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Podporna oprema na tleh za letalski promet - Posebne zahteve - 2. del: Vozila za preskrbo

Aircraft ground support equipment - Specific requirements - Part 2: Catering vehicles

Luftfahrt-Bodengeräte - Besondere Anforderungen - Teil 2: Catering-Hubfahrzeuge

Matériel au sol pour aéronefs - Exigences particulières - Partie 2: Camions commissariat

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Oprema za servis in
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Ground service and
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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 12312-2:2002+A1

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English Version

**Aircraft ground support equipment - Specific requirements - Part
2: Catering vehicles**

Matériel au sol pour aéronefs - Exigences particulières -
Partie 2: Camions commissariat

Luftfahrt-Bodengeräte - Besondere Anforderungen - Teil 2:
Catering-Hubfahrzeuge

This European Standard was approved by CEN on 30 May 2002 and includes Amendment 1 approved by CEN on 1 March 2009.

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 Management Centre or to any CEN member.

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COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (EN 12312-2:2002+A1:2009) 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of an identical text or by endorsement, at the latest by October 2009, and conflicting national standards shall be withdrawn at the latest by December 2009.

This document includes Amendment 1, approved by CEN on 2009-03-01.

This document supersedes EN 12312-2:2002.

The start and finish of text introduced or altered by amendment is indicated in the text by tags $\boxed{A_1}$ $\boxed{A_1}$.

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 EC Directive(s).

$\boxed{A_1}$ For relationship with EC Directive(s), see informative Annexes ZA and ZB, which are integral parts of this document. $\boxed{A_1}$

The Parts of EN 12312 — Aircraft ground support equipment — Specific requirements — are:

- 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: Aircraft 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 equipment
- 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: Ground power equipment

The annexes B and C are normative. The annexes A and D are informative.

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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Introduction

This European Standard specifies health and safety requirements, as well as some functional and performance requirements, for catering vehicles intended for cabin re-supply and servicing or loading and unloading of catering equipment and supplies 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 catering vehicles. Deviations from the recommended criteria should occur only after careful consideration, extensive testing, risk assessment and thorough service evaluation have shown alternative methods or conditions to be satisfactory.

This European Standard is a Type C standard as stated in **A1** EN ISO 12100 **A1**.

1 Scope

This European Standard specifies the technical requirements to minimise the hazards listed in clause 4 which can arise during the commissioning, the operation and the maintenance of catering vehicles 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 standard applies to self-propelled catering vehicles, with seated driver, equipped with a liftable van body.

Examples of catering vehicles are shown in annex A. Vehicles of a similar design within the load limits of this standard used as GSE for other purposes e.g. cleaning equipment, exchange of aircraft seats, are also covered by this European Standard.

This standard does not apply to pneumatic systems.

This standard does not establish requirements for hazards caused by noise and vibration.

This Part of EN 12312 is not applicable to catering vehicles which are manufactured before the date of publication of this standard by CEN.

A1 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.

Noise is dealt with in EN 1915-4. **A1**

2 Normative references

A1 The following referenced documents are indispensable for the application 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. **A1**

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EN 1050:1996, *Safety of machinery — Principles for risk assessment*

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A1 EN 1386, *Aluminium and aluminium alloys — Tread plate — Specifications* **A1**

EN 1756-1:2001, *Tail lifts — Platform lifts for mounting on wheeled vehicles — Safety requirements — Part 1: Tail lifts for goods*

EN 1837:1999, *Safety of machinery — Integral lighting of machines*

EN 1915-1:2001, *Aircraft ground support equipment — General requirements — Part 1: Basic safety requirements*

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

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

EN 12195-1, *Load restraint assemblies on road vehicles — Safety — Part 1: Calculation of lashing forces*

EN ISO 12100-1:2003, *Safety of machinery — Basic concepts, general principles for design — Part 1: Basic terminology, methodology (ISO 12100-1:2003)*

EN ISO 12100-2:2003, *Safety of machinery — Basic concepts, general principles for design — Part 2: Technical principles (ISO 12100-2:2003)*

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 13732-1:2006)*

EN ISO 13850:2008, *Safety of machinery — Emergency stop — Principles for design (ISO 13850:2006)*

ISO 4116:1986, *Air cargo equipment — Ground equipment requirements for compatibility with aircraft unit load devices*

ISO 7718, *Aircraft - Main-deck passenger doors - Interface requirements for connection with passenger-boarding bridge or transfer vehicle*

ISO 16004, *Aircraft ground equipment - Passenger boarding bridge or transfer vehicle - Requirements for interface with aircraft doors*

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3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN ISO 12100-1:2003, EN ISO 12100-2:2003 and EN 1915-1:2001 together with the following apply.

