

Project cargo and out-of-gauge loads

Transformers, turbines, construction machinery: how do you plan cargo that will not fit in a container, and on what equipment?

Author: Özgür Konakçı · Level: Intermediate · Version: 13 October 2026

Online interactive version: <https://ozgurkonakci.com/en/guide/project-cargo/>

SHORT ANSWER

Project cargo is the transport of the equipment for an investment such as a power plant, factory or refinery, often in oversized and heavy pieces and to a fixed schedule. Cargo that does not fit a closed container is out of gauge (OOG) and moves on open tops or flat racks, or uncontainerised as breakbulk or on heavy-lift vessels. Planning covers technical data, a route survey, lifting and lashing plans, permits and insurance.

What is project cargo?

Building a power plant, factory, refinery or wind farm means moving turbines, transformers, generators, reactors, boilers, cranes and steel structures. This equipment is often **very large, very heavy or irregularly shaped**, and it ships in many pieces to the project's schedule. All of this is called **project cargo** or project logistics.

What sets project cargo apart from an ordinary shipment is **planning** as much as the cargo itself: the equipment, route, permits and sequence are worked out months ahead through engineering studies.

Four terms

- **Out of gauge (OOG):** Cargo that exceeds standard transport dimensions or weight limits. In container shipping it moves on open tops and flat racks.
- **Heavy-lift:** A single piece so heavy that it needs special cranes and a lifting plan.
- **Breakbulk:** Cargo lifted onto a ship piece by piece rather than in containers. In Maersk's definition, goods that cannot fit inside a standard dry container because of their size, shape or weight. Unlike OOG it is not containerised at all, and it need not exceed standard dimensions.
- **Project cargo:** The whole set of shipments for an investment, which may include all of the above.

Which equipment?

Equipment	When?
Open top container	The cargo is too tall only, or must be loaded from the top by crane.
Flat rack container	The cargo also overhangs the width or length. There are no side walls or roof.
Breakbulk vessel	The cargo does not fit container equipment or exceeds a flat rack's capacity. It is lifted piece by piece into the hold or onto the deck.
Heavy-lift vessel	Very heavy single pieces; the ship loads and discharges with its own powerful cranes.
Ro-Ro vessel	Cargo on wheels or on roll trailers (construction machinery, rail cars).
Lowbed and special trailers	Tall and heavy loads by road. The low deck keeps the overall height down; extendable or modular trailers are used for larger loads.

Which equipment will your cargo fit?

Equipment	Internal length	Internal width	Internal height	Max payload	Can cargo overhang?
20' Standard (Dry)	5.90 m	2.35 m	2.39 m	30.2 t	No
40' Standard (Dry)	12.03 m	2.35 m	2.40 m	28.8 t	No
40' High Cube	12.03 m	2.34 m	2.70 m	28.7 t	No
20' Open Top	5.90 m	2.35 m	2.38 m	30.1 t	Top only
40' Open Top	12.03 m	2.35 m	2.38 m	26.6 t	Top only
20' Flat Rack	5.61 m	2.23 m	open (no limit)	31.3 t	Top, sides and ends
40' Flat Rack	11.65 m	2.22 m	open (no limit)	44.1 t	Top, sides and ends

Dimensions are the typical values from the container topic and vary by equipment. Door openings are smaller than internal dimensions. A flat rack's maximum payload applies when the load is spread over the floor; concentrated heavy items need load-spreading beams. On the road, the maximum vehicle width in Türkiye and the EU is 2.55 m and the maximum height 4.00 m; indivisible loads above these need a special permit.

This is a first check. Real planning also looks at door openings, corner posts, a flat rack's load distribution limits and the carrier's OOG acceptance rules.

Planning step by step

1. **Technical data:** A dimensioned drawing, the weight of each piece, its centre of gravity and its lifting points. A wrong centre of gravity can make a piece tip over during lifting.
2. **Route survey:** Bridges, underpasses, power lines, bend radii, gradients and ground bearing capacity are checked on site from the factory to the port and from the port to the site.
3. **Lifting and lashing plan:** How the cargo will be lifted and secured on the ship or vehicle is calculated. On ships, cargo securing follows the IMO's CSS Code (Code of Safe Practice for Cargo Stowage and Securing).
4. **Permits:** In Türkiye and the EU the maximum vehicle width on the road is 2.55 m, the height 4.00 m and the length of a tractor and semi-trailer 16.50 m. Indivisible loads above these limits move under a permit (in Türkiye **from the General Directorate of Highways**), on set routes and hours, with escort vehicles and traffic police where required. Each transit country needs its own permit.
5. **Port and vessel:** The terminal's crane capacity, the quay's bearing capacity and the ship's cranes are checked, and the stowage on board is planned in advance.
6. **Surveys:** An independent surveyor attending before and after loading provides evidence for any claim. On large projects insurers may require the approval of an independent marine warranty surveyor.
7. **Insurance:** Besides cargo insurance, **Delay in Start-Up (DSU)** cover is considered for the loss caused when transit damage delays the project's start.

What drives the cost

- **OOG surcharge:** The carrier charges extra for out-of-gauge cargo on flat racks or open tops.
- **Lost slots:** Cargo that overhangs at the sides or top makes the neighbouring or upper container positions on the ship unusable, and those positions are added to the freight.
- **Breakbulk freight:** Usually charged on the greater of weight or volume (W/M, revenue tonne).
- **Special equipment and services:** Mobile cranes, lowbeds, escort vehicles, permit fees, surveys and engineering.

Common mistakes

- Giving weights and dimensions without packing; crates and skids add centimetres and hundreds of kilograms.
- Doing the route survey on a map only; a new bridge or roadworks can break the plan.
- Not allowing time for permits; special permits can take days, sometimes weeks.
- Not confirming the crane capacity to discharge the cargo at the destination port.

Test yourself

1. Which container equipment can carry an 18-tonne transformer 6.2 m long, 2.9 m wide and 2.8 m high? *(Answer: It is too wide for a 40' open top; it moves on a 40' flat rack, out of gauge at the sides and top.)*
2. What is the main difference between breakbulk and OOG? *(Answer: OOG is cargo that exceeds standard dimensions and can still travel in special containers; breakbulk is loaded piece by piece without a container.)*
3. Can a 2.9 m wide load travel by road in Türkiye without a permit? *(Answer: No; the maximum width is 2.55 m, so an indivisible load needs a permit from the General Directorate of Highways.)*

Frequently asked questions

What does out of gauge (OOG) mean?

Cargo that exceeds standard transport dimensions or weight limits. In container shipping, OOG cargo does not fit a closed container and moves on an open top (overhang at the top) or a flat rack (overhang at the top, sides and ends), at extra freight.

Are breakbulk and OOG the same thing?

No. OOG is defined by exceeding standard dimensions, and it can still travel in special containers such as flat racks. Breakbulk is cargo loaded onto a ship piece by piece without a container; it does not have to exceed standard dimensions.

Which road dimensions require a permit?

In Türkiye and the EU the maximum vehicle width is 2.55 m, the maximum height 4.00 m and the maximum length of a tractor and semi-trailer 16.50 m. Indivisible loads above these limits move under a permit (in Türkiye from the General Directorate of Highways), on set routes and hours, with escort vehicles where required.

Why is insurance different for project cargo?

Damage to one piece can delay the start of the whole project. Besides standard cargo insurance, Delay in Start-Up (DSU) cover can be added for the loss caused when transit damage delays the project's start.

SOURCES

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