

# TYPES OF MODERN OIL TANKERS

Oil tankers play a crucial role in the transportation of oil and its products across the globe. The two main types of oil tankers, crude tankers and product tankers, serve different purposes in the oil industry.

## CRUDE TANKERS:

These tankers are designed to transport large quantities of unrefined crude oil.

They are responsible for moving crude oil from the extraction point, often near oil wells or offshore platforms, to refineries.

Crude tankers come in various sizes, including Very Large Crude Carriers (VLCCs) and Ultra Large Crude Carriers (ULCCs), capable of carrying massive amounts of crude oil.

## PRODUCT TANKERS:

Product tankers are generally smaller in size compared to crude tankers.

They are designed to transport refined petroleum products from refineries to locations closer to consumer markets.

Refined products may include gasoline, diesel, jet fuel, and other processed petroleum derivatives.

Product tankers are more flexible in terms of the variety of products they can transport compared to crude tankers.

Both types of tankers are vital for the global energy supply chain, ensuring that crude oil is efficiently transported from extraction points to refineries and that refined products reach markets where they are needed. The shipping of oil involves careful consideration of safety measures and environmental concerns to prevent spills and accidents at sea.

## OIL TANKER SIZE CATEGORIES

AFRA SCALE		FLEXIBLE MARKET SCALE	
CLASS	SIZE IN DWT	CLASS	SIZE IN DWT
GENERAL PURPOSE TANKER	6,000–24,999	PRODUCT TANKER	6,000 - 60,000
MEDIUM RANGE TANKER	25,000–44,999	PANAMAX	60,000 – 80,000
LR1 - LONG RANGE 1	45,000–79,999	AFRAMAX	80,000 - 120,000
LR2 - LONG RANGE 2	80,000–159,999	SUEZMAX	120,000 - 200,000
VLCC - VERY LARGE CRUDE CARRIER	160,000–319,999	VLCC	200,000 - 320,000
ULCC - ULTRA LARGE CRUDE CARRIER	ABOVE 320,000	ULCC	ABOVE 320,000
FSO - FLOATING STORAGE AND OFFLOADING UNIT	ABOVE 320,000	FSO	ABOVE 320,000

## PRODUCT TANKER

A product tanker is a type of tanker vessel designed for the transportation of refined petroleum products. These products can include various liquid commodities such as gasoline, diesel, jet fuel, and other refined oils. Unlike crude oil tankers, which transport unrefined petroleum, product tankers are specifically designed to carry finished products from refineries to distribution points or end-users.

Key features of product tankers include:

**Segregated Tanks:** Product tankers are equipped with multiple segregated cargo tanks to allow for the transportation of different types of refined products. This is crucial to prevent contamination between different cargoes.



**Pump Systems:** Product tankers are fitted with sophisticated pumping systems to facilitate the loading and unloading of various products efficiently.

**Size Range:** Product tankers come in various sizes, ranging from small coastal tankers to larger vessels capable of long-distance international voyages. The size may vary based on the specific requirements of the trade routes and the volume of products to be transported.

**Double Hulls:** Many modern product tankers are constructed with a double hull design to enhance safety and minimize the risk of oil spills in the event of a collision or grounding.

Product tankers play a crucial role in the global distribution of refined petroleum products, ensuring a steady and efficient supply to meet consumer demand. Like other types of vessels, regulations and industry standards may influence the design and operation of product tankers, and advancements in technology continue to shape the industry. For the most current and specific information, it is advisable to consult maritime authorities or industry sources.

## PANAMAX TANKERS

Panamax tankers refer to a specific size category of ships known as Panamax vessels that are designed to fit through the Panama Canal. The Panama Canal has size limitations, and ships that can navigate through it are classified based on these dimensions. Panamax tankers are specifically designed to maximize the canal's capacity.

