



SLOVENSKI STANDARD

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Aircraft ground support equipment - Specific requirements - Part 4: Passenger boarding bridges

Luftfahrt-Bodengeräte - Besondere Anforderungen - Teil 4: Fluggastbrücken

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Matériel au sol pour aéronefs - Exigences particulières - Partie 4: Passerelles passagers

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Ground service and
maintenance equipment

SIST EN 12312-4:2014

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EUROPEAN STANDARD

EN 12312-4

NORME EUROPÉENNE

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English Version

Aircraft ground support equipment - Specific requirements - Part 4: Passenger boarding bridges

Matériel au sol pour aéronefs - Exigences particulières -
Partie 4: Passerelles passagers

Luffahrt-Bodengeräte - Besondere Anforderungen - Teil 4:
Fluggastbrücken

This European Standard was approved by CEN on 20 December 2013.

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 CEN-CENELEC 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 CEN-CENELEC Management Centre has the same status as the official versions.

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

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Foreword

This document (EN 12312-4:2014) has been prepared by Technical Committee CEN/TC 274 "Aircraft ground support equipment", 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of an identical text or by endorsement, at the latest by September 2014, and conflicting national standards shall be withdrawn at the latest by September 2014.

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

This document supersedes EN 12312-4:2003+A1:2009.

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 Annex ZA, which is an integral part of this document.

EN 12312 "Aircraft ground support equipment – Specific requirements" consists of the following parts:

- Part 1: Passenger stairs;
- Part 2: Catering vehicles;
- Part 3: Conveyor belt vehicles;
- Part 4: Passenger boarding bridges; (this document)
- Part 5: Aircraft fuelling equipment;
- Part 6: Deicers and deicing/antiicing equipment;
- Part 7: Aircraft movement equipment;
- Part 8: Maintenance stairs and platforms;
- Part 9: Container/Pallet loaders;
- Part 10: Container/Pallet transfer transporters;
- Part 11: Container/Pallet dollies and loose load trailers;
- Part 12: Potable water service equipment;
- Part 13: Lavatory service equipment;
- Part 14: Disabled/incapacitated passenger boarding vehicles;
- Part 15: Baggage and equipment tractors;
- Part 16: Air start equipment;
- Part 17: Air conditioning equipment;

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- *Part 18: Nitrogen or Oxygen units;*
- *Part 19: Aircraft jacks, axle jacks and hydraulic tail stanchions;*
- *Part 20: Electrical ground power units.*

The main technical changes compared to the previous version are the following:

- a) Amendment A1:2009 was incorporated;
- b) the Introduction was updated;
- c) the Scope was updated;
- d) Clause 2, *Normative references*, was updated;
- e) the terms and definitions for terminal/terminal building and fixed tunnel/bridge link were added;
- f) List of hazards was moved to Annex A;
- g) Subclause 5.1.3 and 5.1.5 were added;
- h) Old subclause 5.1.3 was re-numbered and changed;
- i) Subclauses 5.2 to 5.13 were changed with subclauses 5.5.4, 5.7.9, 5.12.5, 5.12.6 being added;
- j) Clause 6, *Information for use*, was changed with additional warnings being added to subclause 6.3;
- k) Clause 7, *Verification of requirements*, was changed;
- l) Annex A, *Example of typical boarding bridge*, was deleted and replaced by the List of hazards;
- m) Annex ZA referring to the Machinery Directive 98/37/EC was replaced by Annex ZA referring to the new Machinery Directive 2006/42/EC;
- n) the Bibliography was updated.

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

Introduction

This European Standard specifies health and safety requirements, as well as some functional and performance requirements, for passenger boarding bridges (PBB) intended for passenger embarking/disembarking of all aircraft types commonly in service in civil air transport.

The minimum essential criteria are considered to be of primary importance in providing safe, serviceable, economical and practical PBB. Deviations from the recommended criteria should occur only after careful consideration, extensive testing, risk assessment and thorough service evaluation have shown alternative methods or conditions to be satisfactory.

This European Standard is a Type C standard as stated in EN ISO 12100.

The machinery concerned and the extent to which hazards, hazardous situations and hazardous 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. Deviations from requirements do not fall within the presumption of conformity given by the standard.

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EN 12312-4:2014 (E)**1 Scope**

This European Standard specifies the technical requirements to minimize the hazards listed in Clause 4 which can arise during the commissioning, operation and maintenance of passenger boarding bridges (PBBs) when used as intended, including misuse reasonably foreseeable by the manufacturer, when carried out in accordance with the specifications given by the manufacturer or his authorized representative. It also takes into account some requirements recognized as essential by authorities, aircraft and ground support equipment (GSE) manufacturers as well as airlines and handling agencies.

This European Standard applies to:

- a) apron-drive bridges;
- b) fixed-head bridges (also referred to as nose-loaders) or pedestal bridges;
- c) suspended bridges,

for embarking/disembarking of passengers. It is applicable from the interface with the terminal building, which can be movable, e.g. on two levels to separate arrival and departure level to the connection with the aircraft including fixed tunnels.

This European Standard does not apply to:

- d) elevating lounges;
- e) passenger stairs;
- f) other form of aircraft access equipment;
- g) automatic PBB positioning.

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This European Standard does not establish requirements for hazards caused by noise and vibration.

