



SLOVENSKI STANDARD

SIST EN 13241-1:2003

01-oktober-2003

Vrata v industrijske in javne prostore ter garažna vrata - Standard za proizvod – 1. del: Proizvodi brez določenih lastnosti požarne odpornosti in dimotesnosti

Industrial, commercial and garage doors and gates - Product standard - Part 1: Products without fire resistance or smoke control characteristics

Tore - Produktnorm - Teil 1: Produkte ohne Feuer- und Rauchschutzeigenschaften

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Portes industrielles, commerciales et de garage - Norme de produit - Partie 1: Produits sans caractéristiques coupe-feu, ni pare-fumée

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Ta slovenski standard je istoveten z: EN 13241-1:2003

ICS:

91.060.50	Vrata in okna	Doors and windows
91.090	Konstrukcije zunaj stavb	External structures

SIST EN 13241-1:2003

en,fr,de

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EUROPEAN STANDARD

EN 13241-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2003

ICS 91.090

English version

Industrial, commercial and garage doors and gates - Product standard - Part 1: Products without fire resistance or smoke control characteristics

Portes et barrières industrielles, commerciales et de garage
- Norme de produit - Partie 1: Produits sans
caractéristiques coupe-feu, ni pare-fumée

Tore - Produktnorm - Teil 1: Produkte ohne Feuer- und
Rauchschutzeigenschaften

This European Standard was approved by CEN on 12 June 2003.

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
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Contents

	page
Foreword.....	4
Introduction	5
1 Scope	6
1.1 General.....	6
1.2 Exclusions	6
1.3 Specific applications	7
2 Normative references	7
3 Terms and definitions.....	8
4 Requirements	8
4.1 Mechanical aspects	9
4.1.1 Force for manual operation	9
4.1.2 Mechanical resistance	9
4.1.3 Mechanical durability	9
4.1.4 Geometry of glazing/glass components.....	9
4.1.5 Protection against cutting	9
4.1.6 Protection against tripping	10
4.1.7 Safe openings.....	10
4.1.8 Release of dangerous substances.....	10
4.2 Power operation.....	10
4.2.1 Protection against crushing, shearing and drawing-in	10
4.2.2 Operating forces	10
4.2.3 Electrical safety.....	11
4.2.4 Electromagnetic compatibility (EMC)	11
4.2.5 Alternative requirements.....	12
4.2.6 Upgrading of manually operated doors.....	12
4.3 Additional requirements for specific performance characteristics.....	12
4.3.1 Water tightness	12
4.3.2 Resistance to wind load	13
4.3.3 Noise	13
4.3.4 Thermal resistance	13
4.3.5 Air permeability	13
4.3.6 Durability of the performance characteristics	14
4.4 Instructions for installation, operation and maintenance	14
5 Marking and labelling	14
6 Evaluation of conformity.....	14
6.1 General.....	14
6.2 Initial type test.....	15
6.3 Test on site	15
6.4 Production control	15
Annex A (informative) Form for designation and classification of performances	17
Annex B (normative) Procedure for the determination of values for thermal resistance.....	18
B.1 Introduction	18
B.2 Procedure	18
Annex C (informative) Safety factors to be considered in door design in respect of their resistance to wind load.....	20
Annex ZA (informative) Relationship of this European Standard with the Construction Products Directive	21

ZA.1	Clauses of this European Standard addressing the provisions of EU Construction Products Directive	21
ZA.2	Procedures for the attestation of conformity of industrial, commercial and garage doors and gates	22
ZA.2.1	General	22
ZA.2.2	Procedure according to system 3	22
ZA.3	CE-marking and labelling	23
Annex ZB	(informative) Relationship of this European Standard with the Machinery Directive	26
Annex ZC	(informative) Relationship of this European Standard with the EMC Directive	27
Bibliography	28

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SIST EN 13241-1:2003

<https://standards.iteh.ai/catalog/standards/sist/359f09e9-2955-4783-855e-86ad2fee39d3/sist-en-13241-1-2003>

EN 13241-1:2003 (E)**Foreword**

This document (EN 13241-1:2003) 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 January 2004, and conflicting national standards shall be withdrawn at the latest by April 2005.

