

# Guide to Air Freight Containers (ULDs)

## Introduction

The following guide to air freight containers has been developed from materials supplied by the International Air Transport Association (IATA), air cargo carriers and container manufacturers. It should be noted that producing a truly comprehensive guide is a problematic task. While it would appear that there is a limited number of cargo aircraft operating the world, there are in fact, many aircraft types and many more aircraft cargo configurations. Each aircraft and configuration may require customized containers. The guide that follows contains illustrations and specifications of the most common containers in use today. Many of these containers can be used in multiple aircraft.

### ULD (Unit Load Devices)

While in the ocean freight cargo business the word "container" is widely accepted, in the air freight cargo business the proper term is "unit load device", or more commonly ULD. However, both terms are used.

### IATA

The International Air Transport Association (IATA) is the primary source of industry wide technical information for ULDs. Their "ULD Technical Manual" contains the specifications manufacturers usually follow in making containers for airlines. The book can be obtained from:

IATA  
2000 Peel Street; Montreal, Quebec  
Canada H3A 2R4  
Tel: [1] (514) 985-6326; Fax: [1] (514) 844-7711

or

IATA  
331 North Bridge Road; Suite 20-00;  
Odeon Towers; Singapore 188720  
Tel: [65] 331-0420; Fax: [65] 339-0855

### Your Air Freight Forwarder

The practical source of information concerning ULDs for your shipment will most likely come from your air carrier or air freight forwarder. They will be best equipped to assist you in selecting the appropriate ULD for your needs.

### Values / Details

All values listed in illustrations and tables are given in metric. Ft and lbs values are for easy reference only.

## Openings / Doors

While airlines may be quite rigid about external dimensions and maximum gross weights, there are many styles of door openings that are permissible. ULD manufacturers produce products with hinged doors, folding aluminum panels as well as reinforced nylon curtains.

## Pallets / Nettings

Pallets are in common use in most aircraft cargo configurations. All require the use of restraining devices. The most common type is a flexible netting of which there are numerous designs. Ask your air carrier or freight forwarder for details.

## Maximum Gross Weights

Maximum gross weights vary from ULD type, ULD manufacturer, aircraft and air carrier. Be certain to confirm weight maximums.

## ULD Markings

According to IATA all ULDs must carry the following marking information: 1) ULD Type Code, 2) Maximum Gross Weight (MGW) in kilograms and pounds and 3) The actual Tare Weight (TARE) in kilograms and pounds. Example:

UAK 1 2 3 4 XB  
MGW 6,033 kg 13,300 lb  
TARE 216 kg 476 lb

For marking non-structural aircraft containers MGW is optional. The actual TARE shall be the sum of the components aircraft pallet, net and container.

## IATA ULD Identification Codes

Prior to October 1, 1993 the IATA Identification Code consisted of nine (9) alpha numeric elements in the following sequence:

| Position | Character  | Type | Description              |
|----------|------------|------|--------------------------|
| 1        | alphabetic |      | ULD Category             |
| 2        | alphabetic |      | Base Dimensions          |
| 3        | alphabetic |      | Contour or Compatibility |
| 4,5,6,7  | numeric    |      | Serial Number            |

8,9      alpha-numeric    Owner/Registrant

Effective October 1, 1993 the IATA Identification Code consists of nine (9) or ten (10) alpha-numeric elements in the following sequence:

| <b>Position</b> | <b>Character Type</b> | <b>Description</b>       |
|-----------------|-----------------------|--------------------------|
| 1               | alphabetic            | ULD Category             |
| 2               | alphabetic            | Base Dimensions          |
| 3               | alphabetic            | Contour or Compatibility |
| 4,5,6,7,8       | (see Note below)      | Serial Number            |
| 9, 10           | alpha-numeric         | Owner/Registrant         |

**Note:** The serial number consists of four or five numerics.

## **ULD Type Code**

IATA uses three letter codes (in upper case letters) to describe key characteristics of ULDs. Examples are AKE, DPN and RKE. Each of the three letter code positions describes particular characteristics of the ULD.

### **Position 1**

The Position 1 letter describes the container as:

1. certified as to airworthiness or non-certified
2. structural unit or non-structural
3. fitted with equipment for refrigeration, insulation or thermal control (Thermal) or not fitted with refrigeration, insulation or thermal control
4. containers, pallets, nets, pallet/net/non-structural igloo assembly

The Code List for Position 1 is as follows:

- A    Certified Aircraft Container
- D    Non-Certified Aircraft Container
- F    Non-Certified Aircraft Pallet
- G    Non-Certified Aircraft Pallet Net
- J    Thermal Non-Structural Igloo
- H    Horse Stalls
- K    Cattle Stalls
- M    Thermal Non-Certified Aircraft Container
- N    Certified Aircraft Pallet Net
- P    Certified Aircraft Pallet

- R Thermal Certified Aircraft Container
- U Non-Structural Container
- V Automobile Transport Equipment

The following are obsolete codes that are still found on some older ULDs.

