WE ARE
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CARGO.

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ONE
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PARTNER

Special Cargo Handbook

ONE
OCEAN NETWORK EXPRESS

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Introduction

Overview of Special Cargo Services

In today's international shipping terminology, Special Cargo refers to shipments that cannot fit into standard containers due to their size. This includes oversized (Out-Of-Gauge) items and breakbulk cargo (non-containerized) that requires specialized handling and documentation.

At ONE, we provide tailored solutions for transporting your Special Cargo efficiently and safely. Our experienced team collaborates closely with you to ensure optimal handling and timely delivery of your shipments.

Importance of Special Cargo Handling

The proper handling of Special Cargo is crucial for several reasons:

Safety and Compliance
Oversized items require specific handling to ensure safety during transport

Cargo Integrity
Careful handling is essential to prevent damage and ensure that large shipments arrive in good condition

Cost Efficiency
Effective handling reduces the risk of delays and additional costs, enhancing overall efficiency

At ONE, we are committed to providing the expertise and resources needed to address the unique challenges of Special Cargo transport, ensuring your shipments are handled with the highest level of professionalism.

Types of Special Cargo

Types of Special Cargo

01

In-Gauge (IG)

In-gauge is a type of special cargo which is transported using Flat Racks or Open Top containers and is placed within the internal dimensions of the equipment.

02

Out-Of-Gauge (OOG)

Out-Of-Gauge is a type of special cargo which is transported using Flat Racks or Open Top containers, despite having dimensions which exceed the width and/or height of the equipment.

03

Breakbulk (BB)

Breakbulk is a type of special cargo which is transported using multiple Flat Rack equipment. For example, luxury yachts, factory components, oversized machines, trains, construction equipment, generators, etc.

Overview of Equipment Types

Open Top

An open top container is a type of special container without a solid roof that can be covered with a strong rubber tarpaulin. Open top containers are designed to carry oversized loads which are too large to be stuffed through the doors of a regular dry container, instead the cargo is lowered through the open top. Inside, there are strategically placed lashing rings to which the cargo is securely fastened, keeping the cargo stable (despite its height and weight) in transit.

	20 FEET		40 FEET		40/HC	
	Specifications for 8'6"/ 30,480kg		Specifications for 8'6"/ 30,480kg		Specifications for 9'6"/ 32,500kg	
Inside Measurement	Length (cm) Width (cm) Height (cm)	589 234 234	Length (cm) Width (cm) Height (cm)	1,202 234 234	Length (cm) Width (cm) Height (cm)	1,203 235 265
Door Opening	Width (cm) Height (cm)	234 228	Width (cm) Height (cm)	234 228	Width (cm) Height (cm)	234 228
Roof Header	Width (cm)	186	Width (cm)	185	Width (cm)	194
Roof Opening	Length (cm) Width (cm)	576 222	Length (cm) Width (cm)	1,189 218	Length (cm) Width (cm)	1,180 219
Load Capacity	(m^3)	32.4	(m^3)	66.2	(m^3)	75.1
Container Weight	(kg)	2,380	(kg)	3,880	(kg)	4,060
Max. Load Weight	(kg)	28,100	(kg)	26,600	(kg)	28,440

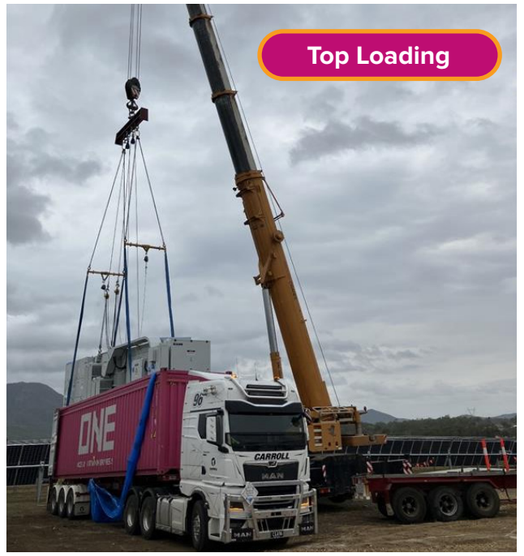
The table below illustrates the floor strength of standard container types. It is worth noting that open top containers typically have a similar floor strength to standard 20' and 40' (HC) dry containers.

This consistency makes open top containers a viable option for certain types of heavy cargo, particularly those requiring overhead loading, while offering the same floor load capacity as standard dry containers.

Type	Top Opening		Door Opening		Internal Dimensions		
	Length	Width	Height	Width	Length	Width	Height
20'	5.68	2.25	2.34	2.28	5.89	2.35	2.348
40'	11.80	2.23	2.34	2.28	12.02	2.35	2.348
40' HC	11.80	2.19	2.34	2.58	12.03	2.35	2.653
*Removable bar	""	""	1.94	Nil	""	"" "	""

Type	Floor Strength
20'	4.5 ton/m
40'	3.5 ton/m
40' HC	3.50 ton/m

**Above dimensions are expressed in meter/m*



Flat Rack

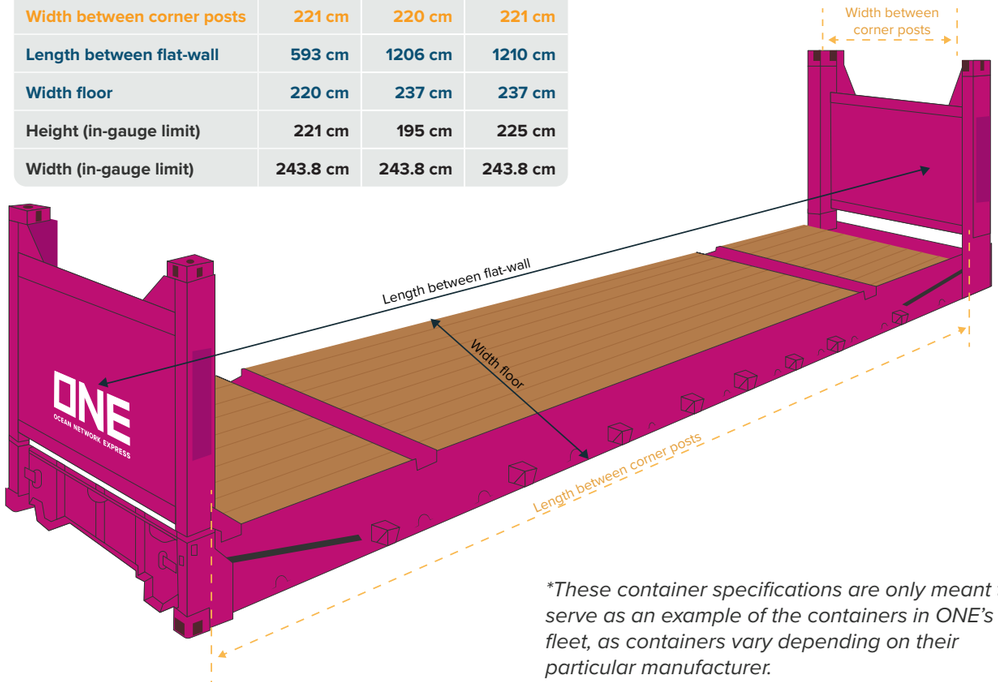
A flat rack is a type of special container with a base and a supporting wall (collapsible if required) at each end.

