OTHER RULES AND GUIDANCE

(Guidance for Freight Container)

- For external opinion inquiry -

2022.2



Machinery Rule Development Team

- Main Amendments -

(1) Enter into force on 1 July 2022(the date of application for certification of products)

• To reflect Request for Establishment/Revision of Classification Technical Rules

Present					ŀ	Amendme	nt		reason	
CHAPTER 1 GENERAL				CHAI	PTER 1 (GENERAI Guidance>	Same as	the present		
Section 1 <omitted></omitted>				Sectio	on i <sam< th=""><th>e as the p</th><th>bresent Gu</th><th></th><th></th></sam<>	e as the p	bresent Gu			
Section 2 Definitions					Sectio	on 2 Defi	nitions		* It is reflected	
201 <omitted></omitted>				201. <same as="" guidance="" present="" the=""></same>					Establishment/Revision	
202. Desig	nation of co	ntainers			202. Desig	nation of con	itainers			of Classification
Designation of containers applied by the Guidance is given in Table 1.1 according to the nominal dimensions.				Design Table	ation of contain 1.1 according to	ers applied b the nominal	y the Guidan dimensions.	ce is given in	Technical Rules.	
Table 1.1 Dimension	Designation	of Container	according to	the nominal	Table 1.1 Dimension	Designation ((2022)	of Container	according to	the nominal	
Nominal		Nominal	height		Nominal		Nomina	l height		
length(<i>ft</i>)	9 ' 6 "	8 ' 6 "	8 * 0 "	< 8 ' 0 "	length(<i>ft</i>)	9 ' 6 "	8 ' 6 "	8 ' 0 "	< 8 ' 0 "	
45	1EEE	1EE	-	-	45	1EEE	1EE	-	-	
40	1AAA	1AA	1A	1AX	40	1AAA	1AA	1A	1AX	
30	1BBB	1BB	1 B	1BX	30	1BBB	1BB	1B	1BX	-To reflect ISO 668:2020
20	-	1CC	1C	1CX	20	<u>1CCC</u>	1CC	1C	1CX	
10	-	-	1D	1DX	10	-	-	1D	1DX	
Note : All u	nits have a nomi	nal width of 8 ft			Note : All u	inits have a nomin	al width of 8 fi			
			Ţ					Ţ		

Present	Amendment	reason
CHAPTER 2 CONSTRUCTION AND CERTIFICATION OF FREIGHT CONTAINERS	CHAPTER 2 CONSTRUCTION AND CERTIFICATION OF FREIGHT CONTAINERS	
Section 1 <omitted> Section 2 Approval of Manufacturing Process 201. <omitted> 202. Approval application 1. The manufacturer wishing to obtain the approval of manufactur- ing process is to submit a copy of the approval application form of the Society together with <u>three copies</u> of the required data and information to the Society.</omitted></omitted>	 Section 1 <same as="" guidance="" present="" the=""></same> Section 2 Approval of Manufacturing Process 201. <same as="" guidance="" present="" the=""></same> 202. Approval application 1. The manufacturer wishing to obtain the approval of manufacturing process is to submit a copy of the approval application form of the Society together with 1 copy of the required data and information to the Society. (2022) 	* It is reflected Request for Establishment/Revision of Classification Technical Rules.
 2. Data to be submitted (1) An outline, history of the works and organization (2) An outline of containers intended to be built and the manufacturing process (3) Main facilities for the production (4) Facilities for testing (5) Process of the quality control including the manufacturer's standards for inspection and the organized system of quality control internal audits and corrective actions. (6) Marking method of manufacturer's serial numbers, etc. (7) Major supplier of material of container (8) Other data deemed necessary by the Society 3. ~ 4. <omitted></omitted> 	 2. Data to be submitted An outline, history of the works and organization An outline of containers intended to be built and the manufacturing process Main facilities for the production List of test facilities by container type (2022) Process of the quality control including the manufacturer's standards for inspection and the organized system of quality control internal audits and corrective actions. Marking method of manufacturer's serial numbers, etc. Major supplier of material of container Other data deemed necessary by the Society 3. ~ 4. <same as="" guidance="" present="" the=""></same> 	- Although the test method is different depending on the container type, the list of test facilities required for each test. It should be reviewed whether the manufacturer prepares and manages a list of test facilities required for each test.

 203. Document review 203. Document review 203. Document review 1. The Society examines the documents submitted and where deemed appropriate, the documents are approved and returned to the manufacturer. 2. Review of quality control system The manufacturers wishing to obtain the approval of manufacturing process are to be satisfied with the following requirements 203. Documents 1. The approval of manufacturing process are to be satisfied with the following requirements 	cument review Society reviews and refers to the documents submitted for roval of manufacturing process. (2022) view of quality control system	* It is reflected Request for Establishment/Revision of Classification
 <u>The Society examines the documents submitted and where deemed appropriate, the documents are approved and returned to the manufacturer.</u> <u>Review of quality control system</u> The manufacturers wishing to obtain the approval of manufacturing process are to be satisfied with the following requirements <u>The approval of manufacture</u> 	Society reviews and refers to the documents submitted for roval of manufacturing process. (2022) riew of quality control system	Request for Establishment/Revision of Classification
2. Review of quality control system The manufacturers wishing to obtain the approval of manufactur- ing process are to be satisfied with the following requirements		
 in accordance with the quality control system. (1)~ (8) <0mitted> 204. ~ 207. <0mitted> 208. Withdrawal of approval The Society may withdraw the approval of manufacturing process in case any of the following (1) through (4) is relevant. (1) When test records differ from the time of approval and do not satisfy the approval conditions. (2) When a request for withdrawal is made by the manufacturer. (3) When the container is manufactured without approval of the changes in the manufacturing process according to the requirements specified in 206. (4) When considered inappropriate by the Society. (5) <new></new> 209. <omitted></omitted> 	e manufacturers wishing to obtain the approval of manufactur- process are to be satisfied with the following requirements ccordance with the quality control system. ~ (8) <same as="" guidance="" present="" the=""> 207. <same as="" guidance="" present="" the=""> thdrawal of approval ociety may withdraw the approval of manufacturing process e any of the following (1) through (4) is relevant. When test records differ from the time of approval and do not satisfy the approval conditions. When a request for withdrawal is made by the manufacturer. When the container is manufactured without approval of the changes in the manufacturing process according to the re- quirements specified in 206. When considered inappropriate by the Society. Where containers have not been produced continuously for nore than two years without any special reason (2022) Same as the present Guidance></same></same>	 Technical Rules. The documents for container manufacturing process data is just for the quality control of the manufacturer. As it is identified that the certificate of manufacturing process is maintained even though the container manufacturer has no long-term manufacturing record due to business closure, etc., there is a need for a regulation that allows a company with no long-term manufacturing record to revoke the approval.

Present	Amendment	reason
Section 3 Type Approval Inspection	Section 3 Type Approval Inspection	* It is reflected
301. Application	301. Application	Request for Establishment/Revision
1. The requirements in this Section apply to the type approval tests carried out by the Society, before the container manufacturers obtain the type approval from the Government in accordance with the provisions of relevant rules of type approval for containers of CSC Convention.	1. The requirements in this Section apply to the type approval tests carried out by the Society, before the container manufacturers obtain the type approval from the Government in accordance with the provisions of relevant rules of type approval for containers of CSC Convention.	of Classification Technical Rules.
2. The requirements in this Section apply also to the type approval tests carried out in accordance with the requirements in Ch 2 205.	2. The requirements in this Section apply also to the type approval tests carried out in accordance with the requirements in Ch 2, 205.	- This is to suggest approval requirements for container types that do
<u>3. <new></new></u>	3. In the case of a container type to which this Sec cannot be applied, it may be approved according to CSC convention. (2022)	not satisfy our Guidance.
302. \sim 306. <omitted></omitted>	302. \sim 306. <same as="" guidance="" present="" the=""></same>	

Present	Amendment	reason
Section 4 Production Unit Inspection	Section 4 Production Unit Inspection	* It is reflected
		Request for
401. Application	401. Application	Establishment/Revision
The requirements in this Section are applied to production unit inspection of containers that have been approved by a design	1. The requirements in this Section are applied to production unit	of Classification
type. For containers of special types not fully covered in this	type. For containers of special types not fully covered in this	Technical Rules.
Chapter, tests and inspections are to be carried out in accordance with the discretion of the Society.	Chapter, tests and inspections are to be carried out in accordance with the discretion of the Society	
	2 In the case of a container type to which this Sec cannot be an	
	<u>2. In the case of a container type to which this Sec cannot be applied, it may be approved according to CSC convention.</u> (2022)	- This is to suggest
		container types that do
		not satisfy our Guidance.
402. ~ 406. <omitted></omitted>	402. \sim 406. <same as="" guidance="" present="" the=""></same>	

