

INSTRUCTIONS · 40' HC · IBC × 24

24 IBC totes in a 40 ft container

Stowage and securing instruction



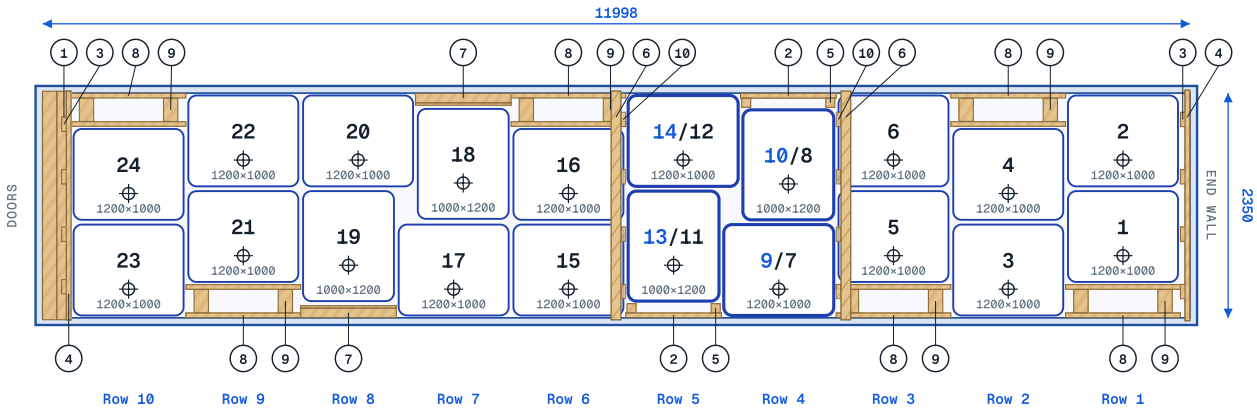
DIMENSIONS	CAPACITY
1200 × 1000 × 1163 mm	1000 l
TARE WEIGHT	UN PACKAGING CODE
55–62 kg	31HA1 — rigid plastic inner receptacle in a steel cage
UNIT MASS	IN A 40' HC
0.900–1.070 t	24 units: 20 in tier 1 + 4 in tier 2

Compiled in accordance with ch. 1 items 1.6–10 and ch. 12 items 1–4 of the Technical Specifications for Loading and Securing of Cargo in Wagons and Containers (No. TsM-943) and the regulations listed at the end. For reference only: follow the plan approved for your shipment and the carrier's requirements.

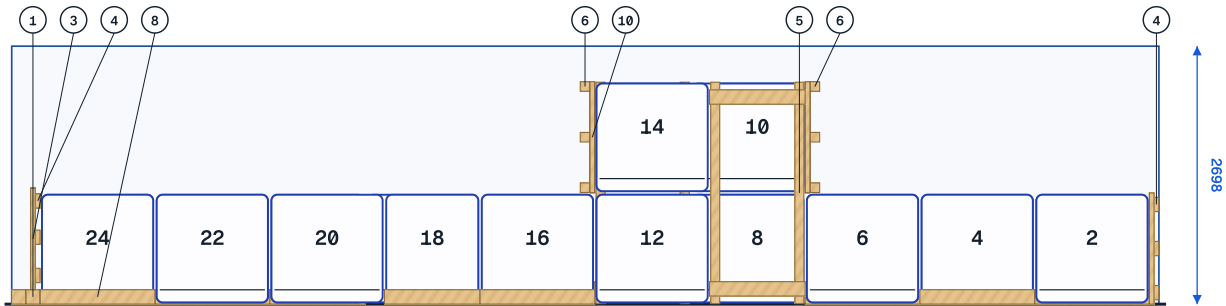
Stowage and securing sketch

Unit numbers 1–24 are the loading order (above the line — second tier). Circled numbers are securing positions per the specification. Outlet valves are schematic.

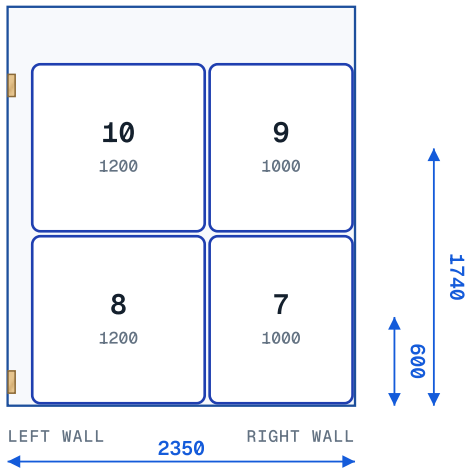
PLAN VIEW · TOP OF THE DRAWING – LEFT WALL, BOTTOM – RIGHT WALL (LOOKING FROM THE DOORS)



SIDE VIEW (FROM THE LEFT WALL)



SECTION AT ROW 4 (VIEW FROM THE DOORS)



Cargo units

NO.	SIZE (ALONG × ACROSS × HEIGHT), MM	TIER	CG FROM DOORS, MM	CG FROM LEFT WALL, MM	CG HEIGHT, MM	MASS, T
1	1200 × 1000 × 1140–1160	1	11298	1500	600	0,900–1,070
2	1200 × 1000 × 1140–1160	1	11298	500	600	0,900–1,070
3	1200 × 1000 × 1140–1160	1	10098	1850	600	0,900–1,070
4	1200 × 1000 × 1140–1160	1	10098	850	600	0,900–1,070
5	1200 × 1000 × 1140–1160	1	8898	1500	600	0,900–1,070
6	1200 × 1000 × 1140–1160	1	8898	500	600	0,900–1,070
7	1200 × 1000 × 1140–1160	1	7698	1850	600	0,900–1,070
8	1000 × 1200 × 1140–1160	1	7798	750	600	0,900–1,070
9	1200 × 1000 × 1140–1160	2	7698	1850	1740	0,900–1,070
10	1000 × 1200 × 1140–1160	2	7798	750	1740	0,900–1,070
11	1000 × 1200 × 1140–1160	1	6598	1600	600	0,900–1,070
12	1200 × 1000 × 1140–1160	1	6698	500	600	0,900–1,070
13	1000 × 1200 × 1140–1160	2	6598	1600	1740	0,900–1,070
14	1200 × 1000 × 1140–1160	2	6698	500	1740	0,900–1,070
15	1200 × 1000 × 1140–1160	1	5498	1850	600	0,900–1,070
16	1200 × 1000 × 1140–1160	1	5498	850	600	0,900–1,070
17	1200 × 1000 × 1140–1160	1	4298	1850	600	0,900–1,070
18	1000 × 1200 × 1140–1160	1	4398	740	600	0,900–1,070
19	1000 × 1200 × 1140–1160	1	3198	1600	600	0,900–1,070
20	1200 × 1000 × 1140–1160	1	3298	500	600	0,900–1,070
21	1200 × 1000 × 1140–1160	1	2098	1500	600	0,900–1,070
22	1200 × 1000 × 1140–1160	1	2098	500	600	0,900–1,070

