EESTI STANDARD EVS-EN 12978:2003

Tööstus- ja kaubandushoonete ning garaažide uksed ja väravad. Ohutusseadmed elektri abil töötavatele ustele ja väravatele. Nõuded ja katsemeetodid

Industrial, commercial and garage doors and gates - Safety devices for power operated doors and gates - Requirements and test methods

EESTI STANDARDIKESKUS

EESTI STANDARDI EESSÕNA **NATIONAL FOREWORD**

Käesolev Eesti standard EVS-EN 12978:2003 sisaldab Euroopa standardi EN 12978:2003 ingliskeelset teksti. Käesolev dokument on jõustatud 14.08.2003 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes. Standard on kättesaadav Eesti standardiorganisatsioonist.	This Estonian standard EVS-EN 12978:2003 consists of the English text of the European standard EN 12978:2003. This document is endorsed on 14.08.2003 with the notification being published in the official publication of the Estonian national standardisation organisation. The standard is available from Estonian standardisation organisation.

Käsitlusala: This standard applies for design, construction and testing of sensitive protective devices where the device is used to detect pedestrians including in particular applications, slow moving elderly persons, slow moving disabled persons and children who may be exposed to injury by power operated doors, gates and barriers, electrically powered from a public supply and intended for installation in areas in the reach of persons, and for which the main intended uses are giving safe access for goods and vehicles accompanied or driven by persons in industrial, commercial, public or residential premises	**Scope:** This standard applies for design, construction and testing of sensitive protective devices where the device is used to detect pedestrians including in particular applications, slow moving elderly persons, slow moving disabled persons and children who may be exposed to injury by power operated doors, gates and barriers, electrically powered from a public supply and intended for installation in areas in the reach of persons, and for which the main intended uses are giving safe access for goods and vehicles accompanied or driven by persons in industrial, commercial, public or residential premises

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Võtmesõnad: consistency, output sign, power operation, power-operated, protection devices, protective measures, roll-up doors, safety, safety of use, safety requirements, sample surveys, sliding gates, specification (approval), specifications, surveillance (approval), testing

EUROPEAN STANDARD

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English version

Industrial, commercial and garage doors and gates - Safety devices for power operated doors and gates - Requirements and test methods

Portes et portails équipant les locaux industriels et commerciaux et les garages - Dispositifs de sécurité pour portes motorisées - Prescriptions et méthodes d'essai

Türen und Tore - Schutzeinrichtungen für kraftbetätigte Türen und Tore - Anforderungen und Prüfverfahren

This European Standard was approved by CEN on 29 November 2002.

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 Management Centre or to any CEN member.

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 Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Contents

Foreword

This document (EN 12978:2003) has been prepared by Technical Committee CEN/TC 33 "Doors, windows, shutters, building hardware and curtain walling", the secretariat of which is held by AFNOR.

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 November 2003, and conflicting national standards shall be withdrawn at the latest by November 2003.

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).

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

This standard is part of a series of European Standards for industrial, commercial and garage doors and gates that are identified in prEN 13241-1.

Annex A is normative.

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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

This European product related Standard has been prepared to meet the needs of manufacturers, users and safety enforcement authorities, with the primary purpose of providing design and performance requirements for various types of sensitive protective equipment employing different methods of sensing, for installation on power operated doors used by vehicular and pedestrian traffic.

This document is a type C-standard as stated in EN 1070.

The machinery concerned and the extent to which hazards, hazardous situations and events are covered are indicated in the scope of this document.

When provisions of this type C standard are different from those which are stated in type A or B standards, the provisions of this type C standard take precedence over the provisions of the other standards, for machines that have been designed and built according to the provisions of this type C standard.

Sensitive protective equipment (safety devices) for manufacturing machinery are specified in EN 1760-1, EN 1760–2, EN 61496-1 and IEC 61496-2, which are ”Type B2” standards as specified in EN 292-1.

Sensitive protective equipment (safety devices) for power operated doors are not used in the same circumstances as safety devices for manufacturing machinery such as:

a) be suitable for use by, and to give protection to, untrained persons, and in particular applications may be used to protect elderly persons, disabled persons and children;

b) be suitable for use outdoors, possibly in severe climatic and environmental conditions;

c) be capable if required, to form an integrated part of the door construction and/or perform additional functions, e.g. providing a means of sealing the door;

d) incorporate appropriate features for power operated door applications. Some safety devices for manufacturing machinery have e.g. a re-start interlock feature which, if used on power operated doors, could cause the door to operate incorrectly and could lead to heat losses, without increasing the level of safety.

Some provisions of this standard are different from the provisions specified in EN 1760-1, EN 1760-2, EN 61496-1 and IEC 61496-2. Where sensitive protective equipment (safety devices) are designed and built for use on power operated doors, the provisions of this standard take precedence.

This standard can not ensure that all possible hazardous situations will be eliminated. A particular attention should be given to the risk analysis when small children and /or elderly persons have to be detected.

With the aim of clarifying the intention of the standard and avoiding doubt when reading it, following assumptions were made when producing it:

— components are kept in good repair or working order;

— negotiation occurred between the manufacturer and the user concerning the specificity of the use and place of use of the safety device.

1 Scope

1.1 General

This European Standard applies for design, construction and testing of sensitive protective devices where the device is used to detect pedestrians including in particular applications, slow moving elderly persons, slow moving disabled persons and children who may be exposed to injury by power operated doors, gates and barriers, electrically powered from a public supply and intended for installation in areas in the reach of persons, and for which the main intended uses are giving safe access for goods and vehicles accompanied or driven by persons in industrial, commercial, public or residential premises.

This standard also covers safety devices for commercial doors such as rolling shutters and rolling grilles when used as doors on retail premises which are mainly provided for the access of persons rather than vehicles or goods.