Present	Amendment	reason
Section 5 <omitted> Section 6 General Cargo Containers</omitted>	Section 5 <same as="" guidance="" present="" the=""> Section 6 General Cargo Containers</same>	* It is reflected Request for
601. Application The requirements in this Section apply to general cargo containers of closed type and open top type.	601. Application The requirements in this Section apply to general cargo containers of closed type and open top type.	Establishment/Revision of Classification Technical Rules.
602. Materials and workmanship	602. Materials and workmanship	
1. <omitted></omitted>	1. <same as="" guidance="" present="" the=""></same>	
 2. Workmanship (1) <omitted></omitted> (2) At the time of approval of manufacturing process, welding for type-series containers is to be carried out in accordance with the procedures approved by the Society and by the welding operators <u>qualified as 1G(F), 2G(H) or 3G(V) of grade 1</u> by the Society in accordance with the requirements of Pt 2, Ch 2, Sec 5 of the Rules for Classification of Steel Ships or processing the equivalent qualification. (3) ~ (4) <omitted></omitted> 	 2. Workmanship (1) <same as="" guidance="" present="" the=""></same> (2) At the time of approval of manufacturing process, welding for type-series containers is to be carried out in accordance with the procedures approved by the Society and by the welding operators with qualified position by the Society in accordance with the requirements of Pt 2, Ch 2, Sec 5 of the Rules for Classification of Steel Ships or processing the equivalent qualification. (2022) (3) ~ (4) <same as="" guidance="" present="" the=""></same> 	- To reflect Pt 2 of the Rules
603. Dimensions and ratings	603. Dimensions and ratings	
<u>1. <new></new></u>	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. (2022)	- To reflect ISO 668:2020
 1. External dimensions and ratings (1) External dimensions and their permissible tolerances as well as the rating of the container or each designation are shown in Table 2.2 and Fig 2.5. (2) <omitted></omitted> 2. Internal dimensions (1) Closed, vented containers are to comply with the requirements for minimum internal length, width and height given in Table 2.3. However, where a top corner fitting projects into the internal space, that part of corner fitting projecting into the container is not to be considered as reducing the size of the container. (2) ~ (4) <omitted></omitted> 	 2. External dimensions and ratings External dimensions and ratings External dimensions and their permissible tolerances as well as the rating of the container or each designation are shown in Table 2.2 and Fig 2.5. (2) <same as="" guidance="" present="" the=""> </same> 3. Internal dimensions Closed, vented containers are to comply with the requirements for minimum internal length, width and height given in Table 2.3. However, where a top corner fitting projects into the internal space, that part of corner fitting projecting into the container is not to be considered as reducing the size of the container. (2) ~ (4) <same as="" guidance="" present="" the=""></same> 	

	Height (mm) H	Width (mm) W		Length	(mm) L	$K_1(mm)$	$K_2(mm)$	Rating R
Designation	Dimension	Tolerance	Dimension	Tolerance	Dimension	Tolerance	Max.	Max.	(<i>kg</i>)
1EEE	2896	0 -5			13716	0 -10	19	10	30480
1EE	2591	0 -5							
1AAA	2896	0 -5			12192	0 -10	19	10	30480
1AA	2591	0 -5							
1A	2438	0 -5							
1AX	<2438	0 -5							
1BBB	2896	0 -5			9125	0 -10	16	10	30480
1BB	2591	0 -5	2438	0 -5					
1B	2438	0 -5							
1BX	<2438	0 -5							
1CC	2591	0 -5			6058	0 -6	13	10	30480
1C	2438	0 -5							
1CX	<2438	0 -5							
1D	2438	0 -5			2991	0 -6	10	10	10160
1DX	≤2438	0 -5							

Table 2.2 External Dimensions, Permissible Tolerances and Ratings of containers

NOTES :

(1) All dimensions in table apply when measured at the temperature of 20 °C. Measurement taken at other temperatures is to be adjusted accordingly. (3) The values of K_1 and K_2 are given in Fig 2.5.

	Height (mm) H		Width (mm) W	Length (mm) L		$K_1(mm)$	$K_2(mm)$	Rating R
Designation	Dimension	Tolerance	Dimension	Tolerance	Dimension	Tolerance	Max.	Max.	(kg)
1EEE	2896	0 -5			13716	0 -10	19	10	30480
1EE	2591	0 -5							
1AAA	2896	0 -5			12192	0 -10	19	10	30480
1AA	2591	0 -5							
1A	2438	0 -5							
1AX	<2438	0 -5							
1BBB	2896	0 -5			9125	0 -10	16	10	30480
1BB	2591	0 -5	2438	0					
1B	2438	0 -5		-5					
1BX	<2438	0 -5							
<u>1CCC</u>	<u>2896</u>	<u>0</u> -5			6058	0 -6	13	10	30480
1CC	2591	0 -5							
1C	2438	0 -5							
1CX	<2438	0 -5							
1D	2438	0 -5			2991	0 -6	10	10	10160
1DX	≤2438	0 -5							

Table 2.2 External Dimensions, Permissible Tolerances and Ratings of containers (2022)

NOTES :

(1) All dimensions in table apply when measured at the temperature of 20 %. Measurement taken at other temperatures is to be adjusted accordingly. (3) The values of K_1 and K_2 are given in Fig 2.5.

Guidance for Freight Container

Present					Amendment						reason										
able 2.3	Minimum of Contain	Internal	Dimensions	and Door	Opening's	Table 2.3 Dimensions	Minimum of Contain	Internal E))	and D	oor Open	ing's	* It is reflected								
				Deered)i.e.					D			Request for Establishment/Revision								
Designatio	Internal	Internal Width	Internal	Door C	opening	Designatio	Internal	Internal Width	Internal	Do	or Opening		of Classification								
n	(<i>mm</i>)	(mm)	(mm)	Width (<i>mm</i>)	Height (<i>mm</i>)	n	(<i>mm</i>)	(<i>mm</i>)	(<i>mm</i>)	Widtł (mm)	Heig	ght 1)	Technical Rules.								
1EEE	2655		12542		2566	1EEE	2655		10540		256	6									
1EE	2350		13542		2261	1EE	2350		13542		226	1									
1AAA	2655			-	2566	1AAA	2655				256	6									
1AA	2350		11998		2261	1AA	2350		11998		226	1									
1A	2197				2134	1A	2197					213	4								
1BBB	2655	2330		2286	2566	1BBB	2655														256
1BB	2350		8931		2261	1BB	2350	2330	8931	2286	6 2261										
1B	2197				2134	1B	2197		5867		213	2134	- To reflect ISO 668:202								
1CC	2350			-	2261	1CCC	2655				256	6									
1C	2197		5867		2134	1CC	2350				226	2261									
1D	2197		2802	-	2134	1C	2197				213	4									
					_	1D	2197		2802	-	213	4									
1D	2197		2802		2134	IC ID	2197 2197		2802	-	213	4									

Guidance for Freight Container

Present		Amendment	reason
604. Design Conditions	604.	Design Conditions	* It is reflected
1. Design load	1.	Design load	Request for
Containers are to be required to have ample strength to bear the load or force specified in Table 2.4 and not to generate permanent deformation or abnormality which will render it unsuitable for use. Each structural member of the container is to be so designed as to be capable of withstanding the following conditions. (1) <i>Stacking</i> : Superimposed mass 213,360 kg.	-	Containers are to be required to have ample strength to bear the load or force specified in Table 2.4 and not to generate permanent deformation or abnormality which will render it unsuitable for use. Each structural member of the container is to be so designed as to be capable of withstanding the following conditions. (1) <i>Stacking</i> : Superimposed mass 213,360 kg.(For 1D and 1DX, superimposed mass 50,800 kg) However, if it passes the approval test with designed stacking load, it may be accepted under the load conditions indicated on the safety approval plate. (2022)	Establishment/Revision of Classification Technical Rules. - To reflect ISO 1496-1 & revision of statute
(2) ~ (4) <omitted></omitted>		(2) ~ (4) <same as="" guidance="" present="" the=""></same>	

Table 2.4 Loads and	forces t	o be	applied
---------------------	----------	------	---------

Item	Where Applied	Direction	Notes
Stacking	Top corner fittings Off-set : - 38 mm longitudinally - 25.4 mm laterally	Vertically downwards All containers other than $1 D/1DX$ con- tainers 942 KN 942 KN 942 KN 942 KN 942 KN 942 KN 942 KN 942 KN 942 KN	Concentrated eccentrically applied load 3,767 kN (942 kN per top corner fitting)
		Applicable to 1EE and 1EEE contain- ers only (a) 404 KN 1.8.R7	Stacking at 40' position and supported in 40' position(404 <i>kN</i> per top corner fitting)
		404 KN+ 1.88g 404 KN+ 1.88g 269 KN 1,8 R-7 269 KN+ 1.88g 1,8 R-7 269 KN+ 1.88g 269 KN+ 1.88g	Stacking at 40' position and supported in 45' position(269 <i>kN</i> per top corner fitting)
		$4 \qquad (c) \qquad 404 \text{ KN}$ 404 KN 1.8 R-T $404 \text{ KN} + \frac{1.8 \text{ Rg}}{4}$ $404 \text{ KN} + \frac{1.8 \text{ Rg}}{4}$ $1 \text{ D/1DX Containers}$	Stacking at 45' position and supported in 40' position(404 <i>kN</i> per top corner fitting)
		224 KN 1.8 <i>R</i> - <i>T</i> 224 KN 224 KN 224 KN 224 KN 224 KN	896 kN (224 kN per top corner fitting)
Top Lifting	Top corner fittings	Vertically upwards for all containers oth- er than 1 D/1DX containers	2 <i>R</i>
		er than TD/TDX containers $\frac{Rg}{2} \xrightarrow{2R-T} \frac{Rg}{2}$ Applicable to 1EE and 1EEE contain- ers only $\frac{Rg}{2} \xrightarrow{2R-T}$ 60° to the horizontal for 1 D/1DX con- tainers	The lifting forces shall be applied additionally from the 40' position

Item	Where Applied	Direction	Notes
Bottom Lifting	Bottom corner fittings (spacing between the line of action of the lifting force and the other face of the corner fitting is not fur- ther than 38 mm)	q : Angle to the horizontal $\frac{Rg}{2sin\theta} \underbrace{\begin{array}{c} 2R-T \\ 2Sin\theta \end{array}} \underbrace{\begin{array}{c} Rg \\ 2RT \\ 2Sin\theta \end{array}} \underbrace{\begin{array}{c} Rg \\ 2Sin\theta } \underbrace{\begin{array}{c} Rg \\ 2Sin\theta \end{array}} \underbrace{\begin{array}{c} Rg \\ 2Sin\theta } \underbrace{\begin{array}$	2 R The lifting forces shall be applied additionally from the 40' position
Floor Strength	Floor	Vertically downwards 3.630 kg 3.630 kg 760mm 3.630 kg 3.630 kg	per an axle: 7,260 kg per a wheel: 3,630 kg wheel width: 180 mm contact area per a wheel: $142 cm^2$ wheel centers: 760 mm
Longitudinal Restraint	Bottom corner fittings	Longitudinal R_{g} $R_{1}T$ R_{g} $R_{1}T$ R_{g} $R_{2}T$ R_{g} $R_{2}T$ R_{2} R_{3} R_{2} R_{3} $R_$	Concentrated force 2 <i>R</i> (2 <i>R</i> /2 per one side)
End Wall	End wall	Outerwards normal to the end	0.4 Pg
Side Wall	Side Wall	Outerwards normal to the end $-0.6Pg$	0.6 <i>Pg</i>