NO.	SIZE (ALONG × ACROSS × HEIGHT), MM	TIER	CG FROM DOORS, MM	CG FROM LEFT WALL, MM	CG HEIGHT, MM	MASS, T
23	1200 × 1000 × 1140–1160	1	898	1850	600	0,900–1,070
24	1200 × 1000 × 1140–1160	1	898	850	600	0,900–1,070

Securing specification

POS.	ITEM	SIZE, MM	QTY	WHERE USED
1	Stop bar	150×150×2420*	2	on the floor at the doors, ends in the corrugations; joined with 3 staples Ø6–8 mm L150–250
2	Board	50*×150×1000*	4	horizontal boards of the shields at units 8+10 and 11+13
3	Board	50*×150×1160*	7–8	vertical boards of the end-wall and door shields
4	Board	50×150×2420*	6	horizontal boards of the end-wall and door shields, ends in the corrugations
5	Bar	100×100×2330*	4	vertical bars of the shields at units 8+10 and 11+13
6	Stop bar	100×100×2420*	6	horizontal bars of the second-tier shields, ends in the corrugations
7	Bar	150×125*×1000*	2	into the gaps at units 18 and 19: bar 150×100 + board 25×150
8	Board	50×150×1200*	12	stop structures at units 1, 4, 5, 16, 21, 24
9	Bar	150×150×250*	12	bars of the stop structures, 2 per structure
10	Post	50*×150×1200*	7–8	vertical posts of the second-tier shields (section to suit)
	Construction staple	Ø6–8 L150–250	3	
	Nails	Ø5 L150	48	
	Nails	Ø3,5 L90	112–118	

* Adjust to the container's inner dimensions. Staples and nails — steel; timber — spruce, pine (GOST 8486–86). Securing mass — 0.523 t.

Centre of gravity and floor load check

CARGO	SECURING
24 units, 21.600–25.680 t	0.523 t
CG OFFSET	CARGO CG HEIGHT
longitudinal 266 mm (≤ 1200), lateral 0 (≤ 100)	790 mm (≤ 1180)
FLOOR LOAD	ROUTE
0.59 kg/cm² < 1.00 kg/cm²	Vladivostok (Far Eastern Rly) → RZD network stations

IBC tote: what this packaging is

IBC — Intermediate Bulk Container, a eurocube: a 1000-litre plastic container in a steel cage on a pallet. With this plan a 40-foot container takes 24 units: 20 in the first tier and 4 in the second tier in the middle of the container.

WHAT IS SHIPPED

- chemicals: resins, solvents, acids, alkalis, hydrogen peroxide — dangerous goods of classes 3, 5.1, 6.1, 8, 9, packing groups II and III (letter Y in the marking);
- food liquids: oils, syrups, concentrates — only in food-certified totes;
- technical liquids: lubricants, AdBlue, paints, liquid fertilisers.

TOTE REQUIREMENTS

- the design type is certified and the marking on the plate matches the certificate;
- for dangerous goods a plastic tote may be used for no longer than 5 years from manufacture; leakproofness test at least every 2.5 years;
- any manufacturer (Schütz, Mauser, Greif, Werit, etc.) with a valid certificate; a reconditioned tote carries the reconditioner's marking;
- no cracks or leaks, cage and pallet undeformed, cap tightened, valve closed and capped;
- every tote with dangerous goods shows the UN number and a hazard label of at least 100×100 mm on two opposite sides.



STAGE PHOTO 01 1000 l IBC tote at the shipper's yard

⚠ A MANDATORY PHOTO IS REQUIRED · PHOTO 01

Pay attention to the shooting conditions and the angle. Photos must not be edited or processed. The angle must be the same as in the demonstration example — this is important.

When: right after completing the step «IBC tote: what this packaging is».

How to shoot: The whole tote in the yard, from a corner: two sides, the marking plate and the outlet valve are visible.

02 PREPARATION

The 40' container and securing materials

A large 40-foot container (1A, 1AA) is used with inner dimensions: length 11,998 mm, width 2,330–2,350 mm, height 2,566–2,698 mm, rated gross mass up to 36.00 t. Cargo and container are prepared per items 1–3 of ch. 12 of the Technical Specifications, securing materials — per ch. 1 item 4.

CARGO	SECURING
24 units, 21.600–25.680 t	0.523 t
CG OFFSET	CARGO CG HEIGHT
longitudinal 266 mm (≤ 1200), lateral 0 (≤ 100)	790 mm (≤ 1180)
FLOOR LOAD	ROUTE
0.59 kg/cm ² < 1.00 kg/cm ²	Vladivostok (Far Eastern Rly) → RZD network stations

- The cargo is placed so that the projection of each unit's centre of gravity lies at the distances from the longitudinal and transverse planes of symmetry of the container given in the sketch.
- The container is sound, clean, without sharp parts; its number matches the CSC plate.
- The position of the outlet valves in the sketch is schematic.
- All bar and board sizes are adjusted to the container's inner dimensions (* in the specification).



