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Aircraft ground support equipment - Specific requirements - Part 8: Maintenance or service stairs and platforms

Luftfahrt-Bodengeräte - Besondere Anforderungen - Teil 8: Wartungs- oder Servicetreppen und -bühnen

Matériel au sol pour aéronefs - Exigences particulières - Partie 8: Escabeaux et plateformes de maintenance ou de service

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Oprema za servis in
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Ground service and
maintenance equipment

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EUROPEAN STANDARD
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English Version

**Aircraft ground support equipment - Specific
requirements - Part 8: Maintenance or service stairs and
platforms**

Matériel au sol pour aéronefs - Exigences particulières
- Partie 8: Escabeaux et plate-formes de maintenance
ou de service

Luftfahrt-Bodengeräte - Besondere Anforderungen -
Teil 8: Wartungs- oder Servicetreppen und -bühnen

This European Standard was approved by CEN on 23 April 2018.

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.

iTeh STANDARD PREVIEW

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN 12312-8:2018) 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of an identical text or by endorsement, at the latest February 2019, and conflicting national standards shall be withdrawn at the latest by February 2019.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 12312-8:2005+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 deicing equipment;*
- *Part 7: Aircraft movement equipment;*
- *Part 8: Maintenance or service stairs and platforms (the present document);*
- *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;*

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- *Part 16: Air start equipment;*
- *Part 17: Air conditioning equipment;*
- *Part 18: Oxygen or Nitrogen units;*
- *Part 19: Aircraft jacks, axle jacks and hydraulic tail stanchions;*
- *Part 20: Electrical ground power units.*

The main technical changes compared to EN 12312-8:2005+A1:2009 are the following:

- a) Amendment A1:2009 was incorporated;
- b) change of title to include “service stairs”;
- c) the Scope was updated and contains now a classification;
- d) Clause 2, *Normative references* was updated;
- e) the terms and definitions were updated, with 3.1 *maintenance stair* being deleted;
- f) *List of hazards* was moved to normative Annex A;
- g) Clause 5, *Safety requirements and/or measures* was completely revised;
- h) Clause 6, *Information for use* was updated;
- i) Clause 7, *Verification of requirements* was completely revised;
- j) Informative Annex A, *Examples of typical maintenance stairs and platforms*, was deleted and replaced by normative Annex A, *List of hazards*;
- k) Normative Annex B, *Additional stair on maintenance platform* was added;
- l) Informative Annex C, *Loading control* was added;
- m) Annex ZA referring to the Machinery Directive 98/37/EC was replaced by Annex ZA referring to the new Machinery Directive 2006/42/EC;
- n) 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, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

This European Standard specifies health and safety requirements, as well as some functional and performance requirements for maintenance stairs and platforms including a built-in source of power (see Scope, Clause 1) intended for maintenance purposes 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 maintenance or service stairs and platforms. 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 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.

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. Deviations from requirements do not fall within the presumption of conformity given by the standard.

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1 Scope

1.1 General

This document specifies the technical requirements to minimize the hazards listed in Clause 4 which can arise during the commissioning, the operation and the maintenance of maintenance or service stairs and platforms 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 requirements recognized as essential by authorities, aircraft and ground support equipment (GSE) manufacturers as well as airlines and handling agencies.

These machines are designed to be used as aircraft ground support equipment with the intended use to serve aircraft in outdoor conditions on the apron. They can also be used indoors at hangars. The use of such equipment for operations not in conjunction with aircraft is not defined as intended use therein. Due to the good operational conditions on the apron, deviations from some clauses of EN 280 were deemed acceptable.

This European Standard applies to:

- a) self-propelled fixed or adjustable maintenance or service stairs and elevating platforms;
- b) towable maintenance or service stairs and platforms equipped with powered means, e.g. for height adjustment, stabilizers;

designed for aircraft maintenance or service purposes including access to the aircraft.

NOTE 1 Powered will be also understood as manual effort stored in springs or hydraulic accumulators, etc., the dangerous action of which can be produced or can continue after the manual effort has ceased or directly applied manual effort for lifting or lowering loads.

NOTE 2 Those clauses of this standard that can apply can also be used as a guideline for the design of towable maintenance or service stairs and platforms without powered means.

This European Standard does not apply to:

- c) maintenance docks either fixed to the ground or moveable only for docking procedure;
- d) ground support equipment specifically intended, built and equipped with a fluid system for aircraft de-icing and anti-icing (see EN 12312-6);

NOTE 3 This does not prevent aircraft de-icers meeting the requirements of EN 12312-6 from being used as a means of access for aircraft maintenance, e.g. windshield cleaning, etc.

- e) mobile elevating work platforms (MEWP) used at the airports for purposes other than aircraft maintenance, e.g. buildings and facilities (see EN 280).

No extra requirements on noise and vibration are provided other than those given in EN 1915-3 and EN 1915-4.

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

This European 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 maintenance or service stairs and platforms which are manufactured before the date of publication of this standard by CEN.

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 maintenance or service stairs and platforms.

