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Aircraft ground support equipment - Specific requirements - Part 13: Lavatory service equipment

Luftfahrt-Bodengeräte - Besondere Anforderungen - Teil 13: Toiletten-Servicegeräte

Matériel au sol pour aéronefs - Exigences particulières - Partie 13: Vide-toilettes

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

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English Version

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Contents

Foreword

This document (EN 12312-13:2002+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of an identical text or by endorsement, at the latest by October 2009, and conflicting national standards shall be withdrawn at the latest by December 2009.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 12312-13:2002.

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 mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

⟨A1⟩ For relationship with EU Directives, see informative Annexes ZA and ZB, which are integral parts of this document. ⟨A1⟩

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

Annex A is informative and annex B is normative.

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.

Introduction

This European Standard specifies health and safety requirements, as well as some functional and performance requirements for lavatory service equipment intended for servicing 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 lavatory service equipment. 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, operation and maintenance of lavatory service equipment 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 lavatory vehicles;

— towable lavatory vehicles;

— moveable parts of ramp integrated systems,

designed for servicing aircraft and intended to be used under the conditions given in clause 1 of EN 1915-1:2001 (examples see annex A).

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

This Part of EN 12312 is not applicable to lavatory service equipment which is 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. [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]

[A1] *deleted text* [A1]

EN 954-1:1996, *Safety of machinery — Safety-related parts of control systems — Part 1: General principles for design*

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

[A1] *deleted text* [A1]

[A1] EN 1837 [A1], *Safety of machinery — Integral lighting of machines*

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

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

[A1] 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* [A1]

[A1] EN ISO 12100-1:2003, *Safety of machinery — Basic concepts, general principles for design — Part 1: Basic terminology, methodology (ISO 12100-1:2003)* [A1]

[A1] EN ISO 12100-2:2003, *Safety of machinery — Basic concepts, general principles for design — Part 2: Technical principles (ISO 12100-2:2003)* [A1]

[A1] ISO 17775, *Aircraft — Ground-service connections — Potable water, toilet-flush water and toilet drain* [A1]

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in [A1] EN ISO 12100:2003 [A1] and EN 1915-1:2001 together with the following apply.

3.1
lavatory service equipment
ground support equipment (GSE) for aircraft toilet servicing

3.2
lavatory vehicle
self-propelled or towable lavatory service equipment

3.3
waste system
part of the lavatory service equipment to collect the waste from toilet systems on aircraft

3.4
rinsing system
part of the lavatory service equipment for flushing and refilling aircraft toilet systems

3.5
open work material
flooring material for standing areas with openings to allow self-draining and cleaning

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 lavatory service equipment and which require action to eliminate or reduce risks. Not covered are risks and hazards due to a standard automotive chassis, the traffic, [A1] repair [A1] and general misuse.

5 Safety requirements and/or measures

5.1 General requirements

5.1.1 [A1] Lavatory service equipment 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.

5.1.2 Stability and strength calculations shall be carried out in accordance with [A1] EN 1915-2 [A1].

5.1.3 The flushing/rinsing and drainage connections to the aircraft systems shall meet the respective requirements of [A1] ISO 17775 [A1].

5.1.4 Where the lavatory service equipment is intended to be moved on public roadways, the dimensions, laden mass and other characteristics shall meet all applicable governmental regulations.

NOTE Applicable governmental regulations are dependent on the airport of use.

5.1.5 The ground clearance shall allow without interference the transversing of two surfaces intersecting at an angle of ± 3° (5 %) either in bridging or cresting.

5.1.6 The height of the lavatory vehicle shall allow the servicing of aircraft as intended by the manufacturer.

NOTE Parts of lavatory vehicles intended to be driven underneath the aircraft should be not more than 1,60 m (63 in) above the ground (see clause 0 of EN 1915-1:2001 — negotiation). This might cause problems in fulfilling the requirements in ISO 3411:1995.

5.1.7 All parts of the waste and rinsing system shall be made of non-corrosive material.

5.1.8 Self-propelled lavatory vehicles shall be equipped with driver accommodation.

5.1.9 A working light shall be provided, e.g. for connection of hoses to the aircraft during night operations. The design and installation of the light shall conform to [A1] EN 1837 [A1].. The minimum electrical power of the lamp shall be 25 W.

5.1.10 Where it is intended to climb upon the vehicle during filling the tanks of the lavatory vehicle adequate safety measures to prevent falling shall be taken. Where fixed guard rails cannot be installed, alternative safety measures shall be taken, e.g. filling from ground level, use of foldable or collapsible guard rails.

5.2 Tanks

5.2.1 General

5.2.1.1 The lavatory vehicle shall have separate waste-collection and rinse water tanks.

NOTE Separate tanks for disinfectant fluid can be installed.

5.2.1.2 For easy cleaning, tanks shall have the following features:

a) all inside fittings, welds, joints and rivets shall have a smooth finish;

b) cylindrical tank ends shall be dished.

5.2.1.3 Baffles shall be installed inside the tank, if the capacity is over 1 000 l to prevent surge of load while the lavatory vehicle is driven.

5.2.1.4 Tanks shall have at least one inspection hole with a minimum diameter of 400 mm (16 in) in the upper region to facilitate cleaning and inspection.

5.2.1.5 Tanks shall be fitted with ventilating means.

5.2.1.6 Tanks shall be securely fitted to the chassis of the lavatory vehicle, to avoid relative movement between tank and chassis, working loose, wear and tear.

5.2.2 Waste tanks

5.2.2.1 A dump valve of at least 100 mm (4 in) diameter shall be fitted to the lowest point of the tank.

5.2.2.2 The control of the dump valve shall be easily accessible and positioned to protect the operator from being splashed with effluent when emptying the tank.

5.2.2.3 The dump valve control in the closed position shall not protrude beyond the overall width of the lavatory vehicle.

5.2.2.4 The tank shall be equipped for internal cleaning and flushing.

5.2.2.5 All corners inside the tank shall have a radius of at least 25 mm (1 in).

5.2.2.6 The bottom of the tank shall have a minimum slope of 2° towards the drain point.

5.2.3 Rinse tanks

5.2.3.1 The tank shall be equipped with a drain plug and filler cap.

5.2.3.2 All corners inside the tank shall have a radius of at least 10 mm (0,4 in).

5.2.3.3 The bottom of the tank shall have a minimum slope of 1° towards the drain point.

5.3 Waste hoses

Waste hoses shall:

— be flexible;

— be non-collapsible for vacuum systems;

— have an inside diameter of at least 100 mm (4 in);

— enable servicing of the intended aircraft (see also clause 0 of EN 1915-1:2001 — negotiation) and shall be equipped with a coupler at the delivery end.

5.4 Rinsing system components

5.4.1 Where the pump is driven by a power take-off, it shall not be possible to operate the pump unless the vehicle's transmission is in neutral or park position and vice versa. The corresponding safety circuit shall be according to EN 954-1:1996, category B.

5.4.2 A valve and filter shall be installed between tank and pump.

5.4.3 There shall be a relief valve to allow the pressure to be regulated according to the requirements of different aircraft types. The valve shall be easily adjustable, e.g. without using tools.

NOTE An easily readable pressure gauge should be fitted.

5.4.4 Control devices shall be provided to allow the pump to be operated from the ground and, where fitted, from the work platform.