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Podporna oprema na tleh za letalski promet - Posebne zahteve - 4. del: Mostiči za vkrcanje na potniška letala

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

Luftfahrt-Bodengeräte - Besondere Anforderungen - Teil 4: Fluggastbrücken

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

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ICS:

49.100

Oprema za servis in
vzdrževanje na tleh

Ground service and
maintenance equipment

oSIST prEN 12312-4:2021

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN 12312-4

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Will supersede EN 12312-4:2014

English Version

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

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

Luftfahrt-Bodengeräte - Besondere Anforderungen -
Teil 4: Fluggastbrücken

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 274.

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.

This draft European Standard was established by CEN 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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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

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Contents	Page
European foreword.....	3
Introduction	6
1 Scope	7
2 Normative references	7
3 Terms and definitions	8
4 List of hazards	11
5 Safety requirements and/or measures	11
5.1 General requirements	11
5.2 Controls, monitoring and warning devices	13
5.3 Vertical drive systems	14
5.4 Horizontal drive systems	14
5.5 Bridgehead	15
5.6 Operating speeds	16
5.7 Passenger areas	17
5.8 Operator's workplace	17
5.9 Safeguards against falling	18
5.10 Service access and landings	19
5.11 Lighting	21
5.12 Fire protection	21
5.13 Electrical equipment	22
6 Verification of requirements	22
6.1 General	22
6.2 Barrier or bridgehead closure device	22
7 Information for use	22
7.1 Marking	22
7.2 Additional marking	23
7.3 Warnings	23
7.4 Instructions	23
Annex A (informative) List of significant hazards	25
Annex B (informative) Sloping gradients	29
Annex ZA (informative) Relationship between this European Standard and the essential requirements of Directive 2006/42/EC aimed to be covered	30
Bibliography	35

European foreword

This document (prEN 12312-4:2020) has been prepared by Technical Committee CEN/TC 274 “Aircraft ground support equipment”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

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 2006/42/EC on machinery.

For relationship with EU Directive 2006/42/EC on machinery, 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 or service 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;
- Part 18: Nitrogen or Oxygen units;
- Part 19: Aircraft jacks, axle jacks and hydraulic tail stanchions;

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— Part 20: Electrical ground power units.

This document supersedes

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

- a) Clause 2, *Normative references*, was updated;
- b) in Clause 3, *Terms and definitions*, the terms "auto-levelling mode", "autonomous mode", "remote control system", "pre-positioning", "GPU", "PCA", "mono control panel" and "remote multi control panel" were added;
- c) in Clause 3, *Terms and definitions*, the definitions for "service stair access" and "automatic mode" were updated;
- d) in 5.1.4 a) an example was added for clarification;
- e) 5.1.6 and 5.1.7 added to improve safety on ground staff;
- f) 5.2.1, 5.2.2 and 5.2.10 changed;
- g) 5.2.3 and 5.2.13 added to improve safety while operating the PBB;
- h) old subclauses 5.2.3, 5.2.4, 5.2.5, 5.2.6, 5.2.7, 5.2.8, 5.2.9, 5.2.11, 5.5.1, 5.5.2, 5.5.4, 5.6.5, 5.10.5, 5.10.6, 6.2 b), 6.2 c) renumbered;
- i) 5.3.1 and 5.3.2 changed;
- j) 5.4.1 changed;
- k) 5.4.6 added to improve safety in case of synchronization system fails;
- l) 5.5.1 added to improve safety while autolevelling;
- m) old subclause 5.5.3 renumbered and changed;
- n) 5.6.2 changed;
- o) 5.6.4, 5.10.4, 5.12.5, 6.2.a), 6.3 c) deleted;
- p) 5.7.3 changed;
- q) 5.8.6 and 5.8.8 changed;
- r) 5.8.9 added to improve safety of people entering into the PBB while it is moving;
- s) 5.9.5 NOTE changed;
- t) 5.9.6 and 5.9.7 changed;
- u) 5.10.1, 5.10.2 and 5.10.3 changed;
- v) 5.11.4 and 5.11.8 changed;
- w) 5.11.11 added to improve safety under remote operations;

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- x) 5.12.6 renumbered and changed;
- y) Clause 6 and Clause 7 were switched;
- z) old subclause 6.3 b) and d) changed
- aa) old subclause 6.3 g) added to improve safety of passengers while boarding / disembarking;
- bb) old subclause 6.4 c) and d) changed;
- cc) Annex A, Table A.1, items 1,7,8,9,10 updated.

