SLOVENSKI STANDARD
SIST EN 12312-19:2005+A1:2009

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Podporna oprema na tleh za letalski promet - Posebne zahteve - 19. del: Dvigovalniki in podporniki za trup letala in (kolesne) osi ter hidravliļ ni podporniki za rep letala

Aircraft ground support equipment - Specific requirements - Part 19: Aircraft jacks, axle jacks and hydraulic tail stanchions

Luftfahrt-Bodengeräte - Besondere Anforderungen - Teil 19: Flugzeugheber, Radwechselheber und hydraulische Heckstützen

Matériel au sol pour aéronefs - Exigences particulières - Partie 19: Vérins de levage pour aéronefs, vérins de changement de roues et monopoles hydrauliques

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

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Foreword

This document (EN 12312-19:2005+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of an identical text or by endorsement, at the latest by October 2009, and conflicting national standards shall be withdrawn at the latest by December 2009.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 12312-19:2005.

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 aircraft jacks, axle jacks and hydraulic tail stanchions intended to be used for servicing and handling of 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 aircraft jacks, axle jacks and tail stanchions. Deviations from the recommended criteria should occur only after careful consideration, extensive testing, risk assessment and in service evaluation have shown alternative methods or conditions to be satisfactory.

This document is a Type C standard as stated in ⟨A1⟩ EN ISO 12100 ⟨A1⟩.

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 aircraft jacks, axle jacks and hydraulic tail stanchions 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 applies to:

— all types of aircraft jacks;

— axle jacks and hydraulic tail stanchions designed to be used at specific jacking points on the aircraft (examples see Annex A).

NOTE A tail stanchion type is intended to be used with one type of aircraft.

This document does not apply to aircraft recovery equipment.

This document does not establish requirements for noise and vibration.

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

This Part of EN 12312 is not applicable to aircraft jacks, axle jacks and hydraulic tail stanchions which are manufactured before the date of publication of this document 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

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] *deleted text* [A1]

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

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

EN 1915-2, *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* [A1]

[A1] EN 1915-4, *Aircraft ground support equipment — General requirements — Part 4: Noise measurement methods and reduction* [A1]

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).

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

3 Terms and definitions

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

3.1
aircraft jack
lifting device to support and/or raise an aircraft via its fuselage and wings

3.2
axle jack
lifting device used to support and/or raise an aircraft via its axles

3.3
hydraulic tail stanchion
device used to support an aircraft at its tail during loading and unloading operations

4 List of hazards

The list of risks and hazards (see Annex B) is based on EN 1050 and contains the hazards and hazardous situations, as far as they are dealt with in this document, identified by risk assessment as significant for aircraft jacks, axle jacks and hydraulic tail stanchions and which require action to eliminate or reduce risks.

5 Safety requirements and/or measures

5.1 General requirements

5.1.1 ⟨A1⟩ Aircraft jacks, axle jacks and hydraulic tail stanchions 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 document.

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

5.1.3 Where a pressure relief valve is used for overload protection, it shall not be positioned between the ram and its control device. The pressure relief valve shall be adjusted to the lowest possible value but not exceeding 125 % of the rated load.

5.1.4 On jacks it shall be possible for the operator to control the lowering speed or stop the lowering at any load up to the rated load, e.g. on manually operated jacks, by a finely controllable valve.

5.1.5 Maximum admissible forces for manual operation and translation of jacks and stanchions and the methods to measure it are given in Annex C.

5.2 Specific requirements for aircraft jacks and hydraulic tail stanchions

5.2.1 Aircraft jacks and hydraulic tail stanchions shall be designed to enable safe and easy steering, e.g. one steering wheel out of three.

5.2.2 Permanent access shall be provided on aircraft jacks and hydraulic tail stanchions to enable positioning and adjustment of the upper load support point. Where this is only a ladder, the maximum distance between the fourth tread counting from the top of the ladder and the maximum extended position of the support point shall not exceed 2,0 m.

5.2.3 On power operated aircraft jacks and tail stanchions, emergency stops shall be installed at each operator's panel. ⟨A1⟩ They shall meet the requirements in EN ISO 13850:2008, Category 0 or 1. ⟨A1⟩

5.2.4 Adjustable stabilisers may be considered as equivalent devices to fulfil the requirements in EN 1915-1:2001, 5.7.2.

5.2.5 The lifting system of aircraft jacks shall be equipped so that failure in the lifting device does not generate any hazardous movement of the lifting point/load.

5.2.6 Where more than one jack is intended to be used to lift an aircraft:

— failure of one drive shall induce stopping of all the jacks;

— monitoring of the movement shall be provided, in accordance with EN 1915-1:2001, 5.1;

— differences in height up to 100 mm shall be automatically corrected and differences in height of more than 100 mm shall lead to immediate stop of all jacks;

— manual lowering shall not be used.

The device to fulfil the requirements in EN 1915-1:2001, 5.20.3, shall be a pilot-operated check valve (see Clause 0 of EN 1915-1:2001 — negotiation).

5.2.7 The upper load support point of hydraulic tail stanchions, when connected to the aircraft jacking point by the headstock, shall follow any upward movement of the aircraft tail. The foot of the stanchion shall not be lifted from the supporting surface.

By receiving a load pressure defined by the aircraft manufacturer for the particular aircraft concerned, a safety valve shall open and allow the cylinder to retract for downward movements of the aircraft tail. A pressure gauge, visible from the ground, shall be installed to indicate the pressure in the hydraulic system.

5.2.8 On hydraulic tail stanchions, the vertical forces shall be transmitted to the supporting surface via the foot of the stanchion. The wheels shall not be used to transfer these forces.

5.2.9 Hydraulic tail stanchions shall allow all movement of the aircraft jacking point defined by the aircraft manufacturer for the particular aircraft concerned without deflection.

5.3 Specific requirements for axle jacks

5.3.1 Axle jacks shall be designed to enable easy and accurate positioning , e.g. two steering wheels out of four.

5.3.2 Devices for towing shall be of rigid construction. Handles and control means shall be calculated according to EN 1915-2 using the forces as given in Annex C.

5.3.3 Grab handles shall be provided for pushing and pulling.

5.3.4 Handles and control means shall be designed so that under intended use conditions they are not capable of causing injuries, e.g. pinching due to inadequate design of towbar or cutting due to sharp edges and corners.

6 Information for use

6.1 Marking

Permanent marking of data shall consist of metal plates fixed with rivets or welded to the structure.

6.2 Additional marking

In addition to the name-plate, the following shall be marked:

— rated load;

— type of aircraft, when restricted to certain types of aircraft;