

***ULTRA-FAST
OFFSHORE Vessel***

A new generation of hulls

Present and future context - 1

The Navy's answers to the geopolitical tensions that increasingly affect the blue and littoral waters of all of Europe, from the **Mediterranean Sea** to the **Baltic Sea** and the seas of **Northern Europe** are, mainly in *Military Operations Other than War* (MOOTW) and *Peace Support Operations* (PSO):

- **low-tonnage naval units** (corvettes, patrol boats and fast patrol boats);
- capable of developing surveillance / patrolling actions and **timely armed interventions for the defence of the their owns or wider alliances interests**
- involvement of several Nations extends the **areas of tension to the so called “Enlarged Mediterranean Sea”** and **African coasts**



Present and future context - 2

In parallel to global power shifts we are also witnessing:

- **new cooperative ventures between countries** with distinct regional and global maritime interests.
- **non-state actors** have an interest in using the maritime domain for their own interests. Today, **pirates or illicit activities such as human trafficking and smuggling** of heroin, cocaine, firearms, and counterfeit products are the most prominent non-state maritime actors.
- **organized crime and piracy** come together in certain littoral hotspots and concern for terrorists involvement as well.



Navy Chief of Staff on *LIMES* 10/2020

- «...potenze situate nell'anticamera del Mediterraneo [...] sono protagoniste di una **corsa al riarmo in netta controtendenza rispetto agli occidentali...**»
- «...progetto di legge sull' **istituzione di una Zona Economica Esclusiva (ZEE) italiana** , appena approvata dalla Camera. Segno che è scaduto il tempo in cui guardavamo al Mediterraneo come a un bene da condividere con tutti.[...] Farne a meno significa semplicemente dare spazio agli altri . Ciò che la ZEE (la seconda E sta per esclusiva) intende impedire»
- « Assieme alla capacità portaerei e a quella anfibia, oggi il **deep strike** fa parte di un trittico che definisce i tre requisiti principali di una nazione a vocazione davvero marittima»
- « In generale credo che le **tecnologie duali siano il futuro** e che questa ulteriore osmosi civile – militare non possa che farci bene.»



Sustainable missions

UFO-V is designed and able to perform following **missions** :

- ✓ - Maritime surveillance/sea control
- ✓ - **Deterrence**
- ✓ - **Deep Strike ops**
- ✓ - Offshore ISR patrolling
- ✓ - **EEZ monitoring**/oil rigs protection
- ✓ - **Counter terrorism**
- ✓ - **Maritime law enforcement**
- ✓ - **Anti-piracy**
- ✓ - Fishery protection
- ✓ - Humanitarian support
- ✓ - Irregular migration interdiction
- ✓ - Border management
- ✓ - Search and Rescue
- ✓ - Scouting littoral areas



Similar Units of the same tonnage -1

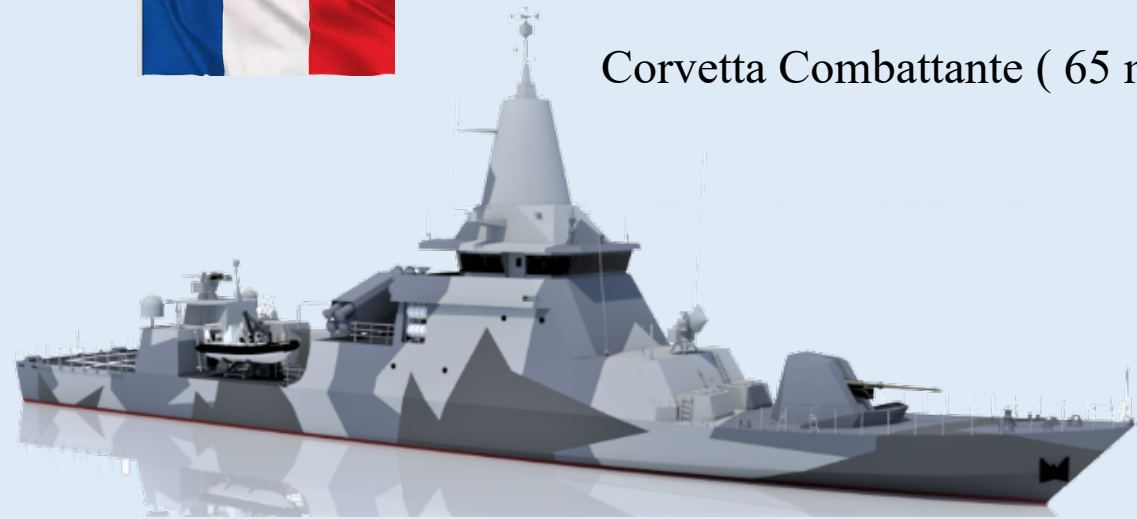
Damen Sigma Fast attack
5910 (59 m.,32 kts)