STAGE PHOTO 02 40' container before loading: floor, walls, roof, doors

⚠ A MANDATORY PHOTO IS REQUIRED - PHOTO 02

Pay attention to the shooting conditions and the angle. Photos must not be edited or processed. The angle must be the same as in the demonstration example — this is important.

When: right after completing the step «The 40' container and securing materials».

How to shoot: From the door opening into the container, doors open: floor, walls and roof along the whole length.

03 PACKAGING MARKING

The marking must be legible and match the certificate

The packaging marking must be clearly legible and match the marking in the packaging certificate. It is either embossed on the plate or applied as a label.

UN	31HA1
UN symbol	IBC for liquids: plastic receptacle + steel cage
Y	04 26
packing groups II and III	month and year of manufacture
RUS	IBC-RU 017
state authorising the marking	manufacturer
1960	1210
stacking test load, kg	maximum gross mass, kg

HOW TO PHOTOGRAPH

- shoot the plate close up, straight on, without glare — every character must be legible;
- the frame shows the packaging marking and the hazard label;

- a distant overall shot of the tote **is not acceptable** for checking the marking.

STACKING TWO HIGH

Totes may be stacked only if the design type allows it: the marking shows the stacking test load and the stacking symbol on the tote is not crossed out. The load must be no less than the gross mass of the upper tote.



STAGE PHOTO 03 Packaging marking close-up — every character legible

⚠ **A MANDATORY PHOTO IS REQUIRED · PHOTO 03**

Pay attention to the shooting conditions and the angle. Photos must not be edited or processed. The angle must be the same as in the demonstration example — this is important.

When: right after completing the step «The marking must be legible and match the certificate».

How to shoot: The tote plate close up, straight on, without glare: every character of the marking is legible.

04 STEP 1

End wall shield

The container end wall is protected by a shield: 3 horizontal boards 50×150×2420 mm (pos. 4) at the wall, ends in the corrugations, and 3–4 vertical boards 50×150 mm (pos. 3) the height of the first tier. Nail the vertical boards to the horizontal ones with nails Ø3.5 mm L-90 mm, two per connection.

POS. 4 – AT THE WALL

3 boards 50×150×2420*, ends in the corrugations

POS. 3 – TO THE CARGO

4 boards 50×150×1160*

NAILS

Ø3.5 mm L-90 mm, 2 per joint

SHIELD DEPTH

100 mm — up to the first row

- Horizontal boards at three levels: at the floor, in the middle and at the top of the first tier. Trim the ends to the corrugation profile so the board fits tightly into the side-wall corrugations.

- Vertical boards on top of the horizontals, on the cargo side, evenly across the width.
- Cardboard is not used to protect the end wall.

⚠ **Nails must never protrude with their sharp end towards the cargo.**

⚠ **Choose the nail length so that the sharp end of a nail never touches the cargo.**



STAGE PHOTO 04 End wall shield: 3 horizontal boards pos. 4 at the wall, 4 vertical boards pos. 3

⚠ **A MANDATORY PHOTO IS REQUIRED · PHOTO 04**

Pay attention to the shooting conditions and the angle. Photos must not be edited or processed. The angle must be the same as in the demonstration example — this is important.

When: right after completing the step «End wall shield».

How to shoot: From inside the container towards the end wall, 2–3 m away: the whole shield, ends of the horizontal boards in the corrugations.

05 STEP 2

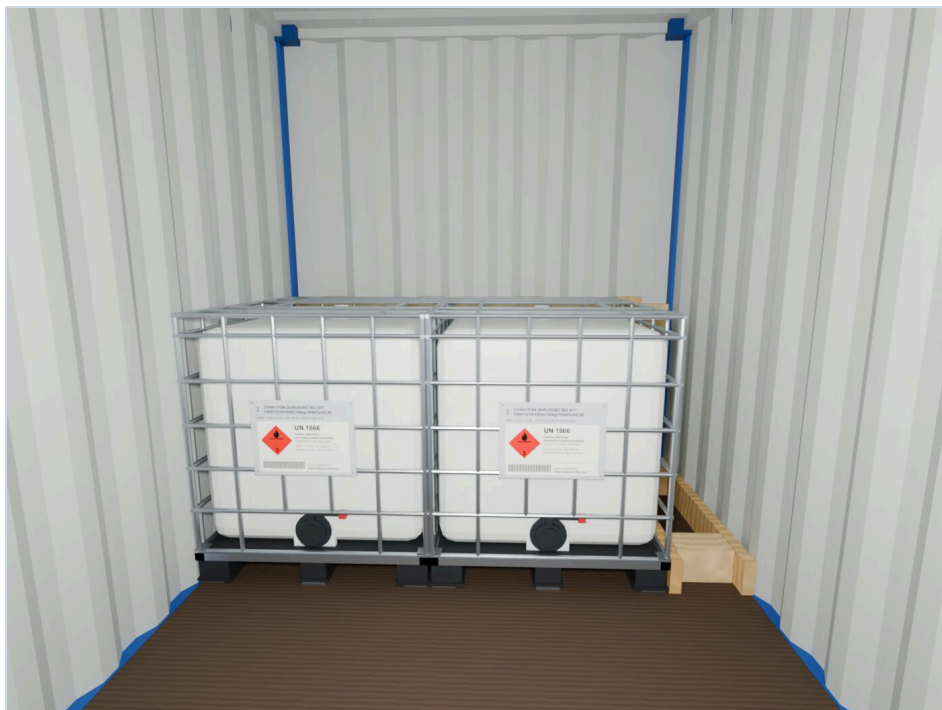
Row 1 — units 1 and 2

The first row goes tight against the end-wall shield. Both units have the long side along the container. A 350 mm gap remains at the right wall — the stop structure goes there.