Flat racks are designed for oversized and/or overweight cargo that does not fit in standard containers, such as machinery, timber, pipes, buses, and boats.

	20 FEET		40 FEET		40/HC	
	Specifications for 8'6"/ 34,000kg		**Specifications for 8'6"/ 45,000kg**		**Specifications for 9'6"/ 58,600kg**	
Inside Measurement	Length (cm)[1] Width (cm)[2] Height (cm)	556 219 221	Length (cm)[1] Width (cm)[2] Height (cm)	1,162 220 195	Length (cm)[1] Width (cm)[2] Height (cm)	1,165 237 226
Load Capacity	(m^3)	28.4	(m^3)	53.2	(m^3)	64.3
Container Weight	(kg)	3,050	(kg)	6,200	(kg)	6,100
Max. Load Weight	(kg)	30,950	(kg)	38,800	(kg)	52,500

1 between corner posts | 2 between side rails

	20' FR	40' FR	40' FR
Length between corner posts	561 cm	1165 cm	1165 cm
Width between corner posts	221 cm	220 cm	221 cm
Length between flat-wall	593 cm	1206 cm	1210 cm
Width floor	220 cm	237 cm	237 cm
Height (in-gauge limit)	221 cm	195 cm	225 cm
Width (in-gauge limit)	243.8 cm	243.8 cm	243.8 cm



**These container specifications are only meant to serve as an example of the containers in ONE's fleet, as containers vary depending on their particular manufacturer.*

ONE OCEAN NETWORK EXPRESS

Technical Information

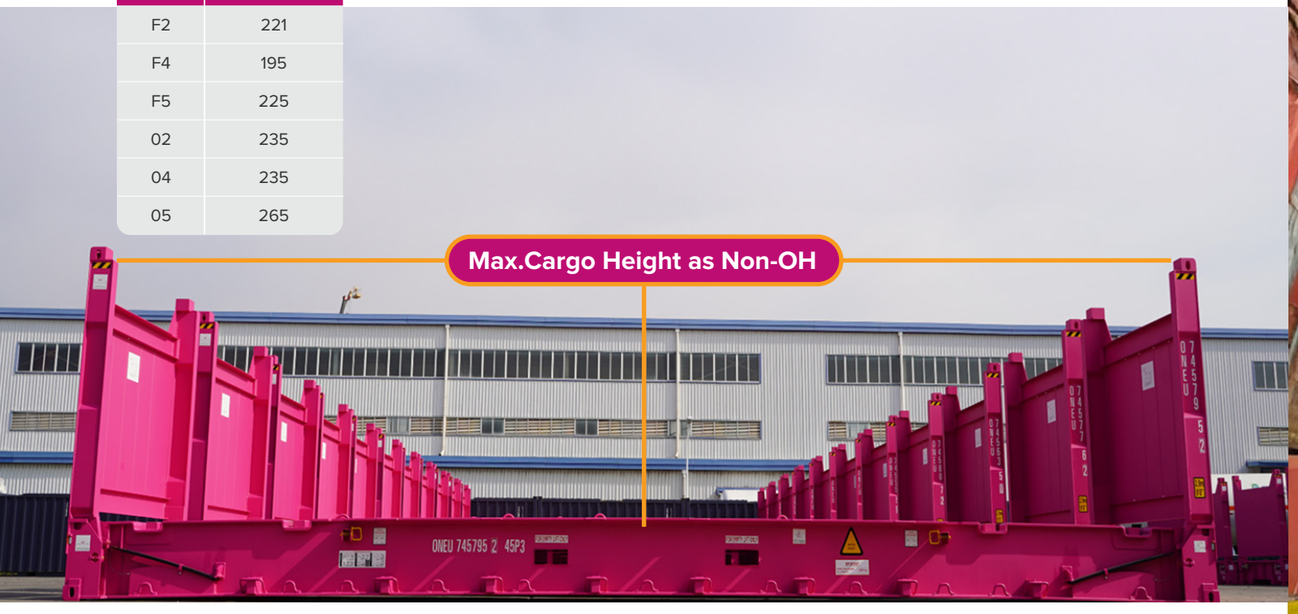
Types of OOG Cargo and Handling Methods

(i) Over-Height (OH)

Over-height is a type of cargo that is higher than the equipment walls and can be loaded onto both flat racks and open top containers.

The decision about which equipment to choose usually depends on the overall width of the cargo, and most importantly how the weight of the cargo is distributed across the floor.