Panamax tankers typically have the following size constraints:

**Length:** Up to approximately 294 meters (965 feet)

**Beam (width):** Up to approximately 32.3 meters (106 feet)

**Draft:** Up to approximately 12 meters (39.5 feet)

These dimensions allow these vessels to transit the Panama Canal's locks, connecting the Atlantic and Pacific Oceans.

## AFRAMAX TANKERS

An AFRAMAX tanker is a type of oil tanker that falls within a specific size range, known as AFRAMAX size. These vessels are commonly used for the transportation of crude oil and, to a lesser extent, refined petroleum products. The term "AFRAMAX" is derived from the Average Freight Rate Assessment (AFRA) system, which was developed by Shell Oil to standardize freight rates for tankers.

Here are some key characteristics of AFRAMAX tankers:

**Size:** AFRAMAX tankers typically have a deadweight tonnage (DWT) ranging from around 80,000 to 120,000 metric tons. This size range allows them to carry substantial quantities of crude oil.

**Dimensions:** The dimensions of an AFRAMAX tanker are designed to be suitable for certain waterways and ports. While specific dimensions can vary, typical values include a length of approximately 230 to 250 meters, a beam (width) of around 32 meters, and a draft of about 12 meters.

**Trade Routes:** AFRAMAX tankers are often employed for transporting crude oil over relatively short to medium distances. They are versatile vessels that can navigate in various regions, and their size allows them to access ports that may not be accessible to larger vessels like SUEZMAX or Very Large Crude Carriers (VLCCs).

**Global Importance:** AFRAMAX tankers play a crucial role in the global oil transportation industry, facilitating the movement of crude oil from oil-producing regions to refineries or storage facilities. They are particularly important in regions where larger vessels may face navigational or port restrictions.

## SUEZMAX TANKERS

SUEZMAX is another classification of oil tanker, referring to vessels that are designed to be the maximum size capable of transiting the Suez Canal. The SUEZMAX size is larger than AFRAMAX and smaller than the Very Large Crude Carriers (VLCCs). The Suez Canal has certain restrictions on vessel dimensions, and SUEZMAX tankers are built to maximize the cargo capacity while still being able to navigate through the canal.





Key features of SUEZMAX tankers include:

**Size:** SUEZMAX tankers typically have a deadweight tonnage (DWT) ranging from 120,000 to 200,000 metric tons. This size allows them to carry a significant amount of crude oil.

**Dimensions:** The dimensions of a SUEZMAX tanker are constrained by the specifications of the Suez Canal. Typical values include a length of around 240 to 275 meters, a beam (width) of approximately 42 meters, and a draft of about 16 meters.

**Trade Routes:** SUEZMAX tankers are often employed for long-haul voyages, transporting crude oil from oil-producing regions to refineries around the world. They can transit through the Suez Canal, providing access to both the Mediterranean and Red Seas.

**Cargo types:** While SUEZMAX tankers are primarily associated with the transport of crude oil, they can also be adapted for the shipment of other liquid cargoes, such as refined petroleum products.

SUEZMAX tankers are significant players in the global oil transportation market, serving as a crucial link in the supply chain between oil-producing regions and refineries.

## VERY LARGE CRUDE CARRIER (VLCC)

A Very Large Crude Carrier (VLCC) is a type of massive oil tanker designed for the transportation of large quantities of crude oil. VLCCs belong to the largest category of oil tankers and are characterized by their immense size and carrying capacity. These vessels play a crucial role in the global oil transportation industry, facilitating the movement of crude oil from major oil-producing regions to refineries and distribution centers.

Key features of VLCCs include:

**Size:** VLCCs typically have a deadweight tonnage (DWT) ranging from 200,000 to 320,000 metric tons. This immense size allows them to carry substantial volumes of crude oil.

**Dimensions:** The dimensions of a VLCC are significant and are generally constrained by the specifications of major shipping lanes, ports, and the Suez Canal. Typical values include a length of around 320 to 330 meters, a beam (width) of about 60 meters, and a draft of approximately 20 meters.

