SLOVENSKI STANDARD
SIST EN 12312-14:2014

01-september-2014

Nadomešča:
SIST EN 12312-14:2007+A1:2009

Podporna oprema na tleh za letalski promet - Posebne zahteve - 14. del: Prevozna sredstva za vkrcavanje trajno ali začasno 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

Ta slovenski standard je istoveten z: **EN 12312-14:2014**

ICS:

49.100	Oprema za servis in vzdrževanje na tleh	Ground service and maintenance equipment

SIST EN 12312-14:2014 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 12312-14

June 2014

ICS 49.100

Supersedes EN 12312-14:2006+A1:2009

English Version

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

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

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

This European Standard was approved by CEN on 6 March 2014.

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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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Foreword

This document (EN 12312-14:2014) 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of an identical text or by endorsement, at the latest by December 2014, and conflicting national standards shall be withdrawn at the latest by December 2014.

This document supersedes EN 12312-14:2006+A1:2009.

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 has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EC Directive 2006/42/EC on machinery.

For relationship with EC 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* is comprised of the following parts:

— *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/anti-icing 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* (the present document);

— *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*.

Compared with EN 12312-14:2006+A1:2009, the following changes have been made:

a) the Amendment A1:2009 was incorporated;

b) the Introduction was updated;

c) the Scope was updated;

d) Clause 2, *Normative references*, was updated;

e) Clause 3, *Terms and definitions*, was updated and six terms and definitions were added;

f) the list of hazards was moved to Annex A and updated;

g) Clause 5, *Safety requirements and/or measures*, was completely revised and changed, with the addition of 5.5, *Means of access*, 5.6, *Lifting device and stability*, 5.10 *Transfer plate*, 5.11 *Canopy*, 5.12 *Half-width cabin*, 5.14 *Auxiliary means for emergency operation*, 5.15 *Electrical equipment*, thus making it necessary to re-number the following subclauses;

h) Clause 6, *Information for use*, was changed;

i) Clause 7, *Verification of requirements*, was changed;

j) informative Annex C, *Loading control*, was re-worded to be in alignment with the Machinery Directive 2006/42/EC;

k) normative Annex D, *Minimum space requirements for a wheelchair* was added;

l) Annex ZA referring to the Machinery Directive 98/37/EC was replaced by Annex ZA referring to the new Machinery directive 2006/42/EC;

m) 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 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 should occur only after careful consideration, extensive testing and thorough in-service evaluation have shown alternative methods or conditions to be satisfactory. Such deviations are outside the scope of this standard and a manufacturer should be able to demonstrate an equivalent level of protection.

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 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.

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 disabled/incapacitated passenger boarding vehicles 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 authorised 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 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.

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:

a) standard type wheelchairs, e.g. in accordance with EN 12183;

b) wheelchairs with or without occupant self-restraint system;

c) aircraft aisle-width wheelchairs;

d) non-standard wheelchairs used at airports;

e) non occupant propelled wheelchairs;

f) battery powered wheelchairs, e.g. in accordance with EN 12184.

NOTE 1 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.

This European Standard does not apply to pneumatic systems.

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

NOTE 2 EN 1915–3 and EN 1915–4 provide the general GSE vibration and noise requirements.

This European Standard does not apply to unmodified automotive parts approved for public vehicles in the EU and E.F.T.A., when used on a disabled/incapacitated passenger boarding vehicle for the purpose for which they are designed.

This European Standard does not deal with hazards from other vehicles on the apron.

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

This part of EN 12312 when used in conjunction with EN 1915-1, EN 1915-2, EN 1915-3 and EN 1915-4 provides the requirements for disabled/incapacitated passenger boarding vehicles.

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 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 1915-1:2013, *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 1915-3, *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 12100:2010, *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 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 7000, *Graphical symbols for use on equipment — Index and synopsis*

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 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 11228-1, *Ergonomics — Manual handling — Part 1: Lifting and carrying*

ISO 11532, *Aircraft ground equipment — Graphical symbols*

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 properties — Workrooms and fields of activities with slip danger, walking method — Ramp test*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 12100:2010 and EN 1915-1:2013 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

Note 1 to entry: Mobility impairments range from persons having difficulty walking due to use of a prosthetic to a quadriplegic.

3.3
person with reduced mobility
PRM
person meeting definitions 3.1 or 3.2 above and who can move by themselves, or on a wheelchair or a stretcher

3.4
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

3.5
stretcher trolley
wheeled trolley with integral or removable stretcher (which may be capable of being folded or dismantled) attendant operated, non self-propelled

3.6
attendant
person who assists a disabled/incapacitated person

Note 1 to entry: 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.

3.7
restraint device
device for preventing movement of a person or load

3.8
boarding platform
platform for transhipment between van body or main platform and aircraft

3.9
van body
enclosed body for carrying loads, e.g. disabled/incapacitated persons, wheelchairs, stretcher trolleys

3.10
main platform
open lifting platform for carrying loads, e.g. disabled/incapacitated persons, wheelchairs, stretcher trolleys

3.11
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

3.12
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

3.13
side-guard
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

3.14
barrier
movable element to prevent access into an area

3.15
transfer plate
accessory used to bridge the aircraft door sill to smoothly roll in and out wheelchairs or trolleys

3.16
safety shoe
pressure-sensitive switch placed underneath the open door of an aircraft to detect excessive downward motion of the aircraft

3.17
emergency evacuation
necessity to evacuate all persons on board of the vehicle to the ground in as short a time as possible, in order to escape an immediate major hazard, e.g. a fire

Note 1 to entry: Since an emergency stop could have been actuated or the main vehicle systems damaged, the main power source might be unavailable.

3.18
auto-levelling
automatic vertical adjustment of the boarding platform to vertical movement of the aircraft in either direction

3.19
canopy
cover or body fitted over the boarding platform to provide weather protection

4 List of significant hazards

The list of risks and hazards (given in 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 disabled/incapacitated passenger boarding vehicles 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 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. They shall also conform to the specific requirements of this European Standard.

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 its 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 an overall height of 4,0 m.

NOTE 1 Local road traffic regulations can require narrower widths.

NOTE 2 Depending on the airport of use, lower heights can be necessary (see EN 1915–1:2013, Introduction, f) — negotiation).

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 such that it is not blocked when the normal exit cannot be used.

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 can be located at either side.

5.1.8 The driver's cabin, if installed, shall not project beyond the leading edge of the boarding platform; see also 5.3.8.

5.1.9 It shall be possible to smooth the transfer of a wheelchair or stretcher trolley from the boarding vehicle to the aircraft, by providing an integral or manually attached bridging section or transfer plate (see 5.10).

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 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 EN 1915-1:2013, 5.15 and Annex E).