1.2 Classification

For the purposes of this document, mobile elevating work platforms (MEWPs) used for aircraft maintenance access are divided into two main groups A and B. In addition, group C is considered as described in c) hereafter:

- a) Group A: MEWPs where the vertical projection of the centre of the platform area is always inside the tipping lines.

NOTE 1 See 5.2 hereafter for the specific requirements applying to Group A MEWPs.

- b) Group B: MEWPs where the vertical projection of the centre of the platform area may be outside the tipping lines.

NOTE 2 See 5.3 hereafter for the specific requirements applying to Group B MEWPs.

- c) Group C consists of maintenance or service access stairs, where persons are not elevated by the machine but climb a flight of steps.

NOTE 3 See 5.4 hereafter for the specific requirements applying to Group C maintenance or service stairs.

Relating to travelling, MEWPs are divided into three types:

- 1) Type 1: Travelling is only allowed with the MEWP in its stowed position;
- 2) Type 2: Travelling with raised work platform is controlled from a point of control on the chassis;
- 3) Type 3: Travelling with raised work platform is controlled from a point of control on the work platform.

NOTE 4 Types 2 and 3 can be combined.

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 280:2013+A1:2015, *Mobile elevating work platforms - Design calculations - Stability criteria - Construction - Safety - Examinations and tests*

EN 795:2012, *Personal fall protection equipment - Anchor devices*

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

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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 12312-1:2013, *Aircraft ground support equipment - Specific requirements - Part 1: Passenger stairs*

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

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)*

ISO 11228-1, *Ergonomics — Manual handling — Part 1: Lifting and carrying*

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 1915-1:2013 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**maintenance platform**

mobile elevating work platform (MEWP) designed for:

- the transport of persons and tools to reach and/or access to elevated parts of the aircraft;
- carrying out maintenance work on aircraft at the airport

3.1.1**mobile elevating work platform****MEWP**

mobile machine intended to elevate persons to working positions for purposes of aircraft maintenance access at airports

3.1.2**group A**

MWEPS on which the vertical projection of the centre of the platform area, in all platform configurations at the maximum inclination, is always inside the tipping lines

Note 1 to entry: See ISO 16368.

3.1.3**group B**

MEWPs on which the vertical projection of the centre of the platform area, in all platform configurations at the maximum inclination, can be outside the tipping lines

Note 1 to entry: See ISO 16368.

3.1.4**type 1**

MEWPs for which travelling is only allowed when in the stowed position

3.1.5**type 2**

MEWPs for which travelling in the elevated position is controlled from a point on the chassis

3.1.6**type 3**

MEWPs for which travelling in the elevated position is controlled from a point on the work platform

3.2**maintenance or service stair**

fixed or adjustable stair or steps designed for:

- entering and leaving the aircraft for maintenance or service purposes;
- reaching and/or access to elevated parts of the aircraft;
- carrying out maintenance or service work on aircraft

3.2.1**group C**

maintenance or service stairs or steps where persons are not elevated by the machine but climb a flight of steps

3.3**maintenance dock**

installed assembly, either fixed to the ground or moveable only for the docking procedure, designed for:

- reaching elevated parts of the aircraft;
- carrying out maintenance work on defined aircraft types

3.4**stair flight**

series of steps between ground level and platform or between two platforms

3.5**riser height (R)**

distance between the surface of the tread of one step and the surface of a step above or below when measured perpendicularly between the tread surfaces

3.6**tread depth (T)**

distance from one step nosing to the adjacent step nosing when measured parallel to the tread surface

EN 12312-8:2018 (E)**3.7****step width**

maximum usable width measured along the nose of the step

3.8**handrail height**

distance to the top surface of the handrail as measured at the nose of the step or platform and perpendicular to the tread surface

3.9**incline**

angle of stair flight to a horizontal plane, measured across the noses of the steps

3.10**inclination**

angle of platform and steps to a horizontal plane, measured at a right angle to the noses of the steps

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 maintenance or service stairs and platforms and which require action to eliminate or reduce risks. Not covered are hazards due to the traffic and repair.

5 Safety requirements and/or measures**5.1 General requirements**

5.1.1 The following general requirements are applicable to maintenance or service stairs and platforms of all groups and types, in addition to the specific requirements in 5.2 for group A platforms, 5.3 for group B platforms, and 5.4 for group C maintenance or service stairs.

Machinery shall comply with the safety requirements and/or protective/risk reduction measures of this clause. In addition, the machine shall be designed according to the principles of EN ISO 12100:2010 for relevant but not significant hazards which are not dealt with by this document.

5.1.2 Installation or use on the platform of powered lifting means to handle aircraft spare parts or other external loads shall not be allowed. See 6.4 for instructions.

5.1.3 The following loads, forces and speeds shall be taken into account as minimum for the strengths and stability calculations:

a) Rated load

The rated load capacity shall not be less than:

- 1) 80 kg per person;
- 2) The mass of each person is assumed to act as a point load on the work platform and any platform extension at a horizontal distance of 0,1 m from the upper inside edge of the top rail. The distance between the point loads shall be 0,5 m;
- 3) 40 kg minimum mass of tools, and