



OCEAN REEFER

KEEPING YOUR CARGO COOL AND SAFE

DHL Global Forwarding – Excellence. Simply delivered.



OUR DHL OCEAN DIRECT FCL REEFER CONTAINER SERVICE OFFERING

Shipping sensitive cargo like perishables, pharmaceutical items, chemicals, fresh fruits, fish, chocolate, ice cream or poultry requires temperature and humidity control during transportation. Hence, an extra care in the end-to-end shipping process is required.

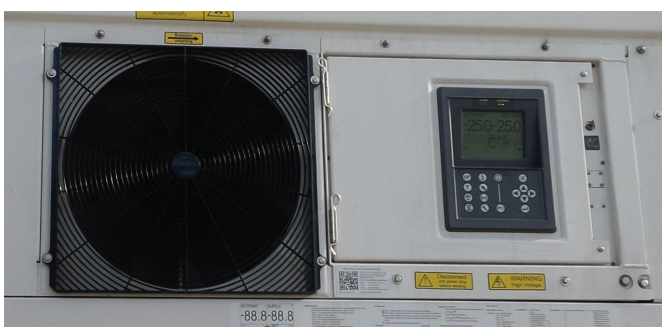
By combining our Reefer expertise, global presence, freight forwarding experience and leadership in ocean freight, DHL provides custom-made Reefer logistics solutions to comply with the specific requirements our customers have on their Reefer goods.

Ocean Reefer containers provided by DHL ensure a high cleanliness level and lets you select your required temperature and humidity levels for the cargo transported, ensuring that your goods will be delivered in great condition to your clients.

In addition, we have established a global network of GDP (Good Distribution Practice) aligned offices and trained experts to handle pharmaceutical shipments, according to the requirements of health authorities.

Reefer cargo is not just any general commodity. Using a Reefer container means that your goods are probably perishable, extremely sensitive to temperature changes, need special care regarding its container's ambient environment during transport or have a higher value than other commodities.

We are committed to delivering your cargo safely. DHL's contracts with leading Reefer container carriers and service providers will ensure that your cargo travels temperature controlled, from the point of origin to its final destination. Our global team of experts offers customized Reefer solutions, ranging from port-to-port to multi-modal door-to-door solutions, with full end-to-end visibility, supported by near real-time monitoring if required.





UNDERSTANDING REEFER CONTAINERS









SPECIFICATIONS AND FEATURES

REEFER CONTAINERS

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		Internal Dimensions*			Door		Cubic Capacity	Max Pay Load	Tare Weight	Max Cargo
		Length	Width	Height	Width	Height				
	20' Reefer	5.456m	2.294m	2.16m	2.290m	2.264m	28.40m ³ 1,002.9cft	27,540kg 60,715lbs	2,940kg 6,481lbs	30,480kg 67,196lbs
		17' 10 51/64"	7' 6 5/16"	7' 1 3/64"	7' 6 5/32"	7' 5 9/64"				
	40' High cube Reefer	11.59m	2.288m	2.40m	2.290m	2.569m	67.50m ³ 2,383.7cft	29,400kg 64,815lbs	4,600kg 64,815lbs	34,000kg 74,957lbs
		38' 0 19/64"	7' 6 5/64"	7' 10 31/64"	7' 6 5/32"	8' 5 9/64"				

* the dimensions may change for a different Reefer container model

	Service temperature range: From -30°C (-22F) to +30°C (+86F) Magnum: From -35°C (-31F) to +30°C (+86F)		Adjustable fresh air exchange: From 0 to 285 (cbm/h) Special "T-bar" floors to ensure optimum air circulation
	Dehumidification range from 65% to 95% maximum relative humidity		Temperature control through built-in micro processor
	High-tech, Chlorofluorocarbon (CFC)-free insulation ensures minimum heat leakage		High-quality cooling machinery
	Operating settings: 360-500 Volts and 50-60 Hertz		Use of environment-friendly refrigerants

BRACING BLOCKS

Keeping cargo secure against shifting is key to Full Container Loads. Reefer containers feature a T-bar aluminum flooring and flat walls that do not allow for blocking/bracing the way dry containers do. Bracing blocks are a great way to secure pallets inside a container. They come with bolts of different sizes that fit the floor "rails" perfectly, without blocking the air flow. Not only do they hold the pallet in place, but they can also be used to attach lashing straps.



