SLOVENSKI STANDARD
oSIST prEN 1915-1:2021

01-marec-2021

Podporna oprema na tleh za letalski promet - Splošne zahteve - 1. del: Osnovne varnostne zahteve

Aircraft ground support equipment - General requirements - Part 1: Basic safety requirements

Luftfahrt-Bodengeräte - Allgemeine Anforderungen - Teil 1: Grundlegende Sicherheitsanforderungen

Matériels au sol pour aéronefs - Exigences générales - Partie 1 : Exigences fondamentales de sécurité

Ta slovenski standard je istoveten z: **prEN 1915-1**

ICS:

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

oSIST prEN 1915-1:2021 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

DRAFT
prEN 1915-1

January 2021

ICS 49.100

Will supersede EN 1915-1:2013

English Version

Aircraft ground support equipment - General requirements - Part 1: Basic safety requirements

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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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Ref. No. prEN 1915-1:2021 E

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European foreword

This document (prEN 1915-1:2021) 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 1915-1:2013.

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 1915, Aircraft ground support equipment — General requirements, consists of the following parts:

— *Part 1: Basic safety requirements (the present document);*

— *Part 2: Stability and strength requirements, calculations and test methods;*

— *Part 3: Vibration measurement methods and reduction;*

— *Part 4: Noise measurement methods and reduction.*

EN 12312, Aircraft ground support equipment — Specific requirements, consists of the following parts:

— *Part 1: Basic safety requirements* (the present document);

— *Part 2: Stability and strength requirements, calculations and test methods*;

— *Part 3: Vibration measurement methods and reduction*;

— *Part 4: Noise measurement methods and reduction*.

— *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 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*.

The main changes compared to the previous edition are:

a) the Introduction was updated in relation to new terms, stakeholder relevance and other;

b) the Scope was updated;

c) Clause 2, Normative references, was updated;

d) Clause 3, Terms and definitions, was updated, with *3.20 braking ratio* being added;

e) Clause 5, Safety requirements and/or protective/risk reduction measures, has been revised, including the following;

f) subclause 5.4, Controls, has been completely revised, with part 5.4.6, Direction of movements, being added;

g) subclause 5.8, Brakes for travelling purposes or equivalent devices, has been updated with the addition of part 5.8.3, Complex electronic parts of GSE braking systems, concerning the requirements of braking systems for GSE > 15 km/h and GSE ≤ 15 km/h;

h) subclause 5.12, Warning auditory signals, was updated;

i) subclause 5.13, Standing areas and walkways of GSE, was updated;

j) subclause 5.14, Means of access, has been revised with the addition of new requirements to ladder systems;

k) Clause 6, Verification of the safety requirements and/or protective/risk reduction measures, was updated;

l) Clause 7, Information for use, was updated in relation to the part Instructions;

m) Annex A, List of significant hazards, was updated;

n) Annex D, Footholds, was updated and all subclauses except of the subclause, Footholds, were deleted;

o) the Bibliography was updated.

Introduction

The abbreviation GSE means a complete item of aircraft ground support equipment in the context of this document.

When compiling this document it was assumed that:

a) GSE is operated only by trained persons on the airport ramp;

b) components without specific requirements are:

   1) designed in accordance with good engineering practice and calculation codes;

   2) of sound mechanical and electrical construction;

   3) made of materials with adequate strength and of suitable quality;

   4) made of materials free of defects;

c) materials known to be harmful, such as asbestos, are not used as part of GSE;

d) components are kept in good repair and working order as given in the manufacturer's instructions, so that the required characteristics remain despite wear;

e) by design of the load bearing elements, a safe operation of the machine is ensured for loading ranges from zero to 100 % of the rated possibilities and during tests;

f) the particular conditions of use and place of use have been established;

g) the place of operation allows a safe use of GSE;

h) The GSE are designed for the intended use and any reasonable foreseeable misuse.

The extent to which hazards are covered is indicated in the scope of this document.

Enumerations in this document are not to be considered exclusive; they are compiled according to the present state of the art.

