

JIS

JAPANESE INDUSTRIAL STANDARD

**Handling and Securing of Freight
Containers for International Trade**

JIS Z 1626—1987

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In the event of any doubt arising,
the original Standard in Japanese is to be final authority.

JAPANESE INDUSTRIAL STANDARD

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Handling and Securing of Freight Containers for
International Trade

Z 1626-1987

1. Scope

This Japanese Industrial Standard specifies methods of handling and securing freight containers for international trade, hereinafter referred to as the "containers", constructed and tested in accordance with international standards.

- Remarks 1. Attention shall be drawn to the relevant laws and regulations so that methods of handling and securing containers may conform not only to the requirements prescribed in this standard but also to national and international regulations.
2. Care shall be taken to the fact that when implementing this standard in practice, the mass which can be loaded into the container or the height of the container carried by a vehicle of some type is limited by the domestic laws and regulations relating to vehicles, railways, roads, and road traffic.
3. Particular attention shall be drawn to the fact that some containers constructed according to old international standards might not be strong enough to withstand the container handling conditions prescribed in this standard.
4. The types of containers, which are not specified in JIS Z 1614 but specified in ISO standards and used in large numbers, are given below for information purposes.

Type desig- nation	External dimensions mm						Max. gross mass (R) kg
	Height (H)		Width (W)		Length (L)		
	Dimen- sion	Toler- ances	Dimen- sion	Toler- ances	Dimen- sion	Toler- ances	
1 A	2438	0 -5	2438	0 -5	12192	0 -10	30480
1 AX	< 2438	-					
1 CC	2591	0 -5			6058	0 -6	20320
1 CX	< 2438	-					

Applicable Standards, Corresponding International Standard and Reference Standards: See page 34.

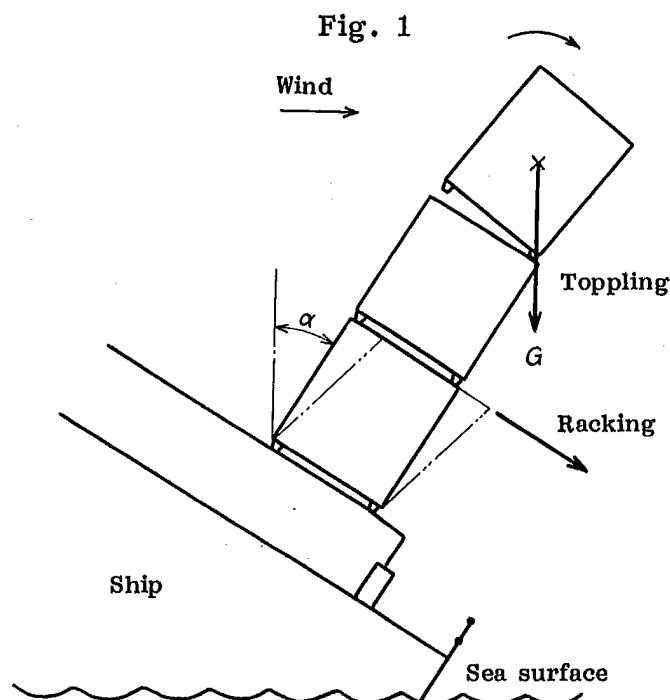
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2. Definitions

For the purpose of this standard, the following definitions given in Table 1, together with those given in JIS Z 1613, apply:

Table 1

Term	Description
empty container	A container loading no cargo. (state of tare mass)
loaded container	A container loading cargoes, regardless of the quantity of their mass.
eccentricity of centre of gravity	Distance between the geometrical centre of a container and its actual centre of gravity (empty or loaded container).
mobile centre of gravity	Centre of gravity which is mobile when a container loaded with liquid, dry bulk material, or suspended cargo is handled.
racking	Deformation of end or side frames resulting from static or dynamic forces which are applied to the frames in a horizontal direction (see Fig. 1).
toppling	A state in which the container turns over taking one of the ends of the bottom surface as a fulcrum, when horizontal forces due to ship rolling or wind and others are exerted on it (see Fig. 1).



3. General Requirements

3.1 Containers and their handling equipment shall be kept in an adequate condition of preventive maintenance.

3.2 Closures of doors and the like, movable or foldable parts and detachable equipment shall be fixed firmly.

3.3 Workers engaged in handling and securing of containers shall be such as those who have finished the education with regard to proper handling methods, in particular, to safety matters.

3.4 Workers engaged in handling and securing, and restraint and lashing of containers shall be informed whether the container is empty or loaded. If they can not ascertain it, they shall handle the container as the loaded one.

3.5 With regard to cargoes in a container, it shall be avoided that the container is imposed by a load exceeding the load for which it has been designed. For this purpose, it is necessary that the cargoes are loaded or kept in the container by ordinary methods and appropriate lashing is made at their necessary points.

3.6 Handling equipment for loading shall not be such that forces in excess of those for which the container has been designed are exerted on its floor or walls.

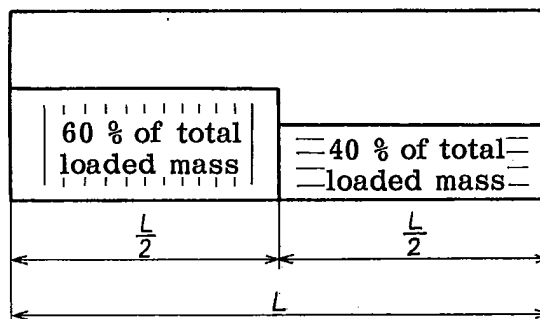
3.7 The total mass of all items loaded into the container, including cargo securing equipment, materials for loading and others shall not exceed the payload for the container.

