



SLOVENSKI STANDARD
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Podporna oprema na tleh za letalski promet - Posebne zahteve - 10. del: Naprave za pretovarjanje zabojnikov/palet

Aircraft ground support equipment - Specific requirements - Part 10: Container/Pallet transfer transporters

Luftfahrt-Bodengeräte - Besondere Anforderungen - Teil 10: Container-/Paletten-Transfer-Transporter

Matériel au sol pour aéronefs - Exigences particulières - Partie 10: Transporteurs de conteneurs et de palettes

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ICS:

49.120	Oprema za tovor	Cargo equipment
55.180.01	Distribucija blaga s prevozom na splošno	Freight distribution of goods in general

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EUROPEAN STANDARD
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English Version

Aircraft ground support equipment - Specific requirements - Part 10: Container/Pallet transfer transporters

Matériel au sol pour aéronefs - Exigences particulières -
Partie 10: Transporteurs de conteneurs et de palettes

Luftfahrt-Bodengeräte - Besondere Anforderungen - Teil
10: Container-/Paletten-Transfer-Transporter

This European Standard was approved by CEN on 13 June 2005 and includes Amendment 1 approved by CEN on 1 March 2009.

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 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 Management Centre has the same status as the official versions.

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EN 12312-10:2005+A1:2009 (E)

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Foreword

This document (EN 12312-10:2005+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of an identical text or by endorsement, at the latest by October 2009, and conflicting national standards shall be withdrawn at the latest by December 2009.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 12312-10:2005.

The start and finish of text introduced or altered by amendment is indicated in the text by tags $\boxed{A_1}$ $\boxed{A_1}$.

This European Standard 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).

$\boxed{A_1}$ For relationship with EU Directives, see informative Annexes ZA and ZB, which are integral parts of this document. $\boxed{A_1}$

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: Air-craft 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 equipment
- 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: Ground power equipment

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.

EN 12312-10:2005+A1:2009 (E)**Introduction**

This European Standard specifies health and safety requirements, as well as some functional and performance requirements for container/pallet transfer transporters intended for moving unit load devices (ULD) on an airport.

The minimum essential criteria are considered to be of primary importance in providing safe, serviceable, economical and practical container/pallet transfer transporters. 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 events are covered are indicated in the scope of this European Standard.

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.

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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 container/pallet transfer transporters when carried out in accordance with the specifications given by the manufacturer or his authorised representative. It also takes into account some performance requirements recognised as essential by authorities, aircraft and ground support equipment (GSE) manufacturers as well as airlines and handling agencies.

This European Standard applies to self-propelled container/pallet transfer transporters, with a seated driver.

Examples of typical transfer transporters are shown in Annex A.

This European Standard does not apply to:

- loading equipment with a height adjustment capability in excess of 150 mm;
- transporter-loaders (single platform loader with transporter capability, see EN 12312-9);
- roller-bed transport platforms mounted on unmodified commercial road chassis.

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

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

This European Standard is not dealing with hazards in respect to a standard automotive chassis and the traffic on the apron.

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This Part of EN 12312 is not applicable to GSE which are manufactured before the date of publication by CEN of this European Standard.

NOTE Certain measurements have been given in imperial units (in parentheses) following the metric measurements since the containers/pallets to be handled are based mainly on the imperial system.

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**

EN 12312-10:2005+A1:2009 (E)**2 Normative references**

The following referenced documents are indispensable for the application of this European Standard. 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 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*

[A1] 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* **[A1]**

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

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

[A1] EN ISO 13850:2008, *Safety of machinery — Emergency stop — Principles for design (ISO 13850:2006)* **[A1]**

ISO 2328, *Fork-lift trucks — Hook-on type fork arms and fork arm carriages — Mounting dimensions*

[A1] ISO 10254 **[A1]**, *Air cargo and ground equipment — Vocabulary*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 1915-1:2001, EN ISO 12100:2003 and the following apply.

3.1 transfer transporter

self-propelled GSE capable of transporting and transferring ULDs

3.2 container

completely enclosed ULD for use on aircraft that interfaces directly with the aircraft cargo handling and restraint system (see also **[A1]** ISO 10254 **[A1]**)

3.3 pallet



ULD for use on aircraft, consisting of a flat platform with flat undersurface of standard dimensions on which goods are assembled and secured before being loaded as a unit onto the aircraft and which interfaces directly with the aircraft handling and restraint system (see also **[A1]** ISO 10254 **[A1]**)

4 List of hazards

The list of risks and hazards (see Annex B) is based on EN 1050 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 container/pallet transfer transporters and which require action to eliminate or reduce risks.

5 Safety requirements and/or measures

5.1 General requirements

5.1.1  Container/Pallet transfer transporters 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.

5.2 Platform design, guide rails and stops

5.2.1 Platform design

5.2.1.1 The transporter shall provide a rollerized, or equivalent, platform capable of transferring ULDs. The platform shall be adjustable in height to permit alignment with other ULD handling/storage systems having a nominal interface height of 508 mm (20 in).

NOTE Typically, the range of adjustment may be between 450 mm and 580 mm (18 in and 23 in) from the ground.

5.2.1.2 Roller systems shall meet the requirements given in Annex C.

NOTE Typical container and pallet overall dimensions and masses are given in Annex D.

5.2.1.3 The conveyor system shall be designed such that it takes into account the mating of two items of GSE.

5.2.1.4 A lead-in edge or roller, or equivalent, shall be provided commensurate with the design of the transporter, in order to absorb the initial impact of transferring ULDs.

