



BSI Standards Publication

Railway applications — Design for PRM use — Equipment and components onboard rolling stock

Part 1: Toilets

National foreword

This British Standard is the UK implementation of EN 16585-1:2025. It supersedes BS EN 16585-1:2017, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee RAE/1/-/15, Railway Applications - People with Reduced Mobility.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Published by BSI Standards Limited 2025

ISBN 978 0 539 13340 0

ICS 11.180.01; 45.060.20

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 October 2025.

Amendments/corrigenda issued since publication

Date	Text affected
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English Version

Railway applications - Design for PRM use - Equipment and components onboard rolling stock - Part 1: Toilets

Applications ferroviaires - Conception destinée à
l'usage par les PMR - Equipements et éléments à bord
du matériel roulant - Partie 1 : Toilettes

Bahnanwendungen - Gestaltung für die Nutzung durch
PRM - Ausstattung und Bauteile in Schienenfahrzeugen
- Teil 1: Toiletten

This European Standard was approved by CEN on 30 June 2025.

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European foreword

This document (EN 16585-1:2025) has been prepared by Technical Committee CEN/TC 256 “Railway applications”, 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of an identical text or by endorsement, at the latest by April 2026, and conflicting national standards shall be withdrawn at the latest by April 2026.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 16585-1:2017.

In comparison with the previous edition, the following technical modifications have been made:

- the document template has been updated;
- this document has been revised generally for document references and editorial issues with grammar etc.;
- scope modified;
- normative references updated;
- terms and definitions revised;
- 5.1 removed references to annexes covering EC verification and testing requirements;
- references updated;
- 5.2 revised;
- 5.2 Note 2 moved to 5.2, 4) second bullet;
- 5.2 Note 3 moved to 5.2 4) third bullet;
- 5.3, 2) second bullet, reference updated to 5.2, 11);
- 5.4, 11) iv, Note 1 becomes Note;
- 5.4, 12) iii, Figure 10 Note has been moved to 12) ii, second bullet;
- Annex A update to ‘Interoperable wheelchair transportable by train’;
- Annex C “EC verification - Interoperability constituents” removed;
- Annex D “Summary of testing requirements” removed;
- Annex E “Wheelchair accessible toilet guidance and good practice” is now Annex C;
- Annex ZA updated;
- Bibliography updated.

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the European Free Trade Association (EFTA) States subsequently approves these requests for its Member States.

For the relationship with EU Legislation, see informative Annex ZA, which is an integral part of this document.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

Introduction

This document is part of a suite of four ‘Design for PRM use’ standards that have in total nine parts:

- EN 16584 is a standard that covers both infrastructure and rolling stock — Railway applications — Design for PRM use — General requirements:
 - Part 1: Contrast (EN 16584-1);
 - Part 2: Information (EN 16584-2);
 - Part 3: Optical and friction characteristics (EN 16584-3).
- EN 16585 is a standard that covers rolling stock — Railway applications — Design for PRM use — Equipment and components on board rolling stock:
 - Part 1: Toilets (EN 16585-1);
 - Part 2: Elements for sitting, standing and moving (EN 16585-2);
 - Part 3: Clearways and internal doors (EN 16585-3).
- EN 16586 is a standard that covers rolling stock — Railway applications — Design for PRM use — Accessibility of persons with reduced mobility to rolling stock:
 - Part 1: Steps for access and egress (EN 16586-1);
 - Part 2: Boarding aids (EN 16586-2).
- EN 16587 is a standard that covers infrastructure — Railway applications - Design for PRM use - Requirements for obstacle-free routes for infrastructure.

These standards aim to clarify the requirements (with clear and consistent terms and definitions) and to define the associated criteria and, where appropriate, methodologies to allow a clear pass/fail assessment.

