# SLOVENSKI STANDARD
# oSIST prEN 16585-2:2022

**01-julij-2022**

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**Železniške naprave - Načrtovanje za osebe z omejenimi gibalnimi sposobnostmi - Oprema in sestavni deli na železniških vozilih - 2. del: Elementi za sedenje, stanje in premikanje**

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



Bahnanwendungen - Gestaltung für die Nutzung durch PRM - Ausstattung und Bauteile in Schienenfahrzeugen - Teil 2: Bauteile zum Sitzen, Stehen und Fortbewegen

Applications ferroviaires - Conception destinée à l'usage par les PMR - Equipements et éléments à bord du matériel roulant - Partie 2 : Eléments pour position assise, position debout et déplacement



**Ta slovenski standard je istoveten z:** **prEN 16585-2**

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**ICS:**

| | | |
|---|---|---|
| 11.180.01 | Pripomočki za onesposobljene in hendikepirane osebe na splošno | Aids for disabled and handicapped persons in general |
| 45.060.20 | Železniški vagoni | Trailing stock |

**oSIST prEN 16585-2:2022** **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

# DRAFT
# prEN 16585-2

May 2022

ICS 11.180.01; 45.060.20

Will supersede EN 16585-2:2017

English Version

# Railway applications - Design for PRM use - Equipment and components on board rolling stock - Part 2: Elements for sitting, standing and moving

Applications ferroviaires - Conception destinée à l'usage par les PMR - Equipements et éléments à bord du matériel roulant - Partie 2 : Eléments pour position assise, position debout et déplacement

Bahnanwendungen - Gestaltung für die Nutzung durch PRM - Ausstattung und Bauteile in Schienenfahrzeugen - Teil 2: Bauteile zum Sitzen, Stehen und Fortbewegen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 256.



If this draft becomes a European Standard, 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

# Contents

Page

## European foreword

This document (prEN 16585-2:2022) has been prepared by Technical Committee CEN/TC 256 “Railway applications”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 16585-2:2017.

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

— The document template has been updated

— The document has been revised generally for document references and editorial issues with grammar

— Scope modified

— Normative references updated

— Terms and definitions revised

— References updated

— Figures updated

— 5.2.1 requirement updated

— 5.3 (9) requirement updated

— Annex D “EC verification - Interoperability constituents” removed

— Annex E “Summary of testing requirements” removed

— Annex ZA updated

— Bibliography updated



This document has been prepared under a Standardization Request given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s) / Regulation(s).

For relationship with EU Directive(s) / Regulation(s), see informative Annex ZA, which is an integral part of this document.

# 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 onboard 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 including toilets, elements for sitting, standing and moving and clearways and internal doors. 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 general requirements and general 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

— This document is not specifically intended for Urban Rail, however these standards or clauses from these standards can be adopted by Urban Rail projects should they choose to do so

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

— Part 1 contains:

  — toilets

— This document is Part 2 and 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.

prEN 16584-1:2022, *Railway applications — Design for PRM use — General requirements — Part 1: Contrast*

prEN 16584-2:2022, *Railway applications — Design for PRM use — General requirements — Part 2: Information*

prEN 16585-1:2022, *Railway applications — Design for PRM use — Equipment and components onboard rolling stock — Part 1: Toilets*

prEN 16585-3:2022, *Railway applications — Design for PRM use — Equipment and components onboard rolling stock — Part 3: Clearways and internal doors*

## 3 Terms and definitions

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

**3.1**
**clearway**
unobstructed space with defined widths and heights to allow movement within a vehicle

**3.2**
**clear width**
**clear usable width**
unobstructed width of an open door or clearway to allow all passengers, including PRM, to pass through

**3.3**
**doorway**
opening in the vehicle body side that allows access to and egress from that vehicle



**3.4**
**first step**
step that is the first step for a passenger to use, to overcome a height change

Note 1 to entry: For the external access/egress steps this will normally be the step that is closest to the platform edge (fixed or moveable step), therefore this is the first step when boarding and the last step when alighting.



Note 2 to entry: In the context of steps for internal height changes (other than the external access/egress steps) this means the first usable step when ascending and the edge of the walking floor when descending.

