ÕHUSÕIDUKITE MAAPEALSED TEENINDUSSEADMED. ERINÕUDED. OSA 4: REISIJASILLAD

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

EESTI STANDARDIMIS- JA AKREDITEERIMISKESKUS
ESTONIAN CENTRE FOR STANDARDISATION AND ACCREDITATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 12312-4:2024 sisaldab Euroopa standardi EN 12312-4:2024 ingliskeelset teksti.	This Estonian standard EVS-EN 12312-4:2024 consists of the English text of the European standard EN 12312-4:2024.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 23.10.2024.	Date of Availability of the European standard is 23.10.2024.
Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 49.100

EUROPEAN STANDARD

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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

Luftfahrt-Bodengeräte - Besondere Anforderungen - Teil 4: Fluggastbrücken

This European Standard was approved by CEN on 5 August 2024.

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

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

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European foreword

This document (EN 12312-4:2024) 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of an identical text or by endorsement, at the latest by April 2025 and conflicting national standards shall be withdrawn at the latest by April 2025.

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 12312-4:2014.

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the 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.

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 mode", "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 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) and 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 auto-levelling;

m) previous 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) and 6.3 c) deleted;

p) 5.7.3 changed;

q) 5.8.6 and 5.8.8 changed;

r) 5.2.14 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;

x) 5.12.6 renumbered and changed;

y) Clause 6 and Clause 7 were switched;

z) previous subclauses 6.3 b) and 6.3 d) changed

aa) subclause 7.3 g) added to improve safety of passengers while boarding / disembarking;

bb) previous subclauses 6.4 c) and 6.4 d) changed;

cc) Annex A, Table A.1, items 1,7,8,9 and10 updated.

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;*

— *Part 20: Electrical ground power units.*

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 organizations 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 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.

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 their 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 are provided other than those in EN 1915-4:2004+A1:2009.

NOTE EN 1915-4:2004+A1:2009 provides the general 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 1915-1:2023 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 3-7:2004+A1:2007, *Portable fire extinguishers - Part 7: Characteristics, performance requirements and test methods*

EN 1915-1:2023, *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*

EN 16165:2021, *Determination of slip resistance of pedestrian surfaces - Methods of evaluation*

EN 60332-1-1:2004,[1] *Tests on electric and optical fibre cables under fire conditions - Part 1-1: Test for vertical flame propagation for a single insulated wire or cable - Apparatus (IEC 60332-1-1:2004)*

EN 60332-1-2:2004,[2] *Tests on electric and optical fibre cables under fire conditions - Part 1-2: Test for vertical flame propagation for a single insulated wire or cable - Procedure for 1 kW pre-mixed flame (IEC 60332-1-2:2004)*

EN 60332-1-3:2004,[3] *Tests on electric and optical fibre cables under fire conditions - Part 1-3: Test for vertical flame propagation for a single insulated wire or cable - Procedure for determination of flaming droplets/particles (IEC 60332-1-3:2004)*

EN 60332-2-1:2004, *Tests on electric and optical fibre cables under fire conditions - Part 2-1: Test for vertical flame propagation for a single small insulated wire or cable - Apparatus (IEC 60332-2-1:2004)*

EN 60332-2-2:2004, *Tests on electric and optical fibre cables under fire conditions - Part 2-2: Test for vertical flame propagation for a single small insulated wire or cable - Procedure for diffusion flame (IEC 60332-2-2:2004)*

EN IEC 60332-3-10:2018,[4] *Tests on electric and optical fibre cables under fire conditions - Part 3-10: Test for vertical flame spread of vertically-mounted bunched wires or cables - Apparatus (IEC 60332-3-10:2018)*

EN IEC 60332-3-21:2018, *Tests on electric and optical fibre cables under fire conditions - Part 3-21: Test for vertical flame spread of vertically-mounted bunched wires or cables - Category A F/R (IEC 60332-3-21:2018)*

EN IEC 60332-3-22:2018, *Tests on electric and optical fibre cables under fire conditions - Part 3-22: Test for vertical flame spread of vertically-mounted bunched wires or cables - Category A (IEC 60332-3-22:2018)*

EN IEC 60332-3-23:2018, *Tests on electric and optical fibre cables under fire conditions - Part 3-23: Test for vertical flame spread of vertically-mounted bunched wires or cables - Category B (IEC 60332-3-23:2018)*

EN IEC 60332-3-24:2018, *Tests on electric and optical fibre cables under fire conditions - Part 3-24: Test for vertical flame spread of vertically-mounted bunched wires or cables - Category C (IEC 60332-3-24:2018)*

[1] As impacted by EN 60332-1-1:2004/A1:2015.

[2] As impacted by EN 60332-1-2:2004/A1:2015, EN 60332-1-2:2004/A11:2016, EN 60332-1-2:2004/A12:2020.

[3] As impacted by EN 60332-1-3:2004/A1:2015.

[4] As impacted by EN IEC 60332-3-10:2018/AC:2018 and EN IEC 60332-3-10:2018/A11:2020.

EN IEC 60332-3-25:2018, *Tests on electric and optical fibre cables under fire conditions - Part 3-25: Test for vertical flame spread of vertically-mounted bunched wires or cables - Category D (IEC 60332-3-25:2018)*

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 13849-1:2023, *Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design (ISO 13849-1:2023)*

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

EN ISO 14122-3:2016, *Safety of machinery - Permanent means of access to machinery - Part 3: Stairs, stepladders and guard-rails (ISO 14122-3:2016)*

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*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 12100:2010, EN 1915-1:2023, EN 1915-2:2001+A1:2009 and the following 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
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