Table 2.4 Loads and forces to be applied (continued)

Direction Item Where Applied Notes Downwards normal to the roof Roof Panel Roof panel (An area of 300 kg $600 mm \times 300 mm$ located 300kg at the weakest area) Transverse Racking Top corner fittings Transverse Concentrated force (All containers other - 150kN 150 kN per top corner than 1D/1DX containers) fitting 150kN-150kN 150kN Applicable to 1EE and 1EEE (a) containers only Pushing at 45' position and supported in 45' position 150 KN 150 KN *(b)* Pushing at 40' position and supported in 40' position 150 KN 150 KN (c) Pushing at 45' position and supported in 40' position 150 KN 150 KN (d) Pushing at 40' position and supported 150 KM in 45' position 150 KN (e) Pulling at 45' position and supported 150 KN. 150 KN in 45' position (f) Pulling at 40' position and supported 150 KI 150 KN in 40' position (g) Pulling at 45' position and supported 150 KN 150 KN in 40' position (h) Pulling at 40' posi-150 Kt 150 KN 🖌 tion and supported in 45' position

Table 2.4 Loads and forces to be applied (continued)

Item	Where Applied	Direction	Notes
Longitudinal Racking (All containers other than $1 D/1DX$ containers)	Top corner fittings	Longitudinal 75kN 75kN	Concentrated force 75 <i>kN</i> per top corner fit-ting
		75kN -	
		Applicable to 1EE and 1EEE containers only	
		75 KN	(a) Compression at 45' position and supported in 45' position
		75 KN	(b) Compression at 45' position and supported in 40' position
		75 KN	(c) Tension at 45' posi- tion and supported in 45' position
			(d) Tension at 45' posi- tion and supported in 40' position
Fork-lift pocket (where fork-lift pocket is fitted as 1CC, 1C, 1CX and 1 <i>DX</i> containers)	Fork-lift pocket (Width 200 mm, the part form side to $1,828 \pm 3$ mm)	Vertically upwards 1.6R-T 0.8Rg $0.8Rg$	Distributed load 0.8 <i>R</i> per fork-lift pocket
Fork-lift pocket (where fork-lift pocket is fitted for empty as 1CC, 1C and 1CX containers)	Fork-lift pocket	Vertically upwards 0.625R-T 0.3125Rg $0.3125Rg$	Distributed load 0.3125 <i>R</i> per fork-lift pocket
Grappler arm	Grappler lifting position	Vertically upwards 1.25R-T 0.3125Rg $0.3125Rg$	Distributed load 1.25 $R/4$ per grappler lift- ing position

Table 2.4 Loads and forces to be applied (continued)

Table 2.4	Loads	and	forces	to	be	applied	(2022)
-----------	-------	-----	--------	----	----	---------	--------

Item	Where Applied	Direction	Notes ⁽¹⁾
Stacking	Top corner fittings Off-set : - 38 mm longitudinally - 25.4 mm laterally	Vertically downwards All containers other than $1 D/1DX$ con- tainers 942 KN 942 KN 942 KN 942 KN 942 KN 942 KN 942 KN 942 KN 942 KN	Concentrated eccentrically applied load 3,767 kN (942 kN per top corner fitting)
		Applicable to 1EE and 1EEE contain- ers only (a) 404 KN 13 #7	Stacking at 40' position and supported in 40' position(404 <i>kN</i> per top corner fitting)
		404 KN+ <u>1.88v</u> 269 KN 269 KN 1,8 R-7 269 KN+ <u>1.88v</u> 269 KN+ <u>1.88v</u> 269 KN+ <u>1.88v</u> 269 KN+ <u>1.88v</u>	Stacking at 40' position and supported in 45' position(269 <i>kN</i> per top corner fitting)
		$4 \qquad (c) \qquad 4 \qquad $	Stacking at 45' position and supported in 40' position(404 <i>kN</i> per top corner fitting)
		224 KN 1.8 <i>R</i> - <i>T</i> 224 KN 224 KN 224 KN 224 KN 224 KN	896 kN (224 kN per top corner fitting)
Top Lifting	Top corner fittings	Vertically upwards for all containers oth- er than 1 D/1DX containers	2 <i>R</i>
		er than TD/IDX containers $\frac{Rg}{2} \xrightarrow{2R-T} \frac{Rg}{2}$ Applicable to 1EE and 1EEE contain- ers only $\frac{Rg}{2} \xrightarrow{2R-T}$ 60° to the horizontal for 1 D/1DX con- tainers $\frac{2Rg}{2} \xrightarrow{2Rg}$	The lifting forces shall be applied additionally from the 40' position

Item	Where Applied	Direction	Notes ⁽¹⁾
Bottom Lifting	Bottom corner fittings (spacing between the line of action of the lifting force and the other face of the corner fitting is not fur- ther than 38 mm)	q : Angle to the horizontal $\frac{Rg}{2sin\theta} \underbrace{\begin{array}{c} 2R-T \\ 2sin\theta \end{array}} \underbrace{\begin{array}{c} Rg \\ 2sin\theta \end{array}} \underbrace{\begin{array}{c} 2R-T \\ 2sin\theta \end{array}} \underbrace{\begin{array}{c} Rg \\ 2sin\theta } \underbrace{\begin{array}{$	2 R The lifting forces shall be applied additionally from the 40' position
Floor Strength	Floor	Vertically downwards 3,630 kg 3,630 kg 760mm 760mm	per an axle: 7,260 kg per a wheel: 3,630 kg wheel width: 180 mm contact area per a wheel: $142 cm^2$ wheel centers: 760 mm
Longitudinal Restraint	Bottom corner fittings	Longitudinal R_{g} $R_{I}T$ R_{g} $R_{I}T$ R_{g} $R_{I}T$ R_{g} $R_{I}T$ R_{g} $R_{I}T$ R_{g} R_{I} R	Concentrated force 2 <i>R</i> (2 <i>R</i> /2 per one side)
End Wall	End wall	Outerwards normal to the end	0.4 Pg
Side Wall	Side Wall	Outerwards normal to the end $-0.6Pg$	0.6 <i>Pg</i>

Table 2.4 Loads and forces to be applied (continued) (2022)

Direction Notes⁽¹⁾ Item Where Applied Roof Panel Roof panel (An area of Downwards normal to the roof 300 kg $600 mm \times 300 mm$ located 300kg at the weakest area) Transverse Racking Top corner fittings Transverse Concentrated force (All containers other - 150kN 150 kN per top corner than 1D/1DX containers) fitting 150kN-150kN 150kN Applicable to 1EE and 1EEE (a) containers only Pushing at 45' position and supported in 45' position 150 KN 150 KN *(b)* Pushing at 40' position and supported in 40' position 150 KN 150 KN (c) Pushing at 45' position and supported in 40' position 150 KN 150 KN (d) Pushing at 40' position and supported 150 KM in 45' position 150 KN (e) Pulling at 45' position and supported 150 KN. 150 KN in 45' position (f) Pulling at 40' position and supported 150 KI 150 KN in 40' position (g) Pulling at 45' position and supported 150 KN 150 KN in 40' position (h) Pulling at 40' posi-150 Kt 150 KN 🖌 tion and supported in 45' position

 Table 2.4
 Loads and forces to be applied (continued)
 (2022)

Item	Where Applied	Direction	Notes ⁽¹⁾
Longitudinal Racking (All containers other than 1 D/1DX contain- ers)	Top corner fittings	Longitudinal 75kN	Concentrated force 75 kN per top corner fit-ting
		75kN	
		Applicable to 1EE and 1EEE containers only	
		75 KN	(a) Compression at 45' position and supported in 45' position
		75 KN	(b) Compression at 45' position and supported in 40' position
		75 KN	(c) Tension at 45' posi- tion and supported in 45' position
			(d) Tension at 45' posi- tion and supported in 40' position
Fork-lift pocket (where fork-lift pocket is fitted as 1CC, 1C, 1CX and 1 <i>DX</i> containers)	Fork-lift pocket (Width 200 mm, the part form side to $1,828 \pm 3$ mm)	Vertically upwards 1.6R-T 0.8Rg $0.8Rg$	Distributed load 0.8 <i>R</i> per fork-lift pocket
Fork-lift pocket (where fork-lift pocket is fitted for empty as 1CC, 1C and 1CX containers)	Fork-lift pocket	Vertically upwards 0.625R-T 0.3125Rg $0.3125Rg$	Distributed load 0.3125 <i>R</i> per fork-lift pocket
Grappler arm	Grappler lifting position	Vertically upwards 1.25R-T 0.3125Rg $0.3125Rg$	Distributed load 1.25 $R/4$ per grappler lift- ing position

Table 2.4 Loads and forces to be applied (continued) (2022)

Table 2.4 Loads and forces to be applied (continued) (2022)

Item	Where Applied	Direction	Notes ⁽¹⁾
Shoring slot(Where fit-	Transverse of door	Transverse	<u>0.6 P</u>
<u>ted)</u>			
		→ 1,5 × 0,4 <i>P</i>	
NOTES :			
(1) If it passes the ap	proval test with designed sta	cking load for transverse/longitud	inal racking, it may be
accepted under the	load conditions indicated on	the safety approval plate.	

