

An aerial, black and white photograph of a large shipyard. A massive ship is under construction, with its hull and upper decks visible. The shipyard is filled with various structures, cranes, and equipment. In the background, another ship is docked at a pier, with the name "NASSCO" visible on its side. The overall scene depicts a busy industrial environment for shipbuilding.

# ***Ship measurement***

***Displacement***

***Gross Register Tonnage***

***Net Tonnage***

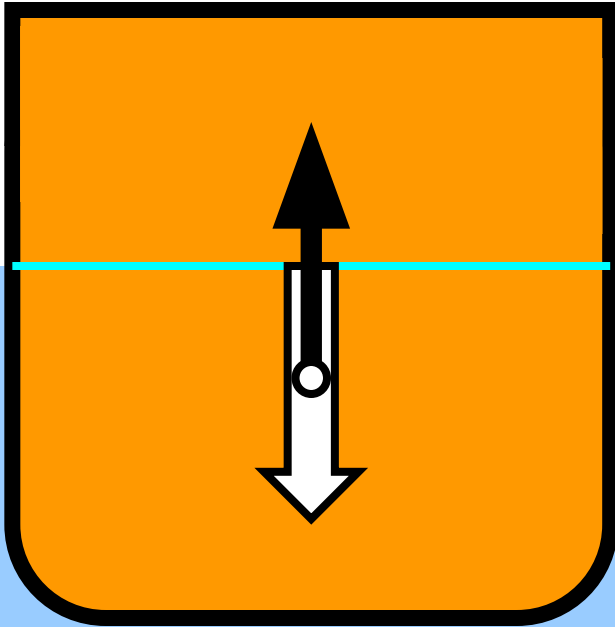
***Deadweight Tonnage***

***Length and Breadth***

***Height and Draft***



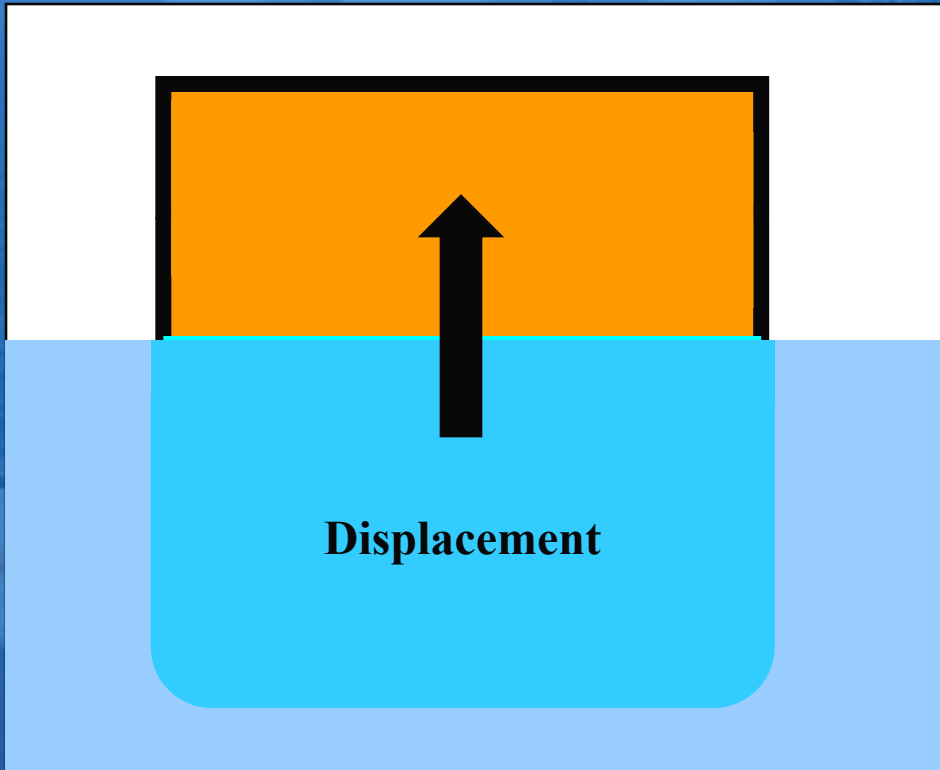
# *Archimedes' principle*



"A ship displaces a weight of water that is equal to its own weight."



