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Podporna oprema na tleh za letalski promet - Posebne zahteve - 14. del: Prevozna sredstva za vkrcavanje trajno ali zaļ asno funkcionalno oviranih potnikov

Aircraft ground support equipment - Specific requirements - Part 14: Disabled/incapacitated passenger boarding vehicles

Luftfahrt-Bodengeräte - Besondere Anforderungen - Teil 14: Behinderten-Transportgeräte

Matériels au sol pour aéronefs - Exigences particulières - Partie 14: Matériel d'accès à bord des passagers handicapés

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

Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN 12312-14:2006+A1:2009) 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of an identical text or by endorsement, at the latest by October 2009, and conflicting national standards shall be withdrawn at the latest by December 2009.

This document includes Amendment 1, approved by CEN on 2009-03-01.

This document supersedes EN 12312-14:2006.

The start and finish of text introduced or altered by amendment is indicated in the text by tags ⟩A1⟨ ⟩A1⟨.

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).

⟩A1⟨ For relationship with EU Directives, see informative Annexes ZA and ZB, which are integral parts of this document. ⟩A1⟨

This document is intended for use in conjunction with EN 1915-1, EN 1915-2, EN 1915-3 and EN 1915-4.

The Parts of EN 12312 — Aircraft ground support equipment — Specific requirements — are:

Part 1: Passenger stairs
Part 2: Catering vehicles
Part 3: Conveyor belt vehicles
Part 4: Passenger boarding bridges
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
Part 18: Nitrogen or Oxygen units
Part 19: Aircraft jacks, axle jacks and hydraulic tail stanchions
Part 20: Electrical ground power units

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Introduction

This European Standard defines health and safety requirements, as well as some functional and performance requirements for transport and boarding vehicles intended for moving disabled or incapacitated passengers on an airfield between the terminal building and the aircraft. Major factors in the design of the equipment, with relevance to safety, are the consideration of psychological aspects, i.e. feelings of well-being and security, and the physical comfort of the passenger and the avoidance of panic.

The minimum essential criteria are considered to be of primary importance in providing safe, serviceable, economical and usable disabled/incapacitated passenger boarding vehicles. Deviations from the recommended criteria should occur only after careful consideration, extensive testing and thorough in-service evaluation have shown alternative methods or conditions to be satisfactory.

This European Standard is a Type C standard as stated in ▌A1⟩ EN ISO 12100 ⟨A1▐.

The machinery concerned and the extent to which hazards, hazardous situations and 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.

1 Scope

This European Standard specifies the technical requirements to minimise the hazards listed in Clause 4 which can arise during the commissioning, operation and maintenance of disabled/incapacitated passenger boarding vehicles when used as intended and under the conditions of misuse which are reasonably foreseeable by the manufacturer or his authorised representative. It also takes into account some performance requirements recognized as essential by authorities, aircraft and ground support equipment (GSE) manufacturers as well as airlines and handling agencies.

This European Standard defines specific safety requirements for transporters/boarding vehicles for transporting/boarding incapacitated or disabled passengers as defined under 3.1, hereafter referred to as boarding vehicles.

This European Standard applies to pedestrian controlled self-propelled boarding vehicles, self-propelled boarding vehicles with integrated driver's accommodation and towable boarding vehicles, used for moving disabled or incapacitated passengers at an airport between the terminal building and the aircraft ramp and to board and disembark those passengers to and from civil aircraft.

Examples of some typical boarding vehicles are shown in Annex A.

This European Standard assumes that a disabled or incapacitated passenger may be accompanied by an attendant and may be seated in a wheelchair or reclining on a stretcher trolley.

This European Standard also assumes that the types of wheelchairs which may be employed could be:

- Standard type wheelchairs, e.g. in accordance with EN 12183;
- Wheelchairs with or without occupant self-restraint system;
- Aircraft aisle-width wheelchairs;

- Non-standard wheelchairs used at airports;
- Non occupant propelled wheelchairs;
- Battery powered wheelchairs, e.g. in accordance with EN 12184.

NOTE It is assumed that battery powered wheelchairs would not be taken into the cabin of an aircraft.

This European Standard does not apply to other forms of aircraft loaders not specifically designed for boarding of incapacitated or disabled passengers, e.g. mobile lounges, boarding bridges or externally mounted pods such as used on helicopters.

Noise and vibration are dealt with respectively in EN 1915-4 and EN 1915-3.

This European Standard does not deal with hazards in respect to a standard automotive chassis and from other vehicles on the apron.

This Part of EN 12312 is not applicable to disabled/incapacitated passenger boarding vehicles which are manufactured before the date of publication by CEN of this standard.

〚A1〛 This part of EN 12312 is intended to be used in conjunction with EN 1915-1, EN 1915-2, EN 1915-3 (for vehicles) and EN 1915-4. 〚A1〛

2 Normative references

The following referenced documents are indispensable for the application 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.