This standard deals with all significant hazards listed in annex A and specifies requirements to eliminate or minimise them.

This standard covers the requirements for electrical powered safety devices using mains supply provided for installation on or used in conjunction with powered doors in order to avoid hazardous situations which can be encountered when a door is used normally.

The sensitive protective device is designed to give a change in the output signal switching device which may be used to provide protection for the person being at risk. It applies to ready to use sensitive protective device and integrated sensitive protective device (mounted on or connected to a power operated door in normal use).

This standard only applies to door safety devices manufactured after the date of publication.

1.2 Exclusions

This European Standard does not apply to protective equipment for installation on doors which are intended for a different use than the one described above such as:

— lock gates and dock gates;

— doors on lifts;

— doors on vehicles;

— doors mainly for the retention of animals;

— theatre textile curtains;

— railway barriers;

— barriers used solely for vehicles.

This standard does not apply to devices used only for the normal control and stopping, including emergency stopping, of power operated doors.

This standard does not apply to safety equipment or safety devices for use on machinery other than doors.

This standard does not cover operation in environments where the electromagnetic disturbances are outside the range of those specified in EN 61000-6-4 or for domestic domestic garage doors those of EN 55014-2.

This standard does not cover products to be used in potential explosive atmosphere or on armoured doors.

This standard does not cover programmable devices (see IEC 61508 series).

This standard does not deal with shock resistance of component (example IK code).

The above exclusions are based on technology used at the publication time of this standard.

1.3 Door types and applications

Doors, and gates can be sliding, sidefolding, tilting, pivoting, rolling, vertical lifting, etc. with many variances for each type. If not specified otherwise, the word ”door” refers to any of these types and variances of doors, and gates.

This standard does not specify configuration of the sensitive protective device in relation to the door to be protected.

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. (including amendments)

EN 292-2:1991, *Safety of machinery – Basic concepts, general principles for design – Part 2: Technical principles and specifications*.

EN 954-1, *Safety of machinery – Safety-related parts of control systems – Part 1: General principles for design*.

EN 982, *Safety of machinery – Safety requirements for fluid power systems and their components – Hydraulics*.

EN 983, *Safety of machinery – Safety requirements for fluid power systems and their components – Pneumatics*.

EN 1760-1:1997, *Safety of machinery – Pressure sensitive protective devices – Part 1: General principles for the design and testing of pressure sensitive mats and pressure sensitive floors*.

EN 1760-2:2001, *Safety of machinery – Pressure sensitive protective devices – Part 2: General principles for the design and testing of pressure sensitive edges and pressure sensitive bars*.

EN 12433-1:1999, *Industrial, commercial and garage doors and gates – Terminology – Part 1: Types of doors*.

EN 12433-2:1999, *Industrial, commercial and garage doors and gates – Terminology – Part 2: Parts of doors*.

EN 12445:2000, *Industrial, commercial and garage doors and gates – Safety in use of power operated doors – Test methods.*

EN 12453:2000, *Industrial, commercial and garage doors and gates – Safety in use of power operated doors – Requirements.*

prEN 12650-1:1996, *Building hardware – Powered pedestrian doors – Part 1: Product requirements and test methods.*

EN 55014-1, *Electromagnetic compatibility – Requirements for household appliances, electric tools and similar apparatus – Part 1: Emission (CISPR 14-1:2000).*

EN 55014-2, *Electromagnetic compatibility – Requirements for household appliances, electric tools and similar apparatus – Part 2: Immunity product family standard (CISPR 14-2:1997).*

EN 60068-2-6, *Environmental testing – Part 2: Tests, Test Fc: Vibration (sinusoidal) (IEC 60068-2-6:1995 + Corrigendum 1995).*

EN 60068-2-14, *Environmental testing – Part 2: Tests, Test N: Change of temperature (IEC 60068-2-14:1984 + A1:1986).*

EN 60068-2-78, *Environmental testing – Part 2-78: Tests – Test Cab: Damp heat, steady state.*

EN 61000-6-3, *Electromagnetic compatibility (EMC) – Part 6-3: Generic standards – Emission standard for residential, commercial and light-industrial environments.*

EN 61000-6-4, *Electromagnetic compatibility (EMC) – Part 6-4: Generic standards – Emission standard for industrial environments.*

EN 60204-1:1997, *Safety of machinery – Electrical equipment of machines – Part 1: General requirements (IEC 60204-1:1997).*

EN 60439-1:1999, *Low voltage switch gear and control gear assemblies – Part 1: Type tested and partially type-tested assemblies (IEC 60439-1:1999).*

EN 60529, *Degrees of protection provided by enclosures (IP code) (IEC 60529:1989).*

EN 60825-1:1994, *Safety of laser products – Part 1: Equipment classification, requirements and user's guide (IEC 60825-1:1993).*

EN 61496-1:1997, *Safety of machinery – Electro-sensitive protective equipment – Part 1: General requirements and tests (IEC 61496-1:1997).*

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

3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply in addition to the terminology as defined in EN 12433-1:1999 and EN 12433-2:1999.

3.1
electro-sensitive protective equipment (ESPE)
non-mechanically actuated assembly of devices and/or components working together for protective tripping or presence-sensing purposes comprising as a minimum:

— a sensing function;

— a control / monitoring function;

— one or more output signal switching device(s).

NOTE 1 Examples are light beam, capacitive, active infra-red, ultra-sonic and image monitoring equipment.

NOTE 2 The safety related control system associated with the ESPE or the ESPE itself can further include a secondary switching device, muting functions, stopping performance monitor, start interlock, re-start interlock etc. In order to assist in the understanding of the inter-relationship of the various major elements of the ESPE and the associated safety-related control systems, a block schematic diagram is given (see Figure 1).