Corvetta *Combattante* (46 m. >25kts)



Corvetta *Combattante* (65 m., 34 Kts)



Damen Sigma Fast attack 6610 (66 m.,
33 kts)



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Similar units of the same tonnage -2

OPV 950 (64 m., 21 kts)



OPV (63 m. 30 kts)



Innovative hull, modern upperworks

The design of **UFO-V** aimed to overcome traditional hulls and propose an innovative hull with **multimission and dual approach** for different users, based on a consolidated experience of the designer's Team, with different **tailored configurations** of the upper works for military and no-military tasks.



Project Team aims

The work carried out by the initial **LGB-75 Project Group** aimed to overcome the current average limits by developing and testing a kind of hull characterised, in the military version, by:

- very high speed (> 70 knots)
- large load capacity (> 500 tonnes)
- excellent sea-worthiness
- integral stability at any speed
- high propulsive efficiency (> 70 %)
- low draught (3 m.)
- minimum use of appendices
- configurations with a great flexibility
- modularity of construction
- Design & technology innovation

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Design fusion

The diversified experience of the designers allowed to merge and exploit the advantages of different types of offshore hulls

- - *Deep V* hulls
- - Offshore planing hulls
- - *Hard chine / round bilge*
- - *Big seaplanes* hulls

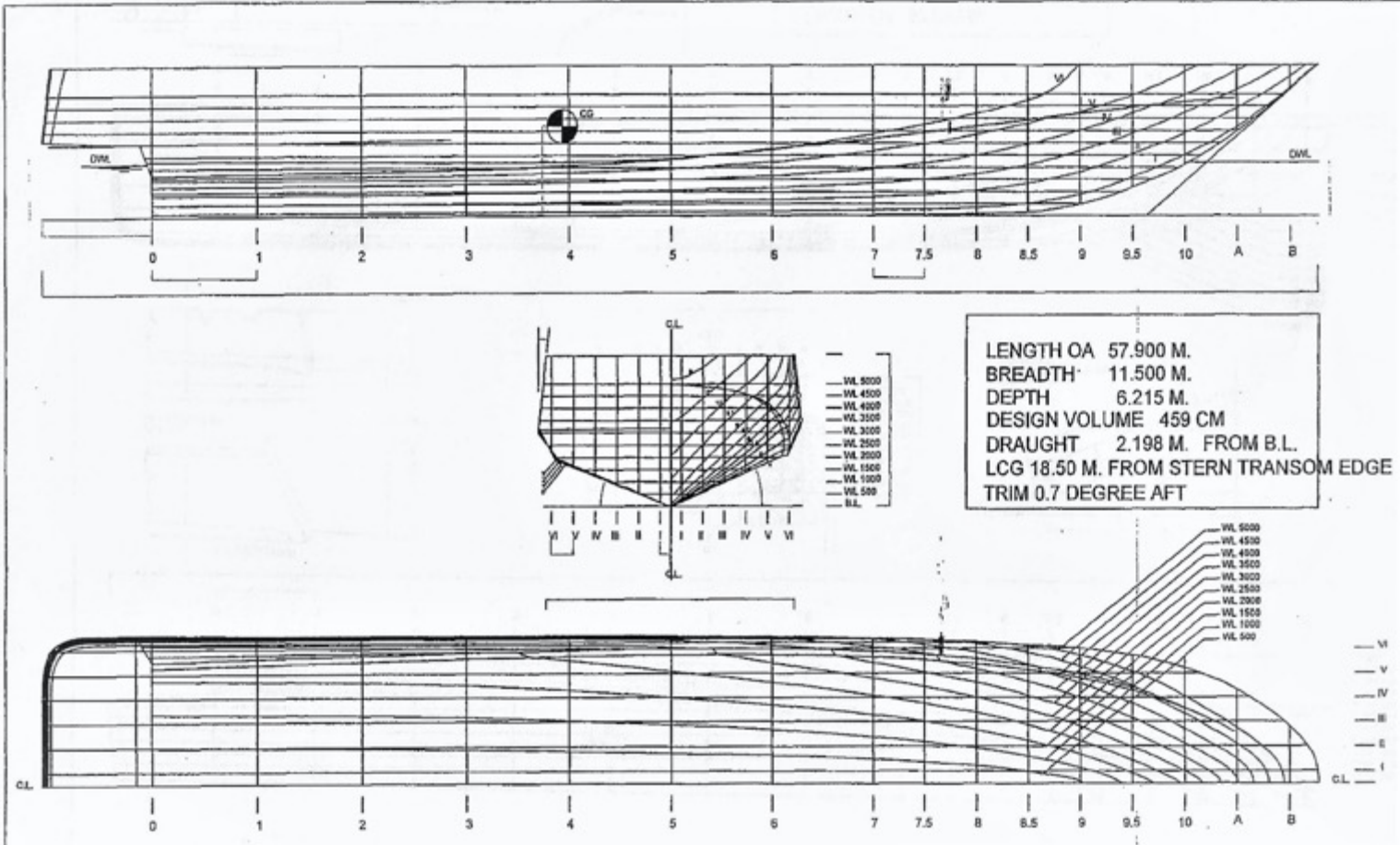


Seaplanes hull

- Japanese Shin Maywa US-2



**ULTR-AFAST
OFFSHORE
VESSEL
(UFO-V)**

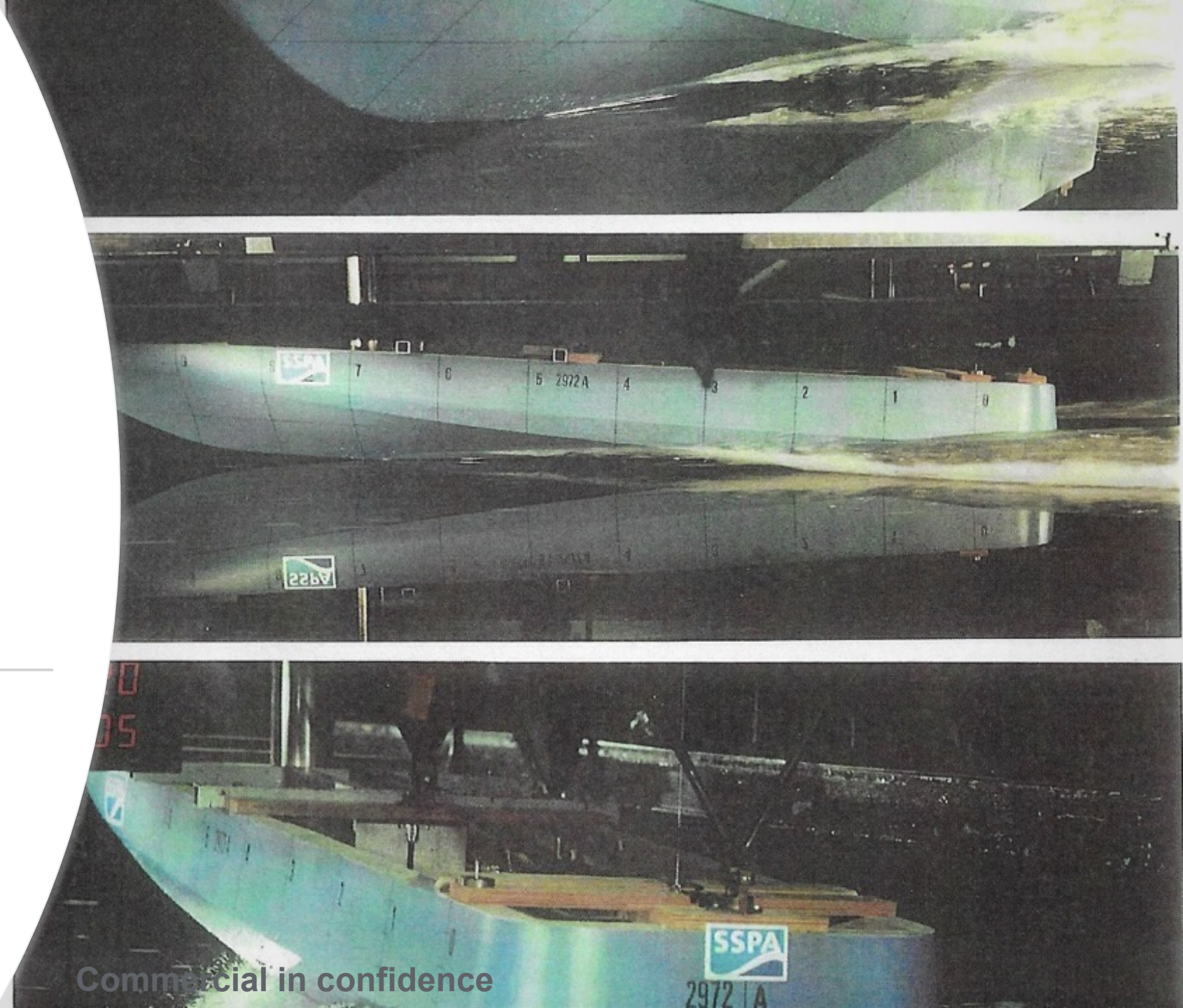


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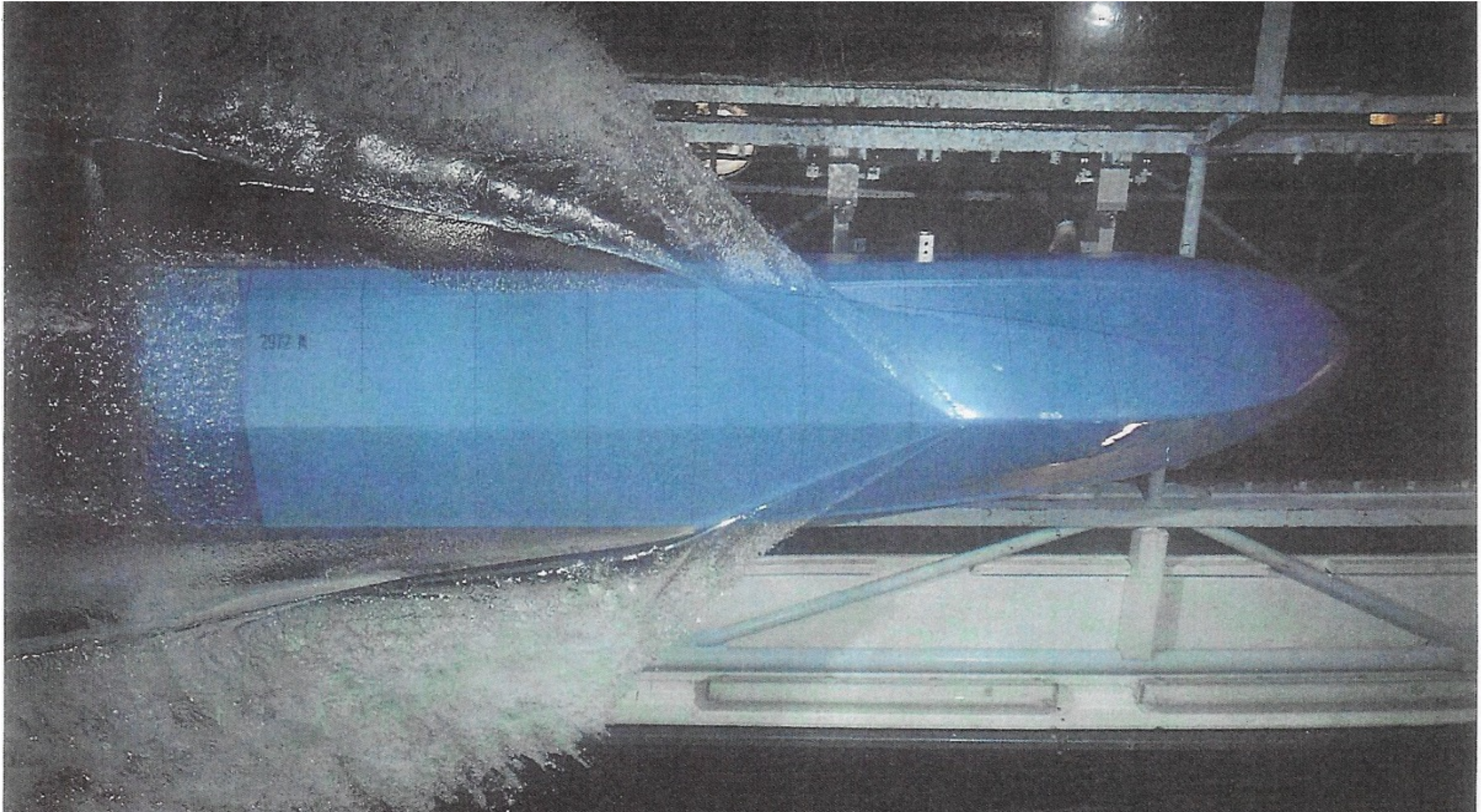


