
**Air cargo unit load devices —
Performance requirements and test
parameters**

*Unités de charge de fret aérien — Exigences de performances et
paramètres d'essai*



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2. www.iso.org/directives

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received. www.iso.org/patents

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 9, *Air cargo and ground equipment*.

Air cargo unit load devices — Performance requirements and test parameters

1 Scope

1.1 The purpose of this International Standard is to establish the minimum requirements for airworthiness approval of air cargo pallets, nets and containers, generally designated as air cargo unit load devices.

NOTE In all countries, standing Government regulations apply to air cargo unit load devices airworthiness approval. This International Standard is intended to provide a uniform technical reference for air cargo unit load devices approval, but does not, under any circumstance, supersede the requirements of applicable regulations or the aircraft manufacturer's Authority approved Weight and Balance Manual.

1.2 This International Standard defines the minimum performance requirements and test parameters for air cargo unit load devices requiring approval of airworthiness for installation in an approved aircraft cargo compartment and restraint system that complies with the cargo restraint and occupant protection requirements of EASA CS-25 or 14 CFR Part 25, except for the 9,0 g forward ultimate inertia force of § 25.561(b) (3) (ii).

1.3 This International Standard applies to airworthiness approved air cargo unit load devices intended for carriage on board civil transport category airplanes type certificated under EASA CS-25, "*Certification Specifications for Large Aeroplanes*" or 14 CFR Part 25, "*Airworthiness Standards - Transport Category Airplanes*", or equivalent regulations.

1.4 It exclusively applies to unit load devices airworthiness approval and testing parameters. It does not apply to either aircraft design or aircraft operating requirements, which are provided by the approved Weight and Balance Manual for each aircraft type.

1.5 Other aspects that do not directly pertain to air cargo unit load devices airworthiness approval and testing, e.g.:

- ULD design specifications,
- ULD in service damage limits,
- ULD restraint malfunction limitations,
- ULD test methods,
- ULD load distribution models,
- ULD maximum allowable contours,
- ULD C.G. location control means,
- ULD pressure equalization methods,
- ULD utilization guidelines,

are defined in other International Standards (see [2.2](#), Normative References and Bibliography).

1.6 Air cargo unit load devices qualified prior to publication of this specification were TSO (Technical Standard Order) approved in accordance with the requirements of International Standard ISO 8097:2001.

This International Standard is intended as a TSO approval reference for all new models of unit load devices in the sizes or types it covers, in replacement of previously used ISO 8097.

NOTE ISO 8097 is based on USA National Aerospace Standard NAS 3610 revision 10:1990, *Specification for Cargo Unit Load Devices*.

1.7 Air cargo unit load devices the size or type of which is not covered in this specification are to keep being airworthiness approved in accordance with the requirements of ISO 8097:2011, if their size or type is contained therein, or in accordance with other equivalent criteria, if not.

NOTE the requirements for cargo covers are not defined in this International Standard, except insofar as net restraint is incorporated therein.

2 References and terms and definitions

2.1 Government regulations

The following government regulations are applicable to approval of transport aircraft cargo compartments and therefore to air cargo unit load devices approval:

- EU: European Aviation Safety Agency CS-25, Certification Specifications for Large Aeroplanes¹⁾
- Japan: Japanese Airworthiness Standard Part 3 (Civil Aeronautics Law Article 10 § 4)²⁾
- USA: Code of Federal Regulations Title 14 CFR Part 25 - Airworthiness Standards: Transport Category Airplanes³⁾

2.2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 7166, *Aircraft — Rail and stud configuration for passenger equipment and cargo restraint*

ISO 8097:2001, *Aircraft — Minimum airworthiness requirements and test conditions for certified air cargo unit load devices*

ISO 9788, *Air cargo equipment — Cast components of double stud fitting assembly with a load capacity of 22 250 N (5 000 lbf), for aircraft cargo restraint*

ISO 10046, *Aircraft — Methodology of calculating cargo compartment volumes*

ISO 11242, *Aircraft — Pressure equalization requirements for cargo containers*

2.3 Terms and definitions

For the purposes of this document, the following terms and definitions apply:

1) EASA CS-25 constitutes the European governments transport aircraft airworthiness approval Regulations, and can be obtained from: European Aviation Safety Agency (EASA), Otto Platz 1, Postfach 101253, D-50452 Cologne, Germany, or at www.easa.europa.eu.

2) The Japanese Airworthiness Standard Part 3 (ISBN 4-89279-661-1) can be obtained from the Civil Aviation Bureau (CAB) of the Ministry of Land, Infrastructure, Tourism and Transport, Tokyo, Japan, or at www.mlit.go.jp.en.

3) 14 CFR Part 25 constitutes the U.S.A. government transport aircraft airworthiness approval Regulations, and can be obtained from :U.S. Government Printing Office, Mail Stop SSOP, Washington DC 20402-9328, or at www.gpoaccess.gov.ec.fr.