PROTECTING YOUR CARGO

REEFER SETTINGS

COLD TREATMENT

Cold treatment is a procedure to eliminate pests in fresh fruits and avoid spreading them to other locations. The process lowers the fruit pulp temperature and maintains it during a specific period of time. Pre-determined protocols (such as the United States Department of Agriculture (USDA) requirements) vary depending on the country of origin, the type of commodity and the country of destination. Such Reefer equipment is capable of monitoring temperature readings through three probes (or sensors) placed in the core of the fruit during the voyage and at terminals. Once the cold treatment is successfully completed during the voyage, the shipper is immediately informed and the set point temperature can be increased to a new level. It is imperative to pre-cool the fruits at the requested temperature for the cold treatment before stuffing the container.

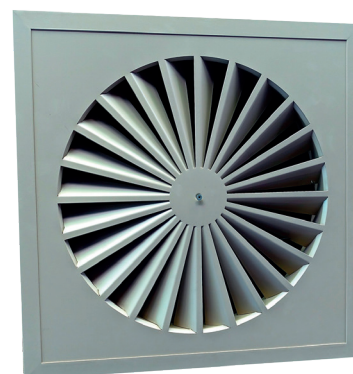
DEHUMIDIFICATION

The control of the relative humidity level is important to control the quality of the products. Indeed, too much humidity may cause fungi and mold whereas too little may cause dehydration. DHL offers to use Reefer containers equipped with a function for dehumidification. Possible settings, depending on mode, are between 50% and 95% relative humidity. Dehumidification devices can only be operated for temperature settings above or equal to -10°C (14°F). When dehumidification is activated, air vents must be closed, except for some special fruits and vegetables. Bulb mode is also available on request. In this mode, Reefer containers follow the standards for flower bulb transportation of the Dutch Agrotechnological Research Institute (ATO).



VENT SETTINGS

Fruit and vegetables breathe during transportation and produce heat and gases such as ethylene (C_2H_4) and carbon dioxide (CO_2). Ethylene speeds up cargo ripening process, causing reduced shelf life. CO_2 suffocates cargo, causing discoloration. Fresh air is required to remove such gases. The required amount of fresh air varies depending on the commodity. The air is cooled by passing the evaporator coil and circulating throughout the cargo by fan. The use of vent settings allows for the intake of external air by adjusting vent openings. Airflow is set manually between 0 and $245 \text{ (m}^3/\text{h)}$. Vents must be kept closed when carrying frozen cargo or commodities requiring dehumidification or bulb mode.



CONTROLLED ATMOSPHERE (CA)

CA is an active process to regulate modified atmosphere composition, in which initial concentrations of gases, such as oxygen, nitrogen and carbon dioxide are maintained throughout storage or transit by the addition or removal of quantities of gas. This process allows for a longer shelf life of the product, especially for certain fruits and vegetables.

ADDITIONAL SERVICE CARGO MONITORING



DHL SMART SENSOR GPS/GSM

338g/0.75lbs
150*105*25mm



PHARMACEUTICALS AND HIGH-VALUE CARGO

Life Sciences and Healthcare is a key sector for DHL Global Forwarding and we are able to offer the transport of sensitive pharmaceutical cargo all around the globe. We have dedicated teams which have been trained on Good Distribution Practice (GDP) requirements. If the shipment is booked as DHL Ocean Thermonet, this includes features like: 24/7 temperature monitoring, intervention capabilities, subcontractor management, Corrective and Preventive Action (CAPA) handling.

DHL EXCLUSIVE MULTIPARAMETRIC RECORDER OF SHIPMENT CONDITIONS

Designed to provide near real-time data on cargo condition, the device works autonomously or in tandem with other devices. The sensor is calibrated to comply with pharma requirements, as per GDP guidelines. Data is transmitted at predefined intervals when GSM signal is available. Without signal, data is recorded and transmitted with the next possible connection to our designated web page.