〚A1〛 *deleted text* 〚A1〛

EN 1050:1996, *Safety of machinery — Principles for risk assessment*

EN 1175-1, *Safety of industrial trucks - Electrical requirements - Part 1: General requirements for battery powered trucks*

EN 1756-2, *Tail lifts — Platform lifts for mounting on wheeled vehicles — Safety requirements — Part 2: Tail lifts for passengers*

EN 1837, *Safety of machinery — Integral lighting of machines*

EN 1915-1:2001, *Aircraft ground support equipment - General requirements — Part 1: Basic safety requirements*

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

EN 1915-3, *Aircraft ground support equipment — General requirements — Part 3: Vibration measurement methods and reduction*

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

EN 12183, *Manual wheelchairs — Requirements and test methods*

EN 12184, *Electrically powered wheelchairs, scooters and their chargers — Requirements and test methods*

EN ISO 12100-1:2003, *Safety of machinery — Basic concepts, general principles for design — Part 1: Basic terminology, methodology (ISO 12100-1:2003)*

〚A1〛 EN ISO 12100-2:2003, *Safety of machinery - Basic concepts, general principles for design - Part 2: Technical principles (ISO 12100-2:2003)* 〚A1〛

〚A1〛 EN ISO 13850:2008, *Safety of machinery - Emergency stop - Principles for design (ISO 13850:2006)* 〚A1〛

EN ISO 14122-3:2001, *Safety of machinery — Permanent means of access to machinery — Part 3: Stairs, stepladders and guard-rails (ISO 14122-3:2001)*

ISO 7193, *Wheelchairs — Maximum overall dimensions*

ISO 7718, *Aircraft — Main-deck passenger doors — Interface requirements for connection with passenger-boarding bridge or transfer vehicle*

ISO 10542-1, *Technical systems and aids for disabled or handicapped persons — Wheelchair tiedown and occupant-restraint systems — Part 1: Requirements and test methods for all systems*

ISO 10542-2, *Technical systems and aids for disabled or handicapped persons — Wheelchair tiedown and occupant-restraint systems — Part 2: Four-point strap-type tiedown systems*

ISO 10542-3, *Technical systems and aids for disabled or handicapped persons — Wheelchair tiedown and occupant-restraint systems — Part 3: Docking-type tiedown systems*

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in [A1] EN ISO 12100:2003 [A1] and EN 1915-1:2001 and the following apply.

3.1
disabled passenger
person with one or more impairments, one or more disabilities, one or more handicaps or a combination of impairment, disability and/or handicap which restricts their mobility

3.2
incapacitated passenger
person whose mobility is temporarily impaired

3.3
wheelchair
wheeled chair, either occupant-propelled, pushed or power operated (which may be capable of being folded or dismantled) and fitted with or without an occupant restraint system

3.4
stretcher trolley
wheeled trolley with integral or removable stretcher (which may be capable of being folded or dismantled) attendant operated, non self-propelled

3.5
attendant
person who assists a disabled/incapacitated person

NOTE Examples of the ways in which attendants assist disabled persons are e.g. pushing wheelchairs, operating hoists, assisting with entering and leaving seats, beds and wheelchairs.

3.6
restraint device
device for preventing movement of a person or load

3.7
boarding platform
platform for transhipment between van body and aircraft

3.8
van body
enclosed body for carrying loads, e.g. disabled/incapacitated persons, wheelchairs, stretcher trolleys

3.9
main platform
open lifting platform for carrying loads, e.g. disabled/incapacitated persons, wheelchairs, stretcher trolleys

3.10
tail-lift (tailgate lift)
moveable platform at the rear of a vehicle used for assisting the entry or exit of passengers, with or without wheelchairs or stretcher trolleys, into and out of vehicles to a height of not more than 1 700 mm

3.11
under-run guard
rigid or flexible bumper device which is designed to prevent another vehicle from becoming entrapped underneath the rear of a vehicle when the vehicle is struck from behind

3.12
sideguard
rigid device which is designed to prevent another vehicle from becoming entrapped underneath the side of a vehicle when the vehicle is struck from either side

4 List of significant hazards

The list of risks and hazards (see Annex B) is based on EN 1050 and contains all the specific hazards, hazardous situations and events additional to those of the EN 1915 series, as far as they are dealt with in this European Standard, identified by risk assessment as significant for disabled/incapacitated passenger boarding vehicles and which require action to eliminate or reduce risks.

5 Safety requirements and/or measures

5.1 General requirements

5.1.1 A1 Disabled/Incapacitated passenger boarding equipment shall conform to the relevant requirements of EN 1915-1, EN 1915-2, EN 1915-3 and EN 1915-4 unless otherwise specified in this standard. A1 They shall also conform to the specific requirements of this European Standard.

NOTE The design of electrical equipment should take into account any potential interference with passengers fitted with pacemakers or accompanying electrical equipment. Consideration should be given to the requirements of EN 60601-1 in relation to any medical equipment that may be used on the boarding vehicle.