221	Height (cm)
F2	221
F4	195
F5	225
02	235
04	235
05	265

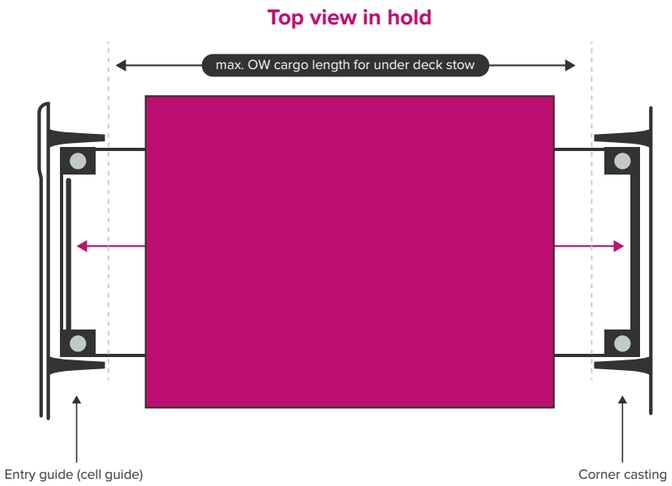


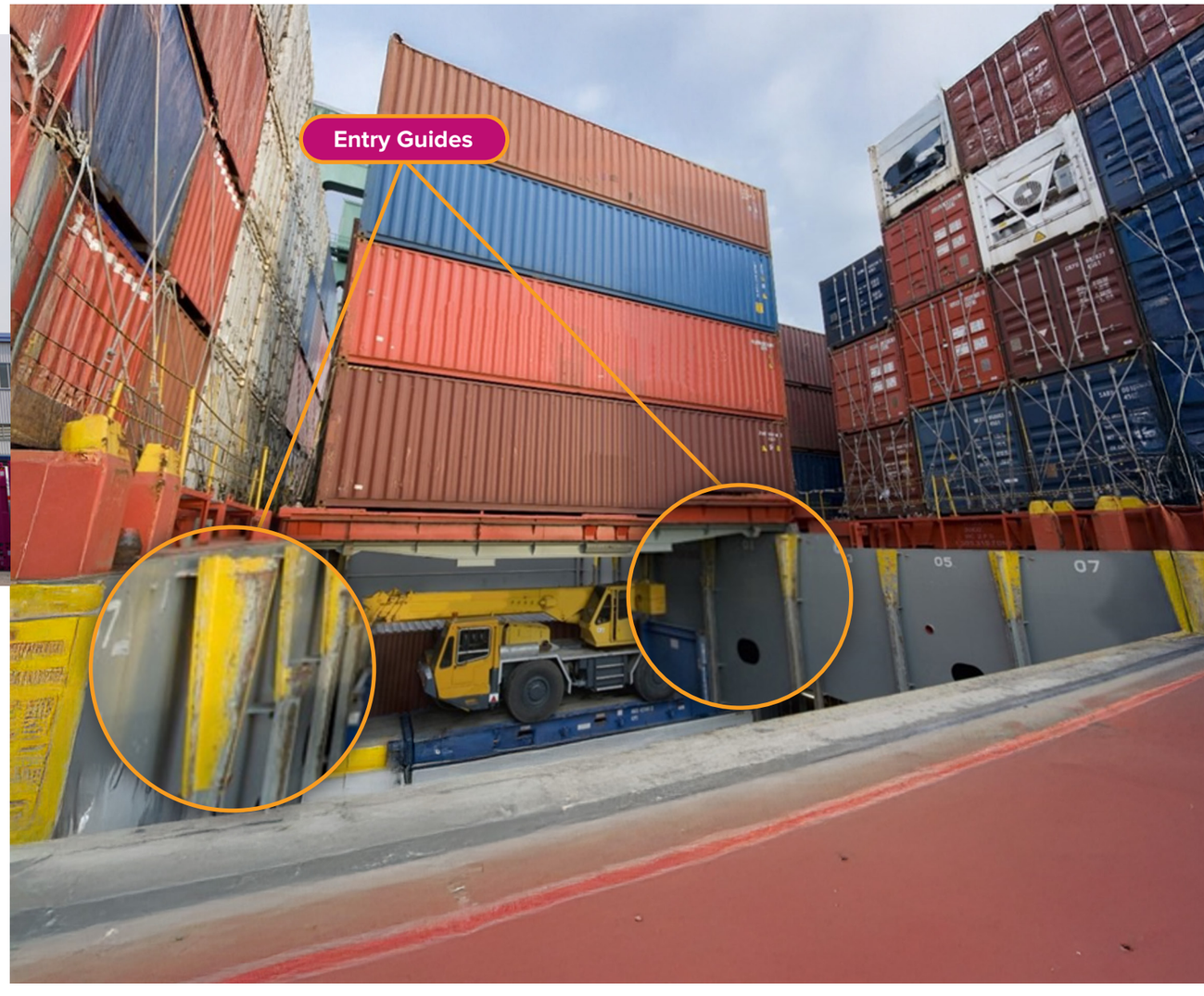
(ii) Over-Width (OW)

Over-width cargo is a type of cargo with a width greater than **243.8 cm** and can only be transported on flat racks (FR).

The choice between a 20'FR and a 40'FR depends on the weight distribution and the length of the cargo. For under-deck stowage, the maximum acceptable cargo length is **529 cm per 20'FR** and **1150 cm per 40'FR (HC)**.

When shipping OW cargo, it is essential to **ensure there is sufficient side clearance** to avoid collisions with the ship's entry guides.





(iii) Over-Width and Over-Height (OWOH) or Full Void (FV)

Over-width and over-height or full void cargo is a type of cargo that is both OW and OH.

As shown in the pictures below, there are two different cargo types, both presenting OW on each side and OH.

(iv) Over-Length (OL)

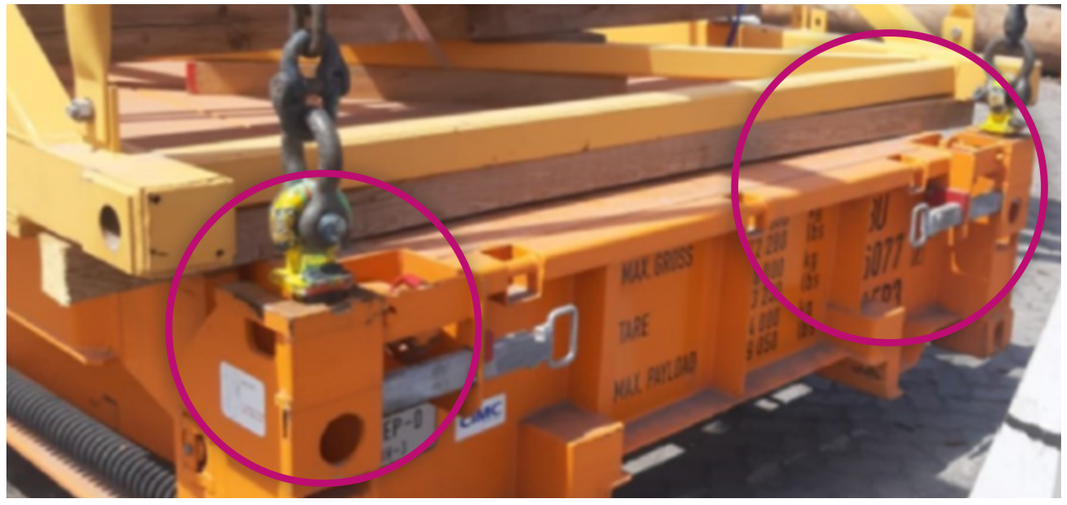
Over-length (OL) cargo is a type of cargo with a length greater than **1219 cm**. To load OL cargo, both end walls of the flat rack need to be lowered. When a flat rack has both ends lowered, it is usually defined as a platform, but not all flat racks in the market have collapsible walls.

