SLOVENSKI STANDARD
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Podporna oprema na tleh za letalski promet - Posebne zahteve - 7. del: Oprema za premikanje letal

Aircraft ground support equipment - Specific requirements - Part 7: Aircraft movement equipment

Luftfahrt-Bodengeräte - Besondere Anforderungen - Teil 7: Luftfahrzeug-Schleppgeräte

Matériel au sol pour aéronefs - Exigences particulières - Partie 7 : Matériels de déplacement des aéronefs

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

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English Version

Aircraft ground support equipment - Specific requirements - Part 7: Aircraft movement equipment

Matériel au sol pour aéronefs - Exigences particulières - Partie 7 : Matériels de déplacement des aéronefs

Luftfahrt-Bodengeräte - Besondere Anforderungen - Teil 7: Luftfahrzeug-Schleppgeräte

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 274.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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European foreword

This document (prEN 12312-7:2018) has been prepared by Technical Committee CEN/TC 274 “Aircraft ground support equipment”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 12312-7:2005+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 EU Directive 2006/42/EC on machinery.

For relationship with EU 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*, 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 de-icing/anti-icing 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*.

Annexes A and B are normative, Annex C is informative.

The main changes compared to the previous edition EN 12312-7:2005+A1:2009 are:

a) Amendment A1:2009 was incorporated;

b) the Introduction was updated in relation to the deviation from recommended criteria;

c) the Scope was updated to cover reasonably foreseeable misuse and an informative reference was added;

d) Clause 2, Normative references, was updated;

e) in Clause 3, Terms and definitions, the definition for vibrations, tractor categories, the operator's seat and the SEAT factor was clarified;

f) the List of hazards was updated to exclude hazards due to traffic and repair and was moved to Annex A;

g) Subclause 5.3 for the requirements of seats was added.

Introduction

This document specifies health and safety requirements, as well as some functional and performance requirements for aircraft movement equipment intended for use on 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 aircraft movement equipment. Deviations 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.

This document is a type-C standard as stated in EN ISO 12100.

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.

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 type-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 document.

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 aircraft movement equipment 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 authorized 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 document applies to:

— aircraft tractors with driver accommodation;

— pedestrian controlled aircraft movement equipment;

— moveable parts of ramp integrated systems;

— attachment bars,

used for all operations, utilizing aircraft movement equipment, e.g.:

— push back;

— maintenance towing.

Designers of towbarless tractors will in addition take into account the requirements of ISO 20683-1 or ISO 20683-2 as applicable (see Bibliography).

This document does not apply to:

— ground power installations on aircraft tractors;

— fixed ramp integrated systems;

— special towing equipment (e.g. for recovery);

— dispatch towing tractors.

This document deals with vibrations and noise which are considered as significant. Vibration measurements are dealt with in EN 1915-3. Noise measurements and reduction are dealt with in EN 1915-4.

This document 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 aircraft movement equipment manufactured before the date of its publication.

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.

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 GSE.

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 1005-2, *Safety of machinery - Human physical performance – Part 2: Manual handling of machinery and component parts of machinery*

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

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 2860, *Earth-moving machinery - Minimum access dimensions (ISO 2860)*

EN ISO 2867, *Earth-moving machinery - Access systems (ISO 2867)*

EN ISO 12100:2010, *Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO 12100:2010)*

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

ISO 8267-1, *Aircraft – Tow bar attachment fittings interface requirements – Part 1: Main line aircraft*

ISO 8267-2, *Aircraft – Tow bar attachment fittings interface requirements – Part 2: Regional aircraft*

ISO 9667:2017, *Aircraft ground support equipment – Tow bars*

ISO 24135-1, *Industrial trucks - Specifications and test methods for operator restraint systems - Part 1: Lap-type seat belts*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp

3.1
aircraft tractor
mobile machinery specially developed and designed for aircraft movement operations

3.2
towbar tractor
aircraft tractor which needs a supplementary apparatus for aircraft movement operations

3.3
towbarless tractor
aircraft tractor which can carry out aircraft movement operations without the aid of any supplementary apparatus

3.4
nose landing gear operation
operation where a tractor or movement device is connected to the nose landing gear of the aircraft in order to move the aircraft

Note 1 to entry: Aircraft and tractor are forming a manoeuvrable unit.

3.5
main landing gear operation
operation where a tractor is connected to the main landing gear of the aircraft in order to move the aircraft

Note 1 to entry: Steering of the aircraft is performed by the nose landing gear.

3.6
ramp integrated system

system for aircraft movement which has a remotely controlled carriage to which the nose landing gear of the aircraft is locked during the movement and which rides on fixed tracks embedded in the ramp pavement

3.7
attachment device
apparatus for aircraft movement operations by hand or tractor, e.g. towbar, steering bar

3.8
towbar
device coupled between towbar tractor and towing lug of the nose landing gear

3.9
steering bar
device coupled to the nose landing gear used for steering the aircraft externally during movement

3.10
push back
moving of an aircraft from the parking position at the terminal, e.g. to the taxiway

Note 1 to entry: A push back basically consists of a rear movement of the aircraft after which a short forward movement can be performed, e.g. for alignment.

3.11
maintenance towing
moving of an aircraft for maintenance purposes, e.g. between the terminal and a maintenance hangar

Note 1 to entry: Maintenance towing is characterized by:

— unladen aircraft with or without fuel;

— engines of the aircraft are out of operation.

3.12
whole body vibration
vibration transmitted to the body as a whole through the buttocks of a seated operator

[SOURCE: EN 13490:2001+A1:2008, 3.1.1]

3.13
SEAT factor
Seat Effective Amplitude Transmissibility factor
ratio of the frequency-weighted r.m.s. acceleration at the seat and the frequency-weighted r.m.s. acceleration values at the platform

Note 1 to entry: See EN 13490.

3.15
SIP
Seat Index Point
point on the central vertical plane of the seat as determined by EN ISO 5353

[SOURCE: EN ISO 3164:2013, 3.2]

3.16
dispatch towing
towing of a loaded (passengers, cargo, fuel) revenue flight airplane between the terminal gate or remote parking area and a location near the departure runway

3.17
tractor categories

Note 1 to entry: The following definitions are consistent with EN 13490.

Note 2 to entry: Mean wheel diameter may be meaningless on e.g. towbarless tractors.

3.17.1
category A
tractors with wheel (mean) diameter equal to or below 800 mm and solid rubber or pneumatic tyres

3.17.2
category B
tractors with wheel (mean) diameter above 800 mm