5.1.2 Strength calculations shall be carried out in accordance with EN 1915-2.

5.1.3 The overall dimensions of the boarding vehicle shall be kept to a minimum, consistent with this function in handling the loads. The overall width of the boarding vehicle in the driving condition (with stabilizers retracted) should not exceed 2 600 mm. In the fully lowered position, the vehicle should not exceed a height of 4,0 m.

NOTE A practical upper limit of 3 800 mm has been found to suit the majority of major airport local height restrictions.

5.1.4 The electrical system of battery powered boarding vehicles shall conform to EN 1175-1 with the exception of standard automotive chassis.

5.1.5 Self-propelled boarding vehicles with a driver's cabin shall have an alternative means of exit for the driver in the event of an emergency. It shall be positioned as far as possible away from the normal exit.

5.1.6 Restraint systems shall be fitted to all seats on self-propelled boarding vehicles a lap type seat belt as a minimum.

5.1.7 Where a driver’s cabin is installed, it shall not obstruct the transfer of passengers to and from the aircraft.

NOTE The driver’s cabin may be located at either side.

5.1.8 The driver's cabin shall not project beyond the leading edge of the boarding platform, see also 5.3.7.

5.1.9 It shall be possible to smooth the transfer of a wheelchair or stretcher trolley from the boarding vehicle to the aircraft, e.g. by providing an integral or manually attached bridging section. Variations in height in between the sections shall not exceed 5 mm.

5.1.10 The ground clearance of the boarding vehicle shall allow without interference the transversing of two surfaces intersecting at an angle of 3° (5 %) either in bridging or in cresting.

5.1.11 Structural parts or stabilizers of pedestrian controlled self-propelled boarding vehicles shall not protrude from the overall length within the operating range of the tiller.

5.1.12 Vibration measurement and protection shall be carried out in accordance with EN 1915-3.

5.1.13 Noise measurement and protection shall be carried out in accordance with EN 1915-4.

5.1.14 The vehicle chassis at ground level shall be surrounded by a protective structure in order to prevent any possibility of inadvertent access of persons under the van body while elevated (see 5.14 and Annex D of EN 1915-1:2001).

5.1.15 The van body or main platform shall be equipped with a means for safe access of staff from ground level.

5.1.16 Where under-run guards or sideguards are creating crushing or shearing hazards, measures shall be taken to avoid these hazards (see 5.14 and Annex D of EN 1915-1:2001).

NOTE Under-run guards and/or sideguards can be required, by law, in the country of use for vehicles to be used on public roadways.

5.1.17 In deviation from 5.17.5 of EN 1915-1:2001, hydraulic fluid tanks shall be dimensioned so that during maximum system displacement at least 20 % of the fluid volume remains in the tank.

5.2 Van body or main platform

5.2.1 Cylinders in hydraulic lifting systems shall be protected against unintentional lowering by e.g. a pilot-operated check-valve mounted directly to the cylinder (see 5.20.3 of EN 1915-1:2001).

5.2.2 It shall be sufficient to carry the passengers on wheelchairs or stretchers plus attendants and any ancillary equipment as intended. The local load capacity of the van body or main platform shall not be less than 3 000 N/m^2 evenly distributed.

5.2.3 The floor of the van body or main platform shall be covered with a hard wearing anti-slip surface in accordance with EN 1915-1:2001, 5.12.1.

5.2.4 Devices to restrain wheel chairs stretcher trolleys and occupants shall be provided.

The design of restraint devices and anchorage points shall be capable of withstanding the imposed loads under driving conditions up to the maximum driving speed of the boarding vehicle.

Restraint systems shall be designed according to ISO 10542-1, ISO 10542-2 or ISO 10542-3.

5.2.5 The interior dimensions of the main platform shall be such that wheelchair(s) or stretcher trolley(s), plus attendant(s) and equipment, can be accommodated safely. Details of the maximum dimensions for wheelchairs are given in EN 12183, EN 12184 and ISO 7193.

NOTE For design purposes, stretcher trolleys can be taken as having a minimum overall length of 1 900 mm, overall width of 570 mm and maximum raised height of 940 mm. Taking anthropometric changes into account, a minimum overall length of 2 100 mm is recommended.

5.2.6 The internal height of the van body shall not be less than 1 900 mm.

NOTE Preferably, a minimum height of 2 100 mm should be used wherever possible.

5.2.7 Seats with restraint systems shall be provided for the intended number of attendants accompanying disabled/incapacitated passengers according to the load capacity of the boarding vehicle.

5.2.8 Open main platforms shall be equipped with fixed railings or side panels on both sides.

NOTE Preferably, full panels should be used.

5.2.9 Doors or railings with moveable parts in accordance with EN 1915-1:2001, 5.12.2, shall be provided at each end of the van body or main platform. Minimum dimensions of openings shall be in accordance with 5.2.5. Gaps between adjoining handrails shall be in accordance with EN ISO 14122-3:2001, 7.1.9.