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Introduction

This document 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. Such deviations are outside the Scope of this document and a manufacturer should be able to demonstrate an equivalent level of protection.

The machinery concerned and the extent to which hazards, hazardous situations and events are covered are indicated in the Scope of this document.

This document is a Type C standard as stated in EN ISO 12100:2010.

This document is of relevance, in particular, for the following stakeholder groups representing the market players with regard to machinery safety:

- machine manufacturers (small, medium and large enterprises);
- health and safety bodies (regulators, accident prevention organizations, market surveillance, etc.).

Others can be affected by the level of machinery safety achieved with the means of the document by the above-mentioned stakeholder groups:

- machine users/employers (small, medium and large enterprises);
- machine users/employees (e.g. trade unions, organizations for people with special needs);
- service providers, e.g. for maintenance (small, medium and large enterprises);
- consumers (in case of machinery intended for use by consumers).

The above-mentioned stakeholder groups have been given the possibility to participate at the drafting process of this document.

The machinery concerned and the extent to which hazards, hazardous situations or hazardous events are covered are indicated in the Scope of this document.

When requirements of this type-C standard are different from those which are stated in type-A or type-B standards, the requirements of this type-C standard take precedence over the requirements of the other standards for machines that have been designed and built according to the requirements of this type-C standard.

1 Scope

This document 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 document 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 document does not apply to:

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

No extra requirements on noise and vibration are provided other than those in EN 1915-3:2004+A1:2009 and EN 1915-4:2004+A1:2009.

NOTE EN 1915-3:2004+A1:2009 and EN 1915-4:2004+A1:2009 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 document by CEN.

This part of EN 12312 when used in conjunction with EN 1915-1:2013 and EN 1915-2:2001+A1:2009 provides the requirements for PBBs.

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 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 1915-4:2004+A1:2009, *Aircraft ground support equipment — General requirements — Part 4: Noise measurement methods and reduction*

prEN 12312-4:2020 (E)

EN ISO 7010:2020, *Graphical symbols — Safety colours and safety signs — Registered safety signs (ISO 7010:2019, Corrected version 2020-06)*

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

EN ISO 13849-1:2015, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design (ISO 13849-1:2015)*

EN ISO 13850:2015, *Safety of machinery — Emergency stop function — Principles for design (ISO 13850:2015)*

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

ISO 3795:1989, *Road vehicles, and tractors and machinery for agriculture and forestry — Determination of burning behaviour of interior materials*

ISO 7718-1:2016, *Aircraft — Passenger doors interface requirements for connection of passenger boarding bridge or passenger transfer vehicle — Part 1: Main deck doors*

ISO 7718-2:2016, *Aircraft — Passenger doors interface requirements for connection of passenger boarding bridge or passenger transfer vehicle — Part 2: Upper deck doors*

ISO 16004:2017, *Aircraft ground equipment — Passenger boarding bridge or transfer vehicle — Interface requirements with aircraft doors*

DIN 51130:2014, *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, EN 1915-2:2001+A1:2009 and the following apply.

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**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

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 access**

means 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

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prEN 12312-4:2020 (E)**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

3.20**emergency lowering**

means of coping automatically with a sudden aircraft movement exceeding the capability of normal auto-levelling

3.21**manual mode**

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

3.22**auto-levelling mode**

mode that initiates control of vertical PBB movement without intervention by the operator

Note 1 to entry: Movement triggered by operator.

3.23**automatic mode**

mode that initiates control of all PBB movement without intervention by the operator

Note 1 to entry: Movement triggered and supervised by operator.

3.24**autonomous mode**

mode that initiates control of all PBB movement without intervention or supervision by the operator

3.25**remote control system**

mode that initiates control of all PBB movements from a location outside the PBB

3.26**safety shoe**

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

3.27**bridgehead closure device**

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

3.28**barrier**

movable element to prevent access into an area