

Industrial, commercial and garage doors and gates — Mechanical aspects — Requirements

The European Standard EN 12604:2000 has the status of a
British Standard

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National foreword

This British Standard is the official English language version of EN 12604:2000.

The UK participation in its preparation was entrusted by Technical Committee B/538, Doors, windows, shutters, hardware and curtain walling, to Subcommittee B/538/5, Industrial, commercial and garage doors and gates, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled “International Standards Correspondence Index”, or by using the “Find” facility of the BSI Standards Electronic Catalogue.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Further information

Users of this standard are informed that the UK submitted a vote of disapproval on final voting stage of the draft EN for the following reasons.

1. For some types of vertically moving doors, compliance with 4.3.4 will require the introduction of safety devices to cover components that do not fail in a dangerous manner. This is beyond the requirements of the following UK regulations.

- Management of Health and Safety at Work Regulations 1999;
- Workplace (Health, Safety and Welfare) Regulations 1992;
- Requirement K5 of Building Regulations, England and Wales and parallel provisions in the Building Standards (Scotland) Regulations and the Building Regulations (Northern Ireland).

2. No consideration is given to the possible results of a failure in secondary safety devices.

3. The durability test permits unlimited expenditure through the ongoing replacement of components. No accurate conclusion of cyclic durability in terms of intended use can be drawn from testing to clause 5 of BS EN 12604:2000.

** Additional guidance will be given in PD 6666 “Guidance on the interpretation of standards for mechanical aspects for industrial, commercial and garage doors”, which is in preparation.*

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 22, an inside back cover and a back cover.

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English version

Industrial, commercial and garage doors and gates - Mechanical aspects - Requirements

Portes industrielles, commerciales et de garage - Aspects
mécaniques - Exigences

Tore - Mechanische Aspekte - Anforderungen

This European Standard was approved by CEN on 1 January 1999.

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.

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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



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Contents

	Page
Foreword	3
1 Scope	4
2 Normative references	4
3 Definitions	5
4 Requirements	5
4.1 Basic principles	5
4.2 Design and construction	6
4.3 Protection against unintentional and uncontrolled movements	7
4.4 Manual operation	9
4.5 Mechanical protection and safety clearances against crushing, cutting, shearing, entanglement, drawing-in and trapping	9
4.6 Doors adjacent to traffic areas	10
4.7 Specific requirements for parts commonly used in suspension systems	10
4.8 Pass doors	12
4.9 Rolling doors and shutters	12
4.10 Additional requirements for doors operating by gravity or other self-closing mechanism	12
5 Durability	12
Annex A (informative) Mechanical hazards related to doors	13
Annex B (informative) Safeguarding against dropping by other design features incorporated in the suspension system of vertically operating door leaves according to 4.3.4	14
Annex C (informative) Examples of mechanical protection and safety clearances	15
Annex D (informative) Relationship between requirements for mechanical aspects and relevant test methods	20
Annex ZA (informative) Clauses of this European Standard addressing the provisions of the EU Construction Product Directive	21
Annex ZB (informative) Relationship of this European Standard with other EU Directives	22

Foreword

This European Standard was prepared by CEN/TC 33 "Windows, doors, shutters, building hardware and curtain walling" for which the secretariat 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 October 2000, and conflicting national standards shall be withdrawn at the latest by October 2000.

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.

Parts of this European Standard have been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and support essential requirements of EU Directives. For the relationship with EU Directives, see informative Annexes ZA and ZB, which are integral parts of this standard.

This standard is part of a series of European standards for industrial, commercial and garage doors and gates, which are identified in prEN 13241.

No existing European Standard is superseded.

1 Scope

1.1 This European Standard specifies the mechanical requirements for doors, gates and barriers intended for installation in areas in the reach of people and for which the main intended uses are giving safe access for goods and vehicles accompanied by persons in industrial, commercial and residential premises.

These products may be manually or power operated.

NOTE Power operated doors may be either an original power operated door or a manually operated door with the retrospective addition of a drive unit.

- 1.2** It does not apply to
- lock gates and dock gates,
 - doors on lifts,
 - doors on vehicles,
 - armoured doors in banks,
 - doors for animals in zoos,
 - theatre curtains,
 - revolving doors of any size,
 - horizontally moving doors less than 2,5 m wide and 6,25 m² area, designed solely for pedestrian use,
 - doors outside the reach of people (such as crane gantry fences),
 - railway barriers,
 - barriers used solely for vehicles.