When loading OL cargo onto a flat rack, it is essential to **ensure that the load's width does not extend beyond the corners of the flat rack**. Any overhang can obstruct the terminal's lifting equipment and prevent successful loading and transportation.

Criteria to review case-by-case over-length acceptance:

★ Direct routing ★ Maximum dimensions: 1500 cm (L) x 220 cm (W) x 150 cm (H) – 20 tons

Corner castings must be clear of cargo for equipment handling:



Calculating Voids

When Special Cargo exceeds standard container dimensions, it creates a void - additional space occupied on the vessel. This void, often termed a “killed slot,” diminishes the vessel’s container capacity due to the unusable space created by the Special Cargo.

The number of voids varies depending on the type of Special Cargo and the cargo’s dimensions – specifically whether it is over height (OH), over width (OW), or both (full void), significantly affects the number of killed slots and can influence its pricing:

OH (over-height) only: Results in fewer killed slots as only the cells above the laden unit are voided.

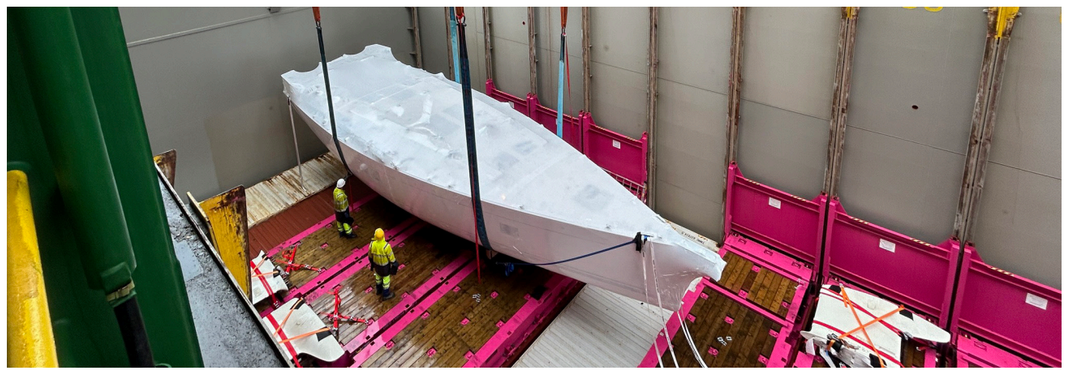
OW (over-width) only: Results in more killed slots as both the cells to either side of the laden unit are voided.

OH and OW (‘full void’): Incurs the highest number of killed slots due to the dual dimensional overage, resulting in cells above and to the sides of the laden unit being voided.

Overview of Breakbulk Cargo

Breakbulk is a type of cargo that is of irregular shape or is too large to be transported in standard containers. Instead of being pre-stuffed onto equipment at the terminal, break bulk items are loaded directly onto previously positioned flat racks on the vessel. Common examples include yachts, heavy machinery, construction materials, or oversized equipment.

This method allows for greater flexibility in handling unique cargo, but it requires specialized equipment, careful planning, and precise handling to ensure safe and efficient transportation.



Factors to Consider for Breakbulk Cargo

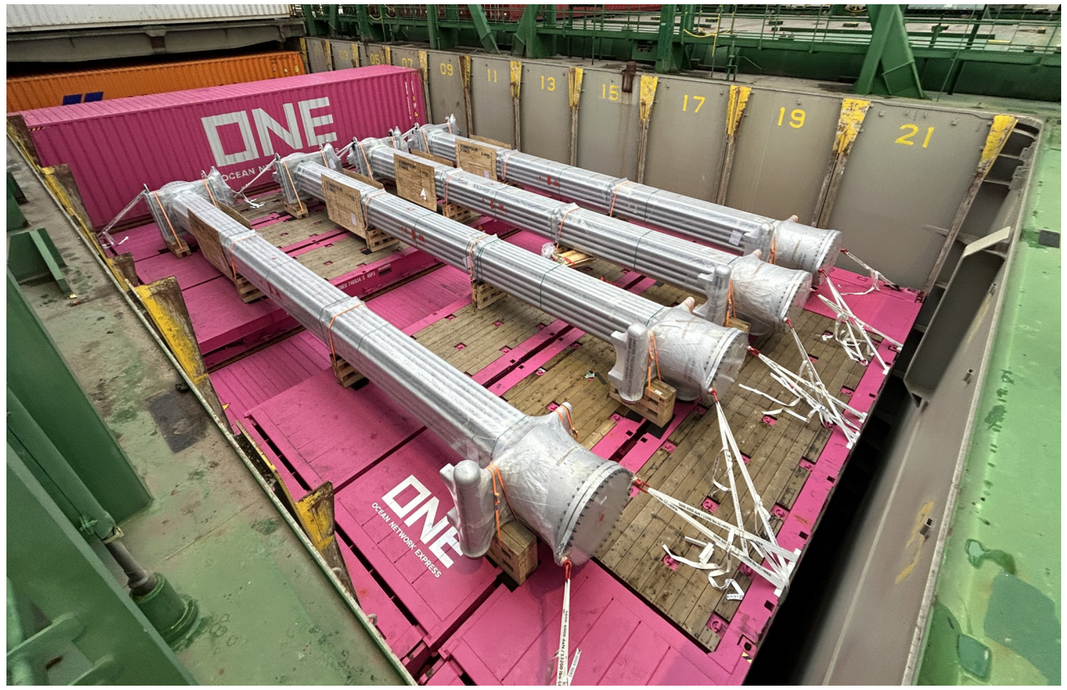
When deciding whether to transport cargo as breakbulk, the following factors are critical:

Weight Distribution: Excessive weight concentrated over a small area can pose handling challenges.

Cargo Dimensions: If the cargo is too tall or large to be safely handled as OOG, Breakbulk may be a better option.

Terminal Capabilities: The loading or unloading terminal may lack the necessary equipment or capacity to manage the cargo’s weight or dimensions as OOG.

Risk Assessment: If the ratio of the cargo’s dimensions to its weight is disproportionate, it can create handling risks, making breakbulk transport more suitable.