The minimum essential criteria are considered to be of primary importance in providing safe, economical and usable GSE. 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 document and a manufacturer should be able to demonstrate an equivalent level of protection.

This document is a Type C standard as defined in EN ISO 12100:2010.

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 or hazardous events are covered are indicated in the Scope of this document.

When requirements of this type-C standard are different from those which are stated in type-A or type-B standards, the requirements of this type-C standard take precedence over the requirements of the other standards for machines that have been designed and built according to the requirements of this type-C standard.

1 Scope

This document applies to GSE when used in civil air transport as intended by the manufacturer and contains safety requirements relating to the equipment in general.

This document specifies the technical requirements to minimize the hazards listed in Clause 4 which can arise during the commissioning, operation and maintenance of GSE when used as intended including any reasonably foreseeable misuse 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 requirements recognized as essential by authorities, aircraft and ground support equipment (GSE) manufacturers as well as airlines and handling agencies.

This part of EN 1915 is intended to be used in conjunction with EN 1915-2:2001+A1:2009, EN 1915-3:2004+A1:2009 (for self-propelled GSE) and EN 1915-4:2004+A1:2009, and with the relevant part of EN 12312 to give the requirements for the types of GSE within the scope of EN 12312.

When EN 12312 does not contain a relevant part for a GSE, EN 1915 (all parts) gives general requirements that may apply, although additional machine specific requirements, to be determined by the manufacturer, are likely to be required.

This part of EN 1915 does not apply to automotive parts approved for public vehicles in the EU and EFTA, when used on GSE for the purpose for which they are designed.

This part of EN 1915 does not establish additional requirements for the following:

a) operation elsewhere than in an airport environment;

b) operation in severe conditions, e.g. ambient temperature below −20 °C or over 50 °C, tropical or saturated salty atmospheric environment, strong magnetic or radiation field;

c) operation subject to special rules, e.g. potentially explosive atmosphere except as regards operation in the vicinity of an aircraft fuel tank during fuelling operation;

d) hazards caused by power supply other than from electrical networks;

e) hazards occurring during construction, transportation, decommissioning and disassembly of the GSE;

f) hazards caused by wind velocity in excess of the figures given in this document;

g) direct contact with food stuffs;

h) earthquake, flood, landslide, lightning and more generally any exceptional natural event;

i) electromagnetic compatibility (EMC);

j) hazards caused by noise and vibration, see EN 1915-3:2004+A1:2009 and EN 1915-4:2004+A1:2009.

While this standard gives some basic requirements for wireless remote controls, additional requirements will be necessary.

This part of EN 1915 is not applicable to GSE which are manufactured before the date of publication by CEN of this document.

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 894-1:1997+A1:2008, *Safety of machinery — Ergonomics requirements for the design of displays and control actuators — Part 1: General principles for human interactions with displays and control actuators*

EN 894-3:2000+A1:2008, *Safety of machinery — Ergonomics requirements for the design of displays and control actuators — Part 3: Control actuators*

EN 1915-2:2001+A1:2009, *Aircraft ground support equipment — General requirements — Part 2: Stability and strength requirements, calculations and test methods*

EN 1915-3:2004+A1:2009, *Aircraft ground support equipment — General requirements — Part 3: Vibration measurement methods and reduction*

EN 1915-4:2004+A1:2009, *Aircraft ground support equipment — General requirements — Part 4: Noise measurement methods and reduction*

EN 12312 (all parts), *Aircraft ground support equipment — Specific requirements*

EN 13501-1:2018, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests*

EN 60073:2002, *Basic and safety principles for man-machine interface, marking and identification — Coding principles for indicators and actuators (IEC 60073:2002)*

EN 60204-1:2018, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements (IEC 60204-1:2016, modified)*

EN 60529:1991,[1] *Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989)*

EN 60825-1:2014, *Safety of laser products — Part 1: Equipment classification and requirements (IEC 60825-1:2014)*

EN ISO 3411:2007, *Earth-moving machinery — Physical dimensions of operators and minimum operator space envelope (ISO 3411:2007)*

EN ISO 3457:2008, *Earth-moving machinery — Guards — Definitions and requirements (ISO 3457:2003)*