- Unit 2 — long side (1200 mm) along the container, tight against the left wall and against the end-wall shield.
- Unit 1 — long side (1200 mm) along the container, tight against unit 2 and against the end-wall shield.
- **Stop structure (pos. 8 + 9)** — into the 350 mm gap at the right wall between the wall and unit 1 on the floor: 2 boards 50×150×1200 mm (pos. 8) — one against the container wall, the other against the tote pallet, with 2

bars 150×150×250 mm (pos. 9) between them at the ends. Nail each board to the bars with 4 nails Ø3.5 mm L-90 mm (two per connection).

⚠ **Mind the placement: every unit is oriented exactly as in the sketch.**



STAGE PHOTO 05 Row 1: units 1 and 2, stop structure at the right wall

⚠ **A MANDATORY PHOTO IS REQUIRED - PHOTO 05**

Pay attention to the shooting conditions and the angle. Photos must not be edited or processed. The angle must be the same as in the demonstration example — this is important.

When: right after completing the step «Row 1 — units 1 and 2».

How to shoot: From the door side along the container axis, about 2 m from the row, from a height of 1.5 m: both units of the row, the securing at the wall and the floor.

06 STEP 3

Row 2 — units 3 and 4

The row mirrors the first: unit 3 at the right wall, unit 4 next to it, the 350 mm gap at the left wall — stop structure.

- Unit 3 — long side (1200 mm) along the container, tight against the right wall and against the previous row.
- Unit 4 — long side (1200 mm) along the container, tight against unit 3 and against the previous row.
- **Stop structure (pos. 8 + 9)** — into the 350 mm gap at the left wall between the wall and unit 4 on the floor: 2 boards 50×150×1200 mm (pos. 8) — one against the container wall, the other against the tote pallet, with 2 bars 150×150×250 mm (pos. 9) between them at the ends. Nail each board to the bars with 4 nails Ø3.5 mm L-90 mm (two per connection).

⚠ **Mind the placement: every unit is oriented exactly as in the sketch.**



STAGE PHOTO 06 Row 2: units 3 and 4, stop structure at the left wall

⚠ **A MANDATORY PHOTO IS REQUIRED · PHOTO 06**

Pay attention to the shooting conditions and the angle. Photos must not be edited or processed. The angle must be the same as in the demonstration example — this is important.

When: right after completing the step «Row 2 — units 3 and 4».

How to shoot: From the door side along the container axis, about 2 m from the row, from a height of 1.5 m: both units of the row, the securing at the wall and the floor.

07 STEP 4

Row 3 — units 5 and 6

As row 1: unit 6 at the left wall, unit 5 next to it, stop structure at the right wall.

- Unit 6 — long side (1200 mm) along the container, tight against the left wall and against the previous row.
- Unit 5 — long side (1200 mm) along the container, tight against unit 6 and against the previous row.
- **Stop structure (pos. 8 + 9)** — into the 350 mm gap at the right wall between the wall and unit 5 on the floor: 2 boards 50×150×1200 mm (pos. 8) — one against the container wall, the other against the tote pallet, with 2 bars 150×150×250 mm (pos. 9) between them at the ends. Nail each board to the bars with 4 nails Ø3.5 mm L-90 mm (two per connection).

⚠ **Mind the placement: every unit is oriented exactly as in the sketch.**



STAGE PHOTO 07 Row 3: units 5 and 6, stop structure at the right wall

⚠ A MANDATORY PHOTO IS REQUIRED - PHOTO 07

Pay attention to the shooting conditions and the angle. Photos must not be edited or processed. The angle must be the same as in the demonstration example — this is important.

When: right after completing the step «Row 3 — units 5 and 6».

How to shoot: From the door side along the container axis, about 2 m from the row, from a height of 1.5 m: both units of the row, the securing at the wall and the floor.

08 STEP 5

Row 4, first tier — units 7 and 8

Row 4 starts the two-tier block in the middle of the container (rows 4 and 5). Unit 8 is turned crosswise — 1200 mm across the container; a 150 mm gap remains at the left wall for the shield (pos. 2 + 5).

- Unit 7 — long side (1200 mm) along the container, tight against the right wall and against the previous row.
- Unit 8 — **turned crosswise:** 1000 mm along the container, 1200 mm across, tight against unit 7, against the previous row. The ends of units 7 and 8 facing row 3 are in one plane.

⚠ Mind the placement: every unit is oriented exactly as in the sketch.



STAGE PHOTO 08 Row 4, first tier: units 7 and 8

⚠ A MANDATORY PHOTO IS REQUIRED - PHOTO 08

Pay attention to the shooting conditions and the angle. Photos must not be edited or processed. The angle must be the same as in the demonstration example — this is important.

When: right after completing the step «Row 4, first tier — units 7 and 8».

How to shoot: From the door side along the container axis, about 2 m from the row, from a height of 1.5 m: both units of the row, the securing at the wall and the floor.

09 STEP 6

Second-tier shield — end-wall side

Before the second tier goes in, a shield is set on top of row 3: 4 vertical posts (pos. 10) towards the future second tier and 3 horizontal bars 100×100×2420 mm (pos. 6) on them; trim the bar ends to the corrugation profile and set them into the corrugations.

POS. 6

3 bars 100×100×2420*, ends in the corrugations

NAILS

bars to posts — Ø5 mm L-150, 2 per joint

POS. 10

4 posts 50*×150×1200* (section to suit)

SHIELD TURNED 180°

posts to bars — Ø3.5 mm L-90, 2 per joint

- The shield stands on the lids of the row 3 totes, at second-tier height.
- Posts — two per second-tier unit, tight against the cargo: no gap between post and tote.
- Bars — at the bottom, in the middle and at the top of the second tier.

⚠ Nails must never protrude with their sharp end towards the cargo.

⚠ Choose the nail length so that the sharp end of a nail never touches the cargo.



STAGE PHOTO 09 Second-tier shield on the end-wall side: 3 bars pos. 6, 4 posts pos. 10

⚠ A MANDATORY PHOTO IS REQUIRED - PHOTO 09

Pay attention to the shooting conditions and the angle. Photos must not be edited or processed. The angle must be the same as in the demonstration example — this is important.

When: right after completing the step «Second-tier shield — end-wall side».