OOG Policies & Procedures

ONE's Out-Of-Gauge (OOG) Policies and Procedures are established in accordance with international safety standards to ensure the safe and secure handling and transportation of your cargo. These policies are based on the following:

- **CSS Code (International Convention for Safe Containers):** This code establishes global standards for the safe stowage and securing of cargo to protect lives both at sea and during loading and discharge operations.
- **CTU Code (Code of Practice for Packing of Cargo Transport Units):** This code offers comprehensive guidelines and references for safely loading and securing cargo in containers, considering the needs of all transport modes—sea and land.

ONE's policies incorporate the best practices outlined in these codes, applying them to all types of cargo. These guidelines are not conservative house rules, but international best practices designed to ensure safety and compliance.

Flat Rack Floorboard Weight Concentration / Distribution

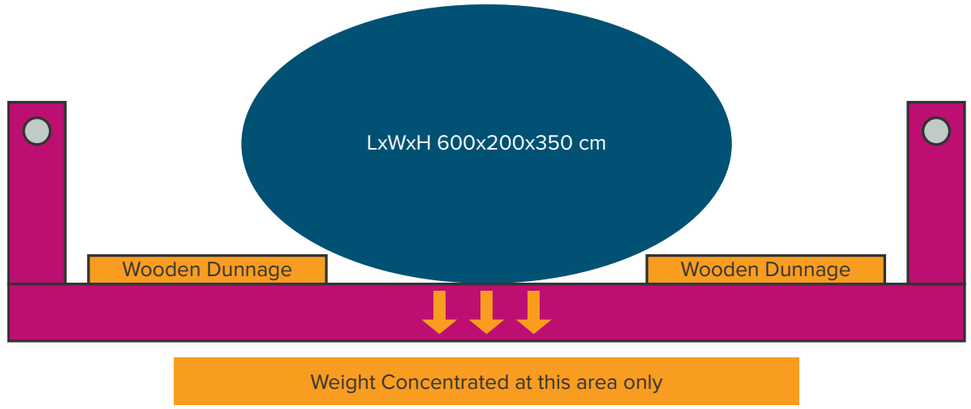
Each equipment type has a specified maximum payload. This maximum can only be achieved when the cargo weight is evenly distributed across the entire floor. The weight distribution on the floorboard refers to the length and width over which the cargo weight is supported.

Example:

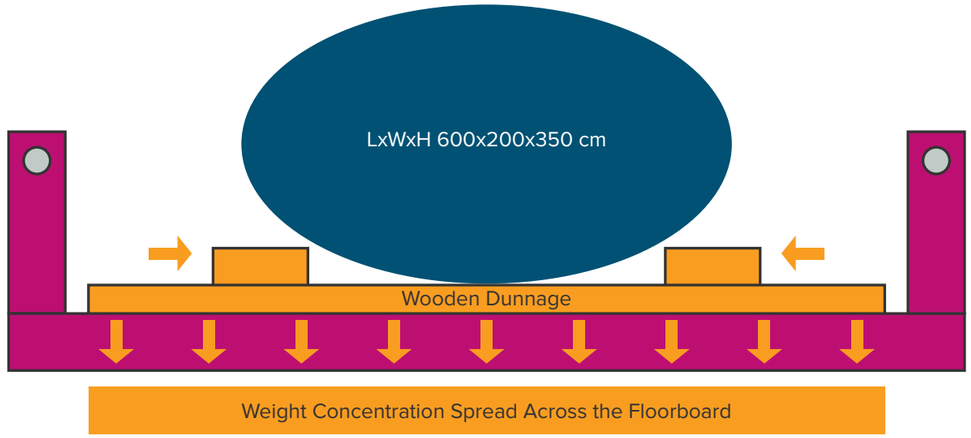
Incorrect Statement: If the cargo weighs 40 tons and the maximum payload of a 40' FR HC is 52.5 tons, we can always accept this weight.

Correct Statement: Weight acceptance is contingent upon the weight distribution, specifically the length of the cargo resting on the equipment.

Improper Skid Dunnage



Correct Skid Dunnage Arrangement



Currently, ONE offers four different types of flat racks, each with its own maximum payload:

★ Leased 20' FR: Max Payload 31.25 mt

★ Leased 40' FR: Max Payload 44.9 mt

★ ONE Heavy-Duty 20' FR: Max Payload 35 mt

★ ONE Heavy-Duty 40' HC FR: Max Payload 52.5 mt

The maximum acceptable cargo weight (including dunnage and lashing materials) per flat rack depends on:

★ Cargo Length: The length of the cargo that is "resting" on the flat rack floor.

★ Cargo Width: The width of the cargo that is "resting" on the flat rack floor.

★ Max Payload of the flat rack: The maximum capacity of the specific flat rack being used.

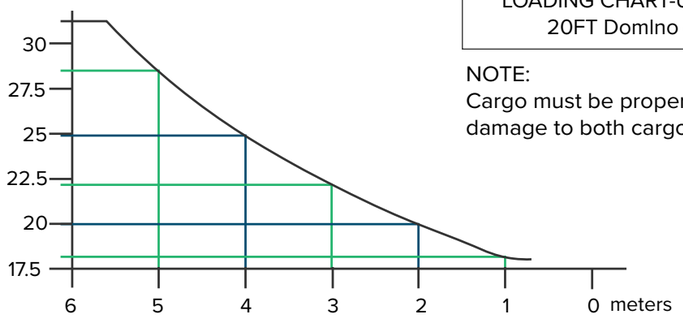
The longer the cargo length, the heavier the possible acceptable cargo weight

(i) Leased 20’FR Payload

F2 / leased container payload 31.25T

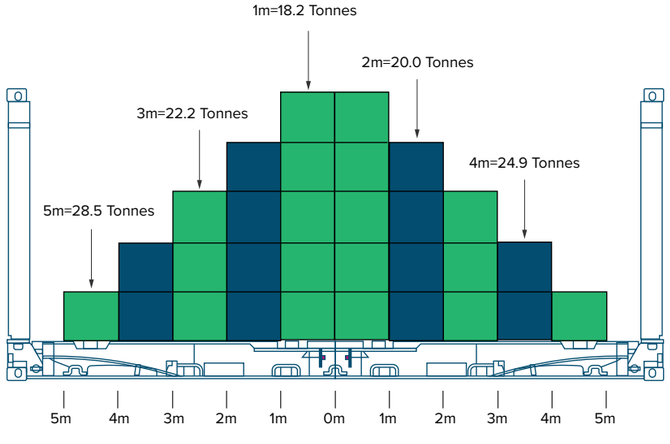
Length(m)	Max allowable load weight(t) – By formula
2	19.9
3	22.1
4	25.0
5	28.6
5.6	31.1