**Trade Routes:** VLCCs are often employed for long-distance voyages, transporting crude oil from major oil-exporting countries to refineries and demand centers worldwide. They are capable of navigating through major shipping lanes, including the Suez Canal and the Strait of Malacca.

**Cargo Types:** VLCCs are specifically designed for the transport of crude oil. They have large cargo holds with segregated compartments to handle different grades of crude oil.

**Global Significance:** VLCCs are critical in the global oil supply chain, providing an efficient means of transporting large quantities of crude oil across oceans. They are integral to the movement of oil from regions such as the Middle East to various parts of the world.

Due to their size and strategic importance, VLCCs are subject to international regulations and safety standards.

## ULTRA LARGE CRUDE CARRIER (ULCC)

An Ultra Large Crude Carrier (ULCC) is a type of oil tanker that belongs to the largest class of vessels used for the transportation of crude oil. ULCCs are even larger than Very Large Crude Carriers (VLCCs) and have the capacity to carry extremely large quantities of crude oil over long distances.

Key features of ULCCs include:

**Size:** ULCCs are among the largest ships in the world, with a deadweight tonnage (DWT) exceeding 320,000 metric tons. These vessels are designed to carry massive amounts of crude oil.

**Dimensions:** The dimensions of ULCCs are substantial, with typical values including a length of over 330 meters, a beam (width) of more than 60 meters, and a draft that can exceed 30 meters. These dimensions allow them to navigate major shipping lanes and access deepwater ports.

**Trade Routes:** ULCCs are often used for long-haul voyages, transporting crude oil from major oil-producing regions to refineries and demand centers around the world. They are capable of navigating through key maritime routes, including the Suez Canal and the Strait of Malacca.



**Cargo Types:** Like VLCCs, ULCCs are designed specifically for the transportation of crude oil. They have large cargo holds with segregated compartments to handle different grades of crude oil.

**Global Significance:** ULCCs play a critical role in the global oil supply chain by facilitating the efficient movement of large volumes of crude oil across oceans. They are essential for connecting major oil-producing regions with refineries and markets worldwide.

As with any classification in the shipping industry, it's important to note that vessel sizes and classifications can evolve over time, and technological advancements or changes in industry standards may influence these specifications. For the most current and specific information, it is advisable to consult maritime authorities, shipping organizations, or industry publications.

## FLOATING STORAGE AND OFFLOADING (FSO)

A Floating Storage and Offloading (FSO) unit is a type of floating vessel used in the oil and gas industry for the temporary storage of crude oil before it is offloaded to a tanker or transported via pipelines to refineries. FSO units are typically stationed near offshore oil fields, where they receive crude oil from production platforms.

Key features of Floating Storage and Offloading units include:

**Storage:** FSO units have large storage capacities, allowing them to store significant volumes of crude oil. The storage tanks on board are designed to handle the temporary accumulation of oil before it is transferred to other vessels or infrastructure.

**Offloading:** FSOs are equipped with facilities for offloading crude oil to shuttle tankers or other transport vessels. This can be done through the use of hoses or loading arms, and the crude oil is then transported to refineries for processing.

**Location:** FSO units are typically moored near offshore oil fields, where they serve as a floating storage facility. They can be permanently anchored or may be relocated to different locations as needed.

**Conversion:** Some FSO units are converted from older oil tankers or ships that are no longer suitable for traditional transportation purposes. Converting these vessels into FSOs allows for their continued use in the oil and gas industry.

**Role in Oil Fields:** FSO units play a crucial role in the production and transport of crude oil from offshore oil fields. They provide a flexible and temporary storage solution, especially in cases where pipeline infrastructure is not readily available or economically viable.

FSO units contribute to the overall logistics and infrastructure of offshore oil and gas operations, providing a means to store and transfer crude oil efficiently. The use of FSOs can be influenced by factors such as the distance to onshore facilities, the availability of pipeline infrastructure, and economic considerations in the oil and gas industry.

