SLOVENSKI STANDARD
SIST EN 12312-5:2021+A1:2025

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Podporna oprema na tleh za letalski promet - Posebne zahteve - 5. del: Oprema za oskrbo letal z gorivom (vključno z dopolnilom A1)

Aircraft ground support equipment - Specific requirements - Part 5: Aircraft fuelling equipment

Luftfahrt-Bodengeräte - Besondere Anforderungen - Teil 5: Betankungseinrichtungen für Luftfahrzeuge

Matériel au sol pour aéronefs - Exigences particulières - Partie 5 : Matériels d'avitaillement en carburant

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ICS:

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

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Aircraft ground support equipment - Specific requirements - Part 5: Aircraft fuelling equipment

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This European Standard was approved by CEN on 18 January 2021 and includes Amendment 1 approved by CEN on 9 December 2024.

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

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European foreword

This document (EN 12312-5:2021+A1:2025) 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of an identical text or by endorsement, at the latest by July 2025, and conflicting national standards shall be withdrawn at the latest by July 2025.

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 includes Amendment 1 approved by CEN on 9 December 2024.

This document supersedes ▌A1⟩ EN 12312-5:2021 ⟨A1▌.

The start and finish of text introduced or altered by amendment is indicated in the text by tags ▌A1⟩ ⟨A1▌.

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

For the relationship with EU Legislation, 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* (this document);

— *Part 6: Deicers and de-icing/anti-icing 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*.

Annexes C and D are normative; Annexes A, B, E and ZA are informative.

The main changes compared to the previous edition EN 12312-5:2005+A1:2009 are the following ones:

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;

d) Clause 2, Normative references, was updated;

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

f) Clause 5, Safety requirements and/or measures, was completely revised and changed;

g) Subclause 5.6.5 Ergonomic aspects on AFE for fuel supply, was added

h) Subclause 6.1, Marking, and Subclause 6.2 Additional marking, were changed;

i) Clause 7, Verification of requirements, was updated;

j) Annex D, Ancillary equipment to access the aircraft fuelling panel (refuelling ladder), was added;

k) Annex ZA referring to the Machinery Directive 98/37/EC was replaced by Annex ZA referring to the new Machinery Directive 2006/42/EC.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

Introduction

This document specifies health and safety requirements, as well as some functional and performance requirements for aircraft fuelling equipment (AFE) 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 AFE. 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.

The machinery concerned and the extent to which hazards, hazardous situations and events are covered are indicated in the Scope of this document.

This document is a type-C standard as stated 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).

[A1] *deleted text* [A1]

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 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.

In general, the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR) is not applicable to AFE as they are not deemed to be used on public roads. However, certain requirements have been added in an informative Annex E.

The use of AFE on public roads is not intended with the following exceptions:

a) transportation of fuel from tank farms to refuelling areas out of the airport premises;

b) maintenance purposes with empty cargo tanks.

NOTE This could include the need of local traffic derogation (see [A1] EN 1915-1:2023 [A1], Introduction, f) — negotiation).

The intended functions of AFE are:

c) loading fuel from the tank farm and/or a hydrant system to the AFE;

d) storage and transportation of fuel;

e) fuelling from the AFE to the aircraft;

f) filtration of the fuel;

g) metering the fuel for a transfer of custody;

h) defuelling the aircraft to the AFE;

i) flushing fuel from hydrant systems;

j) unloading AFE to the tank farm after defuelling of an aircraft;

k) transferring fuel from one AFE to another.

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 AFE 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, airports and fuelling companies.

This document applies to all types of aircraft fuelling equipment:

a) aircraft refuellers,

b) hydrant dispensers,

c) defuellers,

d) hydrant pit servicing vehicles,

e) pit cleaner vehicles, and

f) stationary dispensing units

intended to service aircraft with aviation fuels and to be operated on airfields, heliports and other aircraft refuelling related areas such as maintenance bases.

This document does not apply to:

g) AFE whose only power source for aircraft refuelling is directly applied manual effort,

h) hydrant systems, tank farms, pipework and underground tanks,

i) specific hazards due to the operation of the AFE in a potentially explosive atmosphere, and

j) built-in fire extinguisher systems.

No extra requirements on noise and vibration are provided other than those in EN 1915-3:2004+A1:2009 and EN 1915-4:2004+A1:2009.

NOTE EN 1915-3:2004+A1:2009 and EN 1915-4:2004+A1:2009 provide the general GSE vibration and noise requirements.

This document does not deal with hazards in respect to a standard automotive chassis and from other vehicles on the apron.

This document is not applicable to AFE which are manufactured before the date of publication of this document by CEN.

This part of the EN 12312 series when used in conjunction with ⟦A1⟩ EN 1915-1:2023 ⟨A1⟧, EN 1915-2:2001+A1:2009, EN 1915-3:2004+A1:2009 (for vehicles) and EN 1915-4:2004+A1:2009 provides the requirements for AFE.

