SLOVENSKI STANDARD
SIST EN 13675:2004/kFprA1:2009

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Varnost strojev - Varnostne zahteve za cevarne, valjarne in opremo za pakiranje blaga

Safety of machinery - Safety requirements for tube forming and rolling mills and finishing line equipment

Sicherheit von Maschinen - Sicherheitsanforderungen an Rohrform- und Rohrwalzwerke und Adjustageanlagen

Sécurité des machines - Prescriptions pour formeuses et laminoirs à tubes et de lignes de parachèvement

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13.110	Varnost strojev	Safety of machinery
77.180	Oprema za metalurško industrijo	Equipment for the metallurgical industry

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2003-01.Slovenski inštitut za standardizacijo. Razmnoževanje celote ali delov tega standarda ni dovoljeno.

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Safety of machinery - Safety requirements for tube forming and rolling mills and finishing line equipment

Sécurité des machines - Prescriptions pour formeuses et laminoirs à tubes et de lignes de parachèvement

Sicherheit von Maschinen - Sicherheitsanforderungen an Rohrform- und Rohrwalzwerke und Adjustageanlagen

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 13675:2004. 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.

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

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Foreword

This document (EN 13675:2004/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 Annex ZA and ZB, which is an integral part 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.

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1 Modification to the "Foreword"

Replace the 4th paragraph with:

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

2 Modification to the Clause "1 Scope"

In the 4th paragraph, replace "prEN 12464-1" *with* "EN 12464-1".

3 Modification to the "Introduction"

Replace existing text with:

"This document is a type-C standard as stated in EN ISO 12100.

The machinery concerned and the extent to which hazards, hazardous situations or hazardous events are covered are indicated in the Scope of this document.

When requirements of this type-C standard are different from those which are stated in type-A or B standards, the requirements of this type-C standard take precedence over the requirements of the other standards for machines that have been designed and built according to the requirements of this type-C standard.

Where for clarity an example of a preventative measure is given in the text, this should not be considered as the only possible solution. Any other solution leading to the same risk reduction is permissible if an equivalent level of safety is achieved.

This European Standard assumes that the equipment is operated and maintained by trained personnel.".

4 Modification to Clause "2 Normative references"

Replace the 1st paragraph with:

"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."

Due to comprehensive changes (e.g. EN with EN ISO) and new/updated standards, replace the whole list of normative references with:

"EN 349:1993, *Safety of machinery — Minimum gaps to avoid crushing of parts of the human body*

EN 614-1:2006, *Safety of machinery — Ergonomic design principles — Part 1: Terminology and general principles*

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

EN 626-1:1994, *Safety of machinery — Reduction of risks to health from hazardous substances emitted by machinery — Part 1: Principles and specifications for machinery manufacturers*

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EN 842, *Safety of machinery — Visual danger signals — General requirements, design and testing*

EN 853, *Rubber hoses and hose assemblies — Wire braid reinforced hydraulic type — Specification*

EN 854, *Rubber hoses and hose assemblies — Textile reinforced hydraulic type — Specification*

EN 856, *Rubber hoses and hose assemblies — Rubber-covered spiral wire reinforced hydraulic type — Specification*

EN 857, *Rubber hoses and hose assemblies — Wire braid reinforced compact type for hydraulic applications — Specification*

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*

EN 953:1997, *Safety of machinery — Guards — General requirements for the design and construction of fixed and movable guards*

EN 981:1996, *Safety of machinery — System of auditory and visual danger and information signals*

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

EN 1063, *Glass in building — Security glazing — Testing and classification of resistance against bullet attack*

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

EN 1299, *Mechanical vibration and shock — Vibration isolation of machines — Information for the application of source isolation*

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

EN 12198-1, *Safety of machinery — Assessment and reduction of risks arising from radiation emitted by machinery — Part 1: General principles*

EN 12254, *Screens for laser working places — Safety requirements and testing*

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*

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EN 50171, *Central power supply systems*

EN 60204-1:2006, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements (IEC 60204-1:2005, modified)*

EN 60447, *Basic and safety principles for man-machine interface — Marking and identification — Actuating principles (IEC 60447:2004)*

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

EN 61310-1, *Safety of machinery — Indication, marking and actuation — Part 1: Requirements for visual, acoustic and tactile signals (IEC 61310-1:2007)*

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

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

EN 60529:1991, *Degrees of protection provided by enclosures (IP code) (IEC 60529:1989)*

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

EN ISO 7731:2005, *Ergonomics — Danger signals for public and work areas — Auditory danger signals (ISO 7731:2003)*

EN ISO 9692-2, *Welding and allied processes — Joint preparation — Part 2: Submerged arc welding of steels (ISO 9692-2:1998)*

EN ISO 11064-1, *Ergonomic design of control centres — Part 1: Principles for the design of control centres (ISO 11064-1:2000)*