This European Standard is part of a series of product standards for industrial, commercial and garage doors and gates with or without fire resistance or smoke control characteristics (see Bibliography).

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 EU Directive(s).

For relationship with EU Directive(s), see informative annexes ZA, ZB and ZC, which are integral parts of this document.

Annexes A and C are informative. Annex B is normative.

This document includes a Bibliography.

No existing European Standard is superseded.

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.

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Introduction

With the aim of clarifying the intentions of this European Standard and avoiding doubts when reading it, the following assumptions were made when producing it:

- a) components without specific requirements are:
 - designed in accordance with the usual engineering practice and calculation codes, including all failure modes;
 - of sound mechanical and electrical construction;
 - made of materials with adequate strength and of suitable quality;
 - general electrical hazards are dealt with according to electrical safety standards such as EN 60204–1.
- b) components are kept in good repair and working order, so that the required characteristics remain during the economical working life despite wear;
- c) with the exception of the items listed below, a mechanical device is built according to good practice and the requirements of this European Standard:
 - negotiations occur between the manufacturer and the purchaser concerning particular conditions for the use and places of use for the door related to health and safety;
 - the place of use/installation to be adequately lit;
 - the place of use/installation to allow safe use of the door.

These assumptions do not restrict the need for adequate information for use in this European Standard.

EN 13241-1:2003 (E)**1 Scope****1.1 General**

This European Standard specifies the safety and performance requirements for doors, gates and barriers, 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 or residential premises.

This European Standard also covers commercial doors such as rolling shutters and rolling grilles used in retail premises which are mainly provided for the access of persons rather than vehicles or goods.

These doors can include pass doors incorporated in the door leaf which are also covered by this European Standard.

These devices can be manually or power operated.

This European Standard does not cover operation in environments where the electromagnetic disturbances are outside the range of those specified in EN 61000-6-3.

1.2 Exclusions

This European Standard does not apply to the following which are intended for a different use:

- lock gates and dock gates;
- doors on lifts;
- doors on vehicles;
- armoured doors;
- doors mainly for the retention of animals;
- theatre textile curtains;
- horizontally moving manually operated pedestrian doors with a leaf size less than 6,25 m²;
- horizontally moving power operated doors less than 2,5 m wide and 6,25 m² area, designed principally for pedestrian use in accordance with prEN 12650-1;
- revolving doors of any size;
- railway barriers;
- barriers used solely for vehicles.

This European Standard does not cover the radio part of doors. If a radio operating device is used, the relevant ETSI standards should be applied in addition.

This European Standard does not contain any specific requirements for fire resistance or smoke control characteristics which are covered in prEN 13241-2.

This European Standard does not contain any specific requirement regarding noise emitted by a door in relation with the Machinery Directive.

This European Standard does not contain any specific requirement for doors which are moving because of energy stored by dedicated means from human power such as manually tensioned springs.

This European Standard does not contain any specific requirements for doors on escape routes. The ability to open the door leaf safely and easily cannot normally be achieved by industrial, commercial and garage doors due to size, weight and/or mode of operation.

1.3 Specific applications

This European Standard should also apply to power operated doors which have been created by the addition of power operation to an installed manual door in respect of the relevant requirements. Annex ZA does not apply to this kind of door.

It also identifies requirements and classes of performance for additional characteristics considered to be of importance to the trade.

When a door is part of the load carrying structure of the building the requirements of this European Standard can apply on a voluntary basis in addition to the requirements for the load carrying structure, which are not dealt with in this European Standard. Annex ZA does not apply for this kind of doors.