Present	Amendment	reason
 2. Corner fittings (1) All containers shall be equipped with corner fittings at the top and bottom corner, the dimensions of which are given in Figs 2.6 and 2.7. IEEE and IEE units shall also have fittings in 40' position, as shown in Fig 2.8, the dimensions of which are given in Figs 2.9 and 2.10. (2) ~ (4) <omitted></omitted> 3. Base structure (1) All containers are to be capable of being supported by their bottom corner fittings only. (2) The lower faces of the load transfer areas including those of the end transverse members, are to be one plane located 12.5 ⁺⁵. mm above the plane of the bottom faces of the lower corner fittings of the containers. (3) Containers are to be designed so that no part of the base structures is to deflect more than 6 mm below the bottom faces of the bottom faces of the bottom faces of the containers. (3) Containers, are to the containers are not to protrude below the corner fittings under a uniformly distributed load equal to 1.8 R-T. (4) The base structures of the containers are not to protrude below the corner fittings under a uniformly distributed load equal to 1.8 R-T. (5) All containers, other than 1 D, are to have end transverse member and sufficient intermediate load transfer areas of sufficient strength to permit vertical load transfer areas of sufficient strength to permit vertical load transfer areas on the longitudinal members are assumed to lie within the two 375 mm wide zone defined by the broken lines in Fig 2.11 with longitudinal dimension over 25 mm. Container area to also be capable of being supported on load transfer areas only in their base structure. (6) Containers other than 1 D, having all their intermediate transverse members spaced at 1000 mm apart or less are given in Fig 2.12 through 2.16. The maximum load to be transferred at the load transfer zone is not to exceed 2 R. 	 2. Corner fittings All containers shall be equipped with corner fittings at the top and bottom corner, the dimensions of which are given in Figs 2.6 and 2.7. IEEE and IEE units shall also have fittings in 40' position, as shown in Fig 2.8, the dimensions of which are given in Figs 2.9 and 2.10. However, these Figures indicate the top and bottom corner fittings on the left side of the front end and the right side of the rear end, and everything else should be symmetrical with them. (2022) (2) ~ (4) <same as="" guidance="" present="" the=""></same> 3. Base structure All containers are to be capable of being supported by their bottom corner fittings only. (2) For all containers under dynamic conditions, or the static equivalent thereof, with the container having a load uniformly distributed over the floor in such a way that the combined mass of the container and test load is equal to 1,8R, no part of the base of the container shall deflect more than 6 mm below the base plane (bottom faces of the lower corner fittings). (2022) (3) All containers, other than 1 D and 1 DX, shall also be capable of being supported only by load transfer areas in their base structure. (2022) (A) Consequently, these containers shall have end transverse members and sufficient intermediate load transfer areas (or a flat underside) of sufficient strength to permit vertical load transfer is and sufficient intermediate load transfer areas (or a flat underside) of sufficient strength to permit vertical load transfer is and sufficient intermediate load transfer areas (or a flat underside) of sufficient strength to permit vertical load transfer is and sufficient intermediate load transfer areas (or a flat underside) of sufficient strength to permit vertical load transfer is and sufficient intermediate load transfer areas (or a flat underside) of sufficient strength to permit vertical load transfer is or from the longitudinal member of a carrying vehicle. Such long	 * It is reflected Request for Establishment/Revision of Classification Technical Rules(STS60 00-353-2021). To match with Korean version To reflect ISO 1496-1 To reflect ISO 1496-1

Present	Amendment	reason
	 (B) The lower faces of the load transfer areas, including those of the end transverse members, shall be in one plane located 12.5 ⁺⁵/₋₁₅ mm above the plane of the bottom faces of the lower corner fittings of the container. Apart from the bottom corner fittings and bottom side rails, no part of the container shall project below this plane. However, doubler plates may be provided in the vicinity of the bottom corner fittings to afford protection to the understructure. Such plates shall not extend more than 550 mm from the outer end and not more than 470 mm from the side faces of the bottom corner fittings of the bottom range of the bottom corner fittings of the bottom corner faces of the bottom corner fittings of the bottom corner faces of the bottom corner fittings of the bottom side rails and carrying vehicles is not envisaged. The transfer of load between side rails and handling equipment should only occur when provisions have been made in accordance with 7. and 8 (D) Containers having all their intermediate transverse members spaced at 1000 mm apart or less (or having a flat underside) shall be deemed to comply with the requirements laid down in (A). (E) Requirements for containers not having transverse members spaced 1000 mm apart or less (and not having a flat underside) are given in Annex B of ISO 668. (4) The base structure shall be designed to withstand all forces, particularly lateral forces, induced by the cargo in service. This is particularly important where provisions are made for securement of cargo to the base structure of the container. (2022) 	 * It is reflected Request for Establishment/Revision of Classification Technical Rules. - To reflect ISO 1496-1
	Fig 2.12 ~ Fig 2.16 <deleted></deleted>	- The figures are deleted because it was citing ISO 668.
4. ~ 9. <omitted></omitted>	4. \sim 9. <same as="" guidance="" present="" the=""></same>	

Present	Amendment	reason
605. Type Approval Inspection	605. Type Approval Inspection	* It is reflected
1. ~ 4. <omitted></omitted>	1. \sim 4. <same as="" guidance="" present="" the=""></same>	Request for
5. Strength tests	5. Strength tests	Establishment/Revision
 (1) Strength tests are to be carried out as specified in Table 2.5 after the completion of all the works. (2) ~ (3) <omitted></omitted> 	 (1) Strength tests are to be carried out as specified in Table 2.5 after the completion of all the works. (2) ~ (3) <same as="" guidance="" present="" the=""></same> 	of Classification Technical Rules.
6. <omitted></omitted>	6. <same as="" guidance="" present="" the=""></same>	
606. <omitted></omitted>	606. <same as="" guidance="" present="" the=""></same>	

Table 2.5	Test Procedures	and	Measurements	of	Type Approval
-----------	-----------------	-----	--------------	----	---------------

Item	Procedures and Measurements
Stacking	 Procedure: Internal load: 1.8 <i>R-T</i> uniformly distributed over the base. (1) Applied forces: With the container in the normal position supported at the base corner fittings, compressive forces equivalent to 942 <i>kN</i> are to be applied to each corner post through rigidly held dummy corner fittings arranged to simulate an overstowed container base. The test is to be repeated to cover for all positions of offset namely 38 <i>mm</i> longitudinally and 25.4 <i>mm</i> laterally. (2) For 1EEE and 1EE containers, the stacking forces shall be applied vertically from the 1EEE/1EE position and separately from the 1AAA/1AA/1A position according to the requirements specified in Table 2.4, stacking test (a), (b) and (c). (3) For a 1<i>D</i>/<i>1DX</i> container, compressive forces equivalent to 224 <i>kN</i> are to be applied to each corner post.
	 Measurement: (1) Deflections at lowest point of both side rails and at the longitudinal centre line of the base which may be taken before the application of axial loads. (2) Deflections in two directions at midheight, or other point of maximum deflection of the corner posts, and permanent set remaining on removal of the load.
Top Lifting	 Procedure: Internal load : 2 <i>R</i>-T uniformly distributed over the base. (1) Applied forces: With the container in the normal position, lifting forces are to be applied gradually to the top corner fittings, vertically to containers other than 1D/1DX container (2) For 1EEE and 1EE containers, the lifting forces shall be applied vertically from the 1EEE/1EE position and separately from the 1AAA/1AA/1A position (3) at 30° to the vertical in the case of 1D/1DX containers. (4) The container shall be supported for 5 min. and then lowered to the ground.
	 Measurements: (1) While loaded and supported by the four bottom corner fittings before lifting clear, the deflection at lowest points of both side rails and at the longitudinal centre line of the base. (2) Permanent set remaining on removal of the load

Item	Procedures and Measurements									
Bottom Lifting	Procedure: Internal load: 2 <i>R-T</i> uniformly distributed over the base.(1) Applied forces: With the container in the normal position, lifting forces are to be applied gradually through the bottom corner fitting side aperatures as follows:									
	Designation	Angle								
	1EEE, 1EE	30°								
	1888, 188, 18, 18X	37°								
	1CC, 1C, 1CX	45°								
	1 D, 1DX	60°								
	(2) For 1EEE and 1EE containers, the lifting forces shall be applied from the 1EEE/1EE position and separately from the 1AAA/1AA/1A position(3) In each case, the line of action of the lifting force and the outer face of the corner fitting or intermediate fitting shall be no farther apart than 38mm. The container shall be supported for 5 min. and then lowered to the ground.									
	Measurements: Same as measurements of the top l	lifting								
Floor Strength	Procedure: Internal load: Nil. Applied forces: With the container supported at the bottom corner fittings, a vehicle equip- ped with 180 mm wide tyres at 760 mm centres each having a contact area of 142 cm ² load- ed to an axle mass of 7,260 kg is to be maneuvered over the entire floor area.									
	Provide and the second se									
	Measurements: Deflection of the base.									
Longitudinal Restraint	Procedure: Internal load: R - T uniformly distributed Applied forces: With the container in through the bottom apertures in the bott Rg are to be applied to each side rail fittings at the other end first in compres the forces shall be applied from the 1AA	over the base. the normal position, anchored by locking devices tom corner fittings at one end, forces equivalent to through the bottom apertures in the bottom corner sion then in tension. For 1EEE and 1EE containers, AA/1AA/1A position								
	AT									
	Measurements: The change in length of both bott direction)	om side rails during and after the test (in each								
End Wall	Procedure: Internal loading and application: $0.4 P_d$ in such a way as to allow free deflection	g uniformly distributed over the wall under test on of the end wall.								
	Measurements: Deflection and permanent set at the	e centre and at least two other locations.								

