
**Varnost strojev - Uporaba zaščitne opreme za odkrivanje prisotnosti oseb
(IEC 62046:2004)**

(istoveten CLC/TS 62046:2005)

Safety of machinery - Application of protective equipment to detect the presence of persons (IEC 62046:2004)

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English version

**Safety of machinery –
Application of protective equipment
to detect the presence of persons
(IEC 62046:2004)**

Sicherheit von Maschinen –
Anwendung von Schutzausrüstungen zur
Anwesenheitserkennung von Personen
(IEC 62046:2004)

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This Technical Specification was approved by CENELEC on 2004-08-28.
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CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of the Technical Specification IEC/TS 62046:2004, prepared by IEC TC 44, Safety of machinery, was submitted to the formal vote and was approved by CENELEC as CLC/TS 62046 on 2004-08-28.

The following date was fixed:

- latest date by which the existence of the CLC/TS
has to be announced at national level (doa) 2005-09-01

Annex ZA has been added by CENELEC.

Endorsement notice

The text of the Technical Specification IEC/TS 62046:2004 was approved by CENELEC as a Technical Specification without any modification.

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Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE Where an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
–	–	Safety of machinery - Electro-sensitive protective equipment - Passive infra-red protective devices (PIPDs)	CLC/TS 50418	2004
IEC 60204-1	1997	Safety of machinery - Electrical equipment of machines Part 1: General requirements	EN 60204-1	1997
IEC 61496-1 (mod)	2004	Safety of machinery - Electro-sensitive protective equipment Part 1: General requirements and tests	EN 61496-1	2004
IEC 61496-2	1997	Part 2: Particular requirements for equipment using active opto-electronic protective devices (AOPD)	CLC/TS 61496-2	2003
IEC 61496-3	2001	Part 3: Particular requirements for Active Opto-electronic Protective Devices responsive to Diffuse Reflection (AOPDDR)	EN 61496-3	2001
IEC 62061	2005	Safety of machinery - Functional safety of electrical, electronic and programmable control systems	EN 62061	2005
ISO 12100-1	2003	Safety of machinery Basic concepts, general principles for design Part 1: Basic terminology, methodology	EN ISO 12100-1	2003
ISO 12100-2	2003	Part 2: Technical principles	EN ISO 12100-2	2003
ISO 13849-1	1999	Safety of machinery - Safety-related parts of control systems Part 1: General principles for design	-	-
ISO 13855	2002	Safety of machinery Positioning of protective equipment with respect to the approach speeds of parts of the human body	-	-
ISO 13856-1	2001	Safety of machinery Pressure-sensitive protective devices Part 1: General principles for design and testing of pressure-sensitive mats and pressure-sensitive floors	-	-

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
ISO 14118	2000	Safety of machinery Prevention of unexpected start-up	-	-
ISO 14121	1999	Safety of machinery Principles of risk assessment	-	-

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IEC TS 62046

First edition
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Safety of machinery – Application of protective equipment to detect the presence of persons :

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**SAFETY OF MACHINERY –
APPLICATION OF PROTECTIVE EQUIPMENT
TO DETECT THE PRESENCE OF PERSONS****FOREWORD**

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Technical Specifications are subject to review within three years of publication to decide whether they can be transformed into International Standards.

IEC TS 62046, which is a Technical Specification, has been prepared by IEC technical committee 44: Safety of machinery – Electrotechnical aspects.

The text of this Technical Specification is based on the following documents:

Enquiry Draft	Report on voting
44/437/DTS	44/451/RVC

Full information on the voting for the approval of this Technical Specification can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until 2006. At this date, the publication will be

- transformed into an International Standard;
- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

A bilingual edition of this Technical Specification may be issued at a later date.

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INTRODUCTION

This Technical Specification addresses the application of protective equipment, which employs a sensing device(s) to detect person(s) in or approaching an area, in order to reduce or minimize a risk from hazardous parts of machinery, without providing a physical barrier. This specification provides information on the manner in which the protective equipment should be applied to the machine to achieve the targeted level of risk reduction.

The objective of this specification is to assist: standards writing committees responsible for developing machine standards ("C" Standards), machine designers, manufacturers and refurbishers, machine safety certification organizations, workplace authorities and others on the proper application of protective equipment to machinery.

