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Aircraft ground support equipment - Specific requirements - Part 9: Container/Pallet loaders

Luftfahrt-Bodengeräte - Besondere Anforderungen - Teil 9: Container-/Paletten-Hubfahrzeuge

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Aircraft ground support equipment - Specific requirements - Part 9: Container/Pallet loaders

Matériel au sol pour aéronefs - Exigences particulières - Partie 9 : Chargeurs de conteneurs/palettes

Luftfahrt-Bodengeräte - Besondere Anforderungen - Teil 9: Container-/Paletten-Hubfahrzeuge

This European Standard was approved by CEN on 24 November 2012.

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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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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 12312-9:2013) 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of an identical text or by endorsement, at the latest by July 2013, and conflicting national standards shall be withdrawn at the latest by July 2013.

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 supersedes EN 12312-9:2005+A1:2009.

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 EU Directives, 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*;

— *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* (the present document);

— *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*.

The main changes compared to the previous edition are:

a) Amendment A1:2009 was incorporated;

b) the Introduction was updated;

c) the Scope was updated;

d) Clause 2, Normative references, was updated;

e) three terms and definitions were added, one was deleted;

f) List of hazards was moved to Annex A, thus making it necessary to re-number the following Annex;

g) 5.1, 5.2, 5.3 and 5.4 were changed;

h) 5.5, Access, was inserted, thus making it necessary to re-number the following subclauses;

i) 5.7 to 5.10, 5.13 and 5.15 were changed;

j) 5.14, Safeguards against falling, was inserted, thus making it necessary to re-number the following subclauses;

k) Clause 6 and 7 were changed;

l) Annex B, Examples of different loaders, was deleted;

m) Annex C was changed;

n) Annex D, Typical data for loading equipment, was deleted;

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

p) the Bibliography was updated.

According to the CEN/CENELEC Internal Regulations, the national standards organisations 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 specifies health and safety requirements for container/pallet loaders intended for loading/unloading of unit loads with the exception of bulk material for 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 container/pallet loaders. 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 standard and a manufacturer should be able to demonstrate an equivalent level of protection.

This document 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.

For information, a summary of equipment functional design requirements covered by International Standards, e.g. ISO 6967 and ISO 6968, and IATA Airport Handling Manual, is given in Annex B.

1 Scope

This European Standard specifies the technical requirements to minimise the hazards listed in Clause 4 which can arise during the commissioning, the operation and the maintenance of container/pallet loaders 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 recognised as essential by authorities, aircraft and ground support equipment (GSE) manufacturers as well as airlines and handling agencies.

This document applies to:

a) Container/Pallet loader (self-propelled) single platform;

b) Container/Pallet loader (self-propelled) two or more platforms;

c) Container/Pallet loader/transporter (self-propelled);

d) Container/Pallet loader/transfer platform (towed).

This document does not establish requirements for noise and vibration.

NOTE 1 EN 1915-3 and EN 1915-4 provide the general GSE noise and vibration requirements.

This 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 container/pallet loaders which are manufactured before the date of publication of this standard by CEN.

NOTE 2 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.

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 container/pallet loaders.

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 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, *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 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 13857, *Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs (ISO 13857)*

EN ISO 14122-1:2001, *Safety of machinery — Permanent means of access to machinery — Part 1: Choice of fixed means of access between two levels (ISO 14122-1:2001)*

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

ISO 3864 (all parts), *Graphical symbols — Safety colours and safety signs*

DIN 51130:2004, *Testing of floor coverings — Determination of the anti-slip property — 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
loader
vehicle having a prime purpose of lifting, lowering and transferring unit load devices (ULD's), also known as an elevator

3.2
single platform loader
loader which only has a single lifting platform

3.3
two platforms loader
loader having a front platform and a main platform

3.4
multiple platforms loader
either two platforms, or three platforms loader

3.5
main platform
load bearing device which interfaces with the aircraft on a single platform loader or with the front platform of a two platforms loader, and with ground transportation systems

3.6
front platform
load bearing device which interfaces with the aircraft on a two platforms loader, also known as a transfer platform or bridge

3.7
intermediate platform
on a three platform loader, platform that shuttles between the main and front platforms

3.8
lower deck
aircraft compartment below the main deck

3.9
main deck
aircraft deck on which the major portion of the payload is carried

3.10
container
completely enclosed unit load device (ULD) which interfaces directly with the aircraft cargo handling and restraint system

3.11
pallet
unit load device consisting of a platform with a flat undersurface of standard dimensions on which goods are assembled and secured before being loaded onto the aircraft and which interfaces directly with the aircraft cargo handling and restraint system

3.12
lower deck container
aircraft container shaped to fit the lower deck of high capacity aircraft

Note 1 to entry: These units come in half and full sizes, related to the width of a particular position in a specific aircraft type.