Table 2.5 Test Procedures and Measurements of Type Approval (continued)

Table 2.5	Test Proce	dures and M	easurements of	of Type	Approval	(continued)
-----------	------------	-------------	----------------	---------	----------	-------------

Item	Procedures and Measurements
Side Wall	Procedure: Internal loading and application: $0.6 Pg$ uniformly distributed over the wall under test in such a way as to allow free deflection of the side wall and its top and bottom side rails. Each side is to be tested separately but only one side need to be tested when both are similar in construction.
	Measurements: Deflection and permanent set at the centre of side wall and the centre of the top and bottom side rails.
Roof Panel	Procedure: Internal load: Nil. Applied load: $300 kg$ uniformly distributed over a $600 mm \times 300 mm$ area at the weakest section of the roof.
	Measurements: Maximum deflection and permanent set of section under test.
Transverse Racking	Procedure Internal load: Nil. Applied forces: The test is to be carried out to all containers other than 1D/1DX containers. With the container in the normal position anchored by locking devices through the apertures in the bottom corner fittings, transverse racking forces of 150 kN are to be applied separately or simultaneously to each top corner fitting on one side. Lateral restraint is to be taken up by the anchor devices diagonally opposite to the applied forces. The force(s) is to be ap- plied first towards then away from the container. For 1EEE and 1EE containers, the forces shall be applied according to the requirements specified in Table 2.4 , transverse racking test (a) through (h).
	Measurements: Difference in diagonals before, during and after testing.
Longitudinal Racking	Procedure: Internal load: Nil. Applied forces: The test is to be carried out to all containers other than $1D/1DX$ containers. With the container in the normal position anchored by locking devices through the apertures in the bottom corner fittings, longitudinal racking forces 75 kN are to be applied separately or simultaneously to each top corner fitting on one end. Longitudinal restraint is to be tak- en up by the anchor devices diagonally opposite to the applied forces. The force(s) is to be applied first towards then away form the container. For 1EEE and 1EE containers, the forces shall be applied according to the requirements specified in Table 2.4 , longitudinal racking test (a) through (d).
	Measurements: Longitudinal displacement of top side rails.

Table Lie Teetaalee and medealemente et Type Appieral (continue	Table 2.5	Test Procedures	and Measurements	of Type	Approval	(continued)
---	-----------	------------------------	------------------	---------	----------	-------------

Item		Procedures and Measurements						
Fork-lift pocket	Procedure: Internal load: $1.6 R-T$ (for empty container, $0.625 R-T$) uniformly distribut over the base. Applied forces: The tset is to be carried out to 1CC, 1C, 1CX, 1D and 1DX containers where fork-lift pocket is fitted. The container is to be supported for 5 mutual by two bars 200 mm wide inserted in the fork pockets to a depth of $1.8 \pm 3 mm$							
	Measurements: Undue local distortion during the test and any permanent distortion removal of the load.							
Grappler arm	Procedure: Internal load:1.25 <i>R-T</i> uniformly distributed over the base. Applied forces: The test is to be carried out to containers where grappler arm is fitted. The container is to be supported for 5 minutes by pads at the four grappler arms intended to be used.							
	Measuremen	ts: Undue local distortion during the test and any permanent distortion.						
Weathertightness	Procedure:	All surfaces of the container are to a water test from a $12.5 mm$ nozzle, with a water pressure of $1 bar$ at the nozzle, second at a distance of $1.5 m$ from the surface under test.						
	Observation	The interior of the container is to remain dry.						
One door off Operation	Stacking	Procedure: Refer to Stacking of this Table. The loads are applied to design condition of manufacturers.						
		Measurements: Refer to Stacking of this Table.						
	Transverse Racking	Procedure: Refer to Transverse Racking of this Table. The loads are applied to design condition of manufacturers.						
		Measurements: Refer to Transverse Racking of this Table.						

Table 2.5 Test Procedures and Measurements of Type Approval (2022)

Item	Procedures and Measurements							
Stacking	 Procedure: Internal load: 1.8 <i>R</i>-<i>T</i> uniformly distributed over the base. (1) Applied forces: With the container in the normal position supported at the base corner fittings, compressive forces equivalent to 942 <i>kN</i> are to be applied to each corner post through rigidly held dummy corner fittings arranged to simulate an overstowed container base. The test is to be repeated to cover for all positions of offset namely 38 <i>mm</i> longitudinally and 25.4 <i>mm</i> laterally. (2) For 1EEE and 1EE containers, the stacking forces shall be applied vertically from the 1EEE/1EE position and separately from the 1AAA/1AA/1A position according to the requirements specified in Table 2.4, stacking test (a), (b) and (c). (3) For a 1D/1DX container, compressive forces equivalent to 224 <i>kN</i> are to be applied to each corner post. 							
	20 -0 -0 -0							
	Measurement:							
	 Deflections at lowest point of both side rails and at the longitudinal centre line of the base which may be taken before the application of axial loads. Deflections in two directions at midheight, or other point of maximum deflection of the corner posts, and permanent set remaining on removal of the load. 							
Top Lifting	 Procedure: Internal load : 2 <i>R</i>-T uniformly distributed over the base. (1) Applied forces: With the container in the normal position, lifting forces are to be applied gradually to the top corner fittings, vertically to containers other than 1D/1DX container (2) For 1EEE and 1EE containers, the lifting forces shall be applied vertically from the 1EEE/1EE position and separately from the 1AAA/1AA/1A position (3) at 30° to the vertical in the case of 1D/1DX containers. (4) The container shall be supported for 5 min. and then lowered to the ground. 							
	 Measurements: (1) While loaded and supported by the four bottom corner fittings before lifting clear, the deflection at lowest points of both side rails and at the longitudinal centre line of the base. (2) Permanent set remaining on removal of the load 							

Item	Procedures and	Measurements									
Bottom Lifting	 Procedure: Internal load: 2 <i>R-T</i> uniformly distributed over the base. (1) Applied forces: With the container in the normal position, lifting forces are to be applied gradually through the bottom corner fitting side aperatures as follows: 										
	Designation	Angle									
	1EEE, 1EE 1AAA 1AA 1A	30°									
	1888, 188, 18, 18X	37°									
	<u>1CCC</u> , 1CC, 1C, 1CX	45°									
	1 D, 1DX	60°									
	(2) For 1EEE and 1EE containers, the lifting forces shall be applied from the 1EEE/1EE position and separately from the 1AAA/1AA/1A position(3) In each case, the line of action of the lifting force and the outer face of the corner fitting or intermediate fitting shall be no farther apart than 38mm. The container shall be supported for 5 min. and then lowered to the ground.										
	Measurements: Same as measurements of the top l	ifting									
Floor Strength	Procedure: Internal load: Nil. Applied forces: With the container supported at the bottom corner fittings, a vehicle equip- ped with 180 mm wide tyres at 760 mm centres each having a contact area of 142 cm ² load- ed to an axle mass of 7,260 kg is to be maneuvered over the entire floor area.										
	weasurements: Deflection of the base.										
Longitudinal Restraint	Procedure: Internal load: R - T uniformly distributed Applied forces: With the container in through the bottom apertures in the botto Rg are to be applied to each side rail fittings at the other end first in compres the forces shall be applied from the 1AA	over the base. the normal position, anchored by locking devices tom corner fittings at one end, forces equivalent to through the bottom apertures in the bottom corner sion then in tension. For 1EEE and 1EE containers, AA/1AA/1A position									
	Measurements: The change in length of both bottom side rails during and after the test (in each direction)										
End Wall	Procedure: Internal loading and application: $0.4 P_{d}$ in such a way as to allow free deflection	g uniformly distributed over the wall under test on of the end wall.									
	Measurements: Deflection and permanent set at the	e centre and at least two other locations.									

Table 2.5 Test Procedures and Measurements of Type Approval (continued) (2022)

Table 2.	5 Test	Procedures	and	Measurements	of	Type	Approval	(continued)	(2022)
Table 2.) iesi	FIOCEGUIES	anu	measurements	01	Type	Approvar	(continueu)	(2022)

Procedures and Measurements
Procedure: Internal loading and application: $0.6 Pg$ uniformly distributed over the wall under test in such a way as to allow free deflection of the side wall and its top and bottom side rails. Each side is to be tested separately but only one side need to be tested when both are similar in construction.
Measurements: Deflection and permanent set at the centre of side wall and the centre of the top and bottom side rails.
Procedure: Internal load: Nil. Applied load: $300 kg$ uniformly distributed over a $600 mm \times 300 mm$ area at the weakest section of the roof.
Measurements: Maximum deflection and permanent set of section under test.
Procedure Internal load: Nil. Applied forces: The test is to be carried out to all containers other than $1D/1DX$ containers. With the container in the normal position anchored by locking devices through the apertures in the bottom corner fittings, transverse racking forces of 150 kN are to be applied separately or simultaneously to each top corner fitting on one side. Lateral restraint is to be taken up by the anchor devices diagonally opposite to the applied forces. The force(s) is to be ap- plied first towards then away from the container. For 1EEE and 1EE containers, the forces shall be applied according to the requirements specified in Table 2.4 , transverse racking test (a) through (h).
Measurements: Difference in diagonals before, during and after testing.
Procedure: Internal load: Nil. Applied forces: The test is to be carried out to all containers other than $1D/1DX$ containers. With the container in the normal position anchored by locking devices through the apertures in the bottom corner fittings, longitudinal racking forces 75 kN are to be applied separately or simultaneously to each top corner fitting on one end. Longitudinal restraint is to be tak- en up by the anchor devices diagonally opposite to the applied forces. The force(s) is to be applied first towards then away form the container. For 1EEE and 1EE containers, the forces shall be applied according to the requirements specified in Table 2.4 , longitudinal racking test (a) through (d).
Measurements: Longitudinal displacement of top side rails.