3.1

van body

rear box body for carrying loads

3.2

loading platform

elevating platform for transhipment between van body and aircraft

3.3

walking area

safe areas where walking is permitted

3.4

restraint device

components for preventing movement of load inside the van body

3.5

trolley

cart for carrying food or equipment for use aboard the aircraft

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3.6

canopy

cover or body fitted over loading platform to provide weather protection

3.7

tail lift (tailgate lift)

moveable platform at the rear of a vehicle used for assisting the entry into, or exit from, the vehicle of goods from the ground level

3.8

supporting screen

front wall of the van body fixed to the chassis and supporting the loading platform in the lowered position

3.9

under-run guard

rigid or flexible bumper device which is designed to prevent another vehicle from becoming entrapped underneath the rear of a vehicle when the vehicle is struck from behind

3.10

sideguard

rigid device which is designed to prevent another vehicle from becoming entrapped underneath the side of a vehicle when the vehicle is struck from either side

4 List of hazards

The list of risks and hazards (see annex B) is based on EN 1050:1996 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 catering vehicles and which require action to eliminate or reduce risks. Not covered are risks and hazards due to a standard automotive chassis, the traffic, ^{A1} deleted text ^{A1} repair and general misuse.

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5 Safety requirements and/or measures

5.1 General requirements

5.1.1 ^{A1} Catering vehicles shall conform to the relevant requirements of EN 1915-1, EN 1915-2, EN 1915-3 and EN 1915-4 unless otherwise specified in this standard. ^{A1} They shall also conform to the specific requirements of this standard.

NOTE General functional requirements for catering vehicles for large capacity aircraft are specified in ISO 10841:1996.

5.1.2 Strength calculations shall be carried out in accordance with ^{A1} EN 1915-2 ^{A1}.

5.1.3 For catering vehicles to be moved on public roadways, the dimensions, laden mass and other characteristics shall meet all applicable government regulations.

NOTE Applicable government regulations are dependant on the airport of use.

5.1.4 Catering vehicles shall be equipped with a fully enclosed van body and a loading platform capable of reaching the door sill height of the aircraft.

5.1.5 The catering vehicle chassis at ground level shall be surrounded by a protective structure in order to prevent any possibility of inadvertent access of persons under the van body while elevated (see also annex D of EN 1915-1:2001).

5.1.6 The van body or loading platform shall be equipped with a means for safe access from ground level.

5.1.7 The cover material of walking areas on the loading platform shall provide the possibility of easy elimination of water and snow, e.g. using tread plate conforming to ^{A1} EN 1386 ^{A1}.

5.1.8 The breadth of gaps between the different floors of van body, loading platform and tail lift in change — over position shall be less than 10 mm. Where the difference of height is more than 5 mm in change-over position, the change-over shall be achieved with an inclination at a maximum angle of 15°.

5.1.9 Van body and loading platform shall have illumination of a non-glare quality. A minimum illumination of 50 lx shall be provided at any point of walking areas.

5.1.10 Catering vehicles shall be equipped with driver's cabins.

5.1.11 All seats shall be provided with 3 point type inertial reel seat belts as used on standard automotive vehicles.

5.2 Dimensions and loads

5.2.1 The overall height of the catering vehicle, with the van body fully lowered, shall not exceed 4 m.

NOTE Depending on the airport of use, lower heights can be necessary (see clause 0 of EN 1915-1:2001 — negotiation).

5.2.2 The overall width of the catering vehicle in the driving condition shall not exceed 2,6 m.

NOTE Local road traffic regulations can require narrower widths.

5.2.3 For the strength calculation of the structure a minimum load of 200 kg/m² on the areas intended by the manufacturer for the storage of loads and/or walking areas shall be considered.

5.2.4 For the construction of the van body and the loading platform, the following local loads are to be considered:

- floor plate of the van body 500 kg/m²;
- floor plate of the loading platform 300 kg/m²;
- minimum local single load at the leading edge of the loading platform 100 kg;

whereby the allowed maximum of sag relative to the van body or platform floor is 20 mm.

5.2.2.4 of EN 1915-2:2001 does not apply to these loads.

5.2.5 All areas to be driven on with a trolley are to be designed for a minimum floor contact pressure of 10 N/mm². No permanent deflection is allowable.

5.3 Van body

5.3.1 The minimum clear height at any point above walking areas shall be not less than 1,9 m.

Attention shall be paid when installing e.g. lights, evaporators at the ceiling.

5.3.2 The van body shall be equipped with at least one doorway with a minimum usable width of 0,8 m and a clear height of 1,9 m which can be opened from both sides. Doors shall open to the inside of the van body.

5.3.3 Parts of the van body front wall not used for loading procedures shall be protected against falling of persons and loads.

5.3.4 Sidewalls shall be equipped with protective devices to avoid deterioration by impact from trolleys or loads.

5.3.5 The van body shall be equipped with a load securing system, preventing sliding, rolling, tilting, and dropping of catering equipment, i.e.:

- fixed storage racks;

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— attachments for restraint devices.

Attachment points shall be calculated according to [EN 12195-1](#).

5.3.6 It shall be possible to close all openings of the van body as a means for additional load security and for hygienic reasons.

5.3.7 It shall be possible to store restraint devices when not in use. The storage facility shall not create risks of tripping and shall protect the devices against damage and dirt.