**3.5**
**fixed longitudinal seat**
passenger seat which is installed along the body side (not foldable or intended to tip up) facing perpendicular to the direction of travel

**3.6**
**gangway**
means for passengers to pass from one vehicle of a train to the adjacent vehicle and includes the inter-vehicle connection device and any aisle (e.g. between body end cupboards, cabinets or toilets) immediately adjacent to the device

Note 1 to entry: This definition is intentionally different from EN 16286-1.

**3.7**
**inter-vehicle gangway**
articulating device allowing transit between vehicles (provided for passenger use)

Note 1 to entry: This definition is similar to the definition in EN 16286-1 for gangway system.

**3.8**
**handhold**
discontinuous element designed to be gripped or held in order to aid personal stability

**3.9**
**handrail**
continuous element with round cross section for passengers to use to aid personal stability by gripping around

**3.10**
**last step**
final step for an ascending passenger to use to overcome a height change, forming the edge of the walking floor

**3.11**
**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.



**3.12**
**priority seat**
passenger seat with specific requirements designated for priority use by PRM



**3.13**
**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



**3.14**
**wheelchair**
wheeled personal mobility device

Note 1 to entry: Wheelchair characteristics are defined in EN 16585-1, Annex A.

**3.15**
**wheelchair accessible doorway (or door)**
closest doorway to the wheelchair space (and wheelchair accessible sleeping accommodation, where fitted)

**3.16**
**wheelchair space**
designated space in the passenger compartment for the wheelchair users and their wheelchairs

Note 1 to entry: Space can be designed for two wheelchairs, one beside the other (dual)

# 4 Symbols and abbreviations

**Table 1 —Abbreviations**

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

**Table 2 — Symbols**

| Symbol | Designation | Unit |
|---|---|---|
| ° | Angle | degree |
| mm | Length | millimetre |
| N | Force | Newton |

# 5 Requirements and assessment

## 5.1 General



All dimensions in the figures are in millimetres (mm) unless otherwise stated.

## 5.2 Seats



### 5.2.1 General



1) To provide personal stability while using the aisle, all aisle-side seats shall have handholds, vertical handrails or other items unless the seat, when in the upright position, is within 200 mm of:

   i. The back of another seat facing in the opposite direction which is fitted with a handhold or a vertical handrail or other items that can be used for personal stability,

   ii. A handrail or a partition.

2) Handholds or other items that can be used for personal stability shall:

   i. Be provided at the aisle side of the seat, see Figure 1,

   ii. Be positioned at a height of between 800 mm and 1 200 mm above the floor,

      — Measured vertically from the aisle floor to the centre of the usable part of the handhold.

   iii. When designed to be gripped around, have a usable part of a handhold or other item, such as a looped handhold, a cross sectional area of minimum 490 $mm^2$ and a maximum of 1 250 $mm^2$ with a minimum radius of 10 mm over a minimum length of 100 mm to allow space for the breadth of the hand,

   iv. When designed, for the hand to rest against or hold, rather than grip the usable surface of a handhold, have a minimum usable surface area of 2 500 $mm^2$ measured perpendicular to the direction of travel to ensure that the correct surface is available to the passenger,