EN ISO 11202, *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, *Acoustics — Recommended practice for the design of low-noise machinery and equipment — Part 1: Planning (ISO/TR 11688-1:1995)*

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 13732-1:2008, *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 13849-1:2006, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design (ISO 13849-1:2006)*

EN ISO 13850:2006, *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 upper and lower limbs (ISO 13857:2008)*

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

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EN ISO 14122-1, *Safety of machinery — Permanent means of access to machinery — Part 1: Choice of a 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 machines and industrial plants — Part 4: Fixed ladders (ISO 14122-4:2004)*

ISO 3864-1, *Graphical symbols — Safety colours and safety signs — Part 1: Design principles for safety signs in workplaces and public areas*

ISO 7000, *Graphical symbols for use on equipment — Index and synopsis*".

5 Modification to Clause "3 Terms and definitions"

Replace the paragraph with:

"For the purpose of this document, the terms and definitions given in EN ISO 12100:2003 and the following apply.

NOTE Definitions used in EN and ISO standards referred to in this European Standard are also valid for this European Standard.".

Replace the 1st capital letter(s) of term(s) with lower case letters, e.g. product/material, pulpit, control stand. These editorial changes have not been tagged to avoid over-tagging of the text due to minor editorial updates.

6 Modification to Clause "4 List of significant hazards"

Replace the last paragraph with:

"Before using this European Standard it is important for the manufacturer to carry out a risk assessment of the machines which form a plant to identify any other relevant hazards (see EN ISO 14121-1).".

7 Modification to Clause "5 Safety Requirements and/or measures" and 5.1

Replace the hanging paragraphs (inclusive the NOTE) directly after the headline of Clause 5 and the headline 5.1 with: "

5.1 General design requirements

5.1.1 Introduction

Plant conforming to this European Standard shall comply with the safety requirements and/or measures of Clause 5 and those set out in Clause 7 and Annex A and B. Relevant hazards identified in the risk assessment carried out by the manufacturer but not dealt with in this European Standard shall be reduced by applying the principle of EN ISO 12100-2.

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For hazards which are to be reduced by the application of a B standard such as e.g. EN ISO 13857, EN ISO 13850, EN ISO 13732-1 the risk assessment carried out by the manufacturer shall establish the requirements of the B standard which are to be applied. This specific risk assessment shall be part of the general risk assessment of the machine.

Where the means of reducing the risk is by the physical arrangement or positioning of the installed machines, the manufacturer shall include in the Information for use a reference to these specific reduction means.

Where the means of reducing the risk is by a safe system of working the plant, the manufacturer shall include in the information for use details of the system and of the elements of information required by the operating personnel. This shall include arrangements to run a machine for essential operating reasons or in special mode with safety devices suspended or temporarily modified.

This clause specifies and explains the preventative measures given in Table 1 and it also describes additional safety features, procedures and techniques which shall be considered by the designer and the manufacturer of the equipment.".

Due to new and technically updated sub-clauses (and the resulting re-numbering) as well as the new format of the indents and editorial improvements in the existing sub-clauses, replace the sub-clauses 5.1.1 to 5.1.16 with: "

5.1.2 Site inspection

The manufacturer shall undertake sufficient site inspection to establish all requirements of the plant design for:

a) accessibility;

b) maintenance and clearance gaps for cleaning;

c) movement of machinery and material;

d) safe operation;

e) health and safety at the workplace;

f) prevention of emissions hazardous to health at the workplace.

5.1.3 Structural assembly

The manufacturer shall undertake and record design calculations to show that the structural assembly, e.g. steel sections, auxiliaries, lifting points and fixtures, which form part of the equipment are adequate for safety functions under intended use.

5.1.4 Safety layout

The manufacturer shall prepare a safety layout document of the extrusion 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, EN 842;

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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, 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.

5.1.5 Safety devices

Safety devices shall be accessible for inspection and maintenance, and protected against damage under foreseeable conditions. In particular, they shall be sufficiently robust to operate reliably.

5.1.6 Hydraulic, pneumatic, cooling and lubrication systems

Hydraulic, pneumatic, cooling and lubrication systems shall be designed to reduce risks from toxic effects, fire, explosion, vibration and noise. 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 take account of Table 1.

5.1.7 Fluid systems carrying or containing fluids

Manufacturers of plant using fluid systems carrying or containing fluids which are likely to solidify and/or have high or low viscosity and impair safety, shall provide protection against temperatures giving rise to these effects. Data shall be provided in the information for use.

5.1.8 Guard-rails

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).

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.

Guard-rails can be used as a measure to prevent unintentional access of unauthorised persons to zones where residual risks exist. At zones, where risks due to potentially danger 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.

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 EN ISO 14121-1. 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.

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

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.