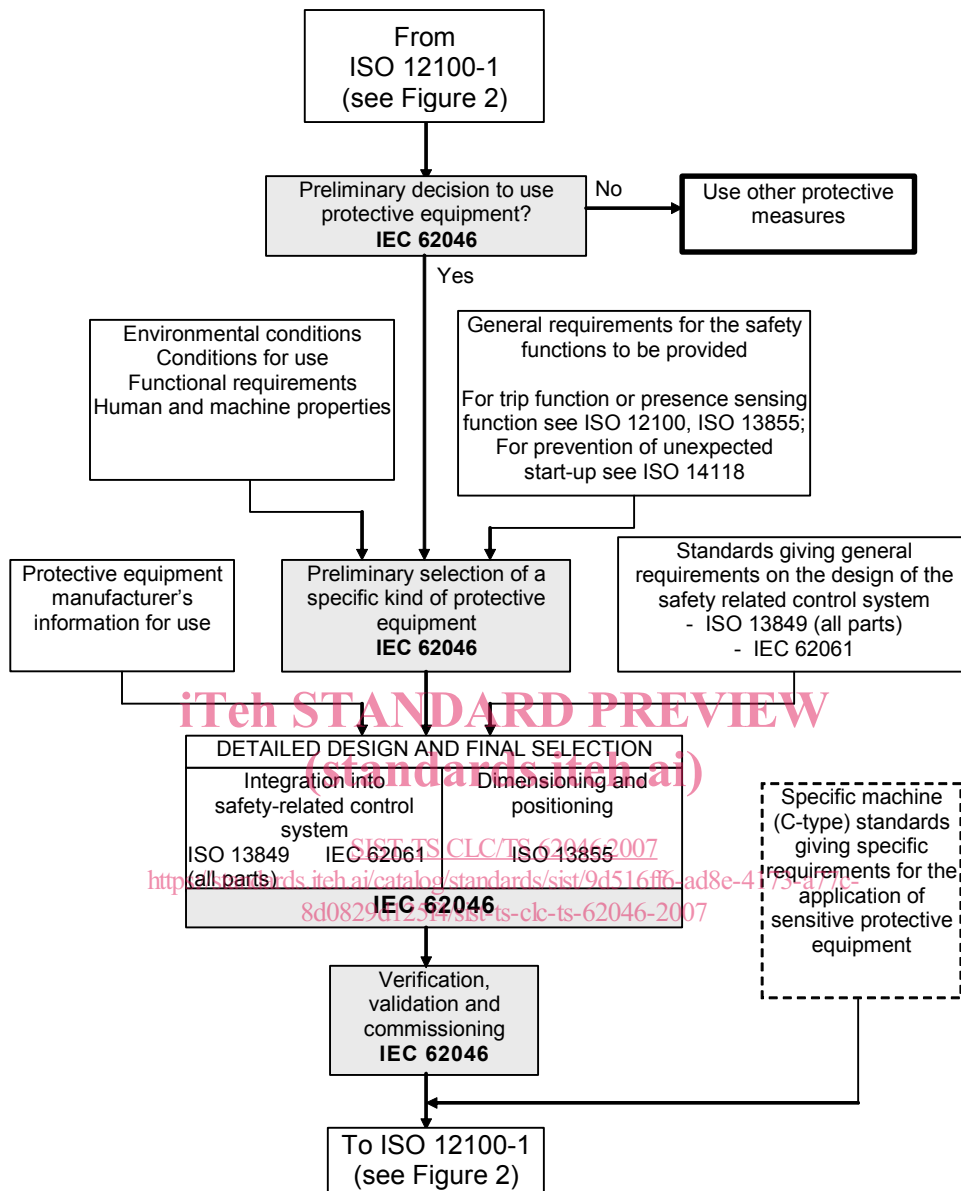
Figures 1 and 2 show the general context and the intended use of this specification.

Clauses 1 to 5, 7 and 8 of this specification apply to all protective equipment included in the scope, Clause 6 contains guidance for the application of specific kinds of protective equipment.

