

Air cargo equipment — Pressure equalization requirements for cargo containers

ICS 49.120

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Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee ACE/57, Aircraft cargo systems and ground equipment, upon which the following bodies were represented:

- Association of Webbing Load Restraint Equipment Manufacturers
- British Airways
- British Narrow Fabrics Association
- Civil Aviation Authority (Airworthiness Division)
- Health and Safety Executive
- Ministry of Defence
- Society of British Aerospace Companies Ltd.
- Society of Motor Manufacturers and Traders Ltd.

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National foreword

This British Standard has been prepared by the Technical Committee ACE/57 and is identical with ISO 11242:1996 *Aircraft — Pressure equalization requirements for cargo containers*, published by the International Organization for Standardization (ISO).

Cross-references

Publication referred to	Corresponding British Standard
ISO 4118:1996	BS M 86:1990 <i>Air cargo equipment. Non-certified lower-deck containers for air transport. Specification and testing</i> (Identical)
ISO 6517:1992	BS M 70:1993 <i>Air cargo equipment. Base-restrained certified containers exclusively for the lower deck of high-capacity aircraft</i> (Identical)
ISO 8097:1995	BS 2M 72:1996 <i>Air cargo equipment. Minimum airworthiness requirements and test conditions for certified air cargo unit load devices</i> (Identical)
ISO 8323:1985	BS ISO 8323:1985 <i>Freight containers. Air-surface (intermodal) general purpose containers. Specification and tests</i> (Identical)
ISO 10327:1995	BS M 84:1995 <i>Air cargo equipment. Certified aircraft container for air cargo. Specification and testing</i> (Identical)

The Technical Committee has reviewed the provisions of ISO 8058:1985, the ICAO *Technical instruction for the safe transport of dangerous goods by air* and the IATA *Dangerous goods regulations* to which normative reference is made in the text, and has decided that they are acceptable for use in conjunction with this standard.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 10, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Introduction

The decrease in ambient pressure with altitude creates a pressure differential between the inside of a cargo container and the outside environment. When the internal volume and/or area of a container are significant, this may, if not properly controlled, result in tremendous forces exerted on the container panels, thus becoming a major flight safety hazard. Incidents were recorded during flight in which overly airtight containers broke down or nearly exploded during climb.

In order to avoid such potentially hazardous situations, it is essential that this problem be clearly identified and taken into account when designing any type of container to be moved regularly or occasionally by air cargo.

1 Scope

Since most modern civil transport aircraft capable of carrying air cargo unit load devices or large-size shipping containers have pressurized cabins and cargo compartments, two different cases must be considered:

- a) normal (low airflow) pressure equalization during climb and descent — from the departure airport pressure down to the cruise flight cabin pressure, up to the landing airport pressure;
- b) emergency (rapid decompression) pressure equalization in the event of a sudden (possibly “explosive”) depressurization of the aircraft fuselage occurring at cruise altitude: this case requires very fast (high airflow) pressure equalization between cruise flight cabin pressure and outer ambient pressure.

This International Standard defines the minimum safety requirements to be met by containers used to transport cargo by civil transport aircraft in either case a) or b) above.

The flight safety requirements specified in this International Standard are applicable to the design of

- aircraft containers for general cargo, as covered by
 - ISO 4118 for non-certified lower deck containers,
 - ISO 6517 for base-restrained certified containers exclusively for the lower deck of high-capacity aircraft,

- ISO 8323 for air/surface intermodal containers,
- ISO 10327 for certified containers for air cargo;
 - air mode insulated containers, as covered by ISO 8058;
 - any airtight shipping containers with an internal volume of 1 m³ (35 ft³) or more.

NOTE 1 Most shipping containers/packagings used for air cargo are made of sufficiently low-strength material (e.g. fibreboard) or provide sufficient air leakage (e.g. wooden crates) that they cannot be considered airtight and do not present any significant hazard as a result of pressure equalization.

There are however a number of special containers, notably for the carriage of satellites/space hardware, aircraft spares, sensitive scientific or technical equipment, etc., which are airtight per design (in order to protect the contents against atmospheric pollution) or per construction (because of the quality of sealing and materials used).

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 4118:1996, *Non-certified lower-deck containers for air transport — Specification and testing*.

ISO 6517:1992, *Air cargo equipment — Base-restrained certified containers exclusively for the lower deck of high-capacity aircraft*.

ISO 8058:1985, *Air cargo equipment — Air mode insulated containers — Thermal efficiency requirements*.

ISO 8097:1995, *Aircraft — Minimum airworthiness requirements and test conditions for certified air cargo unit load devices (Endorsement of NAS 3610, 10th edition)*.

ISO 8323:1985, *Freight containers — Air/surface (intermodal) general purpose containers — Specification and tests*.

ISO 10327:1995, *Aircraft — Certified aircraft container for air cargo — Specification and testing*.

ICAO, *Technical instruction for the safe transport of dangerous goods by air*¹⁾.

IATA, *Dangerous Goods Regulations*²⁾.

¹⁾ Available from the International Civil Aviation Organization, 1 000 Sherbrooke Street West, Suite 400, Montreal, Quebec H3A 2R2, Canada.

²⁾ Available from IATA Publications Dept., 2 000 Peel Street, Montréal, Québec H3A 2R4, Canada or IATA Publications Dept., Route de l'Aéroport 33, PO Box 672, CH-1215 Genève 15 Aéroport, Switzerland.