How to shoot: From the door side above the first tier, from about 2.2 m: the whole second-tier shield — 3 bars, 4 posts, bar ends in the corrugations.

10 STEP 7

Row 4, second tier — units 9 and 10

Unit 9 goes on unit 7, unit 10 on unit 8 (also crosswise), tight against the shield posts. Then the 150 mm gap at the left wall gets a shield of 2 horizontal boards (pos. 2) and 2 vertical bars (pos. 5).

- A tote may be stacked only if the marking shows a stacking test load no less than the gross mass of the upper unit.
- **Shield at units 8 + 10:** 2 boards 50×150×1000 mm (pos. 2) at the wall, at the floor and at the top; 2 bars 100×100×2330 mm (pos. 5) against the cargo at the ends of the unit, the height of two tiers. Nail the boards to the bars with 4 nails Ø3.5 mm L-90 mm (two per connection). Bar pos. 5 may be notched around board pos. 2.

⚠ Mind the placement: every unit is oriented exactly as in the sketch.



STAGE PHOTO 10 Row 4, second tier: units 9 and 10, shield at the left wall

⚠ A MANDATORY PHOTO IS REQUIRED - PHOTO 10

Pay attention to the shooting conditions and the angle. Photos must not be edited or processed. The angle must be the same as in the demonstration example — this is important.

When: right after completing the step «Row 4, second tier — units 9 and 10».

How to shoot: From the door side along the axis, about 2 m from the row, from a height of 2 m: both tiers and the full-height shield at the wall.

11 STEP 8

Row 5, first tier — units 11 and 12

Unit 12 — long side along, at the left wall. Unit 11 is turned crosswise; a 150 mm gap remains at the right wall for the shield (pos. 2 + 5). The door-side ends of units 11 and 12 are in one plane.

- Unit 12 — long side (1200 mm) along the container, tight against the left wall, tight against unit 8.
- Unit 11 — **turned crosswise:** 1000 mm along the container, 1200 mm across, tight against unit 12, tight against unit 7.

⚠ Mind the placement: every unit is oriented exactly as in the sketch.



STAGE PHOTO 11 Row 5, first tier: units 11 and 12

⚠ A MANDATORY PHOTO IS REQUIRED - PHOTO 11

Pay attention to the shooting conditions and the angle. Photos must not be edited or processed. The angle must be the same as in the demonstration example — this is important.

When: right after completing the step «Row 5, first tier — units 11 and 12».

How to shoot: From the door side along the container axis, about 2 m from the row, from a height of 1.5 m: both units of the row, the securing at the wall and the floor.

12 STEP 9

Row 5, second tier — units 13 and 14

Unit 13 goes on unit 11 (crosswise), unit 14 on unit 12. The 150 mm gap at the right wall gets a shield of 2 boards (pos. 2) and 2 bars (pos. 5), as at units 8 + 10.

- The second tier sits exactly on the first; the upper pallet bears fully on the lower lid.
- **Shield at units 11 + 13:** 2 boards 50×150×1000 mm (pos. 2) at the wall and 2 bars 100×100×2330 mm (pos. 5) against the cargo; 4 nails Ø3.5 mm L-90 mm per board.

⚠ Mind the placement: every unit is oriented exactly as in the sketch.



STAGE PHOTO 12 Row 5, second tier: units 13 and 14, shield at the right wall

⚠ A MANDATORY PHOTO IS REQUIRED - PHOTO 12

Pay attention to the shooting conditions and the angle. Photos must not be edited or processed. The angle must be the same as in the demonstration example — this is important.

When: right after completing the step «Row 5, second tier — units 13 and 14».

How to shoot: From the door side along the axis, about 2 m from the row, from a height of 2 m: both tiers and the full-height shield at the wall.

13 STEP 10

Second-tier shield — door side

On the door side the second tier gets the same shield turned 180°: 4 posts (pos. 10) tight against units 13 and 14, with 3 bars 100×100×2420 mm (pos. 6) on them, ends trimmed and set into the corrugations. Nail the posts to the bars with nails Ø3.5 mm L-90 mm, two per connection.

- The shield will stand on the lids of the row 6 totes loaded next; the bars are held by their ends in the corrugations.
- Posts tight against the cargo, no gap.

⚠ Nails must never protrude with their sharp end towards the cargo.

⚠ Choose the nail length so that the sharp end of a nail never touches the cargo.



STAGE PHOTO 13 Second-tier shield on the door side

⚠ A MANDATORY PHOTO IS REQUIRED - PHOTO 13

Pay attention to the shooting conditions and the angle. Photos must not be edited or processed. The angle must be the same as in the demonstration example — this is important.

When: right after completing the step «Second-tier shield — door side».

How to shoot: From the door side above the first tier, from about 2.2 m: the whole second-tier shield — 3 bars, 4 posts, bar ends in the corrugations.

14 STEP 11

Row 6 — units 15 and 16

One tier again. Unit 15 at the right wall, unit 16 next to it, the 350 mm gap at the left wall — stop structure. The second-tier shield stands above this row.

- Unit 15 — long side (1200 mm) along the container, tight against the right wall, tight against unit 11.
- Unit 16 — long side (1200 mm) along the container, tight against unit 15, tight against unit 12.
- **Stop structure (pos. 8 + 9)** — into the 350 mm gap at the left wall between the wall and unit 16 on the floor: 2 boards 50×150×1200 mm (pos. 8) — one against the container wall, the other against the tote pallet, with 2 bars 150×150×250 mm (pos. 9) between them at the ends. Nail each board to the bars with 4 nails Ø3.5 mm L-90 mm (two per connection).

⚠ Mind the placement: every unit is oriented exactly as in the sketch.



STAGE PHOTO 14 Row 6: units 15 and 16, stop structure at the left wall

⚠ A MANDATORY PHOTO IS REQUIRED - PHOTO 14

Pay attention to the shooting conditions and the angle. Photos must not be edited or processed. The angle must be the same as in the demonstration example — this is important.