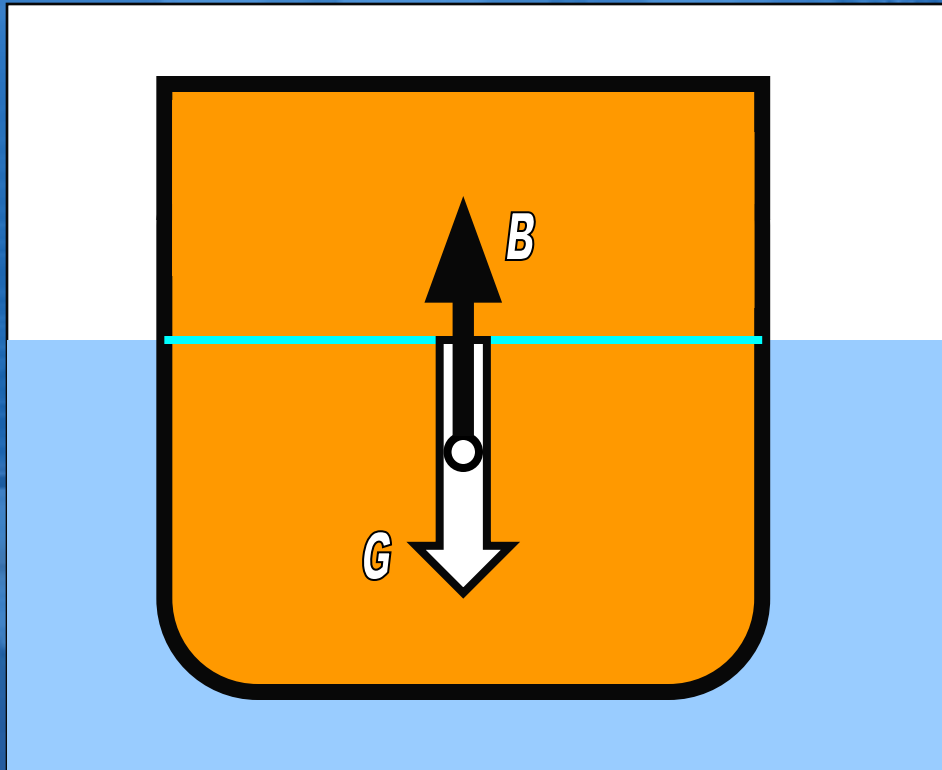
# Archimedes' principle



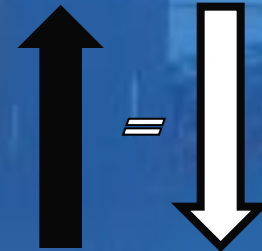
Therefore .....

a vessel will experience an *upthrust* that is equal to the *weight* of the *displaced water*.

# *Buoyancy and gravity*



When Buoyancy (B) is equal to Gravity (G) the vessel will float.



# *Displacement*

The *weight* of a vessel and her *contents*,

or

the *weight* of the displaced watermass.

# *Gross tonnage*

- Gross tonnage equals the entire volume of the *enclosed spaces* of the ship.



# *Net tonnage*

- Net tonnage can be calculated by *deducting* the spaces that are *not* used for *cargo* from the *gross tonnage*.



# *Harbour Dues*

- *Harbour dues* are usually calculated according to the gross tonnage, but some ports use the vessel's net tonnage.





# *Deadweight*

- By *deadweight* is understood the weight of the vessel's contents:
- *cargo* -  
*bunkers* - ( fuel / lubricating oil /  
ballast water / fresh water/  
potable water)  
*equipment* -  
*stores.*

# *Cargo Carrying Capacity*

A photograph showing the interior of a ship's cargo hold. The hold is filled with various types of cargo. In the foreground, there are several large, rectangular bales of material, possibly wool or cotton, stacked together. Behind them, there are stacks of wooden crates or boxes. The cargo is arranged in neat piles, demonstrating the efficient use of space. The lighting is warm, highlighting the textures of the wood and the bales.

By *bale space* is meant the volume of the cargo holds that can be used for *general cargo*.

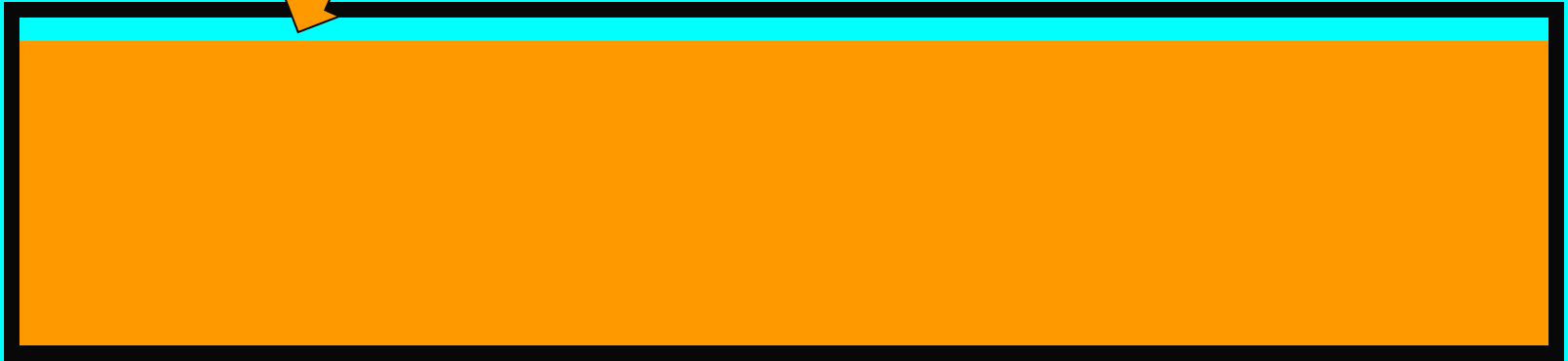
# Cargo Carrying Capacity

By *grain space* is meant the volume of the cargo holds that can be used for bulk cargo.



