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Series 1 freight containers — Classification, dimensions and ratings

Conteneurs de la série 1 — Classification, dimensions et masses brutes maximales

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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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 668 was prepared by Technical Committee ISO/TC 104, *Freight containers*.

This fourth edition cancels and replaces the third edition (ISO 668 : 1979), of which it constitutes a technical revision; this fourth edition also includes the minimum internal and door opening dimensions formerly specified in ISO 1894 (withdrawn in 1983).

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

Series 1 freight containers — Classification, dimensions and ratings

1 Scope and field of application

This International Standard establishes a classification of series 1 freight containers based on external dimensions, and specifies the associated ratings, and, where appropriate, the minimum internal and door opening dimensions for certain types of containers.

These containers are intended for intercontinental traffic.

NOTE — This International Standard summarizes the external and some of the internal dimensions of series 1 containers. The dimensions of each type of container are defined in the appropriate part of ISO 1496.

ISO 1496 is the authoritative document for internal container dimensions.

2 References

ISO 830, *Freight containers — Terminology*.

ISO 1161, *Series 1 freight containers — Corner fittings — Specification*.

ISO 1496-1, *Series 1 freight containers — Specification and testing — Part 1: General cargo containers for general purposes*.

ISO 1496-2, *Series 1 freight containers — Specification and testing — Part 2: Thermal containers*.

ISO 6346, *Freight containers — Coding, identification and marking*.

3 Definitions

For the purposes of this International Standard, the definitions given in ISO 830 apply. The following definitions correspond to those given in ISO 830, but they have been included, for convenience, in this International Standard.

3.1 freight container: Article of transport equipment

- a) of a permanent character and accordingly strong enough to be suitable for repeated use;
- b) specially designed to facilitate the carriage of goods by one or more modes of transport, without intermediate reloading;

- c) fitted with devices permitting its ready handling, particularly its transfer from one mode of transport to another;
- d) so designed as to be easy to fill and empty;
- e) having an internal volume of 1 m³ (35.3 ft³) or more.

The term "freight container" includes neither vehicles nor conventional packing.

3.2 ISO container: Freight container complying with all relevant ISO container standards in existence at the time of its manufacture.

3.3 rating, *R*: The gross mass¹⁾, *R*, of a container which is both the maximum mass for operation and the minimum mass for testing.

3.4 nominal dimensions: Those dimensions, disregarding tolerances and rounded to the nearest convenient whole number, by which a container may be identified.

Nominal dimensions are usually expressed in imperial units.

3.5 internal dimensions: Dimensions of the largest unobstructed rectangular parallelepiped which could be inscribed in the container if inward protrusions of the top corner fittings are disregarded.

Except where otherwise stated, the term "internal dimensions" is synonymous with the term "unobstructed internal dimensions".

3.6 door opening: Term usually reserved for the definition of the size of the (end) door aperture, i.e. the width and height dimensions of the largest unobstructed parallelepiped which could possibly be passed into the container through the door aperture in question.

4 Classification and designation

Series 1 freight containers have a uniform width of 2 438 mm (8 ft).

1) In some countries, in order to conform to current commercial practice, the term "weight" is used (incorrectly) instead of "mass".

The nominal lengths are listed in table 1.

Table 1 — Nominal lengths

Freight container designation	Nominal length	
	m	ft
1AA 1A 1AX	12*	40*
1BB 1B 1BX	9	30
1CC 1C 1CX	6	20
1D 1DX	3	10

* In certain countries there are legal limitations to the overall length of vehicle and load.

Containers 2 591 mm (8 ft 6 in) in height are designated 1AA, 1BB and 1CC.

Containers 2 438 mm (8 ft) in height are designated 1A, 1B, 1C and 1D.

Containers less than 2 438 mm (8 ft) in height are designated 1AX, 1BX, 1CX and 1DX.

NOTE — The letter "X" used in the designation has no specific connotation other than to indicate that the height of the container is between 0 and 2 438 mm (8 ft).

5 Dimensions, tolerances and ratings

5.1 Reference temperature for measurements

The dimensions and tolerances apply when measured at the temperature of 20 °C (68 °F); measurements taken at other temperatures shall be adjusted accordingly.

5.2 External dimensions, tolerances and ratings

The external dimensions, permissible tolerances and ratings given in table 2 are applicable to all types of containers except that reduced height containers are permissible for tank, open top, bulk, platform and platform-based type containers.

WARNING — Recognizing that there will always be a need for special containers for particular traffic, attention is drawn to the fact that numbers of non-ISO containers exist which have similar length and width dimensions to ISO series 1 containers but have ratings and/or heights in excess of those defined in table 2. They are not inter-modal worldwide and their operation may require special arrangements.

Typical non-ISO containers requiring such arrangements are

- those having similar characteristics to the 1AA ISO series 1 container but having an external height of 2,9 m (9 ft 6 in);
- those having similar dimensional characteristics to the 1CC ISO series 1 container but being rated to 30 480 kg (67 200 lb).

5.3 Internal dimensions and door openings

5.3.1 Dimensions with projecting top corner fitting

Where a top corner fitting projects into the internal space (specified by table 3), that part of the corner fitting projecting into the container shall not be considered as reducing the size of the container.

5.3.2 General cargo containers for general purposes (see ISO 1496-1)

NOTE — For explanation of type code numbers, see ISO 6346.

5.3.2.1 Minimum internal dimensions

Internal dimensions of containers shall be as large as possible, but, in any case,

- closed containers type 00 shall comply with the requirements for minimum internal length, width and height given in table 3;
- containers type 02, having partial opening(s) in the side(s), shall comply with the requirements for minimum internal length and height given in table 3;
- containers type 03, having an opening roof, shall comply with the requirements for minimum internal length and width given in table 3;
- containers types 01 and 04, having openings in the side(s) and/or roof, shall comply with the requirements for minimum internal length given in table 3;
- closed, vented containers types 10 and 11 shall comply with the requirements for minimum internal length, width and height given in table 3;
- closed, ventilated containers type 13 shall comply with the requirements for minimum internal length, width and height given in table 3.

5.3.2.2 Minimum door opening dimensions

Closed-type containers designated 1A, 1B, 1C and 1D (types 00 and 02) shall have a door opening, preferably having dimensions equal to those of the internal cross-section (height and width) of the containers and, in any case, not less than the values given in table 3.

Closed-type containers designated 1AA, 1BB and 1CC (types 00 and 02) shall have a door opening, preferably having dimensions equal to those of the internal cross-section (height and width) of the containers and, in any case, not less than values given in table 3.

5.3.3 Thermal containers (see ISO 1496-2)

The internal dimensions and door openings of thermal containers shall be as large as possible. Door openings shall preferably have dimensions equal to those of the internal cross-section of the containers.

The internal dimensions shall be measured from inner faces of battens, bulkheads, ceiling air ducts, floor air ducts, etc., where fitted.

The minimum internal width shall be 2 200 mm (7 ft 2 5/8 in) for container types 20, 21, 22, 30, 31, 32, 40, 41 and 42.

5.3.4 Other types of container

The internal dimensions, door openings and end openings (if any) shall be as large as possible.

5.4 Corner fittings locations

Centre-to-centre distances (length and width) and diagonal tolerances for corner fittings are given in the annex.

Table 2 – External dimensions, permissible tolerances and ratings for series 1 freight containers