PAYLOAD
31.25 Tonnes



LOADING CHART-UNIFORM LOADS
20FT Domlno (MGW=34T))

NOTE:
Cargo must be properly spread to prevent damage to both cargo and the flat rack



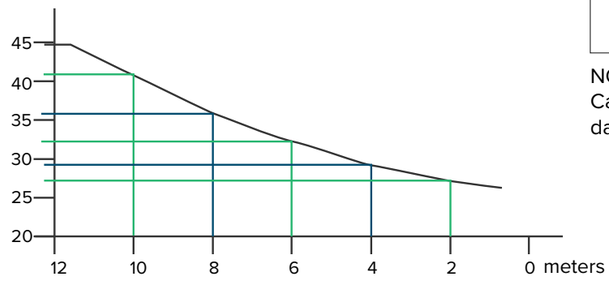
(ii) Leased 40’FR Payload

F4 / leased container payload 44.9T

Length(m)	Max allowable load weight(t) – By formula
2	27.2
3	28.1
4	29.3
5	30.6
6	32.2
7	33.9

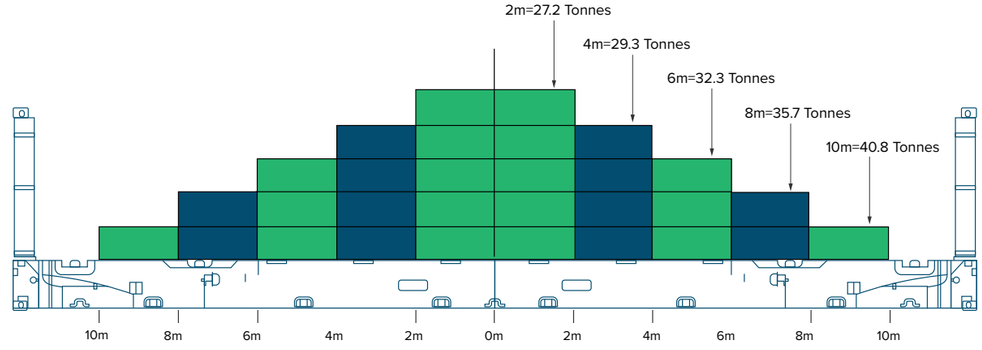
Length(m)	Max allowable load weight(t) – By formula
8	36.0
9	38.2
10	40.6
11	43.3
11.6	45.0

PAYLOAD
44.9 Tonnes



LOADING CHART-UNIFORM LOADS
40FT SeaDeck and Domino (MGW=50T)

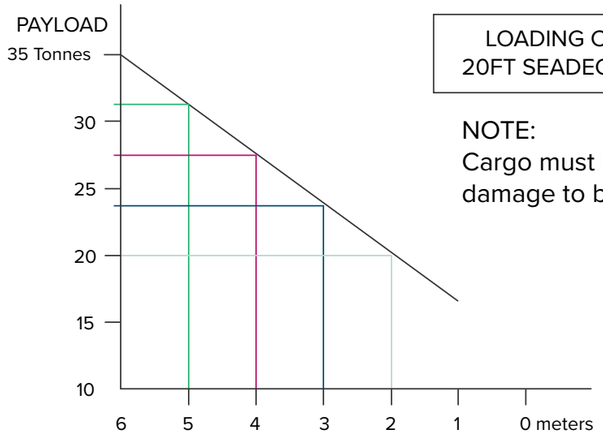
NOTE:
Cargo must be properly spread to prevent damage to both cargo and the flat rack



(iii) ONE Heavy-Duty 20’FR Payload

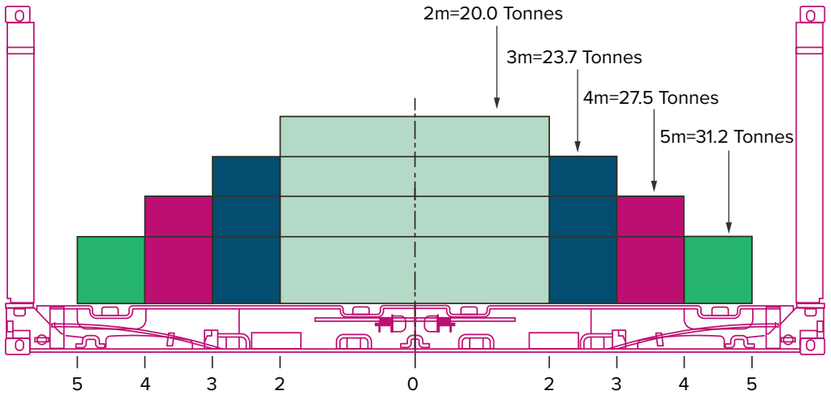
F2 / built in 2023 ONEU payload 35T

Length(m)	Max allowable load weight(t) – By formula
2	20.1
3	23.5
4	27.4
5	31.8
5.6	34.7



LOADING CHART - UNIFORM LOADS
20FT SEADECK FLATRACK (MGW = 38.1T)

NOTE:
Cargo must be properly spread to prevent damage to both cargo and the flat rack