Dimensions in millimetres

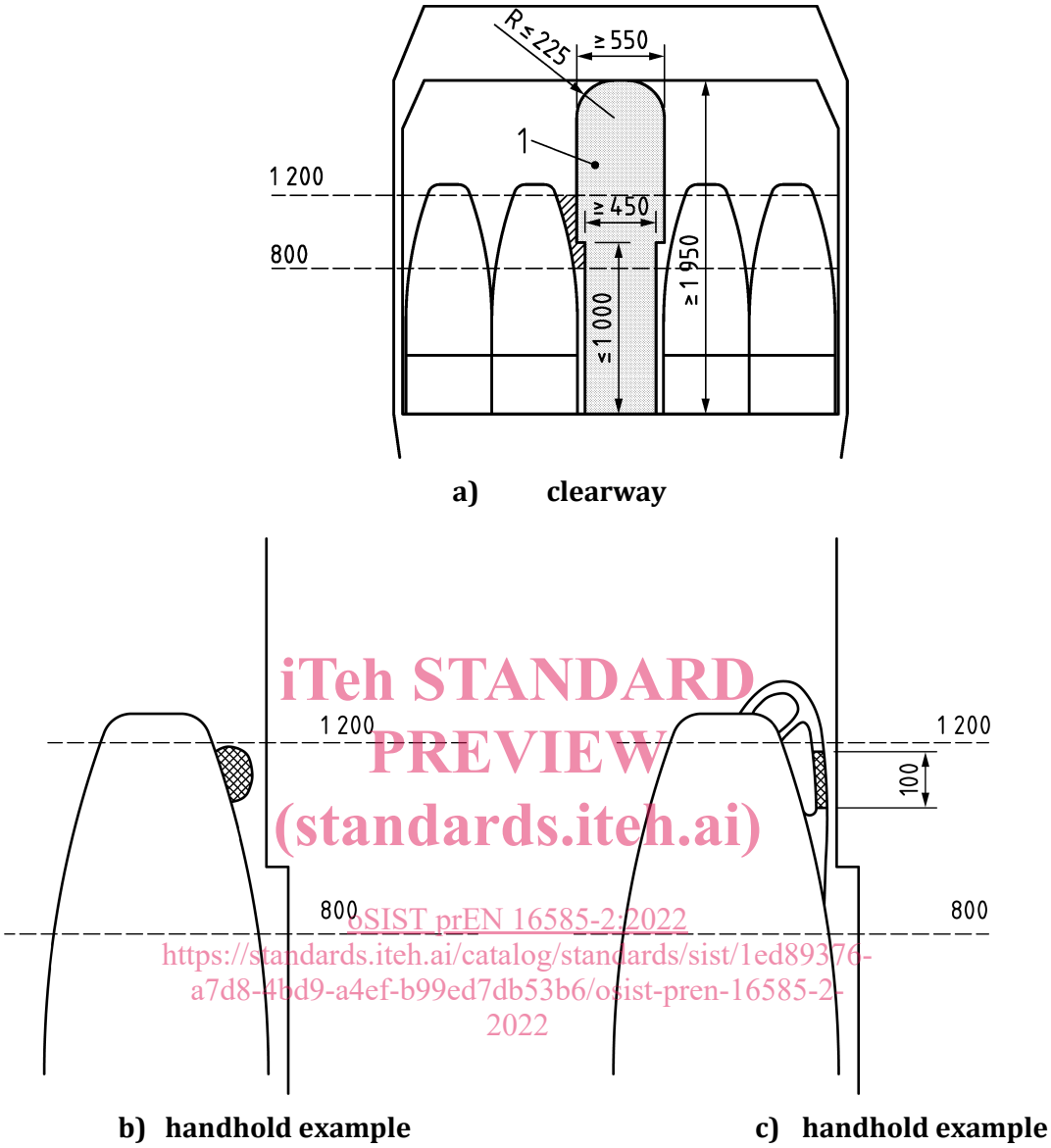





**Figure 1 — Example of clearway showing 800 mm and 1 200 mm lines with hatched area for handhold**

v. Not protrude into the clearway, see Figure 1,

   — Clearway shall be according to prEN 16585-3:2022.

vi. Contrast with the seat,

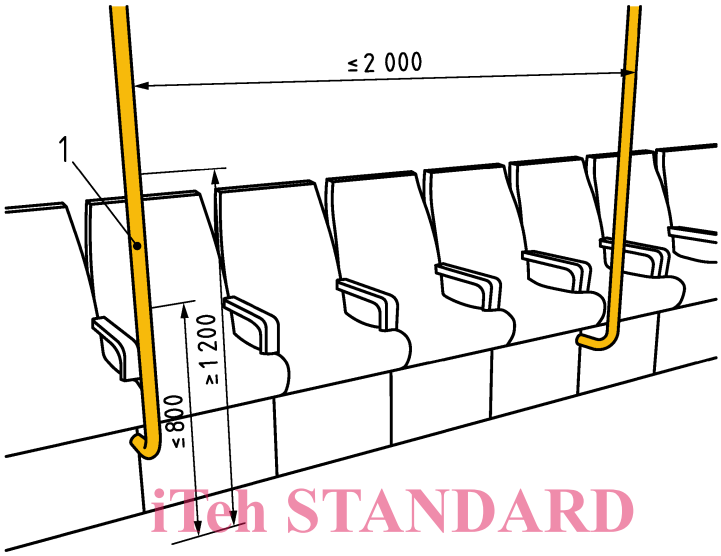
   — Contrast shall be assessed according to prEN 16584-1:2022.

vii. Where the handhold or other item for personal stability extends above or below the height limit requirements, a minimum of 100 mm shall be within the 800 mm to 1 200 mm range, see Figure 1.