# *Cargo Carrying Capacity*

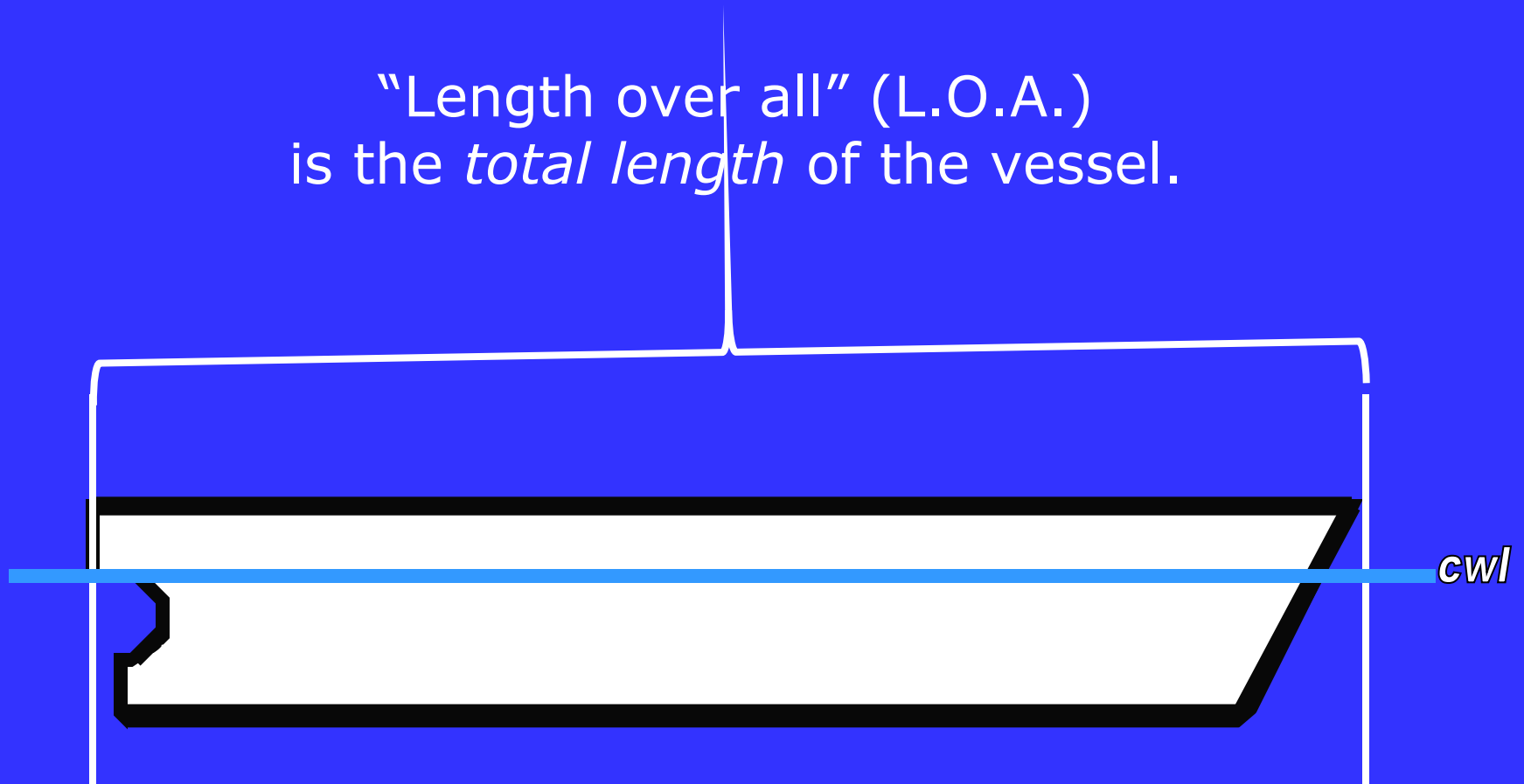
*Ullage* – the free space above the liquid in a tank, which is measured in metres or feet.



By *Oil Space* is understood 98% of the total volume of the wet bulk tanks.

# ***Length over all***

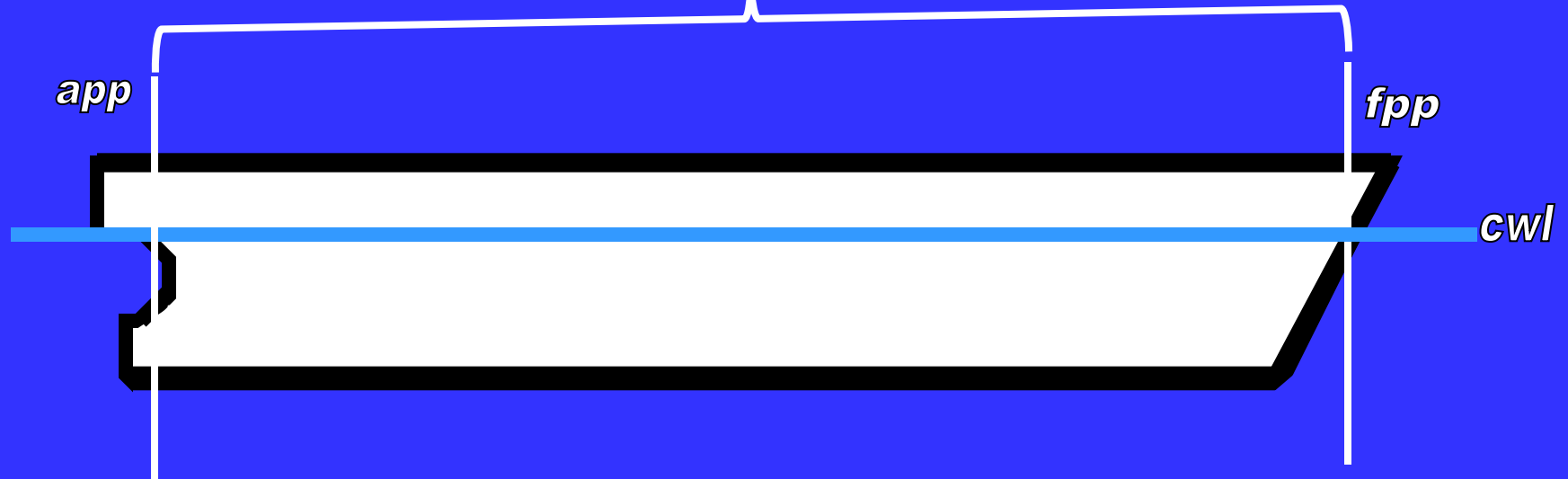
“Length over all” (L.O.A.)  
is the *total length* of the vessel.