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 418, *Safety of machinery — Emergency stop equipment, functional aspects — Principles for design.*

EN 1037, *Safety of machinery — Prevention of unexpected start-up.*

ENV 1991-2-4, *Eurocode 1: Basis of design and actions on structures — Part 2-4: Actions on structures — Wind actions.*

EN 12424:2000, *Industrial, commercial and garage doors and gates — Resistance to wind load — Classification.*

EN 12425, *Industrial, commercial and garage doors and gates — Resistance to water penetration — Classification.*

EN 12426, *Industrial, commercial and garage doors and gates — Air permeability — Classification.*

EN 12427, *Industrial, commercial and garage doors and gates — Air permeability — Test method.*

EN 12428, *Industrial, commercial and garage doors and gates — Thermal transmittance — Requirements for the calculation.*

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

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

EN 12444, *Industrial, commercial and garage doors and gates — Resistance to wind load — Testing and calculation.*

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.*

EN 12489, *Industrial, commercial and garage doors and gates — Resistance to water penetration — Test method.*

EN 12604:2000, *Industrial, commercial and garage doors and gates — Mechanical aspects — Requirements.*

EN 13241-1:2003 (E)

EN 12605:2000, *Industrial, commercial and garage doors and gates — Mechanical aspects — Test methods.*

EN 12635:2002, *Industrial, commercial and garage doors and gates — Installation and use.*

EN 12978:2003, *Industrial, commercial and garage doors and gates — Safety devices for power operated doors and gates — Requirements and test methods.*

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

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

EN 61000-6-3, *Electromagnetic compatibility (EMC) — Part 6-3 : Generic standards — Emission standard for residential, commercial and light-industrial environments (IEC 61000-6-3:1996, modified).*

EN ISO 140-3, *Acoustics — Measurement of sound insulation in buildings and of building elements — Part 3 : Laboratory measurements of airborne sound insulation of building elements (ISO 140-3:1995).*

EN ISO 717-1, *Acoustics — Rating of sound insulation in buildings and of building elements — Part 1 : Airborne sound insulation (ISO 717-1:1996).*

EN ISO 12567-1, *Thermal performance of windows and doors — Determination of thermal transmittance by hot box method — Part 1 : Complete windows and doors (ISO 12567-1:2000).*

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3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 12433-1 and EN 12433-2 and the following apply.

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3.1**operating force of the door**

force exerted by the power operated door leaf when coming into contact with a person and/or an obstacle

3.2**vertically moving door**

any door where the main closing edge remains parallel to the ground or floor during its movement

3.3**horizontally moving door**

any door where the main closing edge remains perpendicular to the ground or floor during its movement

4 Requirements**4.1 General**

The choice of the door type and its specification needs to be made after taking into account where the door is to be installed and the operating requirements expected from it. Safety in use, ease of use and the amount and frequency of maintenance, its mode of operation, frequency of operation, degree of automation, provision of pass doors and position of the door within the building, etc. are all linked to the choice of the door type. Such specifications may include requirements for performance features which shall be demonstrated by the standards given in the following clauses.

Unless the manufacturer is supplying to fulfil the particular classes or values of performance characteristics for resistance to water penetration, resistance to wind load, thermal resistance air permeability, resistance to fire or resistance to smoke as notified by the purchaser, the manufacturer shall declare the relevant performance levels of his product.

Doors shall be planned, designed and constructed in accordance with the following requirements to ensure their satisfactory and safe operation in their intended situation and under their expected conditions of use and their safe maintenance, repair and dismantling.

4.2 Mechanical aspects

4.2.1 General

All doors, manual and power operated, shall be planned, designed and constructed in accordance with EN 12604. In particular, all doors shall meet the following requirements.

4.2.2 Force for manual operation

Maximum values for the force for manual operation are specified in EN 12604:2000, 4.4.1.

Maximum values of the force for emergency manual operation due to power or drive failure are specified in EN 12453:2000, 5.3.5.

Verification of the force for manual operation shall be carried out in accordance with the test method specified in EN 12605:2000, 5.1.5.

4.2.3 Mechanical resistance

Doors shall be designed and constructed in accordance with EN 12604:2000, 4.2.2 and 4.2.3 so that in normal operation the imposed forces, impacts and stresses neither damage the door nor impair its mechanical performance.

