall be considered."

9 Modifications to "5.1.16 Hydraulic and pneumatic systems" and 5.1.17 Ergonomics"

Replace 5.1.16 and 5.1.17 with: "

5.1.16 Hydraulic, pneumatic, cooling and lubrication systems

Hydraulic, pneumatic, cooling and lubrication systems shall be designed to reduce risks from hazardous substances, fire, explosion, vibration and noise.

Sufficient ventilation and/or other means shall be provided for cooling/lubrication systems to minimize hazardous effects.

Hazards associated with pressure, temperature, ignition sources, and proximity to adjacent personnel shall be taken into account. In no case shall the system be designed to safety requirements lower than those described in EN 982 or EN 983 and shall take account of Annex A.