***Ship dimensions***

# Length Between Perpendiculars

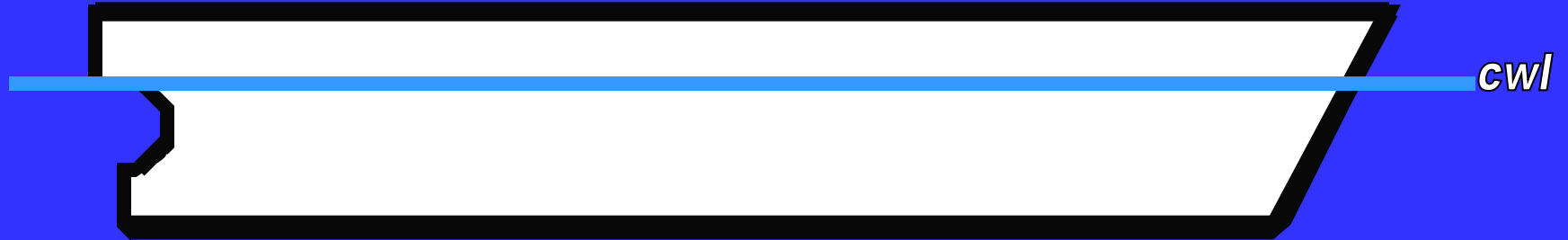
*Length Between Perpendiculars (LPP)*  
is measured between the *fore perpendicular (fpp)* and  
the *aft perpendicular (app)*.



***Ship dimensions***

# *Construction waterline*

The *Construction Waterline (CWL)* or *Summer Loadline* is the line to which the ship may be loaded in summer.



*Ship dimensions*

# *Fore perpendicular*

The *fore perpendicular* is the vertical line through the *intersection* of the CWL and the *stem*.