- (B) Certified Main Deck Aircraft Container
- (C) Non-Aircraft Container
- (E) Non-Certified Main Deck Aircraft Container
- (S) Structural Igloo- Solid Doors
- (T) Structural Igloo-Other Closures (other than solid doors)

## Position 2

The Position 2 letter describes the base dimensions of the container. For containers manufactured after October 1, 1990 the following code letters are used:

- A 2,235 x 3,175 mm (88 x 125 in)
- B 2,235 x 2,743 mm (88 x 108 in)
- E 1,346 x 2,235 mm (53 x 88 in)
- F 2,438 x 2,991 mm (96 x 117 3/4 in)
- G 2,438 x 6,058 mm (96 x 238 1/2 in)
- H 2,438 x 9,125 mm (96 x 359 1/4 in)
- J 2,438 x 12,192 mm (96 x 480 in)
- K 1,534 x 1,562 mm (60.4 x 61.5 in)
- L 1,534 x 3,175 mm (60.4 x 125 in)
- M 2,438 x 3,175 mm (96 x 125 in)
- N 1,562 x 2,438 mm (61.5 x 96 in)
- P 1,198 x 1,534 mm (47 x 60.4 in)
- Q 1,534 x 2,438 mm (60.4 x 96 in)
- R 2,438 x 4,938 mm (96 x 196 in)
- X Miscellaneous sizes largest dimension between 2,438 mm and 3,175 mm (between 96 in and 125 in)
- Y Miscellaneous sizes largest dimension 2,438 mm (96 in)
- Z Miscellaneous sizes largest dimension >3,175 (>125 in)

## Position 3

The Position 3 letter describes the container's contour, fork lift capability, and in the case of pallets and nets, the restraint system into which the unit is classified. The Position 3 codes

are extremely complex and are not within the scope of this publication. Refer to the IATA "ULD Technical Manual" for complete information.

## Notes on ULD Guide

1. IATA (International Air Transport Association) and ATA (Air Transport Association of America) have different designations for air containers. For example: A US Type LD-3 is equivalent to the IATA Type 8 container. We list the IATA designation first and then the ATA designation second.
2. This guide lists and illustrates the primary air containers in use today. There are other types not listed that can be found in the IATA ULD Technical Manual.
3. Specifications listed in metric measures of kilos and millimeters (kg, mm) are official IATA specifications. Pounds and inches are listed only as a point of reference.
4. L x W x H = Length x Width x Height.
5. Specifications listed are taken from IATA's "ULD Technical Manual." In practice, these specifications (dimensions and weight) may vary according to special aircraft configurations and ULD manufacturers.
6. ULDs are generally classified as lower deck containers and upper deck containers. Lower deck containers generally have smaller base dimensions than upper deck containers as a result of the curvature of the airplane body.
7. Since a great deal of cargo is carried on commercial passenger flights, there are generally more lower deck than upper deck containers.

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# Cargo Aircraft Specifications