Göteborg SSPA Naval tank

The model is sailing at 75 knots



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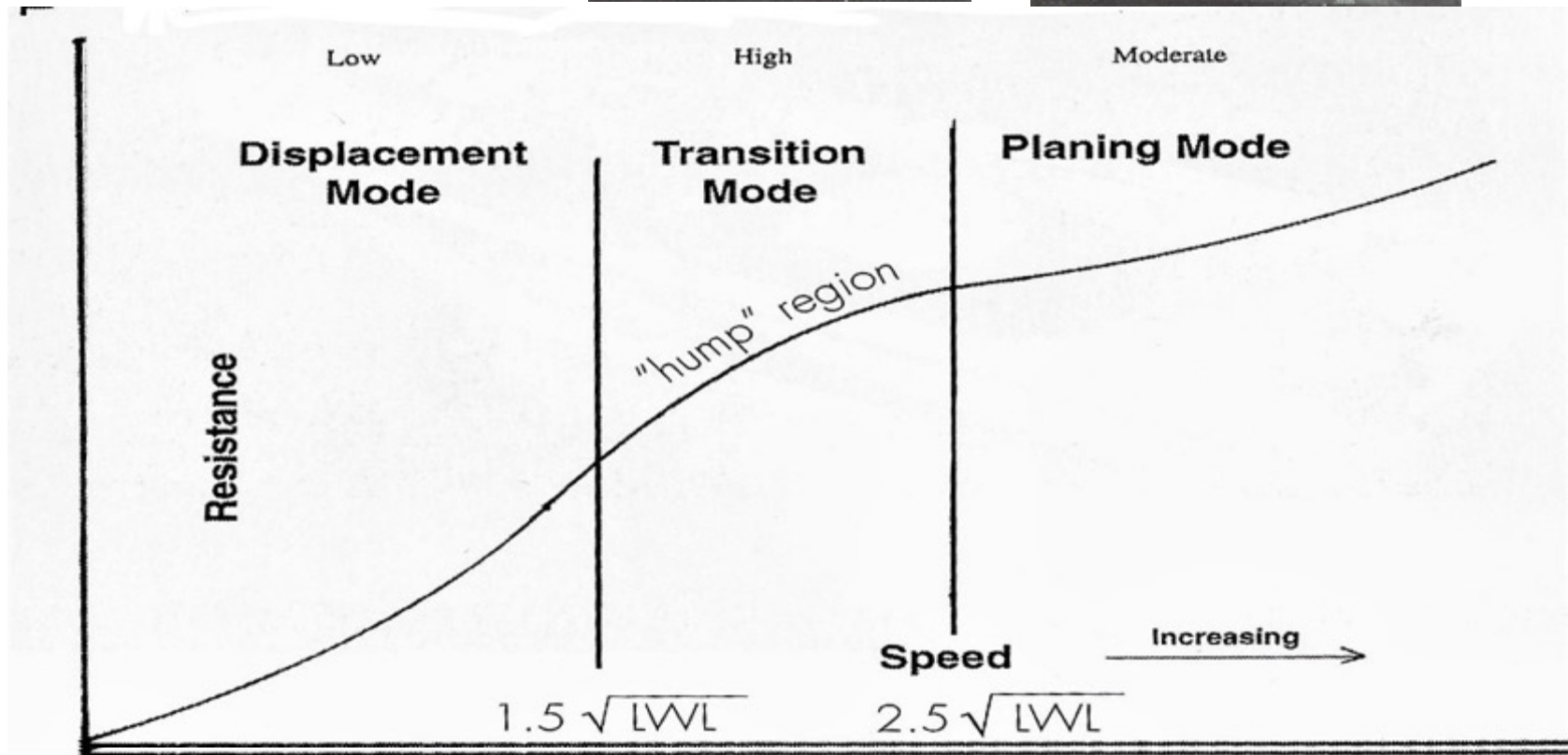
FOUR main configurations