Table	2.5	Test	Procedures	and	Measurements	of	Type	Approval	(continued)	(2022)
TUDIC	2.0	1001	1 100cuures	unu	measurements	U 1	1,900	Approvui	(continueu)	(2022)

Item		Procedures and Measurements							
Fork-lift pocket	Procedure: ov ta m ± Measuremen	Procedure: Internal load: 1.6 <i>R</i> - <i>T</i> (for empty container, 0.625 <i>R</i> - <i>T</i>) uniformly distributed over the base. Applied forces: The tset is to be carried out to 1CC, 1C, 1CX, 1D and 1DX containers where fork-lift pocket is fitted. The container is to be supported for 5 minutes by two bars 200 mm wide inserted in the fork pockets to a depth of 1,828 $\pm 3 mm$ Measurements: Undue local distortion during the test and any permanent distortion on							
		removal of the load.							
Grappler arm	Procedure: I f F	Procedure: Internal load:1.25 <i>R</i> - <i>T</i> uniformly distributed over the base. Applied forces: The test is to be carried out to containers where grappler arm is fitted. The container is to be supported for 5 minutes by pads at the four grappler arms intended to be used.							
	Measurements: Undue local distortion during the test and any permanent distortion.								
Weathertightness	Procedure: with a wate face under test have be	Procedure: All surfaces of the container are to a water test from a 12.5 mm nozzle, with a water pressure of 1 bar at the nozzle, second at a distance of 1.5 m from the surface under test. The weathertightness test shall always be performed after all structural test have been completed.							
	Observation	The interior of the container is to remain dry.							
One door off Operation	Stacking	Procedure: Refer to Stacking of this Table. The loads are applied to design condition of manufacturers.							
		Measurements: Refer to Stacking of this Table.							
	Transverse Racking	Procedure: Refer to Transverse Racking of this Table. The loads are applied to design condition of manufacturers.							
		Measurements: Refer to Transverse Racking of this Table.							
NOTES :									
(1) The symbol P	denotes the	maximum payload of the container to be tested, that is:							
$\frac{P = R - T}{\text{where } R \text{ is the set } R $	$\frac{P = R - T}{P}$								

(2) R, P and T, by definition, are in units of mass. Where test requirements are based on the gravitational forces derived from these values, those forces, which are inertial forces, are indicated thus: Rg, Pg, Tg

		Prese	nt				reason					
	Sectio	on 7 Therm	al Container	S		Sectio	on 7 Therm	al Container	S	* It is reflected		
							Request for					
701.	\sim 702. <om< td=""><td>itted></td><td></td><td></td><td>701.</td><td>\sim 702. <sa< td=""><td>me as the pre</td><td>sent Guidance</td><td>e></td><td>Establishment/Rev</td><td>ision</td></sa<></td></om<>	itted>			701.	\sim 702. <sa< td=""><td>me as the pre</td><td>sent Guidance</td><td>e></td><td>Establishment/Rev</td><td>ision</td></sa<>	me as the pre	sent Guidance	e>	Establishment/Rev	ision	
703.	Dimensions a	nd ratings			703.	Dimensions a	nd ratings			of Classification		
1.	1. <omitted></omitted>					<same as="" td="" the<=""><td>present Guida</td><td>nce></td><td></td><td>Technical Rules.</td><td></td></same>	present Guida	nce>		Technical Rules.		
2.	Internal length				2.	Internal length						
	The minimum specified in Tabl	internal dimens e 2.6	ions of thermal	containers are		The minimum specified in Tab	internal dimensi e 2.6	ons of thermal	containers are			
	Table 2.6 Minim	num Internal Dir	nensions of The	rmal Containers		Table 2.6 Minin <i>(2022)</i>	num Internal Dir	mensions of The	ermal Containers			
	Designation	$\frac{\text{Internal}^{(1)}}{\text{Breadth}(mm)}$	Internal ⁽¹⁾ Height	Internal Length			Internal ⁽¹⁾ Height	Internal Breadth	Internal Length	- Typo		
	1 4 4 4	<u>Dreadth (<i>mm</i>)</u>	<u>(mm)</u>	(mm)		Designation	<u>(mm)</u>	<u>(mm)</u>	(<i>mm</i>)	- 51- 5		
	1444	2,311		11 502		1AAA	2,511					
	14	2,200	-	11,302	,502	1AA	2,206		11,502			
	1000	2,033				1A	2,053					
	IBBB	2,311		9 425	9 125		1BBB	2,511				
	10	2,206	2 219	8,455		1BB	2,206		8,435			
	18	2,053	2,218	1B 2,053 5,368 <u>1CCC</u> <u>2,511</u>	2 210		The second	100				
	10	2,206	_			<u>1CCC</u>	<u>2,511</u>	2,218		-10 reflect	150	
		2,053	2,053			1CC	2,206	-	5,368	13014-2.2018		
	ID	2,053		2,301		1C	2,053	-				
	IEEE	2,511		13,026		1D	2,053		2,301			
	1EE	2,206				1EEE	2,511		10.05			
	NOTES: (1) The structure without tunnel recess adds 40 mm to internal breadth				1EE	2,206		13,026				
	of this table. (2) Dimensions internal dime	of door opening a ensions of thermal	re to be as close as containers.	practicable to the		NOTES: (1) The structur of this table (2) Dimensions internal dime	re without tunnel r of door opening ar ensions of thermal of	ecess adds 40 mm e to be as close as containers.	to internal breadth practicable to the			

Guidance for Freight Container

Present					Amendment					reason												
704.	Design	cond	litions							704. Design conditions						* It is reflected						
1.	<omit< th=""><th>ed></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>1.</th><th><sam< th=""><th>e as t</th><th>the pr</th><th>esent (</th><th>Guida</th><th>nce></th><th>•</th><th></th><th></th><th></th><th>Request for</th><th></th></sam<></th></omit<>	ed>								1.	<sam< th=""><th>e as t</th><th>the pr</th><th>esent (</th><th>Guida</th><th>nce></th><th>•</th><th></th><th></th><th></th><th>Request for</th><th></th></sam<>	e as t	the pr	esent (Guida	nce>	•				Request for	
2. (2. General						2. G	ienera	l									Establishment/Re	vision			
 (1) <omitted> (2) The maximum heat leakage (Umax) and inside and outside design temperatures of thermal containers are specified in Table 2.7. </omitted> Table 2.7 Maximum Heat Leakage and Design Temperature of the second second					(1 (2 Table	l) <sa 2) The desig Tabl 2.7 N</sa 	ame as maxir gn ten le 2.7. Maximu	the p num h nperatu	neat lea neat lea nes of eat Lea	Guidar Ikage therm akage	nce> (Um nal and	ax) a contai	nd ins ners a sign '	ide and are spe Temper	d outside cified in ature of	of Classification Technical Rules.						
Thermal Containers Design Maximum heat leakage Umax (W/K)				sign erature ℃)	Therma	Thermal Containers (2022) Maximum heat leakage Umax (W/K)					esign erature °C)											
1AA A	1AA, 1A	1BB B	1BB, 1B	1CC, 1C	1D	1EE	1EE E	Inside	Outside	1AA A	1AA , 1A	1BB B	1BB, 1B	<u>1CCC</u>	1CC , 1C	1D	1EE	1EE E	Inside	Outside	- To reflect	ISO
42	40	33	31	22	13	44	46	$\frac{+16}{-18}$	$\frac{+45}{-20}$	42	40	33	31	<u>24</u>	22	13	44	46	$\frac{+30}{-30}$	$\frac{+50}{-30}$	1100 2.2010	
(3. ~	(3) <or ~ 7. <</or 	nitted> Omitted	⊳							(3 3. ~	3) <sa 7. <</sa 	ame as <same< td=""><td>s the p as the</td><td>present presen</td><td>Guidar at Guid</td><td>nce> lance</td><td></td><td></td><td></td><td></td><td></td><td></td></same<>	s the p as the	present presen	Guidar at Guid	nce> lance						

Present	Amendment	reason
8. Sanitary structure	8. Sanitary structure <i>(2022)</i>	* It is reflected
The interior surface and structure of the thermal container are to be so constructed as to facilitate cleaning, and adequate provi- sion to be made to ensure that cleaning water can drain satisfac- torily from the inside of the container.	 (1) Attention is drawn to the need for the proper choice of materials for the thermal container and any refrigeration/heating units to prevent adverse effects in cargo, especially foodstuffs. (2) The interior surface and container structure shall be so constructed as to facilitate cleaning, and the structure and the insulation shall not be functionally affected by cleaning methods, for example steam cleaning and detergents normally used. (3) No pockets shall exist inside the container that cannot be reached by conventional cleaning methods. 	Request for Establishment/Revision of Classification Technical Rules. - To reflect ISO
	(4) If drains are fitted, provision shall be made to ensure that cleaning water can drain from the inside of the container.	1496-2:2018
9. ~ 11. <omitted></omitted>	9. \sim 11. <same as="" guidance="" present="" the=""></same>	
<u>12. <new></new></u>	12. Requirements for optional features (2022) When the thermal containers have optional features, it is to be in accordance with 7.9 of ISO 1496-2:2018.	

Present	Amendment	reason
705. Type Approval Inspection	705. Type Approval Inspection	* It is reflected
1. ~ 2. <omitted></omitted>	1. \sim 2. <same as="" guidance="" present="" the=""></same>	Request for
3. Airtightness test	3. Airtightness test	Establishment/Revision
 (1) Procedure (a) ~ (f) <omitted></omitted> (g) <new></new> (g) Air is to be admitted to the container to raise the internal pressure to 250 ± 10 Pa (25 ± 1 mm water head height) and the air supply to be regulated to maintain this pressure. After the steady test conditions are established, the test pressure is to be maintained for not less than 30 minutes. 	 (1) Procedure (a) ~ (f) <same as="" guidance="" present="" the=""></same> (g) The flow-measuring device shall be accurate to ±3 % of the measured flowrate, and the manometer on the container shall be accurate to ±5 %. (2022) (h) Air is to be admitted to the container to raise the internal pressure to 250±10 Pa (25±1 mm water head height) and the air supply to be regulated to maintain this pressure. 	of Classification Technical Rules. - To reflect ISO 1496-2:2018
 (2) Measurements (a) Internal and ambient temperatures are to be measured. (b) Air flow required to maintain the test pressure is to be measured. (3) Requirements The air leakage rate, expressed in standard atmospheric conditions is to be more than 10 m³/h. However, for each additional door opening (e.g. side doors) provided, an extra rate of 5 m³/h is to be granted. 	 (2) Measurements (a) Internal and ambient temperatures are to be measured. (b) Once steady test conditions have been established, the airflow required to maintain this pressure shall be recorded. (2022) (3) Requirements (2022) (a) For all thermal containers other than those with additional door openings, the air leakage rate, expressed in standard atmospheric conditions, shall not exceed 5 m³/h. (b) For each additional door opening (e.g. side doors) provided, an extra allowance of 5 m³/h shall be granted. (c) The pressure-decay method may be used as an alternative but, in this case, a correlation should be established between the constant pressure method and the pressure-decay method during prototype testing. 	