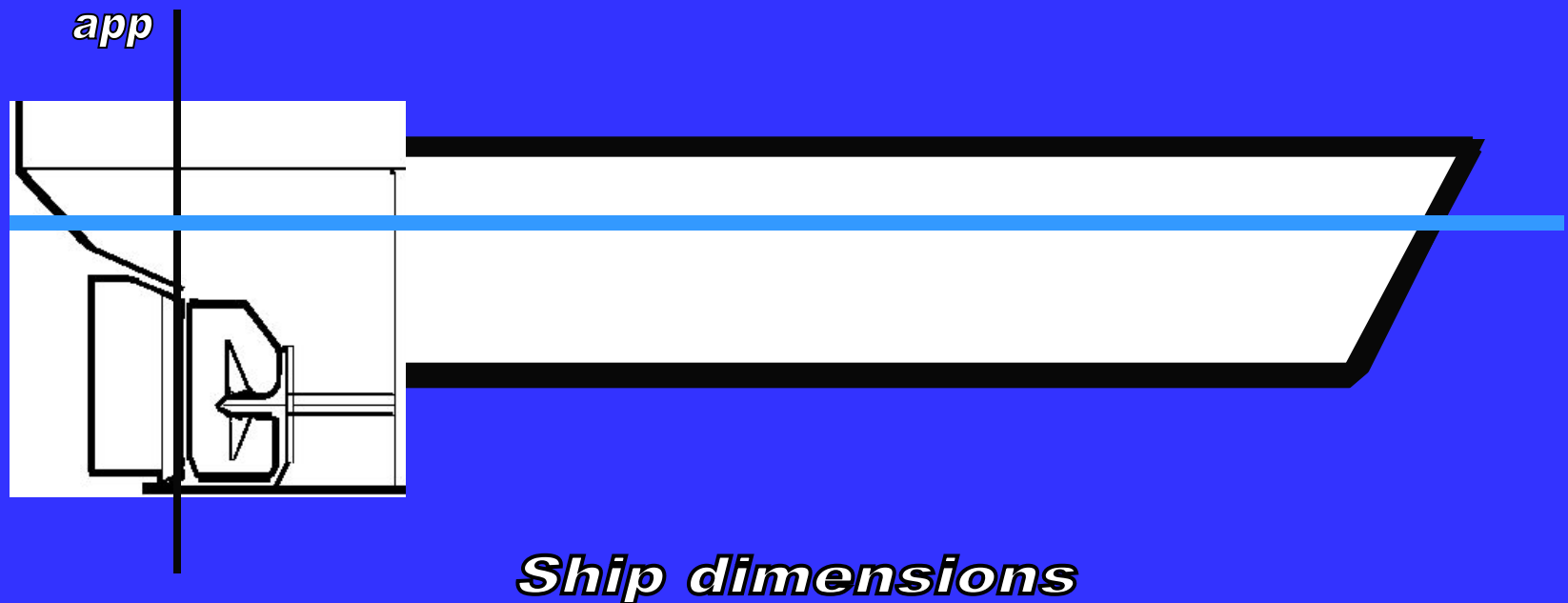


***Ship dimensions***

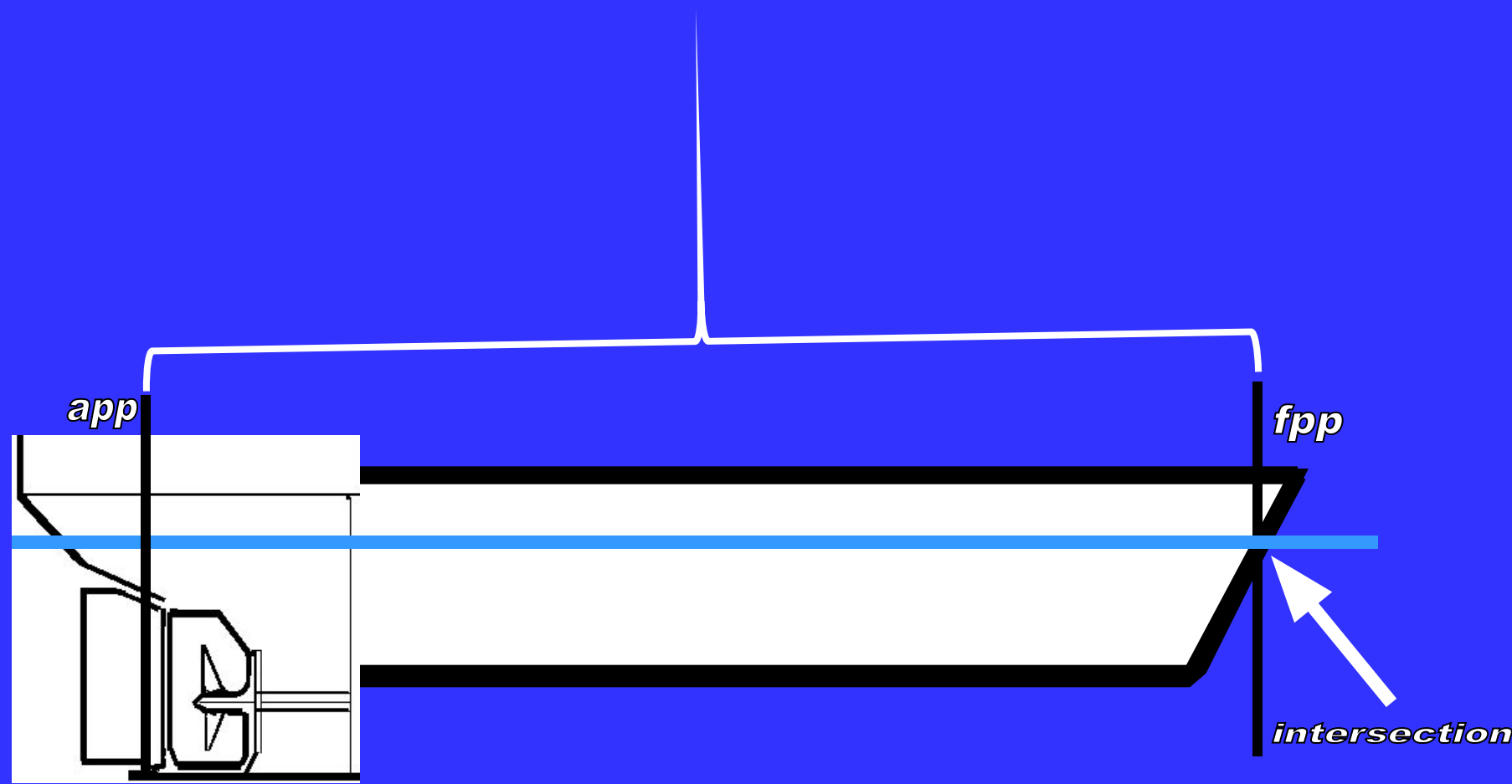


# *Aft perpendicular*

The *aft perpendicular* goes through the *rudderstock*.