3) In seating areas with fixed longitudinal seats, handrails shall be used for personal stability, see Figure 2:

i. Shall be at a maximum distance of 2 000 mm apart.

Dimensions in millimetres






**Key**

1 usable part of the handrail between 800 mm and 1 200 mm above floor



**Figure 2 — Height and maximum spacing of usable part of handrail**



— All of the regulated usable part shall be measured by the horizontal distance between the handrails.

ii. Shall be positioned at a height of between 800 mm and 1 200 mm above the floor.

— The regulated usable part shall extend between the limits specified, measured vertically from the walking floor.

iii. Shall contrast with the vehicle interior surroundings and background.

— Contrast shall be measured in accordance with prEN 16584-1:2022.

4) The handholds or other items for personal stability shall not have sharp edges.

### 5.2.2 Priority Seats

#### 5.2.2.1 General

1) Not less than 10 % of the seats by fixed trainset, unit or individual vehicle, and by class shall be designated as priority seats for the use of PRM.

— Assessment shall make use of a train layout diagram (drawings) on which priority seats are clearly identified.

— For assessment the number of seats includes all types of seats except those tip-up seats in the vestibule and regulated wheelchair spaces. Wheelchair spaces, standing supports and all other equipment where the user is not intended to sit down completely, are not considered as seats.

— Where 10 % of the total number of priority seats does not produce a whole number the number of seats required shall be rounded up.

NOTE For example, if the total number of seats in a vehicle is 61 to 70 then 7 of these seats will be priority seats.

2) The priority seats and vehicles containing them shall be identified by signs complying with prEN 16584-2:2022.

i. For the vehicle interior, the signs shall be located on or near to a priority seat in a way that a passenger is able to identify this seat as a priority seat at all times.

ii. For the vehicle exterior, the signs shall be located on the exterior of the vehicle at each external passenger door which is in close proximity to priority seats.

iii. The signs shall be visible when the door is in the open and closed positions, see Figure 3.

Dimensions in millimetres



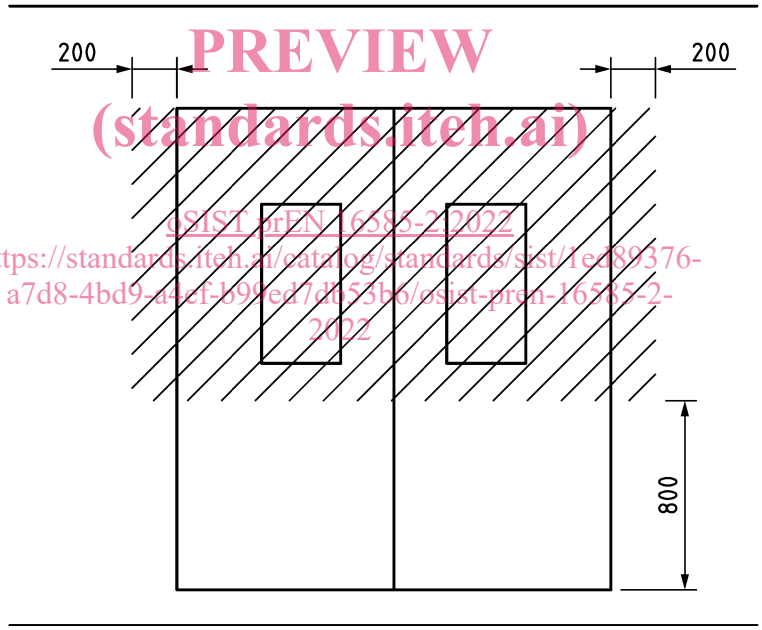



**Figure 3 — Sign location zone on exterior of vehicle**

iv. The signs located on or near to a priority seat shall include text to state that other passengers shall make such seats available to those who are eligible to use them.

— Text shall be in accordance with prEN 16584-2:2022.

v. For vehicles with single leaf end doors the sign should be placed within 2 m of the edge of the open door leaf on the same vehicle.

3) The priority seats: