

Revised.

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

**ISO RECOMMENDATION
R 1496**

**SPECIFICATIONS AND TESTING
OF SERIES 1 FREIGHT CONTAINERS**

1st EDITION

November 1970

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Printed in Switzerland

Also issued in French and Russian. Copies to be obtained through the national standards organizations.

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SPECIFICATIONS AND TESTING OF SERIES 1 FREIGHT CONTAINERS

1. SCOPE

This ISO Recommendation sets out basic requirements for the specifications and testing of ISO series 1 freight containers (designated 1AA, 1A, 1B, 1C, 1D, 1E and 1F in ISO Recommendation R 668, *Dimensions and ratings of freight containers**), which are suitable for international exchange and for conveyance by road, rail and sea, including interchange between these forms of transport.

This ISO Recommendation should be read in conjunction with ISO Recommendations R 790, *Marking of series 1 and series 2 freight containers*, R 1161, *Specification of corner fittings for series 1 freight containers*, and R 1894, *General purpose series 1 freight containers – Minimum internal dimensions*.

2. DIMENSIONS AND RATINGS

The overall external dimensions and tolerances and the maximum gross weight of the freight containers covered by this ISO Recommendation are those established in ISO Recommendation R 668.

No part of the container should project beyond these overall external dimensions.

3. DESIGN FEATURES

3.1 General

Each freight container should be weatherproof and, when carrying its maximum permissible load, should be capable of fulfilling the following operating requirements :

3.1.1 Stacking : Being stacked six high, within overall limits of eccentricity of 25.4 mm (1 in) laterally and 38 mm (1 1/2 in) longitudinally.

3.1.2 Lifting from top corners :

- For series 1AA, 1A, 1B and 1C containers, the lifting forces applied vertically.
- For series 1D, 1E and 1F containers, the lifting forces applied at any angle between the vertical and 30° to the vertical.

3.1.3 Lifting from bottom corners : For series 1AA, 1A, 1B, 1C and 1D containers, being lifted from the bottom at the corners with the lifting forces applied at any angle between the vertical and 30° to the horizontal. The lifting should be performed in such a manner that the side walls are not loaded by the lifting device.

The line of action of the lifting load and the outer face of the corner fitting should be no further apart than 38 mm (1 1/2 in).

3.1.4 Restraint (in transit) : External restraint under dynamic load conditions of 2 g (that is, 19.62 m/s² or 64.4 ft/s²) applied in a horizontal plane, longitudinally in the case of containers designated 1AA, 1A, 1B, 1C and 1D. For containers designated 1E and 1F, the load should be applied in a horizontal plane both longitudinally and transversely.

* 2nd edition, 1970.

3.2 Floor

The floor of the freight container should be capable of withstanding a uniformly distributed load of not less than the maximum gross weight of the container.

For series 1AA, 1A, 1B, 1C and 1D containers, the floor should, in addition, be capable of withstanding a wheel load of not less than 2730 kg (6000 lb) per wheel, applied to a contact area not greater than 142 cm² (22 in²), assuming a wheel width of not less than 180 mm (7 in) and a distance between wheel centres of 760 mm (30 in).

3.3 Roof

The roof of the freight container should be capable of withstanding a uniformly distributed load of not less than 200 kg (440 lb) on an area of 600 mm × 300 mm (24 in × 12 in). The load includes a dynamic factor of 50 % applied to the static requirement.

3.4 Walls

Each end wall of series 1AA, 1A, 1B, 1C and 1D freight containers should be capable of withstanding a uniformly distributed load of not less than 0.4 times the maximum payload. Each side wall (length dimension) should be capable of withstanding a uniformly distributed load of not less than 0.6 times the maximum payload. For series 1E and 1F freight containers, both end and side walls should be capable of withstanding a uniformly distributed load of not less than 0.6 times the maximum payload.

3.5 Corner fittings

All series 1 freight containers should be equipped with corner fittings at the top corners. Series 1AA, 1A, 1B, 1C and 1D containers should, in addition, be equipped with corner fittings at the bottom corners.

The upper faces of top corner fittings should protrude above the top of the container by a minimum of 6 mm (1/4 in).

The container structure should not protrude below the base plane of the bottom corner fittings at the time of maximum deflection under maximum payload.

NOTE. – The dimensional requirements for corner fittings for series 1 freight containers are given in ISO Recommendation R 1161.

3.6 Fork lift pockets

Fork lift pockets may be provided as optional features in series 1D, 1E and 1F freight containers. The dimensional requirements for such pockets are specified in Appendix Y.

NOTE. – Fork pockets for containers 1AA, 1A, 1B and 1C are being studied within TC 104, where the view is held that fork pockets are not recommended for 1AA, 1A and 1B containers and when installed in 1C containers may only be employed when the containers are unladen.

3.7 Provisions for bottom lifting by means of straddle carriers and similar equipment

Provisions for bottom lifting all series 1 freight containers by means of straddle carriers and similar equipment may be provided as optional features. The dimensional requirements for such provisions are specified in Appendix Z.

NOTE. – The requirements of section 3 do not preclude the provision of additional facilities for lifting, either from the top, or at the base of the freight container.

3.8 Door opening

Each freight container should be provided with a door opening at least at one end, except in the case of series 1E and 1F containers, where the opening may be provided in a side wall.

Door openings should be as large as possible.

General freight containers designated 1AA, 1A, 1B, 1C and 1D should have a door opening preferably having dimensions equal to those of the internal cross-section of the container, and in any case not less than :

Door height : nominal container external height, minus 305 mm (12 in).

Door width : 2286 mm (90 in).

For the 2435 mm (8 ft) nominal height container (1A, 1B, 1C and 1D), the minimum door height should be 2134 mm (84 in).

For the 2590 mm (8 ft 6 in) nominal height container (1AA) of nominal 12 000 mm (40 ft) length, the minimum door height should be 2286 mm (90 in).