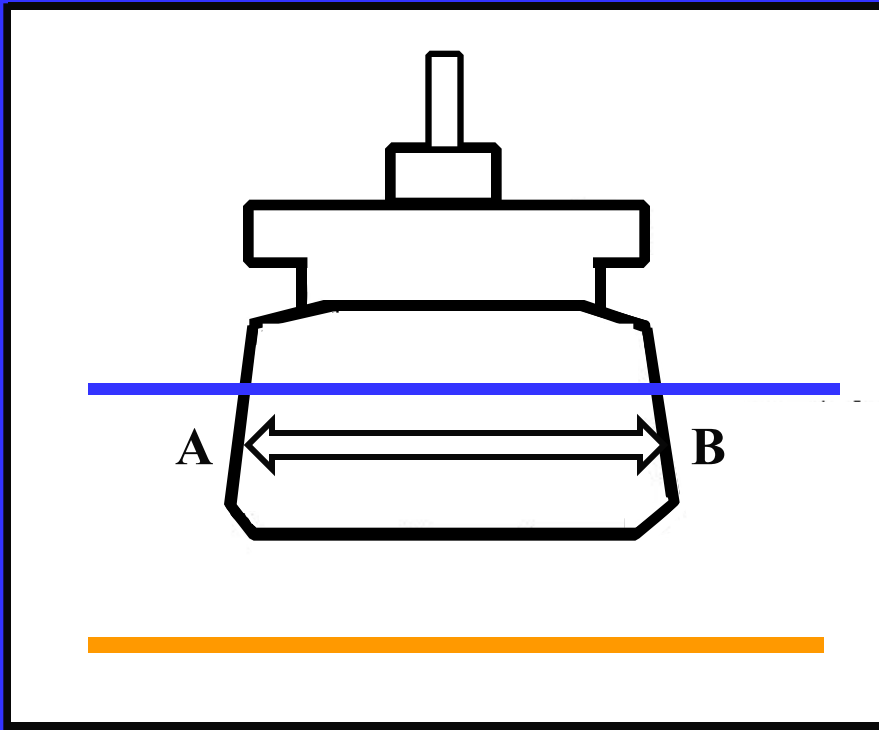


# ***LPP***



***Ship dimensions***

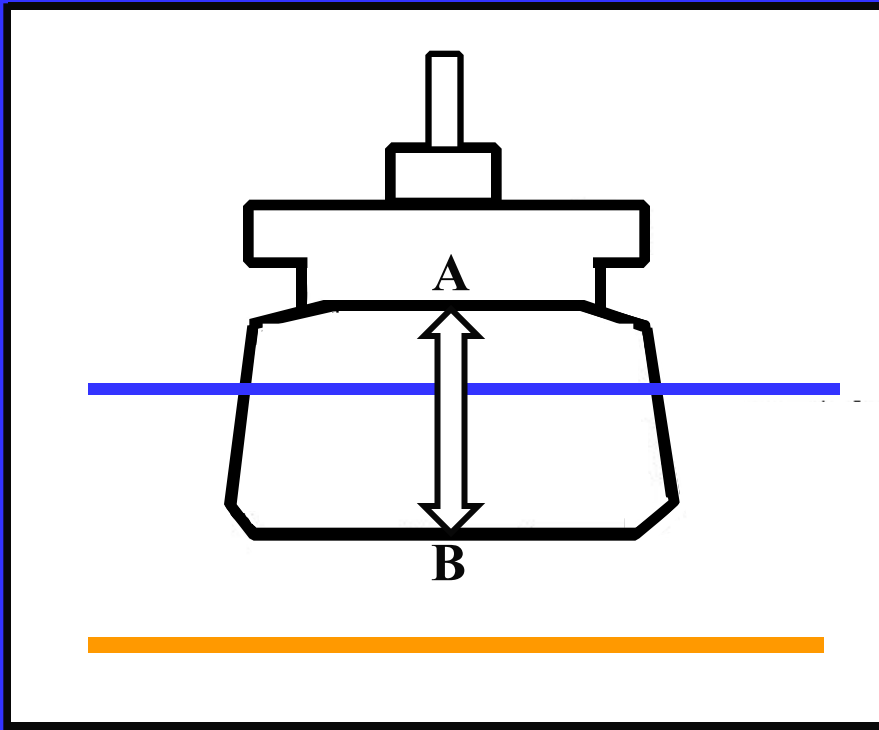
# ***Moulded breadth***



Horizontal distance between the insides of the *moulds* (A-B).