EN ISO 4413:2010, *Hydraulic fluid power — General rules and safety requirements for systems and their components (ISO 4413:2010)*

EN ISO 4414:2010, *Pneumatic fluid power — General rules and safety requirements for systems and their components (ISO 4414:2010)*

EN ISO 6682:2008, *Earth-moving machinery — Zones of comfort and reach for controls (ISO 6682:1986, including Amd 1:1989)*

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[1] As impacted by EN 60529:1991/AC:2006-12, EN 60529:1991/A1:2000, EN 60529:1991/A2:2013 and EN 60529:1991/A2:2013/AC:2019-02.

EN ISO 7731:2008, *Ergonomics — Danger signals for public and work areas — Auditory danger signals (ISO 7731:2003)*

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

EN ISO 13732-1:2008, *Ergonomics of the thermal environment — Methods for the assessment of human responses to contact with surfaces — Part 1: Hot surfaces (ISO 13732-1:2006)*

EN ISO 13849-1:2015, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design (ISO 13849-1:2015)*

EN ISO 13850:2015, *Safety of machinery — Emergency stop function — Principles for design (ISO 13850:2015)*

EN ISO 13854:2019, *Safety of machinery — Minimum gaps to avoid crushing of parts of the human body (ISO 13854:2017)*

EN ISO 13857:2019, *Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs (ISO 13857:2019)*

EN ISO 14120:2015, *Safety of machinery — Guards — General requirements for the design and construction of fixed and movable guards (ISO 14120:2015)*

EN ISO 14122-1:2016, *Safety of machinery — Permanent means of access to machinery — Part 1: Choice of fixed means and general requirements of access (ISO 14122-1:2016)*

EN ISO 14122-2:2016, *Safety of machinery — Permanent means of access to machinery — Part 2: Working platforms and walkways (ISO 14122-2:2016)*

EN ISO 14122-3:2016, *Safety of machinery — Permanent means of access to machinery — Part 3: Stairs, stepladders and guard rails (ISO 14122-3:2016)*

EN ISO 14122-4:2016, *Safety of machinery — Permanent means of access to machinery — Part 4: Fixed ladders (ISO 14122-4:2016)*

ISO 3795:1989, *Road vehicles, and tractors and machinery for agriculture and forestry — Determination of burning behaviour of interior materials*

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

ISO 6966-1:2005, *Aircraft ground equipment — Basic requirements — Part 1: General design requirements*

ISO 11228-2:2007, *Ergonomics — Manual handling — Part 2: Pushing and pulling*

DIN 51130:2014, *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, EN ISO 14122-1:2016, EN ISO 14122-2:2016, EN ISO 14122-3:2016 and EN ISO 14122-4:2016 and the following apply.

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
aircraft ground support equipment
GSE
mobile equipment built for the special requirements of aviation

Note 1 to entry: The "special requirements" result from the specific design and turnaround procedure of aircraft, giving rise to designs not generally used in other areas, in particular:

— GSE for passenger, baggage and cargo handling;

— GSE for aircraft ground handling and servicing;

Note 2 to entry: A trilingual list of GSE is given at Annex B, Table B.1.

3.2
passenger
person other than a crew member, an employee of the carrier in an official capacity, an authorised representative of a national authority or a person accompanying a cargo consignment, who is carried aboard a flight handled by the GSE

Note 1 to entry: Passengers exclusively use those types of GSE specifically designed for their access to and from the aircraft.

3.3
lifting/work platform
platform, cabin or workplace which is designed for lifting loads and/or persons

3.4
workplace
area occupied by operators during normal operation e.g. driver/co-driver seats, passageways, fixed walkways, stairs, ladders, platforms, standing areas

3.5
standing area
area on GSE where a person stands or works in an upright position during operation

3.6
walkway
area on GSE intended to be used by persons moving from one place to another

3.7
stabiliser
support used to maintain and/or increase the stability and capable of supporting and/or levelling the GSE

3.8
friction-type safeguard
safety equipment which restricts or prevents movement of parts in relation to each other by the use of frictional forces e.g. brakes, safety gears