

Air cargo equipment — Base-restrained certified containers exclusively for the lower deck of high-capacity aircraft

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Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Aerospace Standards Policy Committee (ACE/-) to Technical Committee ACE/57, 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 under the direction of the Aerospace Standards Policy Committee. It is identical with ISO 6517:1992 *Air cargo equipment — Base-restrained certified containers exclusively for the lower deck of high-capacity aircraft*, published by the International Organization for Standardization (ISO).

Cross-references

International Standard	Corresponding British Standard
ISO 7166:1985	BS 2C 8:1988 <i>Specification for rail and stud configuration for aircraft passenger equipment and cargo restraint</i> (Identical)

The Technical Committee has reviewed the provisions of ISO 4116:1986 and ISO 8097:1986 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 12, 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.

1 Scope

This International Standard covers the design, fabrication, performance and testing requirements for general-purpose base-restrained exclusively lower deck compartment preloaded containers for high-capacity aircraft, capable of being used by either airlines or by shippers and requiring airworthiness certification.

NOTE 1 The metric equivalents for dimensions have been rounded up or down to the nearest millimetre, except in critical dimensions. Weights have been rounded up to the nearest kilogram and forces have been rounded up to the nearest 5 N.

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 4116:1986, *Air cargo equipment — Ground equipment requirements for compatibility with aircraft unit load devices*.

ISO 7166:1985, *Aircraft — Rail and stud configuration for passenger equipment and cargo restraint*.

ISO 8097:1986, *Aircraft — Minimum airworthiness requirements and test conditions for certified air cargo unit load devices (Endorsement of NAS 3610)*.

3 Basic container sizes and identification

3.1 The overall maximum dimensions of the containers are shown in Figure 1 to Figure 5.

They embrace two base sizes:

Size K: 1 562 mm × 1 534 mm (61,5 in × 60,4 in)

Size L: 3 175 mm × 1 534 mm (125 in × 60,4 in)

and eight contours:

Contour C: overall width 2 337 mm (92 in)
(see Figure 2)

Contour E: overall width 2 007 mm (79 in)
(see Figure 1)

Contour F: overall width 4 064 mm (160 in)
(see Figure 3)

Contour G: overall width 2 007 mm (79 in)
(see Figure 5)

Contour H: overall width 2 438 mm (96 in)
(see Figure 5)

Contour N: fork-liftable version of AKE container (see Figure 1)

Contour P: overall width 3 175 mm (125 in)
(see Figure 3)

Contour U: overall width 4 724 mm (186 in)
(see Figure 4)

3.2 Containers complying with this International Standard are identified by three letters:

- a) the first letter A denoting certified class II aircraft container complying with the requirements of ISO 8097;
- b) the second letter denoting the base size;
- c) the third letter denoting the contour.

The identification code shall be marked on the container.

EXAMPLE

A certified aircraft container (A) of base size 3 175 mm × 1 534 mm (125 in × 60,4 in) (size L) and of overall width 3 175 mm (125 in) (contour P) shall be designated as follows:

ALP

4 Basic container configuration

4.1 The basic container shall consist of a complete structural enclosure.

4.2 The structure shall be designed to make the maximum internal cross-section available for loading cargo, within the limits of the space required for latch and structural design.

5 Requirements

5.1 General

The design, materials and construction of the container shall be of aircraft quality.

Maintainability and repairability shall be a factor in the design to ensure the minimum need for maintenance. Any such maintenance and repair should be able to be done with ease and at minimum cost.

5.1.1 Airworthiness approval

The container manufacturer shall apply to the appropriate airworthiness authority to obtain approval for use of the container in aircraft whose cargo compartments require the use of base-restrained certified containers. (See also 5.2.)

5.1.2 Materials

The materials and processes selected shall provide for maximum service life by giving consideration to the extremely hard usage to which the container will be subjected. All metal parts shall be suitably protected against corrosion. All non-metallic liquid-absorbent materials shall be sealed or treated to prevent liquid absorption. Materials shall be fire resistant and shall withstand environmental degradation.

5.1.3 Construction

5.1.3.1 Base

5.1.3.1.1 The base shall not contain rough or sharp edges potentially dangerous to personnel, cargo, aircraft or terminal handling equipment. The construction of the base shall be designed for strength and durability to withstand harsh treatment in service. The base shall be structurally attached to, and be an integral part of, the container assembly. The base shall be removable with hand tools and shall be interchangeable.

5.1.3.1.2 The base shall comply with the indentation performance requirements of **5.1.4.1**.

5.1.3.1.3 Where optional fork-lift capability is provided, the minimum aperture size shall be 102 mm (4 in) high by 305 mm (12 in) wide, with chamfered protected edges.

5.1.3.1.4 Where provided, there shall be fork-lift pockets at least on the two long sides, although three-way entry is preferred on K-size units.

5.1.3.1.5 On L-size units, the distance between the inner edges of the optional fork-lift pockets shall be not less than 813 mm (32 in), and on K-size units not less than 457 mm (18 in).

5.1.3.2 Body

5.1.3.2.1 Any attachments between the base and the panels shall be designed to have a minimum intrusion into the door area. Gussets are allowed at the junctions of panels and base or top to allow the transfer of bending moments. The size of all gussets shall be the minimum consistent with structural requirements. The top of the container shall be self-draining. The top surface shall be designed to be easily cleared of snow.

To facilitate repair and assembly, component parts shall be readily removable with hand tools and shall be interchangeable.

Any gussets in the door opening shall be the minimum consistent with the strength and/or deflection requirements.

5.1.3.2.2 Two non-protruding handles or straps shall be located on each side panel for manual movement of the container. Each handle shall provide for gripping with a gloved hand and shall have a local attachment strength of 445 daN (1 000 lbf) in any direction.

5.1.3.2.3 One or more placard holders shall be fitted to the body to accommodate a destination placard of standard size A5 [210 mm × 148 mm (8 1/4 in × 5 7/8 in)].

5.1.3.3 Doors

5.1.3.3.1 The door opening should be designed to make the maximum possible cross-section available for loading. It shall be possible for one person to open or close the door and any associated net or hardware in no more than 1 min for full-width units (L base size), and no more than 15 s for half-width units (K base size).

It shall be possible to open any type of door without exceeding a height of 1 780 mm (70 in), measured from the underside of the base. The door shall be stowable on top of the unit and means of retaining it in the open position should be provided.

The door shall be capable of being opened with a 102 mm (4 in) high obstacle adjacent to the base.

Where hinges are used, the design shall not allow fingers to be trapped.

In general, most types of container have only one door situated on a long side of the unit.

In some cases, for operational reasons, K-size units may have a door on each long side.

Doors are generally rectangular, but may vary to suit the container contour, the choice of structural shape, or to provide enhanced or a full-width door opening.

5.1.3.3.2 Handles, straps or hand-holds shall be provided on each door for handling the door and for manual movement of the container. These devices shall be able to withstand a 445 daN (1 000 lbf) pull in any direction, and shall be suitable for gripping with a gloved hand. These devices shall be designed to cause no damage to adjacent units.

5.1.3.3.3 Door latch and restraint hardware design shall preclude damage to the shell or door during stowage and installation/removal of the door.

No tools shall be required to open and close the doors or latches.

The door latching and installation mechanisms shall be designed to allow door installation and removal while the container is sitting on uneven surfaces varying by as much as 12,7 mm (0,5 in) over the length of the base.