 4. Thermal test (1) Procedure (A) ~ (B) <0mitted> (C) <0mitted> (D) <0mitted> (D)
 (1) Procedure (A) ~ (B) <0mitteb (C) ~New≥ (1) Procedure (A) ~ (B) <0mitteb (C) ~New≥ (C) ~New≥ (C) The inner heating method only are to be used in the test. The test is to be performed for a period of not less than 8 hours under steady state condition which is maintained following conditions. (C) The inner heating method only are to be used in the test. The test is to be performed for a period of not less than 8 hours under steady state condition which is maintained following conditions. (C) The inner heating method only are to be used in the test. The test is to be performed for a period of not less than 8 hours under steady state condition which is maintained following conditions. (D) Test data for determining the heat leakage of the themal container shall be task. for a continuous period of not less than 20 °C. (E) Maximum temperature difference between any two inside points at any one time 3 °C. (E) Maximum temperature difference between any two outside contist at any one time 3 °C. (E) Maximum difference between any two average uside air temperatures, <i>qi</i> at different times 1.5 °C. (f) Maximum percentage difference between any two average uside air temperature, <i>qi</i> at different times 1.5 °C. (f) Maximum percentage difference between any two average uside air temperatures, <i>qi</i> at different times 1.5 °C. (h) Maximum percentage difference between any two average uside air temperatures, <i>qi</i> at different times 1.5 °C. (f) Maximum percentage difference between any two average uside air temperatures, <i>qi</i> at different times 1.5 °C. (h) Maximum percentage difference between any two average uside air temperatures, <i>qi</i> at different times 1.5 °C. (h) Maximum percentage difference between any two average uside air temperatures, <i>qi</i> at different times 1.5 °C. (h) Maximum percentage difference between theven lowest
(e) The mean inside and outside temperatures at the be- ginning and at the end of the calculation period of at least 6 h shall not differ by more than 0.2 °C.

Present	Amendment	reason
 (E) <new></new> (D) <omitted></omitted> (E) For the electrical heating method, a non-radiant heater suitably shield and circulating fan(s) are to be positioned at the geometric center of the container and electric heating element(s) are to be operated at temperature sufficiently low to minimize radiation effect. Furthermore the heat from the element(s) is to be distributed by a fan or fans delivering a quantity of air sufficient, but not exceeding the level necessary, to ensure that the temperature distribution inside the body of the container is within the limit in (C) above. 	 (f) The difference between heating power measured over two periods of not less than 3 h at the start and at the end of the steady state period, and separated by at least 6 h, shall be less than 3 %. (E) An example of the steady-state conditions for thermal test is shown in Figure 1 of ISO 1496-1:2018. (2022)_ (F) <same as="" guidance="" present="" the=""></same> (G) The electric heating element(s) shall be operated at temperatures sufficiently low to minimize radiation effects. The heat from the element(s) shall be distributed by a fan or fans delivering a quantity of air sufficient to obtain 40 to 70 air changes per hour relating to the inner volume of the tested container, to ensure that the temperature distribution inside the body of the thermal container is within the limits given in (D). The fan(s) should be in the body of the container. The test shall be run with a mechanical refrigeration unit(MRU) installed. No action should be taken to prevent the movement of small quantities of air through the MRU. Such fans as the MRU can contain shall not run. (2022) 	 * It is reflected Request for Establishment/Revision of Classification Technical Rules. To reflect ISO 1496-2:2018
 (H) <new></new> (F) Air is to be circulated over the exterior surfaces of the container at a velocity not exceeding 2 m/sec at points approximately 100 mm from the mid-length of the side walls and roof of the container. (G) <omitted></omitted> (K) <new></new> 	 (H) If the test is carried out with the fan(s) of the MRU running, the test report shall draw attention to this fact. The heat leakage, U, measured - which in this case shall include the power consumption of the evaporator fan(s) - should not be expected to conform to the classification given in Table 2.7 but may be used for calculating refrigeration capacity. (I) Air should be circulated horizontally and in longitudinal direction over the exterior surfaces of the thermal container at a velocity between 1 m/s to 2 m/s at points approximately 100 mm from the mid-length of the side walls and the roof of the container. (2022) (J) <same as="" guidance="" present="" the=""></same> (K) Sets of readings shall be recorded at intervals of not more than 15 min. (2022) 	

Present	Amendment	reason
(H) <omitted> (I) The mean wall temperature is defined by the following formula.</omitted>	(L) <same as="" guidance="" present="" the=""> (I) <deleted></deleted></same>	* It is reflected Request for Establishment/Revision
$q = \frac{\theta_e + \theta_i}{2}$		of Classification
(2) Measurements Data of outside and inside temperatures of the container and power dissipation value are to be taken at intervals of not more than 30 minutes, and the heat leakage U is to be cal- culated from the average of the 17 or more sets of reading using the following formula and the value of U obtained from this formula is to be recorded together with the mean of the mean wall temperature(s) which were maintained dur- ing the test period. $U = \frac{1}{n} \sum_{1}^{n} U_{\theta} \text{ (sets of reading: } n \ge 17)}$	 (2) Measurements The calculation of the heat leakage rate shall be based on the measured data taken during the last 6 h of the steady state period, using following Formula. (2022) U = 1/n ∑ⁿ U_θ (sets of reading: n ≥ 25) Since the test described in this clause can be carried out under conditions different from those at which the unit can operate and since the refrigeration and/or heating equipment will not be running during the test, care should be taken when using the value of U obtained from this test to calculate performance under service conditions. Taking into account the measurement errors, values of U are expected to have a variance of ±4 %. 	Technical Rules. - To reflect ISO 1496-2:2018
(3) <omitted></omitted>5. <omitted></omitted>	(3) <same as="" guidance="" present="" the=""></same>5. <same as="" guidance="" present="" the=""></same>	
<u>6. <new></new></u>	6. Test under refrigeration by a mechanical refrigeration unit(MRU) (2022) If a mechanical refrigeration unit(MRU) is installed in thermal container, relevant requirements are to be in accordance with 8 of ISO1496-2:2018.	
706. <omitted></omitted>	706. <same as="" guidance="" present="" the=""></same>	

Present	Amendment	reason
Section 8 Tank Containers	Section 8 Tank Containers	* It is reflected
		Request for
801. ~ 803. <omitted></omitted>	801. \sim 803. <same as="" guidance="" present="" the=""></same>	Establishment/Revision
804. Design Conditions	804. Design Conditions	of Classification
1. ~ 3. <omitted></omitted>	1. \sim 3. <same as="" guidance="" present="" the=""></same>	Technical Rules.
4. Tank structure	4. Tank structure	
 (1)~ (2) <omitted> (3) <new></new> (4) Tank nozzles and outlet fittings are to be substantially made and attached to the tank in such a manner as to minimize the risk of breakage. Protective covers or housings are to be employed as necessary. </omitted> 	 (1) ~ (2) <same as="" guidance="" present="" the=""></same> (3) An allowance for corrosion shall be taken into consideration where necessary. (2022) (4) <same as="" guidance="" present="" the=""></same> (5) Tank nozzles and outlet fittings are to be substantially made and attached to the tank in such a manner as to minimize the risk of breakage. Protective covers or housings are to be employed as necessary. Wherever possible, hinged device should be fitted so that they open away from the likely vicinity of any personnel. (2022) 	- To reflect ISO 1496-3:2019
$(5) \sim (8)$ <omitted></omitted>	$(4) \sim (9)$ <same as="" guidance="" present="" the=""></same>	
5. Pressure relief devices	5. Pressure and vacuum relief devices (2022)	
 (1) <omitted></omitted> (2) Above mentioned pressure relief devices are to have a minimum relief capacity of 0.05 m³/sec at standard air [1 bar (100 kPa) 15 °C] to prevent excessive internal overpressure under non-emergency conditions. 	 (1) <same as="" guidance="" present="" the=""></same> (2) Above mentioned pressure relief devices are to have a minimum relief capacity of 0.05 m³/sec at standard air [1 bar (100 kPa) 15 °C] to prevent excessive internal overpressure under non-emergency conditions. This may be considered as providing overpressure protection under non-emergency conditions, but should not be considered as adequate protection for a tank container, or compartment thereof, against excessive overpressure under full fire exposure conditions, dry bulk dust explosion or higher dry bulk pressurization. 	
 (3) ~ (5) <omitted></omitted> (6) A tank container, or a compartment thereof, with external design pressure of less than 0.4 bar (40 kPa) is to be equipped with a vacuum relief device set to relieve at 0.79 bar (79 kPa) absolute, except that a lower absolute setting may be utilized provided that the external design pressure is not exceeded. The vacuum relief device is to have a minimum through area of 284mm². 	 (3) ~ (5) <same as="" guidance="" present="" the=""></same> (6) A tank container, or a compartment thereof, with external design pressure of less than 0.4 bar (40 kPa) is to be equipped with a vacuum relief device set to relieve at 0.79 bar (79 kPa) absolute, except that a lower absolute setting may be utilized provided that the external design pressure is not exceeded. The vacuum relief device is to have a minimum through area of 284nm². <u>The use of combination pressure/vacuum relief devices is allowed.</u> (2022) 	