1.3 This standard applies only to doors which are not part of the load carrying structure of the building.

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 294	Safety of machinery - Safety distances to prevent danger zones being reached by the upper limbs
EN 349	Safety of machinery - Minimum gaps to avoid crushing of parts of the human body
prEN 12424	Industrial, commercial and garage doors and gates – Resistance to wind load – Requirements and classification
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 12605	Industrial, commercial and garage doors and gates - Mechanical aspects - Test methods
prEN 12444	Industrial, commercial and garage doors and gates - Resistance to wind load - Testing and calculation

prEN 12453	Industrial, commercial and garage doors and gates - Safety in use of power operated doors – Requirements and classification
prEN 12600	Glass in buildings - Pendulum test – Impact test method for flat glass and performance requirements
prEN 13241	Industrial, commercial and garage doors and gates - Product standard

3 Definitions

For the purpose of this standard the definitions in EN 12433-1 and EN 12433-2 apply.

Whenever the term “door” is used in this standard, it shall be deemed to cover the full scope of types and variances of doors, gates and barriers defined in EN 12433-1.

4 Requirements

4.1 Basic principles

4.1.1 General

Doors should be designed and constructed so that they are capable of being installed, maintained, repaired and used in a safe manner.

Doors should withstand both the static and dynamic forces they will be subject to in normal use. Wear, fatigue and corrosion under normal conditions should also be considered.

Significant hazards commonly associated with doors are listed in Annex A. Other hazards may exist in addition to those listed. Where such hazards are present, proper actions should be taken to eliminate such hazards.

Mechanical hazards shall be avoided within the basic design of the door or eliminated by use of suitable guards. Where this is not possible, the hazard locations or remaining risks shall be identified by suitable warning signs.

NOTE This standard does not apply to doors already in use at the time of coming into effect of this standard, but does apply if existing doors are subsequently upgraded to power operation.

4.1.2 Particular safety considerations in connection with normal use of the door

A door should not cause injuries or damages due to

- unintentional or uncontrolled movements of a door leaf due to external influences, such as wind, snow, water, etc.,
- unintentional or uncontrolled movements of a door leaf due to disintegration of the door system in any way, such as falling down, derailment, overrunning of terminal positions, broken components of the leaf suspension, etc.,
- intentional movements of a door leaf (opening or closing) thereby trapping or crushing persons or objects in any position,
- lack of recognition due to material (i.e. glass), colour etc. causing a person to run or walk into a door leaf or not being aware of the movement of the panel,

- lack of predictability of behaviour (doors opening on to a driveway etc.),
- lack of proper operating instructions or instructions which are difficult to understand or to follow,
- parts of a door leaf breaking off.

Safety arrangements fitted on doors are not intended to prevent deliberate misuse of the door system.

4.1.3 Mechanical specifications of door characteristics

The manufacturer shall provide all technical information to enable the door to be correctly selected and the opening prepared for it. The number of full operational cycles which the product is designed/constructed for, has to consider the planned maintenance and replacement of parts subject to normal wear and fatigue and shall be permanently stated in a prominent position on the product.

For the interpretation of the mechanical performance of doors the following specifications should be given:

- structural opening sizes and dimension details;
- frequency of operation;
- operation mode;
- degree of automation;
- position in building (inside, outside);
- provision of pass door;
- transparent surfaces;
- building materials to be used;
- position and types of fixing.

NOTE 1 If such data are not presented by the purchaser at the time of request or order, the producer/supplier may ask for such data or specify his standard ones.

NOTE 2 Additional data in regard of mechanical aspects may be requested for specific conditions on site.

4.1.4 Verification

The methods to verify the various requirements of this standard are given in EN 12605, and a summary of the relevant items is given under Annex D.

4.2 Design and construction

4.2.1 General

All parts of door installations, whether fixed or movable, including the fixings, should in all respects be of good construction, suitable material, adequate strength and free from obvious defects for their intended working life.

4.2.2 Strength

The door and its components, including its fixings for attachment to the building, shall be designed so that, during normal operation, no part of the door, including the fixings, shall be permanently deformed. Normal operation does not include the engaging of anti-drop devices.

The design shall be in accordance with recognized technical rules using adequate safety factors taking into account the most unfavourable static and dynamic forces occurring during the operating cycle or the use of the safety equipments of the door.