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Aircraft ground support equipment – Specific requirements – Part 17: Air conditioning equipment

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The European Standard EN 12312-17:2004+A1:2009 has the status of a Swedish Standard. This document contains the official English version of EN 12312-17:2004+A1:2009.

This standard supersedes the Swedish Standard SS-EN 12312-17:2004, edition 1.

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EUROPEAN STANDARD
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English Version

Aircraft ground support equipment - Specific requirements - Part 17: Air conditioning equipment

Matériel au sol pour aéronefs - Exigences particulières -
Partie 17: Matériels de climatisation

Luftfahrt-Bodengeräte - Besondere Anforderungen - Teil
17: Klimatisierungsanlagen

This European Standard was approved by CEN on 6 May 2004 and includes Amendment 1 approved by CEN on 1 March 2009.

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Foreword

This document (EN 12312-17:2004+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of an identical text or by endorsement, at the latest by October 2009, and conflicting national standards shall be withdrawn at the latest by December 2009.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 12312-17:2004.

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

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 document specifies health and safety requirements, as well as some functional and performance requirements for air conditioning equipment intended to be used for 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 air conditioning 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 document is a Type C standard as stated in  EN ISO 12100 .

The machinery concerned and the extent to which hazards, hazardous situations and 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 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.

1 Scope

This document specifies the technical requirements to minimise the hazards listed in Clause 4 which can arise during the commissioning, operation and maintenance of specific air conditioning equipment for aircraft ground support, when carried out in accordance with the specifications given by the manufacturer or his authorised representative. It also takes into account some performance requirements recognised as essential by authorities, aircraft and ground support equipment (GSE) manufacturers as well as airlines and handling agencies.

This document is not dealing with the hazards of air conditioning machinery itself, but with the equipment for the specific application of such machinery as aircraft ground support equipment.

This document applies to all types of moveable air conditioning equipment with evaporators for cooling, heating and ventilating the interior of civil aircraft from outside (ground air conditioning).

Examples see Annex A.

It also applies to air conditioning units and accessories, e.g. hoses, couplers, mounted on moveable parts of passenger boarding bridges and/or moveable parts of fixed centralized aircraft air conditioning equipment, whether passenger boarding bridge mounted or ramp integrated.

This document does not establish requirements for noise and vibration.

Noise and vibration are dealt with respectively in A_1 EN 1915-4 A_1 and A_1 EN 1915-3 A_1 .

This document is not dealing with hazards in respect to a standard automotive chassis and the traffic on the apron.

This Part of EN 12312 is not applicable to air conditioning equipment, which is manufactured before the date of publication of this standard by CEN.

A_1 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. A_1

2 Normative references

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.

A_1 *deleted text* A_1

A_1 EN 779 A_1 , *Particulate air filters for general ventilation — Determination of the filtration performance*

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

A_1 *deleted text* A_1

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

A_1 EN 1915-2 A_1 , *Aircraft ground support equipment — General requirements — Part 2: Stability and strength requirements, calculations and test methods*

A_1 EN 1915-3, *Aircraft ground support equipment — General requirements — Part 3: Vibration measurement methods and reduction* A_1

A_1 EN 1915-4, *Aircraft ground support equipment — General requirements — Part 4: Noise measurement methods and reduction* A_1

A_1 EN ISO 12100-1:2003, *Safety of machinery — Basic concepts, general principles for design — Part 1: Basic terminology, methodology (ISO 12100-1:2003)* A_1

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

EN ISO 13850:2008, *Safety of machinery — Emergency stop — Principles for design (ISO 13850:2006)* A1

EN ISO 13857, *Safety of machinery — Safety distances to prevent hazard zones being reached by upper and lower limbs (ISO 13857:2008)* A1

ISO 1034 A1, *Aircraft — Ground air-conditioning connections*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 12100:2003 A1, EN 1915-1:2001 and the following apply.

3.1

air conditioning equipment

ground support equipment (GSE) designed for cooling, heating and/or ventilating the interior of aircraft

3.2

air conditioning unit

self-contained air conditioning equipment

3.3

air delivery hose

flexible device to deliver air from the air conditioning equipment to the aircraft. This device includes any coupler

3.4

coupler

device to connect air delivery hoses to the aircraft and/or to other hoses — also known as adaptor, nozzle or connector

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 document, identified by risk assessment as significant for air conditioning equipment and which require action to eliminate or reduce risks.

5 Safety requirements and/or measures

5.1 General requirements

5.1.1 A1 Air conditioning 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 It 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 overall dimensions of air conditioning units shall be kept to a minimum (see Clause 0 of EN 1915-1:2001 — negotiation).

5.1.4 Exhaust pipes of air conditioning units with internal combustion engines shall be positioned as far as possible away from the air conditioning intake.

5.1.5 The air intake of the air condition system shall be designed and positioned in such a way to reduce the risk of ingress of leaking or ejected hydraulic fluid.

5.1.6 Towable air conditioning units shall be capable of being towed at speeds up to 32 km/h (20 mph).

NOTE The maximum travelling speed of towable air conditioning units should be agreed between manufacturer and user (see Clause 0 of EN 1915-1:2001 — negotiation).

5.1.7 On self-propelled air conditioning units using one common fuel tank, self-propelled movement shall still be possible when out of fuel for air conditioning purposes during aircraft servicing.

5.1.8 Air conditioning equipment shall automatically shut down in case of:

- heat exchanger overheat;
- excessive duct outlet/compressor temperature;
- loss of main power or power in the control circuits.

5.1.9 Air conditioning equipment with more than one air delivery hose shall have a selection system (which can be manual) to ensure that only the hose(s) in use are pressurized.

5.1.10 A removable air filter shall be provided. The filter shall meet the requirements in A1 EN 779 A1 Class F 5 as a minimum.

5.1.11 Self-propelled air conditioning units with driver's cabin shall have an alternative means of exit for the driver in the event of an emergency. It shall be positioned as far as possible away from the normal exit.

5.1.12 Restraint systems shall be fitted to all seats on self-propelled air conditioning units. Minimum requirement: a lap type seat belt.

5.2 Electrical power supplies

5.2.1 Means shall be provided to stow cables during transport without damage, e.g. bending beyond intended radius, kinking or twisting.

5.2.2 Cables shall withstand being run over by ramp equipment (see also clause 0 of EN 1915-1:2001 — negotiation).

5.2.3 Cables shall be resistant to environmental influences and fluids commonly found on the ramp, e.g. water, aircraft fuel, motor oil, hydraulic fluid (see also Clause 0 of EN 1915-1:2001 — negotiation).

5.3 Air delivery hoses and couplers

5.3.1 Means shall be provided to stow air delivery hoses on the air conditioning unit during transport without damage, e.g. bending beyond intended radius, kinking, twisting or trailing on the ground.

5.3.2 Couplers shall conform to A1 ISO 1034 A1 at the aircraft interface, and designed not to work loose.

5.4 Fixed equipment

Where equipment is designed for mounting under a passenger boarding bridge, and consequently its height above ground can be less than 2,5 m (see also A1 EN ISO 13857 A1) all sharp edges or corners of the equipment resulting from the manufacturing process shall be chamfered or rounded with a minimum radius of 1 mm unless smooth corners are provided by the intrinsic design of the standard material profiles used in the construction.

5.5 Controls, monitoring devices and displays

5.5.1 Emergency stops shall be provided at least at every operator's control panel with the exception of air flow control panels.

5.5.2 A1 Emergency stops shall meet the requirements in EN ISO 13850:2008, 4.1.4, Category 0 or 1. A1