

Safety of machinery — Principles for risk assessment

The European Standard EN 1050 : 1996 has the status of a
British Standard

ICS 13.110

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- Advanced Manufacturing Technology Research Institute
- British Cable Makers' Confederation
- British Compressed Air Society
- British Rubber Manufacturers' Association
- British Textile Machinery Association
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- Engineering Employers' Federation
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- Health and Safety Executive
- Loss Prevention Council
- Machine Tool Technologies Association
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- PICON
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This British Standard, having been prepared under the direction of the Engineering Sector Board, was published under the authority of the Standards Board and comes into effect on 15 March 1997

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Amendments issued since publication

Amd. No.	Date	Text affected

The following BSI references relate to the work on this standard:
Committee reference MCE/3
Draft for comment 93/704967 DC

ISBN 0 580 27153 6

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National foreword

This British Standard has been prepared by Technical Committee MCE/3 and is the English language version of EN 1050 : 1996 *Safety of machinery — Principles of risk assessment* published by the European Committee for Standardization (CEN). EN 1050 was produced as a result of international discussions in which the United Kingdom took an active part.

Cross-references

Publication referred to	Corresponding British Standard
	BS EN 292 <i>Safety of machinery. Basic concepts, general principles for design</i>
EN 292-1 : 1991	Part 1 : 1991 <i>Basic terminology, methodology</i>
EN 292-2 : 1991	Part 2 : 1991 <i>Technical principles and specifications</i>
A1 : 1995	
	BS EN 60204 <i>Safety of machinery. Electrical equipment of machines</i>
EN 60204-1 : 1992	Part 1 : 1993 <i>Specification for general requirements</i>

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the EN title page, pages 2 to 16, an inside back cover and a back cover.

ICS 13.110

Descriptors: Safety of machines, accident prevention, hazards, safety measures, specifications

English version

Safety of machinery — Principles for risk assessment

Sécurité des machines — Principes pour
l'appréciation du risque

Sicherheit von Maschinen — Leitsätze
zur Risikobeurteilung

This European Standard was approved by CEN on 1996-08-22. 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.

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CEN

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Ref. No. EN 1050 : 1996 E

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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 May 1997, and conflicting national standards shall be withdrawn at the latest by May 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 EU Directive(s).

Annex A is informative and contains examples of hazards, hazardous situations and hazardous events. Annex B is informative and contains methods for analysing hazards and estimating risk.

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, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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0 Introduction

The function of this Type-A standard is to describe principles for a consistent systematic procedure for risk assessment as introduced in clause 6 of EN 292-1 : 1991.

This standard gives guidance for decisions during the design of machinery (see 3.11 of EN 292-1 : 1991) and will assist in the preparation of consistent and appropriate Type-B and Type-C standards in order to comply with the essential safety and health requirements (see annex A of EN 292-2 : 1991/A1 : 1995).

By itself this standard will not provide presumption of conformity to the essential safety and health requirements (see annex A of EN 292-2 : 1991/A1 : 1995).

It is recommended that this standard is incorporated in training courses and manuals to give basic instruction on design methods.

1 Scope

This standard establishes general principles for the procedure known as risk assessment by which the knowledge and experience of the design, use, incidents, accidents and harm related to machinery is brought together in order to assess the risks during all phases of the life of the machinery (see 3.11a of EN 292-1 : 1991).

This standard gives guidance on the information required to allow risk assessment to be carried out. Procedures are described for identifying hazards and estimating and evaluating risk. The purpose of the standard is to provide advice for decisions to be made on the safety of machinery and the type of documentation required to verify the risk assessment carried out.

This standard is not intended to provide a detailed account of methods for analysing hazards and estimating risks as this is dealt with elsewhere (e.g. text books and other reference documents). A summary of some of these methods is given for information only (see annex B).

2 Normative references

This European Standard incorporates by dated or undated references, 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	<i>Safety of machinery —Basic concepts, general principles for design — Part 1 : Basic terminology, methodology</i>
EN 292-2 : 1991 /A1 : 1995	<i>Safety of machinery —Basic concepts, general principles for design — Part 2 : Technical principles and specifications</i>
EN 60204-1 : 1992	<i>Safety of machinery —Electrical equipment of machines — Part 1 : General requirements (IEC 204-1 : 1992, modified)</i>
CEN/CLC Memorandum No. 9 : 1994	<i>Guidelines for the inclusion of safety aspects in standards (Identical to ISO/IEC Guide 51 : 1990)</i>

3 Definitions

For the purposes of this standard the following definitions apply in addition to those given in EN 292-1 : 1991.

3.1 harm

Physical injury and/or damage to health or property (see 3.4 of CEN/CLC Memorandum No. 9 : 1994).

3.2 hazardous event

Event that can cause harm.

3.3 safety measure

Means that eliminates a hazard or reduces a risk.

NOTE. For additional information see clause 5 of EN 292-1 : 1991.

3.4 residual risk

Risk remaining after safety measures have been taken.

4 General principles

4.1 Basic concept

Risk assessment is a series of logical steps to enable, in a systematic way, the examination of the hazards associated with machinery. Risk assessment is followed, whenever necessary, by risk reduction as described in clause 5 of EN 292-1 : 1991. When this process is repeated it gives the iterative process for eliminating hazards as far as possible and for implementing safety measures.

Risk assessment includes (see figure 1) :

- risk analysis;
 - a) determination of the limits of the machinery (see clause 5);
 - b) hazard identification (see clause 6);
 - c) risk estimation (see clause 7);
- risk evaluation (see clause 8).