***Ship dimensions***

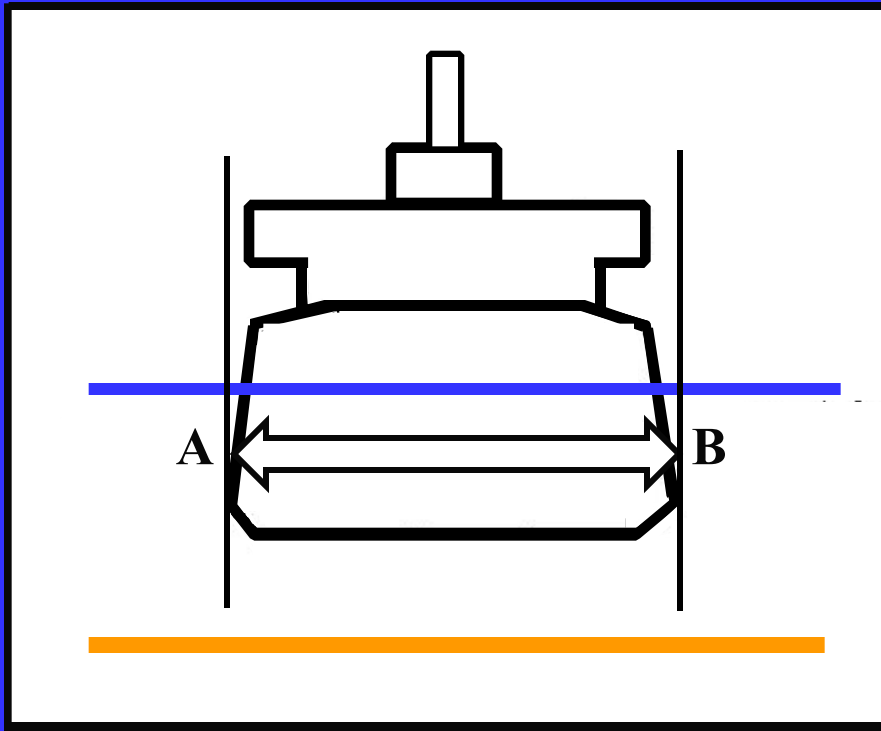
# *Moulded depth*



Vertical distance between the insides of the *moulds* (A-B).

*Ship dimensions*

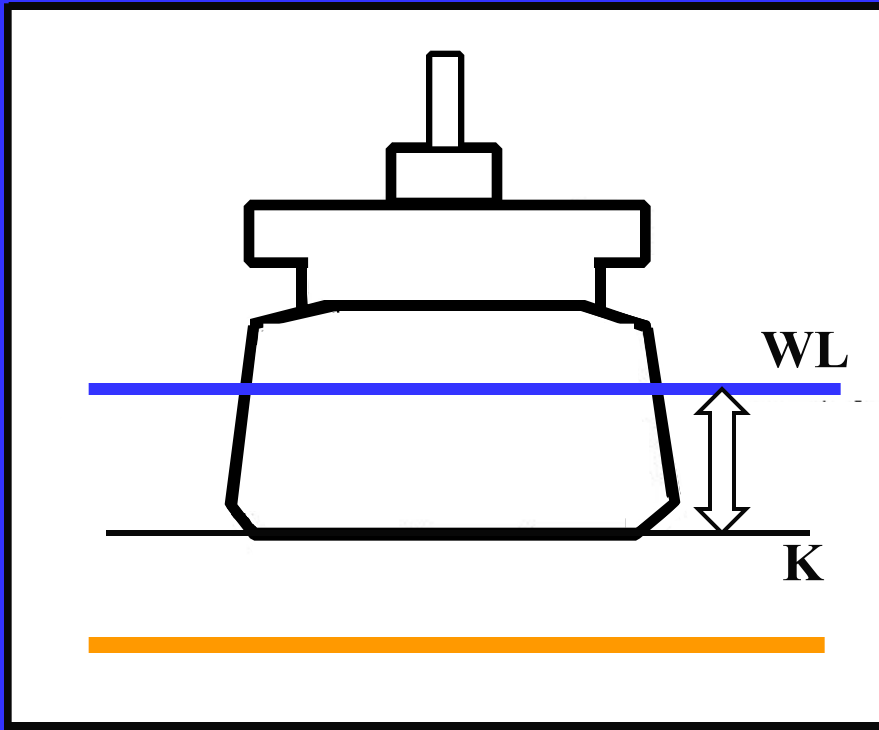
# *Beam*



By *beam* is meant the *extreme breadth* of the vessel (A-B).

*Ship dimensions*

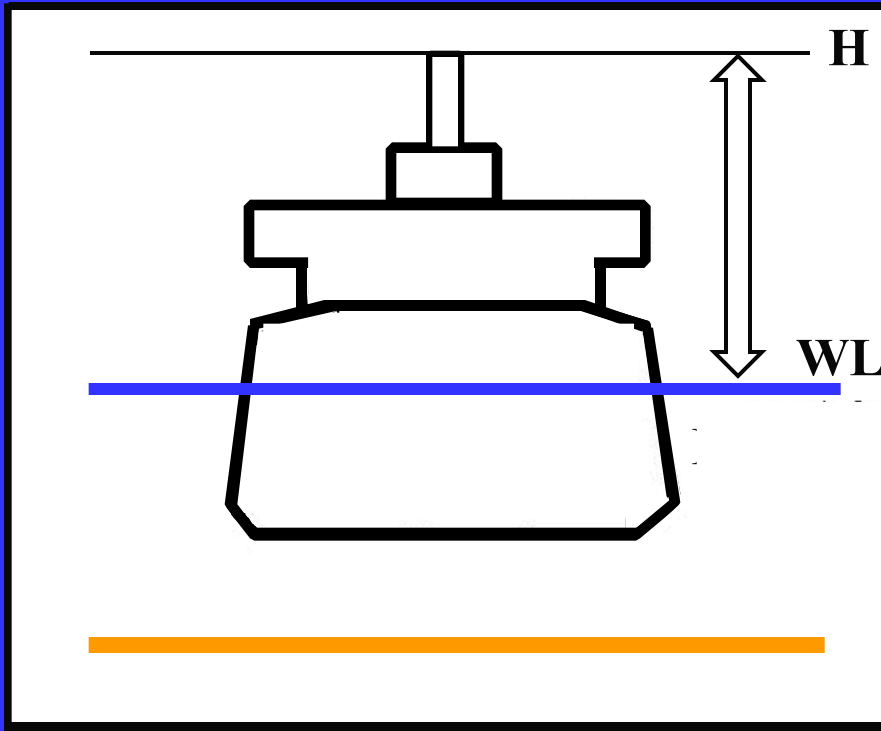
# *Draft*



Distance from the *bottom* of the *keel* to the *surface* of the water (WL - K).

