

**SLOVENSKI STANDARD
SIST EN 626-2:1998**

01-februar-1998

Varnost strojev - Zmanjšanje tveganja za zdravje pred nevarnimi snovmi, ki jih oddajajo stroji - 2. del: Metodologija preverjanja postopkov

Safety of machinery - Reduction of risk to health from hazardous substances emitted by machinery - Part 2: Methodology leading to verification procedures

Sicherheit von Maschinen - Reduzierung des Gesundheitsrisikos durch Gefahrstoffe, die von Maschinen ausgehen - Teil 2: Methodik beim Aufstellen von Überprüfungsverfahren

Sécurité des machines - Réduction du risque pour la santé résultant de substances dangereuses émises par les machines - Partie 2: Méthodologie menant à des procédures de vérification

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ICS:

13.110 Varnost strojev Safety of machinery

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EUROPEAN STANDARD

EN 626-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 1996

ICS 00.; 13.110

Descriptors: safety of machine, work safety, air pollution, emission, dust, dangerous materials, hazards, safety measures, design, verification, inspection methods, maintenance

English version

**Safety of machinery - Reduction of risk to health
from hazardous substances emitted by machinery
- Part 2: Methodology leading to verification
procedures**

Sécurité des machines - Réduction du risque pour la santé résultant de substances dangereuses émises par les machines - Partie 2: Méthodologie menant à des procédures de vérification

Sicherheit von Maschinen - Reduzierung des Gesundheitsrisikos durch Gefahrstoffe, die von Maschinen ausgehen - Teil 2 : Methodik beim Aufstellen von Überprüfungsverfahren

This European Standard was approved by CEN on 1996-06-20. CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

The European Standards exist 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

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Foreword

This European Standard 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 January 1997, and conflicting national standards shall be withdrawn at the latest by January 1997.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of the EU Directive(s).

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

0 Introduction

This European Standard is one of a group of standards produced by CEN/CENELEC under mandates from CEC and EFTA. This group has been divided into several categories to avoid duplication and to develop a logical structure 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),
 - type B2 standards on safety related devices (e.g. two-hand controls, interlocking devices, pressure sensitive devices, guards),
- c) **Type C standards** (machine safety standards) giving detailed safety requirements for a particular machine or group of machines.

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 emission of hazardous substances as a significant risk. This standard may also be used as a guidance in controlling the risk where there is no type C standard for a particular machine.

This standard may also be used to assist designers and manufacturers to identify sources of emission which may subsequently affect the exposure of operators and others.

This standard also provides type C standard writers with guidance to enable the development of procedures relating to verification. Such procedures are required to take account of the health risks associated with the emission of hazardous substances at all stages in the life of a machine (see 3.11 of EN 292-1:1992 and clause 4 of EN 626-1:1994).

1 Scope

This standard defines a procedure which leads to the selection of critical factors relating to emissions of hazardous substances for the purpose of specifying suitable verification procedures.

This standard is to be used in conjunction with EN 626-1.

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 this European Standard only when incorporated in it by amendment or revision. For updated references the latest edition of the publication referred to applies.

EN 292-1:1992	Safety of machinery - Basic concepts, general principles for design - Part 1: Basic terminology, methodology
EN 626-1:1994	Safety of machinery - Reduction of risk to health from hazardous substances emitted by machinery - Part 1: Principles and specifications for machinery manufacturers
prEN 1093-1:	Safety of machinery - Evaluation of the emission of airborne hazardous substances - Part 1: Selection of test methods

3 Methodology

This clause defines the steps that shall be taken to lead to a verification procedure.

NOTE: These steps are summarised in annex A.

3.1 Identification of hazardous substances

3.1.1 Identify substances which may be emitted during the intended use of the machine (see EN 292-1 and clause 4 of EN 626-1:1994).

3.1.2 Determine which of these substances are hazardous to health and the nature of the hazard (see 3.2 of EN 626-1:1994).

3.1.3 Where a number of substances has been identified, the verification procedure should be carried out on key substances which represent worst case properties. Key substances may be selected based on toxicity, corrosive properties, solvent properties, dustiness, etc.

3.2 Characterization of emissions

For all significant emissions of substances identified by 3.1.3 establish:

- the likely quantity or scale of emission under all foreseeable circumstances at all stages in the life of a machine;

NOTE 1: Amounts may be characterized by one of a number of assessment techniques (see annex B).

- the location and direction of the emission with respect to the machine and the likely position of persons;

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- when the emission is likely to occur;

NOTE 2: This should relate to the likely presence of persons and the operating cycle of the machinery.

- the physical characteristics of the emission, e.g. phase, velocity, temperature, pressure;
- whether it is likely to create an airborne emission or surface contamination.

3.3 Identification of critical factors

3.3.1 Identify any relevant factor which causes an emission and on which the method of reduction is based.

NOTE: Relevant factors may be related to materials, energy or machine design or performance; examples are given in annex C.

3.3.2 Identify critical factors. These are the relevant factors on which the emission is most dependent.

3.4 Specification of indicative parameters

3.4.1 Establish indicative parameters, which may be qualitative, related directly to the critical factors identified.

NOTE: Examples are given in annex C.

3.4.2 Specify the value, range of values, condition or state of the indicative parameter required to reduce emission.

4 Verification

4.1 Verification is carried out by collection of data relating to the indicative parameters.

4.2 Verification may include results from field testing, laboratory testing, measurements, examination or calculations.

4.3 A number of general test methods, which can be used as part of verification, are described in prEN 1093-1 and the following parts which are under preparation. More detailed test conditions for a specific type or group of machines may be given in type C standards.

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Annex A (normative)

Flow diagram leading to verification procedures

Table A.1

Clause	Sequence of steps	Examples
3.1	Identify hazardous substances ↓	- identify stage in life of the machine; - identify the hazardous properties.
3.2	characterize emissions ↓	- likely quantity or scale of emission; - location of persons and direction of emissions; - when the emission is likely to occur; - physical characteristics; phase (e.g.: gas), temperature; - airborne or surface contamination.
3.3.1	identify relevant factors ↓	- materials: dustiness; usage rates, production rates; - energy used: type; - machine design: ergonomics; distances; automation; - performance: efficacy.
3.3.2	select critical factors ↓	factors which most influence the emission of hazardous substances; prioritize these to assist selection of indicative parameters.
3.4.1	specify indicative parameters ↓	- quantitative: obtained by measurements or calculations; - qualitative: information obtained by e. g. visual inspection; visualization techniques, design details.
3.4.2	set parameter values, ranges, conditions or states ↓	requirements to give performance which reduces emissions.
4	specify verification procedures	- specify information which relates to the specified indicative parameters; - evidence from field/laboratory tests, measurements, visual inspections or calculations, technical construction file.

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file

Annex B (informative)

Examples of types of emission and how to assess them

Table B.1

Type of emission	Examples of assessment techniques
nil or insignificant	<ul style="list-style-type: none">- visual inspection;- smoke tests;- Tyndall beam lamp;- pressure testing.
localized	<ul style="list-style-type: none">- component performance;- local concentration assessment.
total (possibly multi-point emissions)	<ul style="list-style-type: none">- calculation from mass balance;- test data.

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