The mechanical strength shall be verified in accordance with the test methods specified in EN 12605:2000, 5.1.1 and 5.4.1.

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4.2.4 Mechanical durability

The mechanical performance of a door shall be ensured, subject to prescribed maintenance, for a number of operational cycles, to be declared by the manufacturer in accordance with EN 12604:2000, clause 5.

Mechanical durability shall be verified in accordance with the test methods specified in EN 12605:2000, 5.2.

NOTE The influences of degradation, by chemical and/or biological attack on the components, which may be incorporated in the test specimen for mechanical durability testing, when they are necessary to achieve characteristics such as air permeability, resistance to water penetration, safety in use etc. are not taken into account. The components are e.g. seals, gaskets, guards.

4.2.5 Geometry of glazing/glass components

Where transparent materials are used in doors they shall not become dangerous, if any breakage should occur.

Door leaves which are primarily made of transparent material shall be easily visible.

Specific requirements are specified in EN 12604:2000, 4.2.5, which shall be verified by the related test methods specified in EN 12605:2000, 5.3.1.

4.2.6 Protection against cutting

Accessible parts of doors shall not create any cutting hazard. Sharp edges shall be eliminated in accordance with EN 12604:2000, 4.5.1, and EN 12453:2000, 5.1.1.3.

EN 13241-1:2003 (E)**4.2.7 Protection against tripping**

Parts of doors shall not cause any tripping hazard. Height differences up to 5 mm which occur in the traffic area are not considered dangerous.

When height differences greater than 5 mm are needed due to technical reasons, e.g. thresholds of pass doors, the raised parts shall be clearly visible themselves or shall be made so by warning signs, e.g. yellow-black strips.

Pressure sensitive mats and floors which may create a tripping hazard shall comply with EN 12978:2003, 4.2.4.2.

4.2.8 Safe openings

Vertically moving doors shall be safeguarded in the event of failure of a single component in their suspension (including gear drives) or balancing system against dropping or uncontrolled out-of-balance movement.

Requirements are specified in EN 12604:2000, 4.3.4. These requirements shall be verified in accordance with EN 12605:2000, 5.3.2 and 5.4.3.

Horizontally moving doors shall be safeguarded against derailment.

Requirements are specified in EN 12604:2000, 4.3.1. These requirements shall be verified in accordance with EN 12605:2000, 5.1.2 and 5.4.2.

4.2.9 Release of dangerous substances

Products shall not release any dangerous substances in excess of the maximum permitted levels specified in the relevant European Standard or other specifications.

NOTE For products sold in the EEA see annex ZA.

4.3 Power operation

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SIST EN 13241-1:2003
<https://standards.iteh.ai/catalog/standards/sist/359f09e9-2955-4783-855e-86ad2fee39d3/sist-en-13241-1-2003>

4.3.1 General

All power operated doors shall fulfil (in addition to meeting the requirements of 4.2) the requirements of EN 12453. In particular, power operated doors shall fulfil the following requirements:

4.3.2 Protection against crushing, shearing and drawing-in

Crushing, shearing and drawing-in points generated by the door leaf during normal use shall be eliminated or safeguarded.

Requirements for safety measures are specified in EN 12453:2000, 5.1.1.

The effectiveness of these measures shall be assessed in accordance with EN 12445:2000, 4.1.1.

Safety devices, e.g. pressure-sensitive or electro-sensitive protective devices, which are involved in compliance with the requirements listed above shall be designed and tested in accordance with EN 12453:2000, 5.1.1.6 and EN 12978.

4.3.3 Operating forces

Operating forces exerted by the door leaf of power operated doors, including power operated pass doors, where crushing, shearing or impact hazards are safeguarded by limitation of forces, shall be kept to a safe level for users, as specified in EN 12453:2000, 5.1.1.5 and 5.1.3. Compliance shall be verified by tests specified in EN 12445:2000, clause 5 and 7.3.

For power operated doors which are operated in the hold to run mode of operation, the stopping distance after release of the actuator shall be kept under control.