When: right after completing the step «Row 6 — units 15 and 16».

How to shoot: From the door side along the container axis, about 2 m from the row, from a height of 1.5 m: both units of the row, the securing at the wall and the floor.

15 STEP 12

Row 7 — units 17 and 18

Unit 17 — long side along, at the right wall. Unit 18 is turned crosswise; bar pos. 7 goes into the gap at the left wall.

- Unit 17 — long side (1200 mm) along the container, tight against the right wall and against the previous row.
- Unit 18 — **turned crosswise:** 1000 mm along the container, 1200 mm across, tight against unit 17 and against the previous row.
- **Bar pos. 7** (150×125×1000 mm) — composite: a 150×100 mm bar and a 25×150 mm board, the board nailed to the bar with 3 nails Ø3.5 mm L-90 mm; two 150×50 boards and one 150×25 board nailed together may be used instead. Laid on the floor in the gap between the wall and unit 18.

⚠ Mind the placement: every unit is oriented exactly as in the sketch.



STAGE PHOTO 15 Row 7: units 17 and 18, bar pos. 7 at the left wall

⚠ A MANDATORY PHOTO IS REQUIRED - PHOTO 15

Pay attention to the shooting conditions and the angle. Photos must not be edited or processed. The angle must be the same as in the demonstration example — this is important.

When: right after completing the step «Row 7 — units 17 and 18».

How to shoot: From the door side along the container axis, about 2 m from the row, from a height of 1.5 m: both units of the row, the securing at the wall and the floor.

16 STEP 13

Row 8 — units 19 and 20

A mirrored row: unit 20 along, at the left wall; unit 19 crosswise, bar pos. 7 at the right wall. The door-side ends of units 19 and 20 are in one plane.

- Unit 19 — **turned crosswise:** 1000 mm along the container, 1200 mm across, tight against unit 17 and unit 20.
- Unit 20 — long side (1200 mm) along the container, tight against the left wall, tight against unit 18.
- **Bar pos. 7** — into the gap between the right wall and unit 19, on the floor, as at unit 18.

⚠ Mind the placement: every unit is oriented exactly as in the sketch.



STAGE PHOTO 16 Row 8: units 19 and 20, bar pos. 7 at the right wall

⚠ A MANDATORY PHOTO IS REQUIRED - PHOTO 16

Pay attention to the shooting conditions and the angle. Photos must not be edited or processed. The angle must be the same as in the demonstration example — this is important.

When: right after completing the step «Row 8 — units 19 and 20».

How to shoot: From the door side along the container axis, about 2 m from the row, from a height of 1.5 m: both units of the row, the securing at the wall and the floor.

17 STEP 14

Row 9 — units 21 and 22

Unit 22 at the left wall, unit 21 next to it, stop structure at the right wall.

- Unit 22 — long side (1200 mm) along the container, tight against the left wall and against the previous row.
- Unit 21 — long side (1200 mm) along the container, tight against unit 22 and against the previous row.
- **Stop structure (pos. 8 + 9)** — into the 350 mm gap at the right wall between the wall and unit 21 on the floor: 2 boards 50×150×1200 mm (pos. 8) — one against the container wall, the other against the tote pallet, with 2 bars 150×150×250 mm (pos. 9) between them at the ends. Nail each board to the bars with 4 nails Ø3.5 mm L-90 mm (two per connection).

⚠ Mind the placement: every unit is oriented exactly as in the sketch.



STAGE PHOTO 17 Row 9: units 21 and 22, stop structure at the right wall

⚠ A MANDATORY PHOTO IS REQUIRED - PHOTO 17

Pay attention to the shooting conditions and the angle. Photos must not be edited or processed. The angle must be the same as in the demonstration example — this is important.

When: right after completing the step «Row 9 — units 21 and 22».

How to shoot: From the door side along the container axis, about 2 m from the row, from a height of 1.5 m: both units of the row, the securing at the wall and the floor.

18 STEP 15

Row 10 — units 23 and 24

The last row at the doors: unit 23 at the right wall, unit 24 next to it, stop structure at the left wall. About 300 mm remain from the cargo to the door plane — for the stop bars and the shield. Photograph the door opening without the shield.

- Unit 23 — long side (1200 mm) along the container, tight against the right wall and against the previous row.
- Unit 24 — long side (1200 mm) along the container, tight against unit 23 and against the previous row.
- **Stop structure (pos. 8 + 9)** — into the 350 mm gap at the left wall between the wall and unit 24 on the floor: 2 boards 50×150×1200 mm (pos. 8) — one against the container wall, the other against the tote pallet, with 2 bars 150×150×250 mm (pos. 9) between them at the ends. Nail each board to the bars with 4 nails Ø3.5 mm L-90 mm (two per connection).

⚠ Mind the placement: every unit is oriented exactly as in the sketch.



STAGE PHOTO 18 Row 10: units 23 and 24 — door opening without the shield

⚠ A MANDATORY PHOTO IS REQUIRED - PHOTO 18

Pay attention to the shooting conditions and the angle. Photos must not be edited or processed. The angle must be the same as in the demonstration example — this is important.

When: right after completing the step «Row 10 — units 23 and 24».

How to shoot: The door opening without the shield: 2–3 m from the container, on the axis, from 1.5 m — the last row and both stop structures.

19 STEP 16

Stop bars and the door shield

On the door side the cargo is held by two bars 150×150×2420 mm (pos. 1) on the floor — trim the ends to the corrugation profile and set them into the corrugations, join the bars with 3 construction staples Ø6–8 mm L-150–250 mm. Above them — a shield: 3 horizontal boards (pos. 4) against the cargo and 3–4 vertical boards (pos. 3).

POS. 1	SUBSTITUTE
2 bars 150×150×2420*, 3 staples Ø6–8 L150–250	one bar — 1–2 boards 50×150, nails Ø4 L-100
POS. 4 / POS. 3	SHIELD NAILS
3 horizontal / 3–4 vertical boards	Ø3.5 mm L-90, 2 per joint

- If necessary, one bar at the doors may be replaced by two boards or one board 50×150 mm — nail the boards to the bar (to the board) with nails Ø4 mm L-100 mm.
- Horizontal shield boards tight against units 23 and 24, ends in the corrugations; vertical boards on top of them, on the door side.
- After securing, close the doors with the regular locks.