NOTE EN 1915-3 and EN 1915-4 provide the general GSE vibration and noise requirements.

This part of EN 12312 is not applicable to PBBs which were manufactured before the date of publication of this standard by CEN.

This part of EN 12312 when used in conjunction with EN 1915-1, EN 1915-2 and EN 1915-4 provides the requirements for PBBs.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1915-1:2013, *Aircraft ground support equipment - General requirements - Part 1: Basic safety requirements*

EN 1915-2:2001+A1:2009, *Aircraft ground support equipment - General requirements - Part 2: Stability and strength requirements, calculations and test methods*

EN 1915-4, *Aircraft ground support equipment - General requirements - Part 4: Noise measurement methods and reduction*

EN ISO 7010, *Graphical symbols - Safety colours and safety signs - Registered safety signs (ISO 7010)*

EN ISO 12100:2010, *Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010)*

EN ISO 13849-1:2008, *Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design (ISO 13849-1:2006)*

EN ISO 13850:2008, *Safety of machinery - Emergency stop - Principles for design (ISO 13850:2006)*

EN 60332 (all parts), *Tests on electric and optical fibre cables under fire conditions*

ISO 3795, *Road vehicles, and tractors and machinery for agriculture and forestry — Determination of burning behaviour of interior materials*

ISO 7718-1, *Aircraft - Passenger doors interface requirements for connection of passenger boarding bridge - Part 1: Main deck doors*

ISO 7718-2, *Aircraft - Passenger doors interface requirements for connection of passenger boarding bridge - Part 2: Upper deck doors*

ISO 16004, *Aircraft ground equipment - Passenger boarding bridge or transfer vehicle — Requirements for interface with aircraft doors*

DIN 51130:2004, *Testing of floor coverings - Determination of the anti-slip property - Workrooms and fields of activities with slip danger, walking method - Ramp test*

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3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 12100:2010, EN 1915-1:2013 and EN 1915-2:2001+A1:2009 together with the following apply.

3.1

passenger boarding bridge (PBB)

enclosed adjustable passenger walkway connecting the terminal building to the aircraft

3.2

apron-drive bridge

PBB with a drive unit, that can be driven across the apron within its operating range

3.3

pedestal bridge

PBB without an apron drive unit

3.4

suspended bridge

PBB which is driven from a cantilevered structure

3.5

rotunda

enclosed structure about which the PBB rotates for radial movement and hinges for vertical movement

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- 3.6**
rotunda column
supporting structure for the rotunda
- 3.7**
tunnel
enclosed walkway section
- 3.8**
elevating leg
assembly for raising and lowering the PBB
- 3.9**
drive unit
wheeled carriage of apron-drive bridges on which elevating legs are mounted
- 3.10**
bridgehead
transitional area at the aircraft end of the PBB
- 3.11**
canopy
flexible weather protection between the aircraft and the PBB
- 3.12**
service stair
stair and landing allowing access from the apron to the PBB
- 3.13**
auto-levelling
device which ensures automatic vertical adjustment of the PBB, corresponding to vertical movement of the aircraft
- 3.14**
vertical drive system
means of adjusting the height of the PBB
- 3.15**
horizontal drive system
means of adjusting the position of the PBB in the horizontal plane
- 3.16**
telescoping system
system used to extend or retract the PBB
- 3.17**
bridgehead rotation system
means to adjust the bridgehead sill towards the fuselage of the aircraft
- 3.18**
translation
movement of the PBB across an airfield apron. Movement involves elements of rotation and/or extension
- 3.19**
inter-ramp
short ramp providing a smooth transition between telescoping tunnel floors, or where a step might otherwise occur

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3.20**emergency lowering**

means of coping automatically with a sudden aircraft movement exceeding the capability of normal autolevelling

3.21**manual mode**

mode, which allows operator-initiated control of all bridge movements

3.22**automatic mode**

mode that initiates control of all PBB movement without intervention by the operator. This does not include autolevelling mode

3.23**safety shoe**

pressure-sensitive switch placed underneath the open door of an aircraft to detect excessive downward motion of the aircraft

3.24**bridgehead closure device**

door or equivalent device (e.g. shutter) closing the bridgehead opening on the side intended for connection to the aircraft

3.25**barrier**

movable element to prevent access into an area

3.26**terminal / terminal building**

building or building extension, to which an aircraft is connected via the passenger boarding bridge

3.27**fixed tunnel / bridge link**

unmoving PBB element connecting the movable parts of the PBB to the terminal

4 List of hazards

The list of risks and hazards (given at Annex A) is based on EN ISO 12100:2010 and contains the hazards and hazardous situations, as far as they are dealt with in this European Standard, identified by risk assessment as significant for PBBs and which require action to eliminate or reduce risks. Not covered are hazards due to the traffic and repair.

5 Safety requirements and/or measures**5.1 General requirements**

5.1.1 PBBs shall conform to the relevant requirements of EN 1915-1, EN 1915-2 and EN 1915-4 unless otherwise specified in this standard. PBBs shall comply with the safety requirements and/or protective measures of this clause. In addition, the PBBs shall be designed according to the principles of EN ISO 12100 for relevant but not significant hazards, which are not dealt with by this document.

5.1.2 Stability and strength calculations shall be carried out in accordance with EN 1915-2. Resonance shall be taken into account.