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IEC 404/04

Figure 1 – Relationship of this Technical Specification to other standards

(see also Figure 2)

SAFETY OF MACHINERY – APPLICATION OF PROTECTIVE EQUIPMENT TO DETECT THE PRESENCE OF PERSONS

1 Scope

This Technical Specification specifies requirements for the selection, positioning, configuration and commissioning, of protective equipment to detect the presence of persons in order to protect those persons from dangerous part(s) of machinery in industrial applications. This specification covers the application of electro-sensitive protective equipment (ESPE) specified in IEC 61496 (all parts) and pressure sensitive mats and floors specified in ISO 13856-1.

It takes into account the characteristics of the machinery, the protective equipment, the environment and human interaction by persons of 14 years and older.

NOTE This Technical Specification may also be used for guidance in the application of other protective devices.

2 Normative references

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.

IEC 60204-1, *Safety of machinery – Electrical equipment of machines – Part 1: General requirements*

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IEC 61496-1:2004, *Safety of Machinery – Electro-sensitive protective equipment – General requirements and tests*

IEC 61496-2:1997, *Safety of machinery – Electro-sensitive protective equipment – Part 2: Particular requirements for equipment using active opto-electronic protective devices (AOPDs)*

IEC 61496-3:2001, *Safety of machinery – Electro-sensitive protective equipment – Particular requirements for equipment for Active Opto-Electronic Protective Devices responsive to Diffuse Reflection (AOPDDR)*

IEC 62061, *Safety of machinery – Functional safety of safety related electrical, electronic and programmable control systems*

ISO 12100-1: 2003, *Safety of machinery – Basic concepts, general principles for design – Part 1: Basic terminology, methodology*

ISO 12100-2: 2003, *Safety of machinery – Basic concepts, general principles for design – Part 2: Technical principles*

ISO 13849-1:1999, *Safety of Machinery – Safety-related parts of control systems – Part 1: General principles for design*

ISO 13855:2002, *Safety of machinery – Positioning of protective equipment with respect to the approach speeds of parts of the human body*

ISO 13856-1:2001, *Safety of machinery – Pressure-sensitive protective devices – Part 1: General principles for design and testing of pressure-sensitive mats and pressure-sensitive floors*

ISO 14118:2000, *Safety of machinery – Prevention of unexpected start-up*

ISO 14121:1999, *Safety of machinery – Principles of risk assessment*

CLC/TS 50418: 2004, *Safety of Machinery - Electro-sensitive protective equipment - Passive infra-red protective devices (PIPDs)*

3 Terms, definitions and abbreviations

3.1 Terms and definitions

For the purposes of this technical specification, the following terms and definitions apply.

3.1.1

blinking

optional function that permits an object of a size greater than the detection capability of the ESPE to be located within the detection zone without causing an OFF state of the OSSD(s)

3.1.2

detection capability

sensing function parameter limit specified by the supplier that will cause actuation of the protective equipment

NOTE Adapted from IEC 61496-1.

3.1.3

detection zone

zone within which a specified test piece will be detected by the electro-sensitive protective equipment

NOTE 1 ISO 13856 uses the term "effective sensing area" when describing pressure-sensitive mats and floors. In this document the terms "detection zone" and "effective sensing area" are used synonymously.

NOTE 2 Adapted from IEC 61496-1.

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3.1.4

effective sensing area

part of the top surface area of the sensor or a combination of the pressure-sensitive mat or pressure-sensitive floor within which a response to an actuating force will take place

NOTE IEC 61496-1 uses the term "detection zone" when describing electro-sensitive protective equipment. In this document the terms "detection zone" and "effective sensing area" are used synonymously.

NOTE Adapted from ISO 13856-1.

3.1.5

failure (of equipment)

termination of the ability of an item to perform a required function

NOTE 1 After failure the item has a fault.

NOTE 2 "Failure" is an event, as distinguished from "fault", which is a state.

NOTE 3 This concept as defined does not apply to items consisting of software only.

[IEV-191-04-01]

3.1.6

failure to danger

failure which prevents or delays all output signal switching devices going to, and/or remaining in the OFF-state in response to a condition which, in normal operation, would result in their so doing

[IEC 61496-1, 3.8]