⚠ Nails must never protrude with their sharp end towards the cargo.

⚠ Choose the nail length so that the sharp end of a nail never touches the cargo.



STAGE PHOTO 19 Door opening with the shield and stop bars pos. 1

⚠ **A MANDATORY PHOTO IS REQUIRED - PHOTO 19**

Pay attention to the shooting conditions and the angle. Photos must not be edited or processed. The angle must be the same as in the demonstration example — this is important.

When: right after completing the step «Stop bars and the door shield».

How to shoot: The door opening with the shield — the same angle as without it: the whole shield and the stop bars on the floor.

20 STEP 17

Doors, number and hazard placards

Photograph the container with one door closed so that the number is visible. After loading, hazard placards are applied to the container according to the Rules.

- Close the doors with the regular locks; the container number on the door must match the CSC plate.
- For dangerous goods — a hazard label on every package (at least 100×100 mm) and placards of at least 250×250 mm on both side walls and both ends of the container; a single UN number over 4000 kg gross — the UN number on an orange panel (IMDG Code 5.3.2.1).
- **The forwarder is responsible** for the tightness of the totes and their outlets; the stated dimensions, mass and centre-of-gravity position of every unit; conformity of the cargo with its safety data sheet; suitability of the tote for this cargo; even placement and reliable securing.



STAGE PHOTO 20 One door closed — container number visible

⚠ A MANDATORY PHOTO IS REQUIRED - PHOTO 20

Pay attention to the shooting conditions and the angle. Photos must not be edited or processed. The angle must be the same as in the demonstration example — this is important.

When: right after completing the step «Doors, number and hazard placards».

How to shoot: One door closed, the other open: the container number on the door is legible, the shield is visible.



STAGE PHOTO 21 Container closed, hazard placards on all four sides (for dangerous goods)

⚠ **A MANDATORY PHOTO IS REQUIRED · PHOTO 21**

Pay attention to the shooting conditions and the angle. Photos must not be edited or processed. The angle must be the same as in the demonstration example — this is important.

When: right after completing the step «Doors, number and hazard placards».

How to shoot: The container with the doors closed, at an angle: the doors with the number and the side wall with the placards.

Photo report: what to photograph

Send the photos of all stages together with the packaging certificate — they are used to check stowage and securing before the container leaves the yard.



01
1000 l IBC tote at the shipper's yard
The whole tote in the yard, from a corner: two sides, the marking plate and the outlet valve are visible.



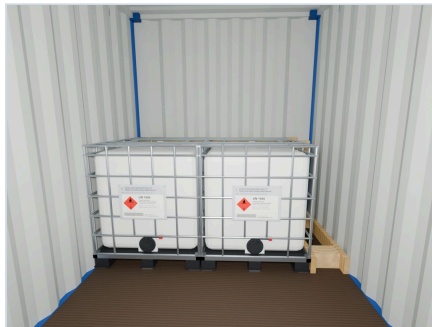
02
40' container before loading: floor, walls, roof, doors
From the door opening into the container, doors open: floor, walls and roof along the whole length.



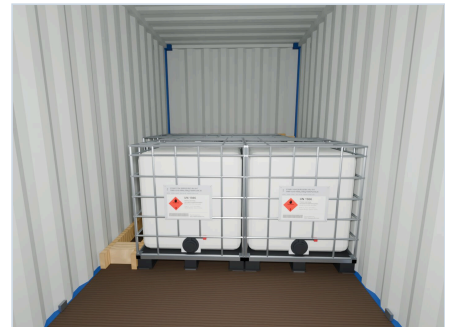
03
Packaging marking close-up — every character legible
The tote plate close up, straight on, without glare: every character of the marking is legible.



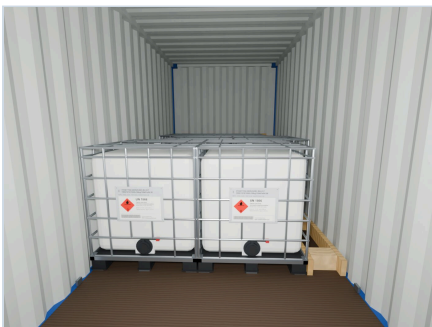
04
End wall shield: 3 horizontal boards pos. 4 at the wall, 4 vertical boards pos. 3
From inside the container towards the end wall, 2–3 m away: the whole shield, ends of the horizontal boards in the corrugations.



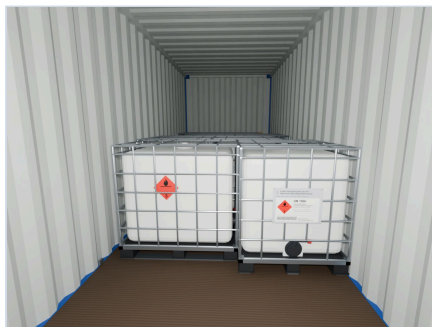
05
Row 1: units 1 and 2, stop structure at the right wall
From the door side along the container axis, about 2 m from the row, from a height of 1.5 m: both units of the row, the securing at the wall and the floor.



06
Row 2: units 3 and 4, stop structure at the left wall
From the door side along the container axis, about 2 m from the row, from a height of 1.5 m: both units of the row, the securing at the wall and the floor.



07
Row 3: units 5 and 6, stop structure at the right wall
From the door side along the container axis, about 2 m from the row, from a height of 1.5 m: both units of the row, the securing at the wall and the floor.



08
Row 4, first tier: units 7 and 8
From the door side along the container axis, about 2 m from the row, from a height of 1.5 m: both units of the row, the securing at the wall and the floor.