1 Scope

This document describes the specific 'Design for PRM use' requirements applying to rolling stock and the assessment of those requirements. The following applies to this document:

- The definitions and requirements describe specific aspects of 'Design for PRM use' required by persons with disabilities and persons with reduced mobility as defined in the PRM TSI.
- This document defines elements which are universally valid for obstacle-free travelling relating to toilets. The definitions and requirements of this document are to be used for rolling stock applications.
- This document only refers to aspects of accessibility for PRM passengers; it does not define non-PRM related requirements and definitions.
- This document assumes that the rolling stock is in its defined operating condition.
- Where minimum or maximum dimensions are quoted these are absolute NOT nominal requirements.

The 'Equipment and Components' standard is written in three parts:

- this document is Part 1 and contains:
 - toilets.
- Part 2 contains:
 - handholds;
 - seats;
 - wheelchair spaces.
- Part 3 contains:
 - clearways;
 - internal doors.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

EN 12183:2022, *Manual wheelchairs - Requirements and test methods*

EN 12221-1:2008+A1:2013, *Child use and care articles - Changing units for domestic use - Part 1: Safety requirements*

EN 12221-2:2008+A1:2013, *Child use and care articles - Changing units for domestic use - Part 2: Test methods*

EN 12790-1:2023, *Child care articles - Reclined cradles - Part 1: Reclined cradles for children up to when they start to try to sit up*

EN 14752:2019+A1:2021, *Railway applications - Bodyside entrance systems for rolling stock*

EN 16584-1:2025, *Railway applications — Design for PRM use — General requirements — Part 1: Contrast*

EN 16584-2:2025, *Railway applications — Design for PRM use — General requirements — Part 2: Information (Basel)*

EN 16585-2:2025, *Railway applications — Design for PRM use — Equipment and components on board rolling stock — Part 2: Elements for sitting, standing and moving*

EN 16585-3:2025, *Railway applications — Design for PRM use — Equipment and components on board rolling stock — Part 3: Clearways and internal doors*

3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp/>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

clear width

clear usable width

unobstructed width of an open door or clearway to allow all passengers, including PRM, to pass through

3.2

clearway

unobstructed space with defined widths and heights to allow movement within a vehicle

3.3

gap

distance between a platform and the closest point on the rolling stock at the passenger door where passengers traverse from one to the other (both vertical and horizontal)

3.4

handrail

continuous element with round cross section for passengers to use to aid personal stability by gripping around

3.5

manual door

unpowered door which the passenger has to physically open and/or close

3.6

palm operable

operable by the palm or any part of the hand, not requiring fingers to be unclenched

Note 1 to entry: The design need is that passengers with painful conditions, which affect their joints such as arthritis, may be unable to (and are likely to experience discomfort or pain if they do) exert any force with the tip of a single finger. Many may not be able to unclench their fingers to do this or perform any pulling action.

3.7

proximity sensor

sensor that can be used to control facilities without the control device being physically touched

3.8

semi-automatic door

powered door which opens and/or closes following operation of a control device by a passenger

3.9

sharp edge

thin edge capable of cutting or an abrupt end or discontinuity of a surface which has the potential to injure a passenger in normal use

3.10

standard toilet

toilet not designed to be accessible to a passenger in a wheelchair

3.11

universal toilet

toilet designed to be used by all passengers including passengers in wheelchairs

3.12

wheelchair

wheeled personal mobility device

Note 1 to entry: Wheelchair characteristics are defined in Annex A.

3.13

wheelchair space

designated space in the passenger compartment for a wheelchair user and their wheelchair

4 Symbols and abbreviations

For purposes of this document, the symbols and abbreviations in Table 1 and Table 2 apply.

Table 1 — Abbreviations

Abbreviation	Designation
EN	European Standard (Euronorm)
PRM	Persons with disabilities and persons with reduced mobility
TSI	Technical Specification for Interoperability

Table 2 — Symbols

Symbol	Designation	Unit
%ile	Percentile	
kg	Weight	kilogram
mm	Length	millimetre
N	Force	Newton
°	measurement of angles	Degree

5 Requirements and assessment

5.1 General

- 1) All dimensions in the figures are in millimetres (mm) unless otherwise stated.
- 2) When toilets are fitted in a train, a universal toilet shall be provided that is accessible from the wheelchair space and, if provided, the sleeping compartment.
- 3) The standard toilet shall be compliant with the requirements of 5.2 and 5.3.
- 4) The universal toilet shall be compliant with the requirements of 5.2 and 5.4.