3.8 Cargoes shall be loaded so that the centre of gravity of them may be sufficiently low and central in order to:

- (1) prevent excessive tilting of the container,
- (2) avoid exerting overstresses on the container and handling equipment,
- (3) prevent container carrying vehicles from being exerted on their axles by loads exceeding the allowable loads for them,
- (4) secure the running stability of container carrying vehicles, and
- (5) prevent an excessively concentrated load.

Further, as shown in Fig. 2, when not more than 60 % of the total loaded mass is placed unequally on half part of the longitudinal length of the container, the loading may be considered to meet the requirements of this provision.

Fig. 2. Side View



3.9 When securing cargoes, care shall be taken to prevent damage which might result from dynamic forces encountered in container handling and its transport.

4. Handling of Container

4.1 Handling equipment shall be furnished with capabilities sufficient for the load. Further, it shall be confirmed that the equipment can be operated safely to the container and also the container is not fixed.

4.2 It shall be confirmed that there are no obstruct materials in fork pockets and corner fittings, and lifting operation can be carried out safely.

4.3 In the case of a single point lift by slinging, special attention shall be paid to the risk of the container tilting owing to eccentricity of center of gravity.

4.4 When centre of gravity of a container is mobile or eccentric, care should be taken upon lifting it.

Further, special attention shall be given when handling a container such as a tank container, a bulk container, a container with a liquid bulk bag, a container with cargo hanging equipment, or a thermal container with a refrigerating unit.

4.5 When handling methods other than the lift methods specified in 5.1 to 5.9 inclusive are employed, the container shall be handled after studying the performance of the handling equipment and the method of its use, taking into consideration the specification for the container to be handled.

5. Lifting Method

5.1 Type of Lifting Types of lifting shall be as specified in Table 2.

Table 2

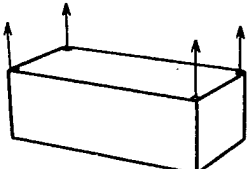
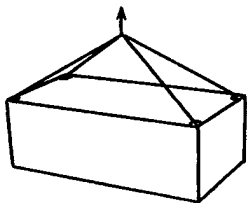
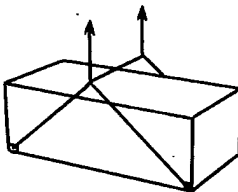
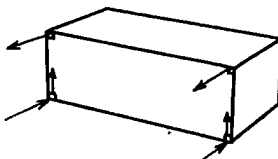
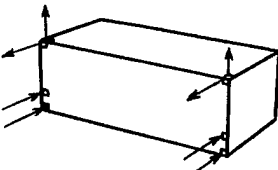
Type of lifting	Diagram
Top lifting by spreader (5.2)	
Top lifting by sling (5.3)	
Bottom lifting by sling (5.4)	
Side lifting-method 1 (5.5)	
Side lifting-method 2 (5.6)	

Table 2. (Continued)

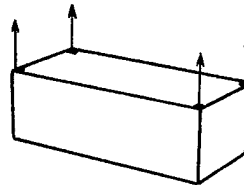
Type of lifting	Diagram
Side lifting-method 3 (5.7)	
End lifting-method 1 (5.8)	
End lifting-method 2 (5.9)	
Lifting by forks (5.10)	

Remark: Whether each type of lifting listed in 5.2 to 5.10 is applicable or not is specified according to the class and type of container and it is determined taking into consideration the stress generated in each type of container and the safety of its handling and securing.

5.2 Top Lifting by Spreader

5.2.1 Top lifting by spreader is a method of lifting a container from the four top corner fittings by means of a spreader in the vertical direction (see Fig. 3).

Fig. 3



5.2.2 Lifting devices shall be engaged firmly with corner fittings of a container. The fitting devices (twist locks, hooks or shackles) shall not interfere with members other than the corner fittings.

5.2.3 The containers to which the top lifting by spreader is applied shall be as follows:



permitted



not-permitted (or not included in recognized standards,
or included for information purposes)

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Empty container						Loaded container						Type code (¹)	Type of container	Type code (¹)	Type of container	Type code (¹)	Type of container	Type code (¹)	Type of container	Type code (¹)	Type of container	Type code (¹)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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Note (1) These are in accordance with JIS Z 1615.

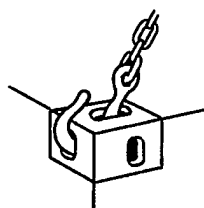
* These are permitted when extended materials are used.

** These are permitted only when holes equivalent to the upper holes of top end corner fittings are provided.

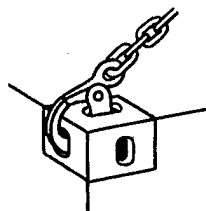
5.3 Single Point Lifting by Slings

5.3.1 Single point lifting by slinging is a top lifting method other than the vertical lifting methods prescribed in 5.2 (see Fig. 4).

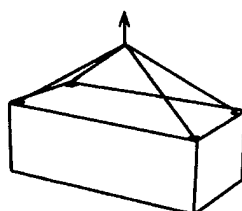
Fig. 4



End wall



End wall



5.3.2 Lifting devices shall be engaged firmly with corner fittings of a container. The fitting devices (twist locks, hooks or shackles) shall not interfere with members other than the corner fittings. In the case of hooks, the hook should be inserted into the corner fitting from its upper hole and put out of its end hole (see Fig. 4).

5.3.3 The containers to which the single point lifting by slinging is applied shall be as follows:



Permitted



Not permitted (or not included in recognized standards, or included for information purposes)

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Empty container					Type of container	Type code (¹)	Loaded container																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
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