Freight container designation	Length, <i>L</i>				Width, <i>W</i>				Height, <i>H</i>				Rating, <i>R</i> (gross mass)		
	tol.		tol.		tol.		tol.		tol.		tol.		kg	lb	
	mm	ft in	in	mm	ft in	in	mm	ft in	in	mm	ft in	in			
1AA	12 192	0 -10	40	0 -3/8	2 438	0 -5	8	0 -3/16	2 591*	0 -5	8	6*	0 -3/16	30 480	67 200
1A	12 192	0 -10	40	0 -3/8	2 438	0 -5	8	0 -3/16	2 438	0 -5	8		0 -3/16	30 480	67 200
1AX	12 192	0 -10	40	0 -3/8	2 438	0 -5	8	0 -3/16	< 2 438		< 8			30 480	67 200
1BB	9 125	0 -10	29 11 1/4	0 -3/8	2 438	0 -5	8	0 -3/16	2 591*	0 -5	8	6*	0 -3/16	25 400	56 000
1B	9 125	0 -10	29 11 1/4	0 -3/8	2 438	0 -5	8	0 -3/16	2 438	0 -5	8		0 -3/16	25 400	56 000
1BX	9 125	0 -10	29 11 1/4	0 -3/8	2 438	0 -5	8	0 -3/16	< 2 438		< 8			25 400	56 000
1CC	6 058	0 -6	19 10 1/2	0 -1/4	2 438	0 -5	8	0 -3/16	2 591*	0 -5	8	6*	0 -3/16	24 000	52 900
1C	6 058	0 -6	19 10 1/2	0 -1/4	2 438	0 -5	8	0 -3/16	2 438	0 -5	8		0 -3/16	24 000	52 900
1CX	6 058	0 -6	19 10 1/2	0 -1/4	2 438	0 -5	8	0 -3/16	< 2 438		< 8			24 000	52 900
1D	2 991	0 -5	9 9 3/4	0 -3/16	2 438	0 -5	8	0 -3/16	2 438	0 -5	8		0 -3/16	10 160	22 400
1DX	2 991	0 -5	9 9 3/4	0 -3/16	2 438	0 -5	8	0 -3/16	< 2 438		< 8			10 160	22 400

* In certain countries there are legal limitations to the overall height of vehicle and load.

Table 3 – Minimum internal dimensions and door opening dimensions for series 1 freight containers