5.3.8 The interior of the van body shall be fully lined with a smooth, non moisture absorbent, non toxic material, hygienically approved by the authorities for use in vehicles carrying food for human consumption.

5.3.9 The lining material shall be compatible with repeated cleaning with strong detergents and disinfecting agents, as well as suitable for repeated water pressure cleaning and steam cleaning. Joints or appurtenances inside the van body shall be flush, rounded, sloped or otherwise protected to prevent any accumulation of dirt or rubbish and facilitate comprehensive cleaning the body.

5.4 Loading platform

5.4.1 Catering vehicles shall be equipped with a loading platform enabling transhipment between van body and aircraft.

5.4.2 The minimum usable width of the loading platform shall be 700 mm.

5.4.3 The loading platform shall be constructed so that the driver in the cabin is able to see the leading edge throughout its operating range.

5.4.4 For the design of loading platforms the specifications found in 5.2.3 and 5.2.4 shall be considered.

5.4.5 The loading platforms and the railings adjacent to the aircraft shall have a capability to provide an adaptation to the contour of the aircraft. Railings shall be of such design to leave a maximum gap of 150 mm to the aircraft fuselage. The profile shall conform to the interface requirements given in [ISO 7718](#) and [ISO 16004](#).

5.4.6 Telescopic parts of the loading platform and railings shall have a minimum extension of 0,5 m.

5.4.7 The telescopic part of the loading platform shall be secured in any extended position.

5.4.8 The maximum extending force of telescopic parts of the loading platform and railings adjacent to the aircraft shall not exceed 400 N. Where the maximum force caused by movement of the aircraft exceeds 400 N, these telescopic parts shall give way.

5.4.9 The leading edge of the loading platform shall be designed so that damage of the aircraft is avoided, preferably by application of a full width cylindrical bumper with a minimum diameter of 120 mm.

5.4.10 Safeguards against falling shall be provided on all open sides of the loading platform except for access to the aircraft and van body.

5.4.11 The front end of any railing part adjacent to the aircraft shall be equipped with a bumper.

5.4.12 Railing geometry shall be designed to allow opening and closure of the aircraft doors while the telescopic part of the loading platform is fully retracted, when the catering vehicle is in position near the aircraft regardless of the relative position.

NOTE Where this is not possible in specific cases, e.g. the rear door of a Boeing 747, see 6.4 — operating instructions.

5.4.13 Loading platforms shall be designed so that damage to the aircraft door, which is open during loading/unloading, is avoided. This can be achieved by either:

— diminution of the width of the loading platform to leave the space underneath the aircraft door unconfined. In that case, the loading platform shall be designed as an adjustable bridge to enable an optimum adaptation;

or

— a mechanism which prevents the aircraft door from setting upon the loading platform during dispatch of the aircraft.

5.4.14 Where a supporting screen at the front end of the van body is used in lowered position of the loading platform, it shall present a continuous surface and it shall be adjustable to obtain an even closing with the rear edge of the loading platform (in accordance with annex C).

5.5 Lifting device and stability

5.5.1 Stability calculations shall be carried out in accordance with **EN 1915-2**.

5.5.2 Where under-run guards or sideguards are creating crushing or shearing hazards, measures shall be taken to avoid these hazards (see EN 1915-1:2001, annex D).

NOTE Under-run guards and/or sideguards can be required, by law, in the country of use for catering vehicles to be used on public roadways.

5.5.3 In deviation from 5.17.5 of EN 1915-1:2001, hydraulic fluid tanks shall be dimensioned so that during maximum system displacement at least 20 % of the fluid volume remains in the tank.

5.5.4 Cylinders in hydraulic lifting systems shall be protected against unintentional lowering by a pilot-operated check-valve mounted directly to the cylinder (see 5.20.3 of EN 1915-1:2001).

5.5.5 Stabilizers shall be installed in order to provide the stability required for loading/unloading the aircraft unless the catering vehicle is so designed to operate safely under all conditions without stabilizers.

5.5.6 Stabilizers in the retracted position shall not protrude from the catering vehicle's overall width.

NOTE Preferably, the stabilizers in the operating position should not protrude either from the overall width.

5.5.7 Stabilizers shall be safeguarded in the extended and retracted positions by means of positive fit. For hydraulic stabilizers this shall be obtained by check valves mounted directly at the cylinder.

5.5.8 The following conditions shall be fulfilled if stabilizers are necessary to guarantee the stability of the vehicle:

- it shall only be possible to raise the van body when the stabilizers are fully extended;
- it shall only be possible to retract the stabilizers when the van body is fully lowered;
- it shall only be possible to drive the catering vehicle when the stabilizers are fully retracted.

NOTE Where the catering vehicle is designed to travel with the van body raised and the maximum speed is reduced according to 5.22.1 of EN 1915-1:2001, the afore mentioned requirements do not apply.

5.5.9 The raising and lowering speed of the van body shall not exceed 0,15 m/s, the linear speed of any ram used for stabilizers shall not exceed 0,03 m/s.