

## **Masinate ohutus. Masinate kiirgusest tulenevate riskide hindamine ja vähendamine. Osa 1: Üldpõhimõtted**

Safety of machinery - Assessment and reduction of risks arising from radiation emitted by machinery - Part 1: General principles

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 12198-1:2000 sisaldab Euroopa standardi EN 12198-1:2000 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 15.11.2000 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 12198-1:2000 consists of the English text of the European standard EN 12198-1:2000.</p> <p>This document is endorsed on 15.11.2000 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p><b>Käsitlusala:</b></p> <p>This standard deals with the emission of radiation from mashinery. This European Standard gives advice to manufacturers for the construction of safe mashinery, if no relevant C-type standard exists. This radiation emission may be functional for processing or may be undesirable. The issues of electromagnetic compatibility are not addressed in the standard.</p>	<p><b>Scope:</b></p> <p>This standard deals with the emission of radiation from mashinery. This European Standard gives advice to manufacturers for the construction of safe mashinery, if no relevant C-type standard exists. This radiation emission may be functional for processing or may be undesirable. The issues of electromagnetic compatibility are not addressed in the standard.</p>
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ICS 13.110, 13.280

Võtmesõnad:

ICS 13.110; 13.280

**English version**

Safety of machinery

**Assessment and reduction of risks arising from  
radiation emitted by machinery**

Part 1: General principles

Sécurité des machines – Estimation  
et réduction des risques engendrés  
par les rayonnements émis par les  
machines – Partie 1: Principes  
généraux

Sicherheit von Maschinen –  
Bewertung und Verminderung des  
Risikos der von Maschinen  
emittierten Strahlung – Teil 1:  
Allgemeine Leitsätze

This European Standard was approved by CEN on 2000-05-25.

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, the Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom.

**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 December 2000, and conflicting national standards shall be withdrawn at the latest by December 2000.

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 EC Directive(s).

For relationship with EC Directive(s), see informative Annex ZA, which is an integral part of this standard.

This European Standard deals with the essential requirement "Radiation" (see EN 292-2, Annex A, paragraph 1.5.10).

The annexes A and B are normative, and the annex C is informative.

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

## Introduction

Machinery supplied by electrical power or containing radiation sources may emit radiation or generate electric and/or magnetic fields. The radiation emissions and fields will vary in frequency and magnitude.

The European Machinery Directive requires precautions to avoid or reduce risks caused by the emission of radiation from a machine. Machinery must be so designed and constructed that any emission of radiation is limited to the extent necessary for its operation and that the effects on exposed persons are non-existent or reduced to non-dangerous proportions (EN 292-2:1991/A1:1995).

To assess the risk of injury caused by radiation emissions and fields from a machine it is necessary to know the type of radiation emission, the level of the emission and the intensity of this emission with respect to possible adverse health effects.

This European Standard is intended to give manufacturers and type C-standards makers advice on how to identify radiation emissions from machinery, how to decide on their magnitude and significance, how to assess the risks and what means could be used to avoid or reduce the radiation emissions from machines.

This European Standard reflects the general principles for the identification and the assessment of radiation emission by machinery. Details of the measurement of the radiation emission will be given in part 2 of this standard. Part 3 of this standard will contain details of protective measures for avoiding or reducing radiation exposure of persons by reducing emissions and requiring the provision of information.

Radiation emitted by machinery may be intended for processing or may occur unintentionally. Clause 7 of this standard requires, that the manufacturer shall assign the machine to a design radiation emission category. For undesirable radiation emission the emission level should be reduced to values corresponding to category 0.

Functional radiation emission shall be limited to the necessary degree for the operation of the machine.

The remaining emission levels shall be assessed and an emission category shall be determined. If necessary protective measures will have to be applied.

This European Standard is a standard of B1-type in a series of standards for the safety of machinery.

## 1 Scope

This standard deals with the emission of radiation from machinery. This European Standard gives advice to manufacturers for the construction of safe machinery, if no relevant C-type standard exists. This radiation emission may be **functional** for processing or may be **undesirable**.

The issues of electromagnetic compatibility are not addressed in the standard.

This European Standard is intended to give advice to C-type standardization groups, on how to identify radiation emissions or fields<sup>1</sup>, how to determine their significance and intensity, how to assess the possible risks and what means may be used to avoid or reduce radiation emissions. This advice should be elaborated in C-type standards for specific classes of machines as assessable requirements.

This standard deals with the emission of all types of electromagnetic non-ionizing radiation.

Ionizing radiation may be dealt with in other documents or in the future revisions.

This standard does not deal with the emission of laser radiation.

Radiation sources fixed to a machine which are used only for lighting are excluded from the scope of this standard.

This standard applies to machinery as defined in clause 3.1 of EN 292-1:1991.

## 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 undated references the latest edition of the publication referred to applies.

EN 292-1:1991, *Safety of machinery - Basic concepts, general principles for design - Part 1 : Basic terminology, methodology*

EN 292-2:1991 + A1:1995, *Safety of machinery - Basic concepts, general principles for design - Part 2 : Technical principles and specifications (and Amendment A1:1995)*

EN 1050, *Safety of machinery - Principles for risk assessment*

EN 1070, *Safety of machinery - Terminology*

EN 50082-1, *Electromagnetic compatibility - Generic immunity standard - Part 1 : Residential, commercial and light industry*

EN 61000-6-2, *Electromagnetic compatibility (EMC) - Part 6-2 : Generic standards - Immunity for industrial environments (IEC 61000-6-2:1999)*

prEN 12198-2:1999, *Safety of machinery - Assessment and reduction of risks arising from radiation emitted by machinery - Part 2 : Radiation emission measurement procedure*

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<sup>1</sup> In the rest of the present document, the generic term "radiation" covers either the different types of radiation emitted by a machine (i.e. optical radiation), or fields (i.e. electromagnetic and/or magnetic fields) or waves (i.e. electromagnetic waves).