## DC 10-30 Freighter

### **Total Cargo Capacity Total Cargo Volume**

73,182 kg / 161,000 lb 452 m<sup>3</sup> / 15,972 ft<sup>3</sup>

### **Main Deck Cargo Door (w x h)**

350 cm x 255 cm / 140 in x 102 in

### **Lower Forward Cargo Door (w x h)**

175 cm x 165 cm / 70 in x 66 in

### **Lower Rear Cargo Door (w x h)**

175 cm x 165 cm / 70 in x 66 in

### **Types of Containers**

Main Deck Pallet, LD-7, P9A, LD-11, LD-3

## 747 (400 Series)

**Total Cargo Capacity Total Cargo Volume**  
53,091 kg / 116,800 lb 159 m<sup>3</sup> / 5,634 ft<sup>3</sup>

**Bulk Cargo Door Dimensions (w x h)**  
111 cm x 119 cm / 44 in x 47in

**Types of Containers**  
LD-7, P9A, LD-11, LD-3

### **747 (200 Series)**

**Total Cargo Capacity Total Cargo Volume**  
48,091 kg / 105,800 lb 144 m<sup>3</sup> / 5,123 ft<sup>3</sup>

**Bulk Cargo Door Dimensions (w x h)**  
111 cm x 119 cm / 44 in x 47in

**Types of Containers**  
LD-7, P9A, LD-11, LD-3

### **747 (100 Series)**

**Total Cargo Capacity Total Cargo Volume**  
32,521 kg / 71,546 lb 115 m<sup>3</sup> / 3,843 ft<sup>3</sup>

**Bulk Cargo Door Dimensions (w x h)**  
111 cm x 119 cm / 44 in x 47in

**Types of Containers**  
LD-7, P9A, LD-11, LD-3

### **767 (300 Series)**

**Total Cargo Capacity Total Cargo Volume**  
33,062 kg / 72,736 lb 114 m<sup>3</sup> / 4,030 ft<sup>3</sup>

**Bulk Cargo Door Dimensions (w x h)**  
91 cm x 119 cm / 36 in x 47in

**Types of Containers**  
LD-7, LD-8, LD-4, LD-3, LD-2

### **767 (200 Series)**

**Total Cargo Capacity Total Cargo Volume**  
26,165 kg / 57,562 lb 92 m<sup>3</sup> / 3,070 ft<sup>3</sup>

**Bulk Cargo Door Dimensions (w x h)**  
91 cm x 119 cm / 36 in x 47in

**Types of Containers**  
LD-8, LD-4, LD-3, LD-2

## 777

**Total Cargo Capacity Total Cargo Volume**  
54,685 kg / 120,306 lb 160 m<sup>3</sup> / 5,720 ft<sup>3</sup>

**Bulk Cargo Door Dimensions (w x h)**  
90 cm x 114 cm (left) x 122 cm (right)  
35.7 in x 45.3 in (left) x 48.5 in (right)

**Types of Containers**  
LD-7, LD-8, LD-4, LD-3, LD-2

## 757

**Total Cargo Capacity Total Cargo Volume**  
11,273 kg / 24,800lb 48 m<sup>3</sup> / 1,698 ft<sup>3</sup>

**Bulk Cargo Door Dimensions (w x h)**  
139 cm x 106 cm / 55 in x 42 in

**Types of Containers**  
N/A

## A 320

**Total Cargo Capacity Total Cargo Volume**  
9,125 kg / 20,074 lb 36 m<sup>3</sup> / 1,270 ft<sup>3</sup>

**Bulk Cargo Door Dimensions (w x h)**  
149 cm x 119 cm / 59 in x 47 in

**Types of Containers**  
N/A

## A 319

**Total Cargo Capacity Total Cargo Volume**  
6,800 kg / 14,960 lb 27 m<sup>3</sup> / 975 ft<sup>3</sup>

**Bulk Cargo Door Dimensions (w x h)**  
142 cm x 116 cm / 56 in x 46 in

**Types of Containers**  
N/A

### **DC 10 (10 Series)**

**Total Cargo Capacity Total Cargo Volume**  
43,636 kg / 96,000 lb 132 m<sup>3</sup> / 4,678 ft<sup>3</sup>

**Bulk Cargo Door Dimensions (w x h)**  
76 cm x 91 cm / 30 in x 36 in

**Types of Containers**  
P9A, LD-11, LD-3

### **DC 10 (30 Series)**

**Total Cargo Capacity Total Cargo Volume**  
27,727 kg / 61,000 lb 92 m<sup>3</sup> / 3,280 ft<sup>3</sup>

**Bulk Cargo Door Dimensions (w x h)**  
76 cm x 91 cm / 30 in x 36 in

**Types of Containers**  
LD-7, P9A, LD-11, LD-3

### **727**

**Total Cargo Capacity Total Cargo Volume**  
7,727 kg / 17,000 lb 40 m<sup>3</sup> / 1,435 ft<sup>3</sup>

**Bulk Cargo Door Dimensions (w x h)**  
139 cm x 106 cm / 55 in x 42 in

### **737 (300 Series)**

**Total Cargo Capacity Total Cargo Volume**  
5,750 kg / 12,650 lb 30 m<sup>3</sup> / 1,068 ft<sup>3</sup>



**Bulk Cargo Door Dimensions (w x h)**

114 cm x 86 cm / 45 in x 34 in

**737 (200 Series)**

**Total Cargo Capacity Total Cargo Volume**

4,766 kg / 10,486 lb 24 m<sup>3</sup> / 875 ft<sup>3</sup>

**Bulk Cargo Door Dimensions (w x h)**

114 cm x 86 cm / 45 in x 34 in

**737 (500 Series)**

**Total Cargo Capacity Total Cargo Volume**

4,471 kg / 9,836 lb 23 m<sup>3</sup> / 822 ft<sup>3</sup>

**Bulk Cargo Door Dimensions (w x h)**

114 cm x 86 cm / 45 in x 34 in