5.2 Standard and universal toilets, common parameters

- 1) The centre of any door handle, lock or door control device on the exterior or interior of the toilet compartment shall be located at a minimum of 800 mm and a maximum of 1 100 mm above the toilet door threshold.
 - Assessment: this shall be measured vertically above the door threshold.
- 2) A visual and tactile (or audible) indication shall be given inside and outside the toilet to indicate when a door has been locked.
 - Assessment: visual, tactile, and audible information shall be according to EN 16584-2:2025.
 - Assessment: Indication inside the toilet shall be provided by two distinct physical positions of the “lock” device and/or provision of audible indication.

NOTE 1 Current good practice and solutions are shown in EN 16584-2:2025, Annex M.

- 3) Any door control device and other equipment inside a toilet compartment (except for baby nappy change facilities and call for aid devices) shall be operable by exerting a force not exceeding 20 N.
 - Assessment of force required to operate a control device shall be by pulling or pushing the device depending on its normal mode of operation with e.g. a “force gauge” or “force meter” until the device or equipment is operated or activated.
 - This requirement does not refer to the force required to open or close a manual door itself (this is described in EN 16585-3:2025).
- 4) Any control device, including flushing system, shall contrast with the background surface, and shall be identifiable by touch.
 - Assessment shall be according to EN 16584-1:2025 and EN 16584-2:2025.
 - For systems that are operated by proximity sensors the ‘identifiable by touch’ requirement does not apply.
 - For hygiene reasons it is good practice to have the flush control positioned close to the toilet to allow a blind or visually impaired passenger to locate it.
- 5) Clear, precise information for the operation of any control device shall be provided, making use of pictograms and shall be tactile.

- Assessment shall be according to EN 16584-2:2025.
- 6) The toilet seat and lid shall contrast with the background.
 - Assessment shall be according to EN 16584-1:2025.
- 7) Door controls shall comply with the specifications of EN 16585-3:2025, 5.2.1 (3).
- 8) If both open and close door control devices are fitted one above the other: the top button shall always be the open control. (To be subject to this requirement the buttons do not need to be directly one above the other)
- 9) Internal automatic and semi-automatic doors shall incorporate devices that prevent passengers becoming trapped during operation of the doors.
 - Assessment shall be according to method described in EN 14752:2019+A1:2021.
- 10) Handrails where provided shall:
 - i. Contrast with the background surface.
 - Assessment shall be according to EN 16584-1:2025.
 - ii. Comply with the geometric requirements described in the relevant clauses of EN 16585-2:2025.
- 11) In all areas of double-deck vehicles the minimum height of 1 950 mm shall be replaced by the relative ceiling height provided in those areas. In those areas, reduced ceiling height is only accepted as a consequence of structural constraints (gauge, physical space).
- 12) The force required to open or close a manual door shall not exceed 60 N.
 - Assessment of force required shall be by pulling or pushing the door relative to its normal mode of operation with a 'force gauge' or 'force meter' until the door is fully opened or fully closed. See EN 16585-3:2025 for an example force meter.

5.3 Standard toilet

- 1) A standard toilet is not designed to be accessible to a wheelchair user.
- 2) The minimum door usable width shall be 500 mm.
 - This shall be assessed according to Figure 1 and Figure 2a.
 - There are to be no protrusions into the minimum usable width of 500 mm in its open position, such as handles or other features, from the floor up to a minimum of 1 950 mm as shown in Figure 1 and Figure 2. Also see 5.2, 11)
 - Minimum door usable width of a manual hinged door includes the swept envelope and should ensure that no part of the door shall be in that area when open. See Figure 2a.