SLOVENSKI STANDARD
SIST EN 626-1:1995+A1:2008

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Varnost strojev - Zmanjġanje tveganja za zdravje pred nevarnimi snovmi, ki jih oddajajo stroji - 1. del: Naļ ela in specifikacije za proizvajalce strojev

Safety of machinery - Reduction of risks to health from hazardous substances emitted by machinery - Part 1: Principles and specifications for machinery manufacturers

Sicherheit von Maschinen - Reduzierung des Gesundheitsrisikos durch Gefahrstoffe, die von Maschinen ausgehen - Teil 1: Grundsätze und Festlegungen für Maschinenhersteller

Sécurité des machines - Réduction des risques pour la santé resultant de substances dangereuses émises par des machines - Partie 1 : Principes et specifications à l'intention des constructeurs de machines

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13.110	Varnost strojev	Safety of machinery

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English Version

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This European Standard was approved by CEN on 6 September 1994 and includes Amendment 1 approved by CEN on 18 May 2008.

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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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Foreword

This document (EN 626-1:1994+A1:2008) has been prepared by Technical Committee CEN/TC 114 “Safety of machinery”, the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by December 2008, and conflicting national standards shall be withdrawn at the latest by December 2008.

This document includes Amendment 1, approved by CEN on 2008-05-18.

This document supersedes EN 626-1:1994.

The start and finish of text introduced or altered by amendment is indicated in the text by tags ⟩A1⟨ ⟩A1⟨.

⟩A1⟨ Part 2 of this standard deals with the methodology of verification procedures. ⟩A1⟨

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 EC Directive(s).

⟩A1⟨ For relationship with EC Directive(s), see informative Annexes ZA and ZB, which are integral parts of this document. ⟩A1⟨

The Annex A is informative and contains "Examples of measures for the reduction of exposure to hazardous substances", Annex B is informative and contains a "Bibliography".

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 United Kingdom.

Introduction

This standard has been produced to assist designers, manufacturers and other interested bodies to interpret the essential safety requirements in order to achieve conformity with European Legislation on machinery safety.

This is one of a programme of standards produced by CEN/CENELEC under mandates from CEC and EFTA. This programme has been divided into several categories to avoid duplication and to develop a logic which will enable rapid production of standards and easy cross reference between them.

The hierarchy of standards is as follows:

a) **Type A standards** (generic safety standards) giving basic concepts, principles for design, and general aspects that can be applied to all machinery;

b) **Type B standards** (group safety standards) dealing with one safety aspect or one type of safety related device that can be used across a wide range of machinery:

   — Type B1 standards on particular safety aspects (e.g. safety distances, surface temperature, noise, etc.);

   — Type B2 standards are safety related devices (e.g. two hand controls, interlocking devices, pressure sensitive devices etc.);

c) **Type C standards** (machine safety standards) giving detailed safety requirements for a particular machine or group of machines defined in the scope of the standard.

This is a type B1 standard and its primary purpose is to give guidance to the writers of type C standards when machines are identified as having hazardous substances as a significant risk. This standard may also be used as guidance in controlling the risk where there is no type C standard for a particular machine.

1 Scope

This European Standard deals with principles for the control of risks to health due to hazardous substances from machinery. This European Standard is not applicable to hazardous substances which are a hazard to health solely because of explosive, flammable, high or low temperature, high or low pressure or radioactive properties.

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 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.

EN 292-1, *Safety of machinery, basic concepts, general principles for design — Part 1: Basic terminology, methodology.*

EN 292-2, *Safety of machinery, basic concepts, general principles for design — Part 2: Technical principles and specifications.*

prEN 626-2, *Safety of machinery, reduction of risks to health from hazardous substances emitted by machinery – Part 2: Methodology leading to verification procedures.*

3 Definitions

For the purposes of this standard, the following definitions apply:

3.1
intended use
see EN 292-1

3.2
hazardous substances
any chemical or biological agent which is hazardous to health, e.g. substances or preparations classified as [1)].

— Very toxic;

— Toxic;

— Harmful;

— Corrosive;

— Irritant;

— Sensitising;

— Carcinogenic;

— Mutagenic;

— Teratogenic;

— Pathogenic;

— Asphyxiants;

4 Risk assessment

4.1 An identification of hazards and assessment of the foreseeable risks from substances hazardous to health shall be made by the machinery manufacturer. This shall cover, as far as it is possible, any potential personal exposures arising from the machine at any stage in its life.

NOTE Details of the methodology of the risk assessment are given in EN 292-1.

4.2 The level of risk depends on the hazardous properties of the substances, the likelihood that personal exposure will occur and the degree of exposure. The health effects of hazardous substances may be:

— Short or long term;

1) For EEC countries see also 67/548/EEC and its amendments

— Reversible or irreversible.

4.3 Hazardous substances can be in any physical state (gases, liquids, solids) and can affect the body by:

— Inhalation;

— Ingestion;

— Contact with the skin, eyes and mucous membranes;

— Penetration through the skin.

4.4 The hazardous substances may arise from:

— Any part of a machine;

— Substances present in the machine;

— Material arising directly or indirectly from articles and/or substances processed by the machine or used on the machine.

4.5 The stages in the life of a machine may include (see also EN 292-1):

— Construction;

— Transport and commissioning;

  — Transport;

  — Installation;

  — Commissioning;

— Use;

  — Operation, including starting up and shutting down;

  — Failure;

  — Setting or process changeover;

  — Cleaning;

  — Adjustment;

  — Maintenance and repair;

— De-commissioning, dismantling and, as far as safety is concerned, disposal.

5 Types of emissions

5.1 Airborne emissions

5.1.1 Airborne emissions can be significant sources of exposure to hazardous substances. Inhalation is usually the most significant of all the routes of entry (see 4.3). In addition, airborne emissions may enter the body by the other routes particularly when substances are deposited on surfaces of the body or when they are ingested.

5.1.2 Airborne emissions may arise from various sources including:

— Machining, e.g. sawing, grinding, sanding, milling;

— Evaporation and thermal convection e.g. open tanks, crucibles, solvent baths;

— Hot metal processes e.g. welding, brazing, soldering, profile cutting, casting;

— Material handling e.g. hopper charging, pneumatic conveying, sack filling;

— Spraying e.g. painting, high-pressure cleaning;

— Leaks e.g. at pump seals, flanges;

— By-products and effluents e.g. gases from drosses, rubber vulcanisation fumes;

— Maintenance e.g. emptying filter bags;

— Dismantling processes e.g. breaking lead batteries, stripping asbestos insulation;

— Combustion of fuel e.g. internal combustion engine exhausts;

— Apparatus for mixing food;

— Metal working e.g. nitrosamines from water soluble metal working lubricants.

5.1.3 Some examples of airborne hazardous substances are as follows:

— Respiratory irritants e.g. sulphur dioxide, chlorine, cadmium fume;

— Sensitisers e.g. isocyanates, enzymes, colophon fumes;

— Carcinogens e.g. asbestos, chromium VI, benzene, vinyl chloride monomer;

— Fibrogenic dusts e.g. free crystalline silica, asbestos, cobalt;

— Asphyxiants e.g. nitrogen, argon, methane;

— Biological agents e.g. Legionella pneumophila, dusts from mouldy hay;

— Substances which affect specific parts of the body e.g. mercury (nerve system, kidney); lead (nerve system, blood); carbon tetrachloride (nerve system, liver); carbon monoxide (blood).