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 131-1:2015+A1:2019, *Ladders — Part 1: Terms, types, functional sizes*

EN 131-2:2010+A2:2017, *Ladders — Part 2: Requirements, testing, marking*

EN 131-3:2018, *Ladders — Part 3: Marking and user instructions*

EN 131-7:2013, *Ladders — Part 7: Mobile ladders with platform*

EN 764-1:2015+A1:2016, *Pressure equipment — Part 1: Vocabulary*

〉A1〈 EN 1915-1:2023 〉A1〈, *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*

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 13082:2008+A1:2012, *Tanks for transport of dangerous goods — Service equipment for tanks — Vapour transfer valve*

EN 13094:2020, *Tanks for the transport of dangerous goods — Metallic gravity-discharge tanks — Design and construction*

EN 13308:2002, *Tanks for transport of dangerous goods — Service equipment for tanks — Non pressure balanced footvalve*

EN 13316:2002, *Tanks for transport of dangerous goods — Service equipment for tanks — Pressure balanced footvalve*

EN 14183:2003, *Step stools*

EN 14595:2016, *Tanks for transport of dangerous goods — Service equipment — Breather device*

EN 14596:2018, *Tanks for transport of dangerous goods — Service equipment for tanks — Emergency pressure relief valve*

EN 16257:2012, *Tanks for the transport of dangerous goods — Service equipment — Footvalve sizes other than 100 mm dia (nom)*

EN 16522:2014, *Tanks for transport of dangerous goods — Service equipment for tanks — Flame arresters for breather devices*

EN IEC 60079-0:2018, *Explosive atmospheres — Part 0: Equipment — General requirements (IEC 60079-0:2017)*

EN ISO 1825:2017, *Rubber hoses and hose assemblies for aircraft ground fuelling and defuelling — Specification (ISO 1825:2017)*

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 45:1990, *Aircraft — Pressure refuelling connections*

ISO 46:1973, *Aircraft — Fuel nozzle grounding plugs and sockets*

ISO 102:1990, *Aircraft — Gravity filling orifices*

ISO 1102:2001, *Commercial road vehicles — 50 mm drawbar eye — Interchangeability*

ISO 1728:2006, *Road vehicles — Pneumatic braking connections between motor vehicles and towed vehicles — Interchangeability*

ISO 3584:2020, *Road vehicles — Clevis couplings — Interchangeability*

ISO 8755:2001, *Commercial road vehicles — 40 mm drawbar eye — Interchangeability*

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*

EI 1529:2014, *Aviation fuelling hose and hose assemblies*

EI 1542:2012, *Identification markings for dedicated aviation fuel manufacturing and distribution facilities, airport storage and mobile fuelling equipment*

EI 1584:2017, *Four-inch hydrant system components and arrangements*

EI 1596:2013, *Design and construction of aviation fuel filter vessels*

SAE AS 5877B, *Detailed Specification for Aircraft Pressure Refueling Nozzle*[1]

[1] Published by: SAE National (US) Society of Automotive Engineers http://www.sae.org/.

3 Terms and definitions

A1 For the purposes of this document, the terms and definitions given in EN ISO 12100:2010 and EN 1915-1:2023 and the following apply.

ISO and IEC maintain terminology 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
aviation fuel
hydrocarbon type liquid used as fuel in an aircraft engine

3.1.1
jet fuel
kerosene type distillate fuel used in turbine engines

3.1.2
aviation gasoline
Avgas
gasoline for use in piston type aircraft engines

3.2
static dissipator additive
SDA
additive added to the fuel to increase its electrical conductivity

Note 1 to entry: Also known as conductivity improver or anti-static additive.

3.3
aircraft fuel control panel
aircraft mounted panel, used to control fuel distribution and quantities in aircraft tanks

3.4
refuelling

3.4.1
pressure refuelling
underwing refuelling
refuelling under positive pressure through a nozzle directly connected to the aircraft fuelling adapter

3.4.2
overwing refuelling
non-pressure refuelling
refuelling at atmospheric pressure through an overwing/trigger nozzle and entered into a fuel filling orifice

3.5
defuelling
function of removing fuel from an aircraft into a vehicle, usually through the aircraft refuelling adapters, which is subdivided into:

— pressure defuelling: when aircraft pumps are used to pump the fuel from the tanks of the aircraft to the AFE;

— suction defuelling: when AFE's pump is used to draw the fuel from the aircraft

Note 1 to entry: A combination of both may be used.

3.6
operational area
part of an airfield used for servicing aircraft

3.7
hydrant system
system of tanks, stationary pumps, valves, filters and pipework to supply fuel to the operational area where aircraft are refuelled

3.8
hydrant pit box
box set in the operational area which contains the hydrant pit valve or the low point or vent valve

3.9
hydrant pit coupler
device fitted to the intake hose to connect the hose to the hydrant pit valve

Note 1 to entry: The coupler may be fitted with additional devices such as deadman control, pressure control and an excess flow limiter.

3.10
hydrant pit valve
valve set in a hydrant pit box, equipped with an emergency shut-off device, to which the hydrant pit coupler can be attached

Note 1 to entry: The hydrant pit valve may be fitted with additional devices such as deadman control, pressure control valve or excess flow limiter.

3.11
intake hose
hose for fuel flow from the hydrant pit valve to the AFE

3.12
aircraft refuelling adapter
aircraft mounted adapter to which the pressure refuelling nozzle is connected

Note 1 to entry: A similar adapter may be used to connect loading hoses to an aircraft refueller.

3.13
intermediate connecting point
connecting point meant for connecting refuellers to fuelling hoses on a towable fuelling platform