3.13
barrier
movable element to prevent access into an area

4 List of hazards

The list of risks and hazards (given at 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 container/pallet loaders and which require action to eliminate or reduce risks. Hazards due to a standard automotive chassis, the traffic and repair are not covered.

5 Safety requirements and/or measures

5.1 General requirements

5.1.1 Container/Pallet loaders shall conform to the requirements of this standard and relevant requirements of EN 1915-1, EN 1915-2, EN 1915-3 and EN 1915-4 unless otherwise specified in this standard. The specific requirements of this standard take precedence over those of the EN 1915 series.

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

5.2 Overall dimensions

The overall dimensions of the loader shall be kept to a minimum, consistent with its function and in accordance with the requirements of 5.4. The overall height of the entire loader shall not exceed 4,0 m, when being driven with the platform(s) in the lowest position.

5.3 Platform design, guide-rails and stops

5.3.1 Platform types

Depending on the type, loaders may have one, two or more platforms.

Single platform loaders shall provide a platform which is capable of up and down movement between the specified heights as appropriate to the type(s) of container/pallets to be handled.

Two platform loaders shall provide:

a) a front platform which is positioned adjacent to the aircraft door and which remains at this position during the loading/unloading operation, or, for main deck operation, may be lowered to a lower deck position to interface with the main platform; and

b) a main platform, for up and down movement between the specified heights as appropriate to the type(s) of containers/pallets to be handled.

Three platforms loaders shall, in addition, provide an intermediate platform capable of up and down movement between levels served by the front and main platforms.

5.3.2 Guide-rails and stops

5.3.2.1 Guide-rails shall be provided along the whole length of both sides of the platform to guide containers/pallets onto the aircraft and to prevent them from falling off. On single platforms and the front platform of two platform loaders they shall be adjustable laterally to align with the corresponding in-aircraft guides. On container-only loaders, guide-rails may be fixed. Powered guide-rails shall consist of either one or more sections and for each section be able to operate independently. All powered guide-rails shall be in the “up” position when the main platform raises more than 150 mm from the rest position. For the transfer of loads, it shall be possible for the operator to control the retraction/removal of the guide-rails on the main platform, at any height of the main platform between 1 524 mm (60 in) and the fully lowered position. This function shall be operated in accordance with 5.9.1.4.

5.3.2.2 Stops shall be provided as follows:

a) on the front platform of a multiple platforms loader, automatic stops shall be fitted at the end adjacent to the main platform; these stops shall rise when the main platform moves down and retract when the main platform reaches the front platform level;

b) for loaders designed for main deck operation, and where the front platform is lowered to the lower deck position for interface with the main platform, stops shall be provided at the forward end of the front platform;

c) automatic stops shall be provided at the rear end of the main platform of a multiple platforms loader. An automatic stop shall be provided at the forward end in order to prevent overhanging pallet loads or container contours to interfere with the front platform;

d) on a single platform or an intermediate platform of a three platforms loader, retractable stops shall be provided at both ends;

e) where the stops on the rear end of a main platform are capable of being manually controlled, it shall only be possible to retract the stops when the main platform is stopped at any height between the fully lowered position and 1 524 mm (60 in) above the ground;

f) where stops are provided at the forward end of the main platform or at the separation between two powered sections of the main platform, the forward end stop shall automatically retract as the main platform lines up with the front or intermediate platform; the stop between the sections shall be controlled independently by the operator.

5.3.2.3 All stops and guide-rails shall have a minimum height of 50 mm (2 in) above the conveying surface.

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

5.3.3 Aircraft interface device

The leading edge of the platform shall be fitted along its whole length with a full width bumper designed to protect the aircraft that:

a) is of a non-marking semi-soft material;

b) ensures a minimum 60 mm crushing capability;