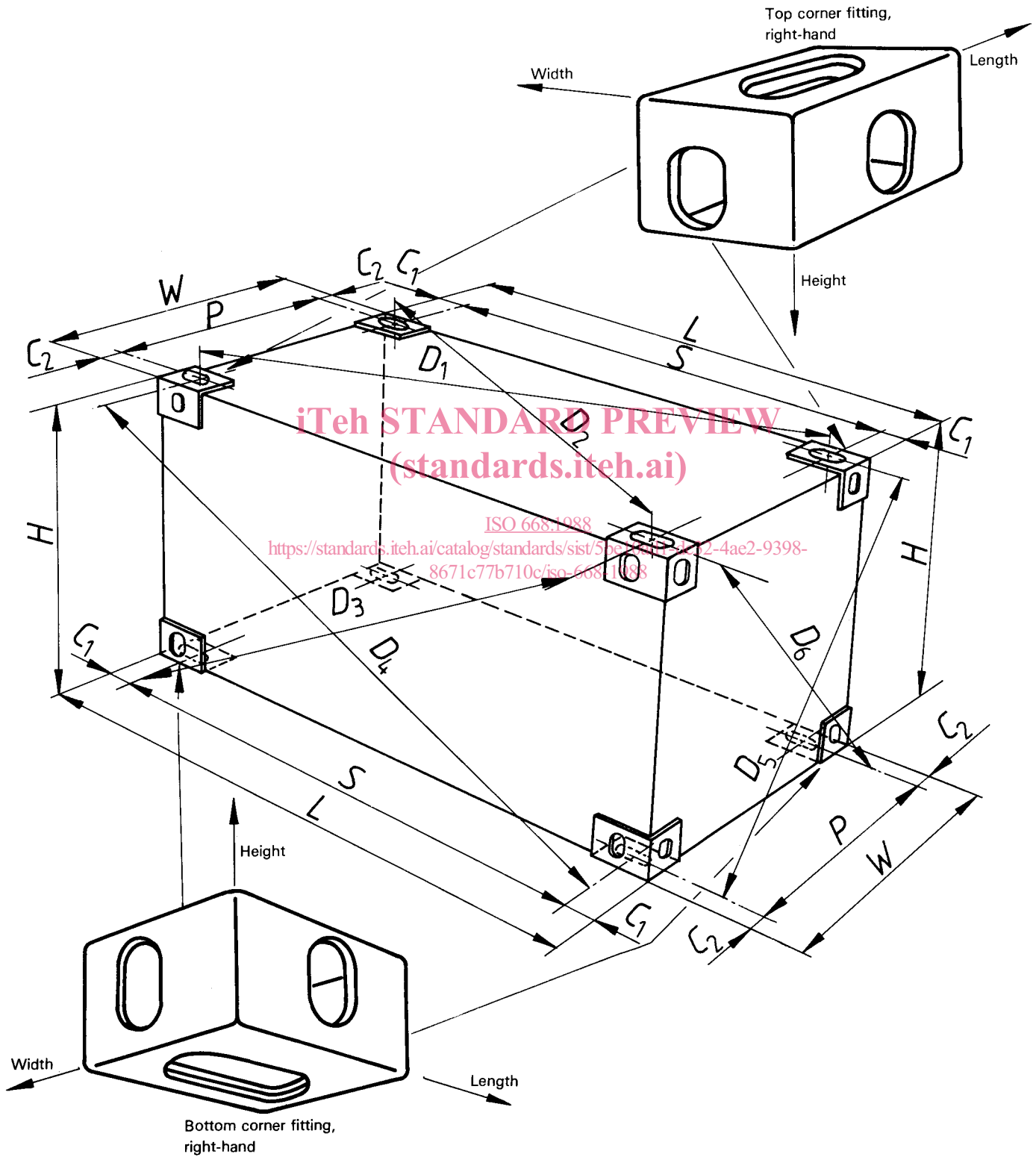
Dimensions in millimetres

Freight container designation	Minimum internal dimensions			Minimum door opening dimensions	
	Height	Width	Length	Height	Width
1A			11 998	2 134	
1AA			11 998	2 261	
1B	Nominal container external height minus 241	2 330	8 931	2 134	2 286
1BB			8 931	2 261	
1C			5 867	2 134	
1CC			5 867	2 261	
1D			2 802	2 134	

Annex Corner fittings

(see 5.4)

Corner fitting locations (centre-to-centre distances and diagonal tolerances) are given in the figure and table 4.



NOTE — Dimensions, L , H and W are measured along the appropriate edges.

Figure — Corner fitting locations

Table 4 — Dimensions and tolerances relating to corner fitting locations

Freight container designation	S (ref.)		P (ref.)		K ₁ max.		K ₂ max.	
	mm	ft in	mm	ft in	mm	in	mm	in
1AA 1A 1AX	11 985	39 3/8	2 259	7 4 31/32	19	3/4	10	3/8
1BB 1B 1BX	8 918	29 3 1/8	2 259	7 4 31/32	16	5/8	10	3/8
1CC 1C 1CX	5 853	19 2 7/16	2 259	7 4 31/32	13	1/2	10	3/8
1D 1DX	2 787	9 1 23/32	2 259	7 4 31/32	10	3/8	10	3/8

NOTE — Attention of manufacturers is drawn to the vital importance of accurately maintaining the reference dimensions of *S* and *P*.

The tolerances to be applied *S* and *P* are governed by the tolerances shown for the overall length and width in this International Standard and ISO 1161.

Symbols for the figure and table 4

C_1 = Corner fitting measurement 101,5⁰_{-1,5} mm (4⁰_{-1/16} in)

C_2 = Corner fitting measurement 89⁰_{-1,5} mm (3 1/2⁰_{-1/16} in)

D = Distance between centres of apertures, or projected reference points therefrom, of diagonally opposite corner fittings, resulting in six measurements: D_1 , D_2 , D_3 , D_4 , D_5 and D_6

H = Overall height

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K_1 = Difference between D_1 and D_2 or between D_3 and D_4 , therefore $K_1 = |D_1 - D_2|$ or $K_1 = |D_3 - D_4|$

K_2 = Difference between D_5 and D_6 , therefore $K_2 = |D_5 - D_6|$

L = External length of the container

P = Width between centres of apertures in corner fittings

S = Length between centres of apertures in corner fittings

W = External width of the container

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