*Ship dimensions*

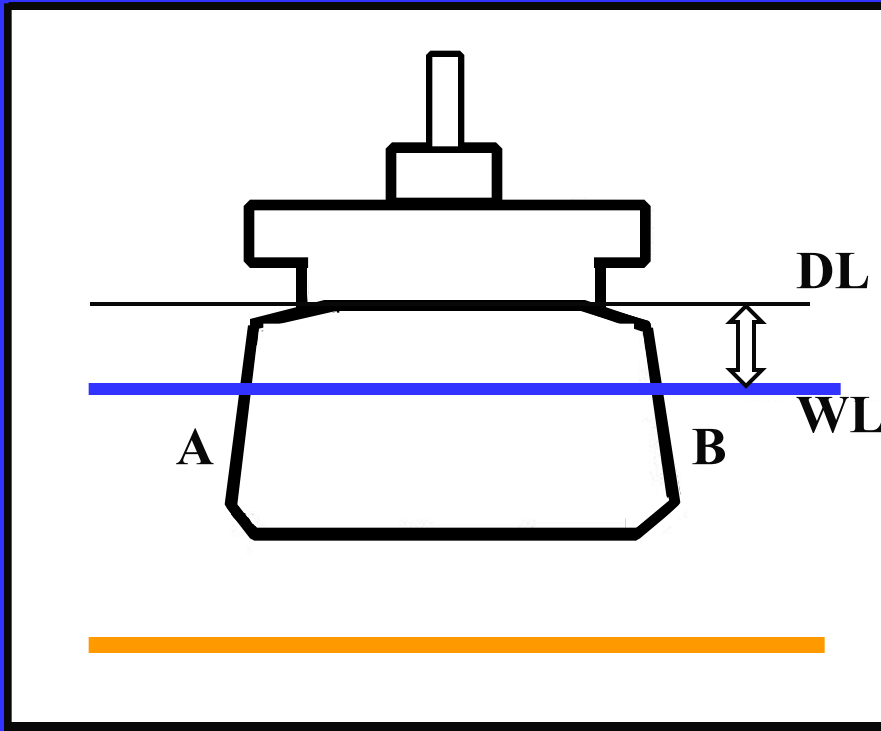
# *Air draft*



Distance from the waterline to the highest point of the vessel (WL - H).

*Ship dimensions*

# Freeboard

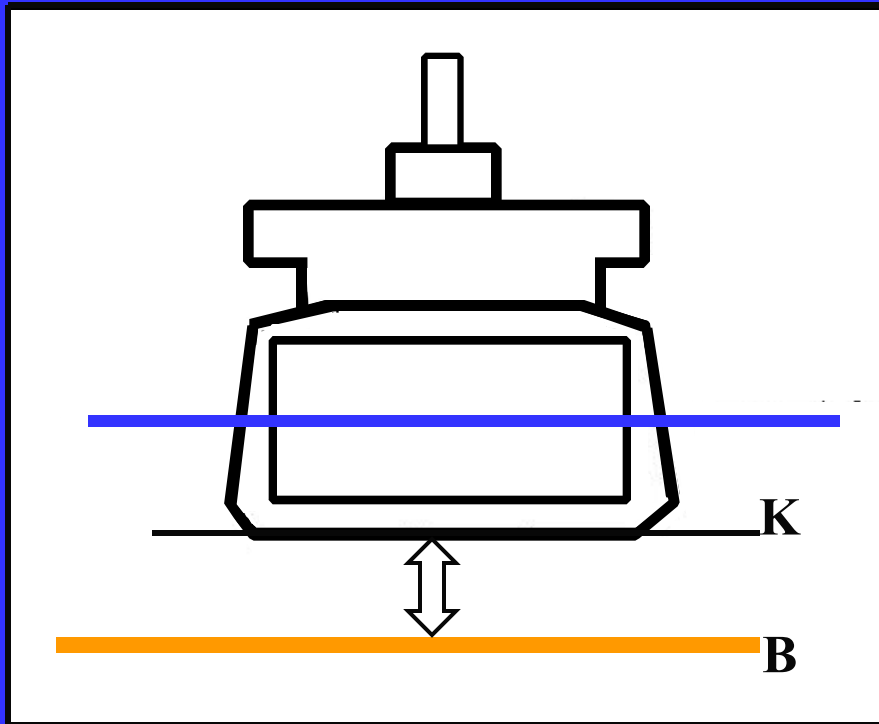


Distance between deckline and waterline (DL - WL).

*Ship dimensions*



# *Underkeel clearance (UKC)*



Distance between keel and sea-bed (K - B).

*Ship dimensions*

# The International Maritime Language Programme – IMLP

# FINISHED

© P.C. van Kluijven