Present	Amendment	reason
6. Manholes	6. Inspection and maintenance openings (2022)	* It is reflected
Each tank is to be provided with manholes or other openings of a minimum diameter of 500 mm to permit internal inspections and repairs.	 (1) Tank containers shall be provided with openings to allow for complete internal inspection. The openings shall be fitted with pressure tight closures. (2) The size of openings shall be a minimum of 500 mm in diameter and shall be determined by the need for personnel and machines to enter the tank to inspect, maintain or repair the inside. 	Request for Establishment/Revision of Classification Technical Rules.
7. Gauging devices	7. Gauging devices <i>(2022)</i>	1496-3:2019
Gauging devices which may be indirect communication with the contents of tank are not to be made of easily destructible material.	Gauging devices which can be in direct communication with the contents of the tank shall be made of a material that is compatible with the tank and its contents.	
8. Optional features for tank	8. Optional features for tank	
 (1) When insulation is provided, the design and construction are to be such that the insulation will in no way impinge on the requirements in 802. nor interfere with the proper function of the tank fittings. (2) When heating or refrigeration provisions are required, due consideration is to be given to the safety of the tank and its contents. Suitable safeguards are to be provided to avoid the development of excessive temperature and stresses. Such safeguards are to be easily operable. (3) <omitted></omitted> 	 (1) For the optional features for tank, relevant requirements are to be in accordance with 5.7 of ISO1496-3:2019. (2022) (2) <deleted></deleted> (2) <same as="" guidance="" present="" the=""></same> 	

Present	Amendment	reason
805. Type Approval Inspection	805. Type Approval Inspection	* It is reflected
1. ~ 2. <omitted></omitted>	1. \sim 2. <same as="" guidance="" present="" the=""></same>	Request for
3. Strength tests	3. Strength tests	Establishment/Revision
 (1) Strength tests are to be carried out as specified in Table 2.9 after completion of all the work. However internal restrain (longitudinal) dynamic test(dynamic longitudinal impact test is to carried out as specified in 4. (2) ~ (6) <omitted></omitted> 	 (1) Strength tests are to be carried out as specified in Table 2.9 after completion of all the work. However internal restraint (longitudinal) dynamic test(dynamic longitudinal impact test) is to carried out as specified in 4. (2) ~ (6) <same as="" guidance="" present="" the=""></same> 	of Classification Technical Rules.
 Internal restraint (Iongitudinal) dynamic tests (dynamic longitudinal impact test) 	c 4. Internal restraint (Iongitudinal) dynamic tests (dynamic longitudinal impact test)	
 (1) ~ (3) <0mitted> (4) Measuring/recording system (A) Unless otherwise specified within this International Standard, the measuring system shall comply with KS I ISO 6487. (B) The following equipment shall be available for the test: (a) ~ (b) <0mitted> (c) An analogue-to-digital data acquisition system capable of recording the shock disturbance as an acceleration versus time history at a minimum sampling frequency of 1 000 Hz and incorporating a lowpass anti-aliasing analogue filter with a corner frequency set to a minimum of 200 Hz and a maximum of 20 % of the sampling rate and a minimum roll off rate of 4 dB/octave. (d) <0mitted> (5) <0mitted> (6) Analysis/processing of data Analysis and processing of the acceleration time history data ob tained from test specified in (5) above shall be in accordance with ISO 1496-3, Annex D 	 (1)~(3) <same as="" guidance="" present="" the=""></same> (4) Measuring/recording system (A) Unless otherwise specified within this International Standard, the measuring system shall comply with KS R ISO 6487. (B) The following equipment shall be available for the test: (a)~ (b) <same as="" guidance="" present="" the=""></same> (c) An analogue-to-digital data acquisition system capable of recording the shock disturbance as an acceleration versus time history at a minimum sampling frequency of 1 000. Aliasing shall not exceed 1%, which can require the incorporation of an anti-aliasing filter into the data acquisition system. (2022) (d) <same as="" guidance="" present="" the=""></same> (5) <same as="" guidance="" present="" the=""></same> (6) Analysis/processing of data Analysis and processing of the acceleration time history data obtained from test specified in (5) above shall be in accordance with ISO 1496-3:2019, Annex B. (2022) 	- To reflect ISO 1496-3:2019

Table 2.8 Load Condition

Item	Where Applied	Direction	Notes
Stacking	Top corner fittings Off-set: -38 mm longitudinally -25.4 mm laterally	Other than 1 D and 1 DX containers 848(242)KN W $848(242)KN$ W $848(242)KN$ $848(242)KN$	3392 kN (848 kN per top corner fitting)
		1 D and 1 DX containers	896 kN (224 kN per top corner fitting)
Top Lifting	As specified in Ch 6, Table 6.3	}	
Bottom Lifting	As specified in Ch 6, Table 6.3	}	
Longitudinal Restraint	As specified in Ch 6, Table 6.3	3	
Transverse Racking	As specified in Ch 6, Table 6.3	}	
Longitudinal Racking	As specified in Ch 6, Table 6.3	3	
Grappler lift (where fitted)	As specified in Ch 6, Table 6.3	3	
Internal restraint (longitudinal) dynamic	All	0,97 <i>W</i>	0.97W
Lateral Inertia	Side of barrel wall	Outerwards normal to the side R_{g} R-T R_{g}	Uniformly distributed load 1.0 <i>P</i>
Internal Pressure	Tank or fluid-tight compartment		Minimum 1.5 times of Concentrated ec- centrically applied load design pressure
Walkway	Walkway (An area of 600 mm × 300 mm Located at the weakest area)	Vertically upwards	300 kg
Ladder	2 Point on any rung in both end of ladder	Vertically upwards	200 kg

Table 2.8 Load Condition (2022)

Item	Where Applied	Direction	Notes
Stacking	Top corner fittings Off-set: -38 mm longitudinally -25.4 mm laterally	Other than 1 D and 1 DX containers 942 KN 942 KN 942 KN 942 KN 1 D and 1 DX containers	3767 kN(942 kNpertop corner fitting)896 kN(224 kN)pertop corner fitting)
Top Lifting	As specified in Ch 6, Table 6.3		
Bottom Lifting	As specified in Ch 6, Table 6.3		
Longitudinal Restraint	As specified in Ch 6, Table 6.3		
Transverse Racking	As specified in Ch 6, Table 6.3		
Longitudinal Racking	As specified in Ch 6, Table 6.3		
Grappler lift (where fitted)	As specified in Ch 6, Table 6.3		
Internal restraint (longitudinal) dynamic	A11		0.97W
Lateral Inertia	Side of barrel wall	Outerwards normal to the side $ \frac{R_g}{4} = \frac{R_g}{4} $	Uniformly distributed load 1.0 <i>P</i>
Internal Pressure	Tank or fluid-tight compartment		Minimum 1.5 times of Concentrated ec- centrically applied load design pressure
Walkway	Walkway (An area of 600 mm × 300 mm Located at the weakest area)	Vertically upwards	300 kg
Ladder	2 Point on any rung in both end of ladder	Vertically upwards	200 kg

Table	2.9	Test	Procedures	and	Measurements

Tests	Procedures and Measurements
Stacking	Procedure: As specified in Ch 2, 605, Table 2.5. However, internal loading need not provided during test. Measurements: As specified in Ch 2, 605, Table 2.5.
 Top/Bottom Lifting Longitudinal Restraint Transverse Racking Longitudinal Racking Grappler Arm 	As specified in Ch 2, 605, Table 2.5.
Internal restraint (longitudinal) dynamic	As specified in Ch 2, 805. 4.
Lateral Inertia	Procedure: Internal load and application: With <i>R-T</i> internal load, the container is to be positioned with its transverse axis vertical and supported by its four bottom corner fittings. The container is to be supported for 5 minutes.Measurements: Diagonal dimension at end section of framework and deflection of tank wall at lower part.
Walkway	Procedure: Internal load: Nil. Applied loads: <u>300 kg uniformly distributed over a 600 mm × 300 mm an any</u> <u>area of the walkway.</u> Measurements: Maximum deflection and permanent set of the walkway under test.
Ladder	Procedure: Internal load: Nil. Applied loads: 200 kg on center of rung. Measurements: Maximum deflection and permanent set of the ladder under test.
Pressure	Procedure: The Pressure test is to be carried out after all strength test have been completed. The tank container together with its associated pipework and fittings is to be hydrostatically tested to a test pressure not less than 1.5 times the maximum allowable working pressure or design pressure. The test pressure is to be measured at the top of the tank in its normal position and is to be maintained to enable a complete examination of tank. The test pressure to be maintained for not less than 30 minutes. Relief devices, where fitted, are to be rendered in operative or removed. For test procedures other than the above, special consideration may be given by the Society.

<hereafter, omitted>

Table 2.9 Test Procedures and Measurements (2022)

Tests	Procedures and Measurements
Stacking	Procedure: As specified in Ch 2, 605, Table 2.5. However, internal loading need not provided during test. Measurements: As specified in Ch 2, 605, Table 2.5.
 Top/Bottom Lifting Longitudinal Restraint Transverse Racking Longitudinal Racking Grappler Arm 	As specified in Ch 2, 605, Table 2.5.
Internal restraint (longitudinal) dynamic	As specified in Ch 2, 805. 4.
Lateral Inertia	Procedure: Internal load and application: With <i>R-T</i> internal load, the container is to be positioned with its transverse axis vertical and supported by its four bottom corner fittings. The container is to be supported for 5 minutes.Measurements: Diagonal dimension at end section of framework and deflection of tank wall at lower part.
Walkway	Procedure: Internal load: Nil. Applied loads: <u>A concentrated load of not less than 300 kg shall be uniformly</u> <u>distributed over an area of 600 mm × 300 mm located at the weakest area of</u> <u>the walkway.</u> Measurements: Maximum deflection and permanent set of the walkway under test.
Ladder (where provided)	Procedure: Internal load: Nil. Applied loads: <u>A load of 200 kg shall be positioned at the center 50 mm of the widest rung.</u> Measurements: Maximum deflection and permanent set of the ladder under test.
Pressure	Procedure: The Pressure test is to be carried out after all strength test have been completed. The tank container together with its associated pipework and fittings is to be hydrostatically tested to a test pressure not less than 1.5 times the maximum allowable working pressure or design pressure. The test pressure is to be measured at the top of the tank in its normal posi- tion and is to be maintained to enable a complete examination of tank. The test pressure to be maintained for not less than 30 minutes. Relief devices, where fitted, are to be rendered in operative or removed. For test procedures other than the above, special consideration may be given by the Society.

<hereafter, same as the present Guidance>