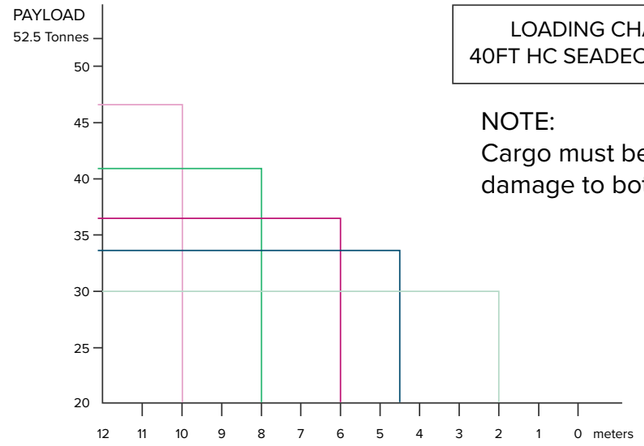


(iv) ONE Heavy-Duty 40’HC FR Payload

F5 / built in 2023 ONEU payload 52.5T

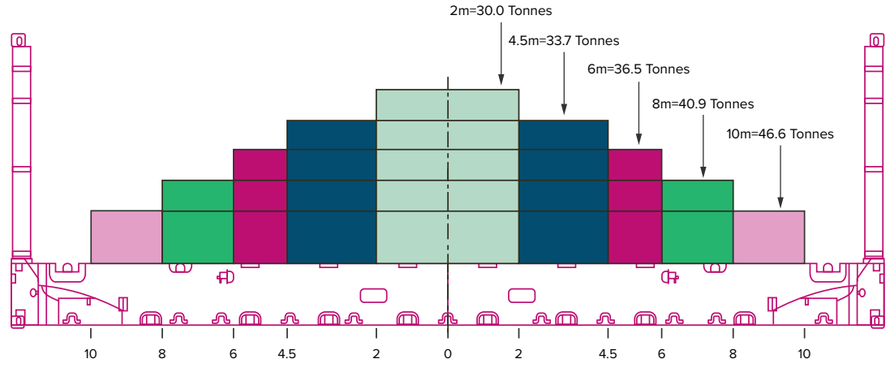
Length(m)	Max allowable load weight(t) – By formula
2	30.1
3	31.3
4	32.7
4.5	33.5
5	34.4
6	36.3

Length(m)	Max allowable load weight(t) – By formula
7	38.6
8	41.1
9	43.8
10	46.9
11	50.2
11.6	52.3



LOADING CHART – UNIFORM LOADS
40FT HC SEADECK FLATRACK (MGW = 58.6T)

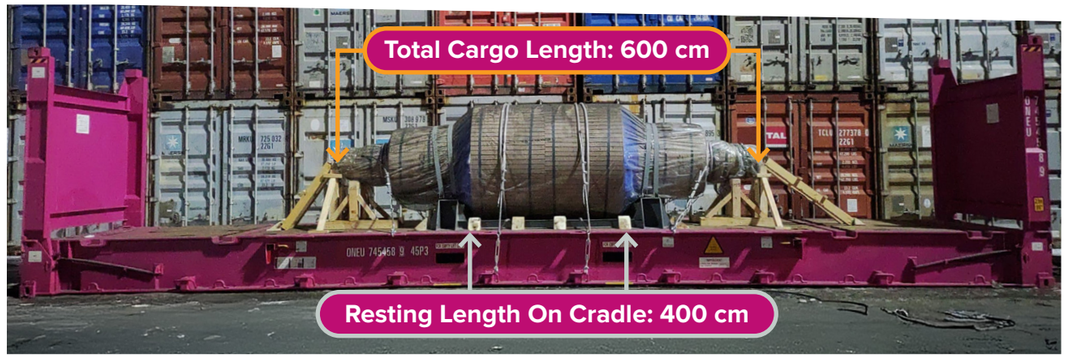
NOTE:
Cargo must be properly spread to prevent damage to both cargo and the flat rack



** It is important to confirm the handling ability of both loading and discharge terminals.

** Not all terminal gantry cranes can handle very heavy weight containers.

PLEASE NOTE THIS EXAMPLE SHOWS AN UNACCEPTABLE OOG LOADING



Flat rack 40’FR HC (F5) Max Payload 52.5 tons

Cargo dimensions (LxWxH) in cm: 600 x 200 x 200 cm – 36 tons

To be acceptable, the cargo weight must be distributed over a 600 cm area using proper wooden dunnage.

Note: weight distribution with wooden dunnage is only effective by max 100 cm each side.

Length(m)	Max allowable load weight(t) – By formula
2	30.1
3	31.3
4 (Max Weight)	32.7
4.5	33.5
5	34.4
6	36.3
7	38.6
8	41.1
9	43.8
10	46.9
11	50.2
11.6	52.3

THE PERFECT EXAMPLE OF PROPER WEIGHT DISTRIBUTION

Flat rack 20’FR (F2) Max Payload 35 tons

Cargo dimensions (LxWxH) in cm: 300 x 400 x 440 cm – 28,5 tons

Cargo is not acceptable on 20’FR equipment without proper weight distribution.

Length(m)	Max allowable load weight(t) – By formula
2	20.1
3 (Without Weight Distribution)	23.3
4	27.4

Length(m)	Max allowable load weight(t) – By formula
5 (With Weight Distribution)	31.8
5.6	34.7

Floorboard damage resulted from exceeding the weight concentration limit

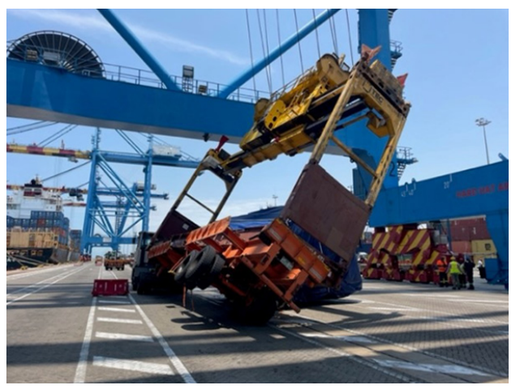
Place thick timber dunnage beneath the cargo to spread the floorboard weight concentration

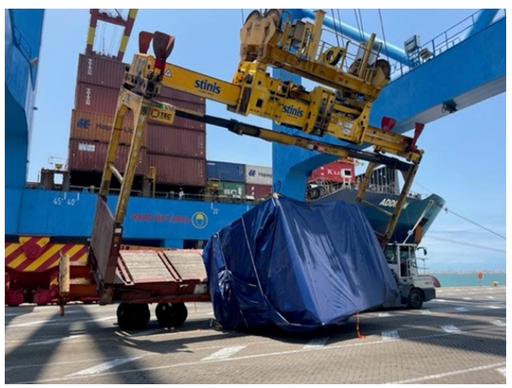
Center of Gravity (COG)

The center of gravity is the point at which the entire weight of the cargo appears to be balanced. It is crucial to identify this point to ensure the safe transport and handling of cargo.

International regulations require that the COG be clearly marked on all cargo, especially on boxes and cases. This is important because if the cargo is not properly balanced, it can shift, topple, or fall during transport—whether the ship tilts, a truck moves, or a container crane lifts the load. Properly marking and considering the COG prevents accidents and ensures the stability of the cargo throughout the journey.

