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



### EESTI STANDARDI EESSÕNA

### NATIONAL FOREWORD

See Eesti standard EVS-EN 1915-1:2013 sisaldab Euroopa standardi EN 1915-1:2013 ingliskeelset teksti.	This Estonian standard EVS-EN 1915-1:2013 consists of the English text of the European standard EN 1915- 1:2013.	
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.	
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 23.01.2013.	Date of Availability of the European standard is 23.01.2013.	
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.	

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ICS 49.100

Võtmesõnad: aeronautical engineering, aeronautical equipment, aerospace transport, air transport, definitions, earth stations, general conditions, ground equipment, hazards, lists, safety requirements, space transport, specification (approval), specifications,

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# **EUROPEAN STANDARD** NORME EUROPÉENNE **EUROPÄISCHE NORM**

## EN 1915-1

January 2013

ICS 49,100

Supersedes EN 1915-1:2001+A1:2009

**English Version** 

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

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

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

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

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-CENELEC 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-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

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## Foreword

This document (EN 1915-1:2013) 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 1915-1:2001+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(s).

For relationship with EU Directive(s), 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: 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 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:

- Amendment A1:2009 was incorporated; a)
- the Scope was updated; b)
- Clause 2, Normative references, was updated; C)
- more terms and definitions were added; d)
- e) List of hazards was moved to Annex A (the following Annexes were re-numbered);
- f) 5.2, 5.3, 5.4 were changed;
- 5.5, Safety related parts, was inserted, thus making it necessary to re-number the following clauses; g)
- 5.6 to 5.28 were changed and re-numbered; h)
- i) 6.2 was changed;
- Clause 7 was changed; i)
- tone ate k) a term was added to the trilingual list of GSE in Annex B;
- I) Clauses D.2, D.3 and D.4 were added;
- m) Annex G was added;
- Annex ZA referring to the Machinery directive 98/37/EC was replaced by Annex ZA referring to the new n) Machinery directive 2006/42/EC;
- o) 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

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

When compiling this European Standard it was assumed that:

- a) GSE is operated only by competent 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, so that the required characteristics remain despite wear;
- e) by design of the load bearing elements, a safe operation of the machine is assured 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.

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

Enumerations in this European Standard 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 standard and a manufacturer should be able to demonstrate an equivalent level of protection.

2 12 5

This European Standard is a Type C standard as defined in EN ISO 12100.

### 1 Scope

This European Standard 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 European Standard specifies the technical requirements to minimise the hazards listed in Clause 4 which can arise during the commissioning, operation and maintenance of GSE 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 part of EN 1915 is intended to be used in conjunction with EN 1915-2, EN 1915-3 (for self-propelled GSE) and EN 1915-4, 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, commissioning and decommissioning of the GSE;
- f) hazards caused by wind velocity in excess of the figures given in this European Standard;
- 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 and EN 1915-4.

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 Standard.

### 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 894-1, Safety of machinery — Ergonomic requirements for the design of displays and control actuators — Part 1: General principles for human interactions with displays and control actuators

EN 894-3, Safety of machinery — Ergonomic requirements for the design of displays and control actuators — Part 3: Control actuators

EN 953, Safety of machinery — Guards — General requirements for the design and construction of fixed and moveable guards

EN 982, Safety of machinery – Safety requirements for fluid power systems and their components – Hydraulics

EN 983, Safety of machinery — Safety requirements for fluid power systems and their components — Pneumatics

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

EN 13501-1:2007, Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests

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

EN 60204-1, Safety of machinery — Electrical equipment of machines — Part 1: General requirements (IEC 60204-1:2005, modified)

EN 60529:1991,<sup>1)</sup> Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989)

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

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

EN ISO 3457, Earth-moving machinery — Guards — Definitions and requirements (ISO 3457)

EN ISO 6682, Earth-moving machinery — Zones of comfort and reach for controls (ISO 6682)

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

<sup>1)</sup> This document is impacted by the draft amendment EN 60529:1991/A1:2000.

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

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

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, Safety of machinery — Emergency stop — Principles for design (ISO 13850)

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)

EN ISO 14122-2:2001, Safety of machinery — Permanent means of access to machinery — Part 2: Working platforms and walkways (ISO 14122-2:2001)

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)

EN ISO 14122-4:2004, Safety of machinery — Permanent means of access to machinery — Part 4: Fixed ladders (ISO 14122-4:2004)

ISO 3795, 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, Ergonomics — Manual handling — Part 2: Pushing and pulling

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, EN ISO 14122-1:2001, EN ISO 14122-2:2001, EN ISO 14122-3:2001 and EN ISO 14122-4:2004 and the following apply.

#### 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;
- mobile parts of passenger boarding bridges (PBB).