09
Second-tier shield on the end-wall side: 3 bars pos. 6, 4 posts pos. 10
From the door side above the first tier, from about 2.2 m: the whole second-tier shield — 3 bars, 4 posts, bar ends in the corrugations.



10
Row 4, second tier: units 9 and 10, shield at the left wall

From the door side along the axis, about 2 m from the row, from a height of 2 m: both tiers and the full-height shield at the wall.



11
Row 5, first tier: units 11 and 12

From the door side along the container axis, about 2 m from the row, from a height of 1.5 m: both units of the row, the securing at the wall and the floor.



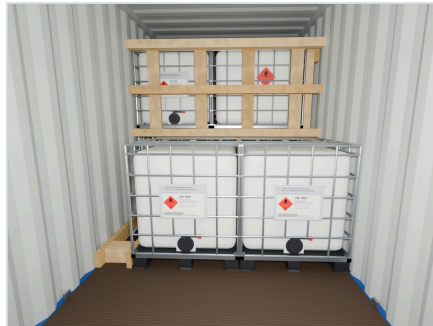
12
Row 5, second tier: units 13 and 14, shield at the right wall

From the door side along the axis, about 2 m from the row, from a height of 2 m: both tiers and the full-height shield at the wall.



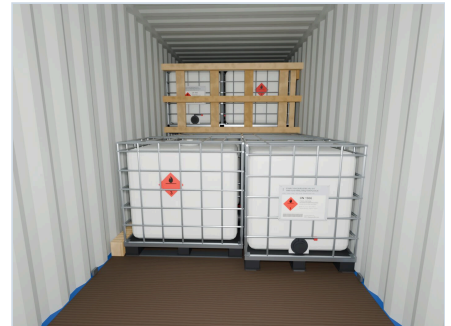
13
Second-tier shield on the door side

From the door side above the first tier, from about 2.2 m: the whole second-tier shield — 3 bars, 4 posts, bar ends in the corrugations.



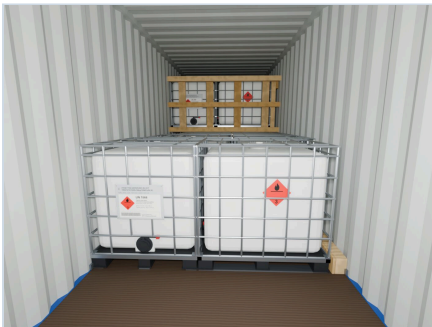
14
Row 6: units 15 and 16, stop structure at the left wall

From the door side along the container axis, about 2 m from the row, from a height of 1.5 m: both units of the row, the securing at the wall and the floor.



15
Row 7: units 17 and 18, bar pos. 7 at the left wall

From the door side along the container axis, about 2 m from the row, from a height of 1.5 m: both units of the row, the securing at the wall and the floor.



16
Row 8: units 19 and 20, bar pos. 7 at the right wall

From the door side along the container axis, about 2 m from the row, from a height of 1.5 m: both units of the row, the securing at the wall and the floor.



17
Row 9: units 21 and 22, stop structure at the right wall

From the door side along the container axis, about 2 m from the row, from a height of 1.5 m: both units of the row, the securing at the wall and the floor.



18
Row 10: units 23 and 24 — door opening without the shield

The door opening without the shield: 2–3 m from the container, on the axis, from 1.5 m — the last row and both stop structures.



19
Door opening with the shield and stop bars pos. 1

The door opening with the shield — the same angle as without it: the whole shield and the stop bars on the floor.



20
One door closed — container number visible

One door closed, the other open: the container number on the door is legible, the shield is visible.



21
Container closed, hazard placards on all four sides (for dangerous goods)

The container with the doors closed, at an angle: the doors with the number and the side wall with the placards.

Interactive 3D version: atf.llc · Compiled in accordance with ch. 1 items 1.6–10 and ch. 12 items 1–4 of the Technical Specifications for Loading and Securing of Cargo in Wagons and Containers (No. TsM-943) and the regulations listed at the end. For reference only: follow the plan approved for your shipment and the carrier's requirements.

Regulations and references

International regulations

1. UN Recommendations on the Transport of Dangerous Goods. Model Regulations
2. International Maritime Dangerous Goods Code (IMDG Code): ch. 4.1 — packagings and IBCs; 5.2 — marking and labelling of packages; 5.3 — placarding and UN number on cargo transport units; 5.4.2 — container packing certificate; 7.3 — packing of CTUs
3. European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR): 4.1.1.15 — period of use of plastics IBCs; ch. 6.5 — construction, testing and marking of IBCs
4. Agreement on International Railway Freight Communications (SMGS): Annex 2 “Rules for the Carriage of Dangerous Goods”; Annex 3 “Technical Specifications for Loading and Securing of Cargo”
5. IMO/ILO/UNECE Code of Practice for Packing of Cargo Transport Units (CTU Code), 2014
6. International Convention for Safe Containers (CSC), 1972

Russian / CIS rules and specifications: railways, sea transport

7. Rules for the Carriage of Dangerous Goods by Rail (approved by the CIS Council for Railway Transport, minutes No. 15 of 05.04.1996)
8. Technical Specifications for Loading and Securing of Cargo in Wagons and Containers (approved by the Russian Ministry of Railways, 27.05.2003 No. TsM-943), chapter on universal containers
9. RD 31.11.21.18-96 “Rules for the Carriage of Cargo in Containers by Sea” (Rosmorflot order No. 39 of 22.10.1996)
10. Labour Safety Rules for Loading and Unloading Operations and Cargo Placement (Order of the Russian Ministry of Labour No. 753n of 28.10.2020)

Standards

11. GOST 19433-88 “Dangerous goods. Classification and marking”
12. GOST 26319-84 “Dangerous goods. Packaging”
13. GOST 14192-96 “Marking of cargo”
14. GOST R 53350-2009 (ISO 668:1995) “Series 1 freight containers. Classification, dimensions and ratings”
15. GOST R 51876-2008 (ISO 1496-1:1990) “Series 1 freight containers. Specification and testing. Part 1: General cargo containers”

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