Cargo loading with unbalanced COG





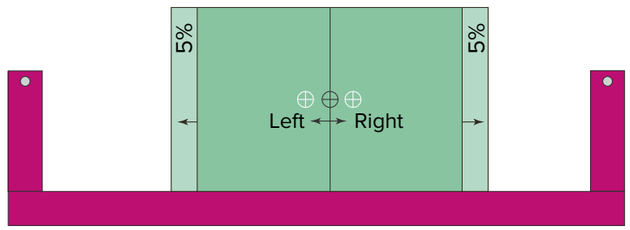
(i) COG Types

Vertical:

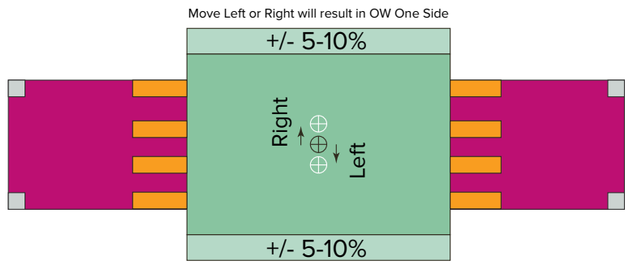
- The center of gravity should not exceed the height of the flat rack itself
- If the COG is too high, the cargo may only be suitable for breakbulk transport

Horizontal:

- The COG should ideally be centered along the length of the cargo placed on the flat rack, with a tolerance of 5%
- Horizontally, the COG should be centered within the length (see diagram 1) and width of both the flat rack and the cargo, with a tolerance of 5%, and in some cases for the width up to 10% (see diagram 2)



(1) Side View



(2) Top View

ONE OCEAN NETWORK EXPRESS

Booking

Booking Process Overview

Initial Inquiry

- POL/POD
- Target Service
- Target Rate
- Commodity
- Dimensions
- Weight
- Cargo Photos
- Special Handling Needs (if applicable)

Quotation

- Tailored quotation based on cargo specifications and route
- Consider voids, equipment, and service options

Space Confirmation

- Confirm space availability on selected vessel and route

Documentation

- Submit required documents (cargo specifications, packing lists, etc.)

Technical Review

- Review cargo acceptance based on equipment limitations, safety standards, COG, and securing plans

Booking Confirmation

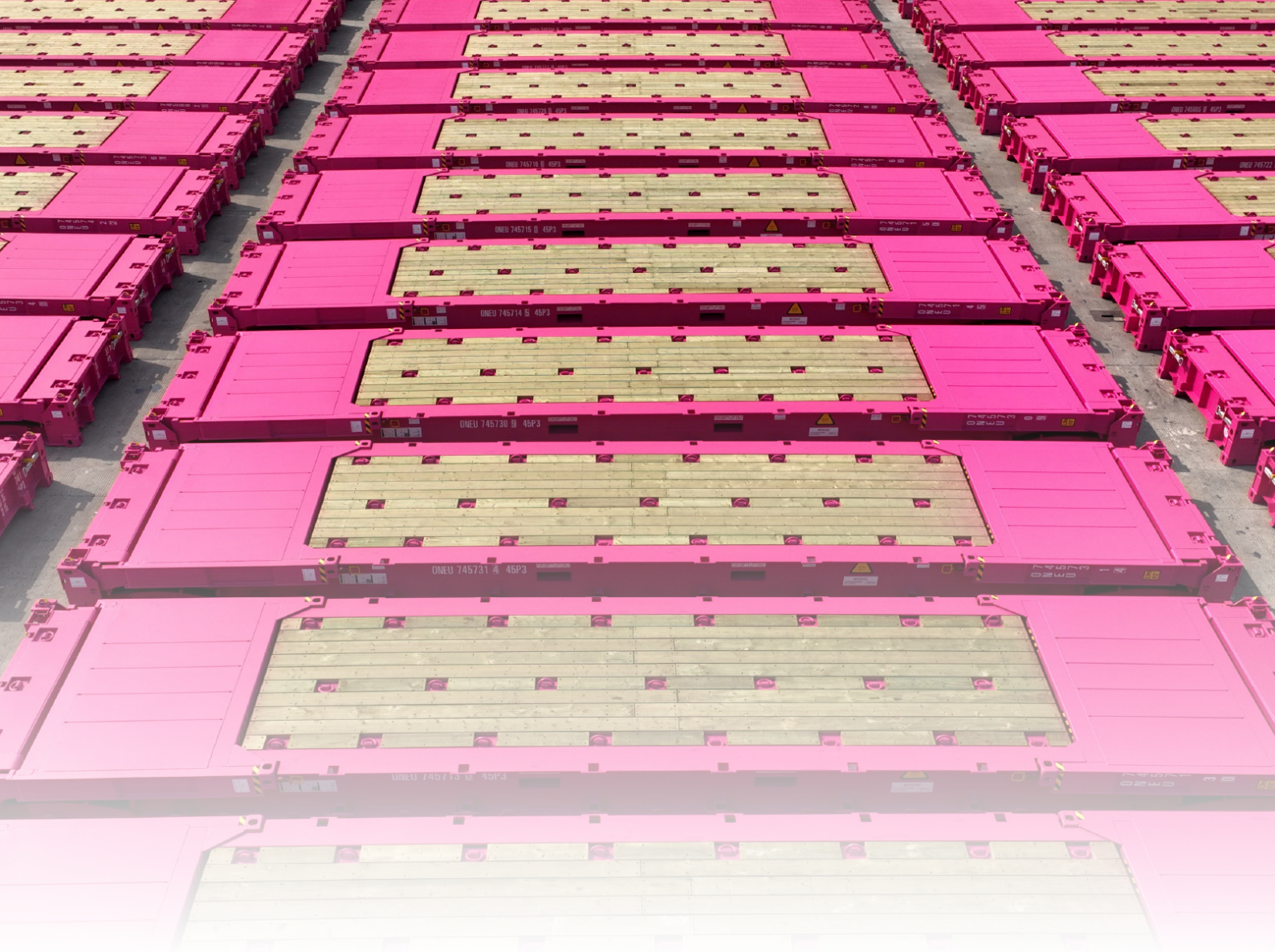
- Finalize booking and receive confirmation with schedule and details

Pre-Shipment Coordination

- Coordinate between customer, terminal, and shipping line for loading
- Any last-minute adjustments are addressed during this stage

Load & Discharge

- Load cargo onto vessel
- Unload at destination, complete final delivery and post-shipment docs



Your Number ONE Shipping Partner

Delivering your Special Cargo worldwide

ONE

OCEAN NETWORK EXPRESS