
**Air cargo — Non-certified lower deck
containers — Design and testing**

*Fret aérien — Conteneurs non-certifiés de pont inférieur —
Conception et essais*



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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 (see 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 (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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 World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

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

This fourth edition cancels and replaces the third edition (ISO 4118:2005), of which it constitutes a complete technical revision.

Introduction

The basic functions of air cargo containers are

- a) the unitization of baggage, cargo or mail during ground handling and transportation, and
- b) the restraint in accordance with aircraft Weight and Balance Manual requirements of their contents against accelerations encountered in flight.

This revision introduces containers flight conditions testing in order to provide means to substantiate their ability to withstand maximum flight loads so that neither the container nor its contents can become a hazard or damage the aircraft structure.

Throughout this International Standard, the minimum essential criteria are identified by use of the key word “shall.” Recommended criteria are identified by use of the key word “should” and, while not mandatory, are considered to be of primary importance in providing safe, economical and practical air transport containers. Deviation from recommended criteria should only occur after careful consideration and thorough service evaluation have shown alternate methods to provide an equivalent level of safety.

The requirements of this International Standard are expressed in the applicable SI units, with approximate inch-pound units conversion between brackets for convenience in those countries using that system. Where it is deemed necessary to use exact values, the SI unit ones are to be used, except for container base plan-view dimensions, whose exact values are those expressed in inches.

Air cargo — Non-certified lower deck containers — Design and testing

1 Scope

This International Standard covers the design, performance and testing requirements for lower deck containers for use in main line aircraft which do not require airworthiness approval/certification when loaded under the conditions of compartment restraint and/or where applicable according to the aircraft type's approved Weight and Balance Manual, ISO 8097 or ISO 21100 equivalent base plate restraint for these containers.

Aircraft Weight and Balance Manuals require non-certified containers be constructed then loaded in such a manner that neither the container nor its contents can become a hazard or damage the aircraft structure under flight conditions. Compliance with the present International Standard is one means of demonstrating compliance with these requirements.

Most sizes of containers covered by this International Standard (base sizes K, L, P and Q) cannot physically be loaded and latched on aircraft main deck cargo systems. Base size A and M containers can, but are not allowed on aircraft main decks, which in general do not accept non-certified units. Accordingly, all containers covered by this International Standard are intended to be used/installed exclusively in aircraft lower deck compartments

NOTE The metric equivalents for dimensions have been rounded up or down to the nearest millimetre, except in critical dimensions. Masses have been rounded up to the nearest kilogram and forces have been rounded up to the nearest 10 N. See introduction where it is deemed necessary to use exact values.

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

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

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

ISO 10254, *Air cargo and ground equipment — Vocabulary*

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

ISO 21100, *Air cargo unit load devices — Performance requirements and test parameters*

CAAC CCAR-25, *Airworthiness Standards –Transport Category Airplanes, paragraph 25.855, Cargo or baggage compartments*¹⁾

U.S. Code of Federal Regulations 14 CFR Part 25, *Airworthiness Standards: Transport category airplanes, paragraph 25.855, Cargo or baggage compartments*²⁾

1) The Civil Aviation Administration of China (CAAC) CCAR-25 constitutes the Chinese government transport aircraft airworthiness Regulations.

2) 14 CFR Part 25 constitutes the U.S.A. Government transport aircraft airworthiness Regulations, and can be obtained from: US Government Printing Office, Mail Stop SSOP, Washington DC 20402-9328, U.S.A. or its web site at www.gpoaccess.gov.from: US Government Printing Office, Mail Stop SSOP, Washington DC 20402-9328, U.S.A. or its

European Aviation Safety Agency CS-25, *Certification Specifications for Large Aeroplanes, paragraph 25.855, Cargo or baggage compartments*³⁾

Japanese Airworthiness Standard Part 3 (Civil Aeronautics Law Article 10, paragraph 4)⁴⁾

3 Terms and definitions

For the purposes of this document, the definitions in ISO 10254 and the following apply.

3.1 aircraft container

completely enclosed unit load device which interfaces directly with the aircraft cargo handling and restraint system and alone performs all the functions of a unit load device

3.2 certification approval

approval by an airworthiness authority that a component or item of equipment meets the required performance for aircraft installation

3.3 non-certified container

container exclusively for the lower deck of wide-body aircraft, which is not subject to airworthiness approval (certification), but may be carried under conditions specified by the aircraft's Weight and Balance Manual

3.4 Weight and Balance Manual W&BM

manual published for each aircraft type by its manufacturer, which is approved by the airworthiness authority as part of the aircraft type's certification and defines the set of limits not to be exceeded by the operating carrier when loading

4 Dimensions and ratings

4.1 Containers complying with this International Standard are identified by a type code composed of three letters:⁵⁾

- a) the first letter **D** denoting a non-certified aircraft container;
- b) the second letter **A, K, L, M, P** or **Q** denoting the base size as defined in ISO 21100;
- c) the third letter denoting the contour determined in accordance with ISO 10046 (see NOTE).

website at www.gpoaccess.gov.

3) EASA CS-25 constitutes the European Governments transport aircraft airworthiness Regulations and can be obtained from: European Aviation Safety Agency (EASA), Postfach 101253, D-50452 Cologne, Germany, or its web site at www.easa.europa.eu.

4) Japanese Airworthiness Standard Part 3 (ISBN 4-89279-661-1) constitutes the Japanese government transport aircraft airworthiness Regulations, and can be obtained from the Civil Aviation Bureau (CAB) of the Ministry of Land, Infrastructure, Transportation and Tourism, Tokyo, Japan, or its website at www.mlit.go.jp/en.

5) The type code is, by industry consensus, under custody of and assigned by the International Air Transport Association (IATA), ULD Registrar, 800 Place Victoria, P.O. Box 113, Montréal, Québec H4Z 1M1, Canada, web site at www.iata.org.