LOCATION TRACKING:

- GPS/GSM position
- GEO-Fences

CONDITION SENSING:

- Light/Intrusion
- Temperature
- Shock
- Humidity

REEFER CARGO LOADING CHECKLIST

Key points to consider in order to ensure a safe journey to your cargo:

PREPARING FOR SHIPMENT

- ☐ Optimal temperature requirement (°C or F)
- ☐ Fresh-air ventilation, if required (in cbm/h)
- ☐ For dehumidication: max. relative humidity setting (in %)
- ☐ For Controlled Atmosphere, define gas composition and type of scrubber, if required
- ☐ Transport time versus practical shelf life of the product
- ☐ Volume and weight of cargo
- ☐ Stuffing pattern and packaging material
- ☐ Required documentation, including legislative requirements
- ☐ Genset requirement for pre and on-carriage

BEFORE AND DURING STUFFING

- ☐ Cargo was correctly pre-treated, packed and is pre-cooled to transport set-point
- ☐ Container is in a sound and clean condition, and is set at the required set points (temperature, ventilation, etc.)
- ☐ Container unit does not run with rear doors open
- ☐ Container floor and drains stay free of debris
- ☐ Cargo is never stuffed above the maximum red load line
- ☐ Cargo is stable and evenly stuffed according to stuffing guidelines (weight should be distributed for maximum stability and the entire T-bar floor should be covered)
- ☐ Ensure best air flow
- ☐ Cargo (as well as any filler material) is blocked and braced as necessary to avoid shifting
- ☐ Temperature, humidity and fresh-air vents settings are correct
- ☐ Total cargo weight does not exceed the maximum payload of the container
- ☐ Total weight of the container (container, cargo, chassis and genset) does not exceed the road limitations in any country crossed during transport

YOUR QUESTIONS ANSWERED

What kind of cargo can I transport with Ocean Reefer?

Any cargo that needs a clean and temperature controlled or special environment, high-value and sensitive products, for example: perishables, pharmaceutical items, chemicals, fresh fruits, fish, chocolate, ice cream, poultry, etc.

Ocean Reefer from DHL will take your cargo safe and temperature controlled from end-to-end, providing you reliability on your delivery.

Are Reefer containers fully operational and clean?

Prior to release of an empty container before the next shipment starts, a Pre-Trip Inspection (PTI) is performed. The PTI covers an optical check of walls and roof, rubber sealing and cleaning of container. In addition there is a technical check on the unit to test its functionality. Depending on the cargo shipped, different levels of PTI are available.

Due to the sensibility of the cargo transported in Reefer containers, DHL provides an extra care to them, adding a much safer journey to your cargo among with all the temperature control features existing in Ocean Reefer.

Will my cargo be shipped in a container with different kinds of products?

Certain Reefer containers are only used for specific cargo, like unpacked deep frozen fish, fruit, meat, chemicals or general cargo. The containers are always professionally cleaned after a trip to avoid any kind of remains.

Therefore, DHL ensures that your cargo will travel safe and your commodity will only travel in containers prepared for that kind of cargo, not shipping your cargo with any other cargo that could harm the quality of your goods.

Can DHL Global Forwarding provide origin and destination services for Ocean Reefer?

We offer the full range of the transport requirements from door to door including temperature controlled pick-up and delivery, customs brokerage, storage, etc. For perishables, cold treatment and loading preparation is provided to ensure professional transport from end-to-end.

Does DHL Global Forwarding operate own offices handling all ocean services?

We have the most comprehensive network of offices around the globe and as such operate own offices in most places. In the event that we have no own office, we service you through a well-established and reliable agent.

Can Ocean Reefer containers be placed on Rail?

Yes they can. Depending on the kind of freight and duration of rail journey, a genset might be required. Gensets as clip-on are available on selected routes for continuous temperature controlled transportation.

How can I monitor my cargo from end-to-end?

DHL provides additional services that will add even more safety to your delivery. With DHL Ocean Thermonet or DHL Ocean Secure it is possible to monitor your shipment 24/7 worldwide through DHL Online Web Portal thanks to Smart Sensor GSM or a different device in use at the DHL portfolio, allowing monitoring of your cargo as soon as it's loaded.

Contact us through OceanThermonet@dhl.com (for pharmaceutical shipments)

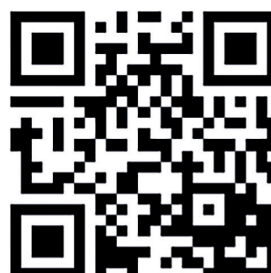
or OceanSecure@dhl.com (for any other delicate cargo).

Watch our video on YouTube to find out more about DHL Ocean Thermonet by scanning the QR code on this page or through the following link:

www.youtube.com/watch?v=N34vDTb9FWA.

Watch now:

DHL Ocean Thermonet Video



You can find out more about Ocean Reefer online
at www.dhl.com/oceanfreight or by contacting
your local sales representative.