5.2.1.5 All walkways, beams or other structures shall be at least 13 mm (0,5 in) below the tops of the conveying surface.

5.2.1.6 The transporter shall be so designed as to minimize the risk of damaging the ULD, e.g. by the avoidance of projections or sharp corners.

5.2.2 Guides and stops

5.2.2.1 Guides shall be provided as follows:

- Fixed side guide rails shall be provided on the platform suitably spaced to cater for the widest ULD to be carried;
- Guide rails shall have a minimum height of 100 mm (4 in) above the conveying surface;
- Funnel shaped lead-ins shall be provided at both ends.

5.2.2.2 Stops shall be provided as follows:

- Roll-off stops shall be incorporated on both ends of the transporter to preclude inadvertent movement of a ULD off the conveying system. Forward and aft stops shall be provided capable of containing all the ULDs to be transported;
- All stops shall have a minimum height of 50 mm (2 in) above the conveying surface;
- The maximum centre to centre distance between two stops on one end shall be less than the width of the smallest ULD to be transported;
- The minimum width of a stop shall be 50 mm (2 in) where practicable.

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NOTE For the majority of containers and pallets, a maximum stop height of 100 mm (4 in) is required. For certain lower deck containers, to avoid damage to overhanging loads or the sloping undersides of some containers, the maximum stop height becomes 50 mm (2 in). The maximum stop height should take into account the types of containers to be handled.

5.3 Operation

5.3.1 A powered system shall be installed to move ULDs on and off the platform. In the event of a power failure it shall be possible to free the drive system to enable ULDs to be unloaded manually. It shall be possible to free the drive system without the use of tools.

5.3.2 The powered system shall be designed in sections to permit individual movement of single ULDs. The system shall be divided into as many sections as ULDs which the platform can accommodate. These sections shall be capable of being operated individually as well as collectively.

5.4 Transportability

5.4.1 Lifting points shall be provided to ensure that lifting of the transporter can be achieved.

5.4.2 Where fork-lift pockets are used, they shall be compatible with the dimensions of fork arms given in ISO 2328.

5.4.3 Towing points shall be provided to permit recovery of defective transporters.

5.5 Drive systems and mobility

5.5.1 Powered steering shall be provided.

5.5.2 Where the axles of steering wheels, and/or the wheels themselves, protrude into the load area when turned, inhibitors (e.g. interlocks) shall be fitted to prevent the transporter being driven when the position of the load would prevent the wheels steering.

5.5.3 The fully loaded transporter shall be capable of starting from rest up an incline of at least 3° (5 %) under its own power.

5.5.4 The minimum ground clearance shall enable the transporter to negotiate two ramps that intersect at 3° (5 %), either in bridging or cresting.

NOTE Ground clearance requirements may be stipulated between manufacturer and user (see Clause 0 of EN 1915-1:2001 — negotiation).

5.5.5 Means shall be provided to prevent movement of the vehicle during engine start up, e.g. by the use of a drive start interlock.

5.6 Driver's accommodation

5.6.1 The relative position of the driver's accommodation to the front stops shall take account of the need for visibility across the forward edge of the transporter. It shall be possible, with a container on the platform, for the driver to see the front stops.

5.6.2 Where provided, the driver's cabin shall not project beyond the forward edge of the main frame of the chassis.

5.6.3 The driver's accommodation may be located on the left or right hand side of the platform but it shall not obstruct movement of ULDs on the platform.

5.6.4 Where the transporter is not equipped with a driver's cabin then a safety guard, e.g. a transparent panel or mesh with openings not greater than 10 mm, shall be fitted to prevent the driver being struck by a ULD moved on the platform.

5.7 Emergency stops

Emergency stops shall be provided, at least one within reach of the driver/operator's control console. ^{A1} They shall meet the requirements of EN ISO 13850:2008 Category 0 or Category 1. For hydrostatic drives they shall meet Category 1 (see EN ISO 13850:2008, 4.1.4). ^{A1}

5.8 Operating speeds

The conveying system shall be able to move ULDs from rest up to a maximum speed of 0,3 m/s (18,0 m/min, 60 ft/min).

5.9 Options

5.9.1 Where a means of mating to/from other GSE is provided, it shall facilitate the smooth transfer of ULDs.

5.9.2 Where allowance has been made in the design of the transporter to permit transportation of over-length loads, it shall not compromise visibility across the forward edge of the transporter. Additional means of securing the load shall be provided.

5.9.3 Where means are included for the sideways loading/unloading of ULDs, these shall meet the requirements as specified in 5.1, 5.2, 5.3, 5.7 and 5.8.

5.9.4 Where protective padding is provided at the transfer ends of the transporter, it shall be installed in a way to prevent equipment from being damaged during docking.

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6 Information for use

6.1 Marking

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Permanent marking of data shall consist of metal plates fixed with rivets or welded to the structure.

6.2 Warnings

The following warnings shall be affixed permanently at prominent positions, preferably by using pictograms:

- "Keep clear from moving parts".

6.3 Instructions

Operating and maintenance instructions shall be supplied with each transporter. They shall generally meet the requirements in 6.2 of EN 1915-1:2001. In addition, the operating and maintenance instructions shall contain, depending on type and design of the transporter, information about:

- use of the levelling equipment;
- load transferring and positioning;
- platform safe working load/capacity;
- maximum container/pallet mass to be carried;
- safe manual moving of stuck loads;
- routine checks to be carried out by the operator;
- minimum training programme for the operator;
- optional equipment, e.g. mating means, side loading;
- jacking points and transport means;
- measures to be taken in case of emergency situations or breakdown;