Four main configurations could be developed :

- **Heavy:** 76 mm. gun / Surf-surf miss. / 20 mm machine guns / Surf. Radar / AEW radar / Fire control radar / Navigation radar / electro optical & fire control system / EW system / compact Command&Control / stealth / COC / Crew max 30.
- **Light:** 40 mm. gun / AEW radar / Fire control radar / Navigation radar/ electro optical & fire control system / EW system /10 ton helicopter platform / Crew max 30
- **Special forces:** stealth / 10 ton helicopter platform (day&night) / Crew max 25 / arrangements x 40 men / sensor and armament as required
- **Coast Guard:** 20 mm. machine gun/10 ton helicopter platform+ logistics/Crew max 30/arrangements x 50 people

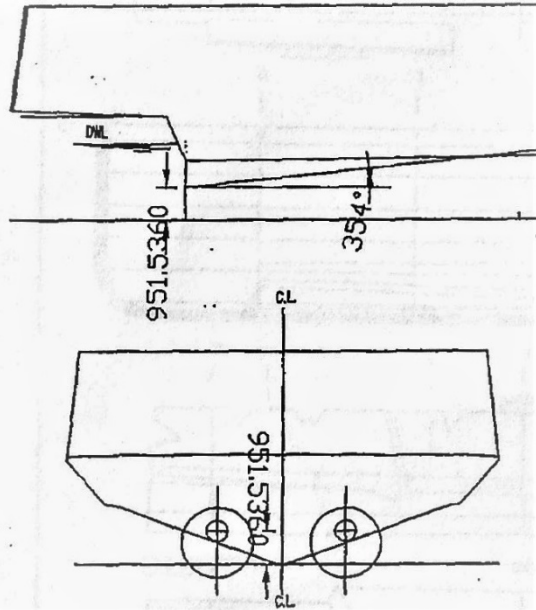
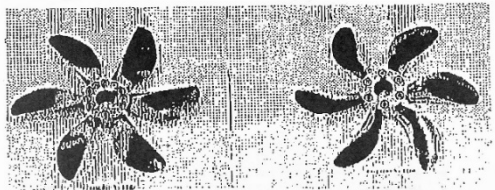
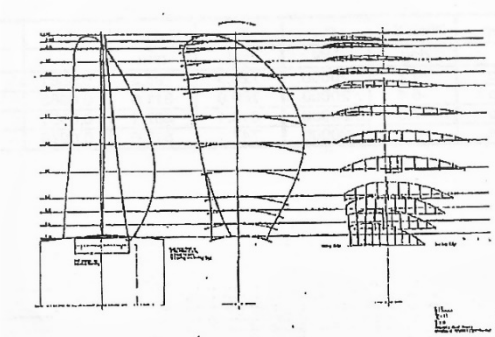


Trim Angle



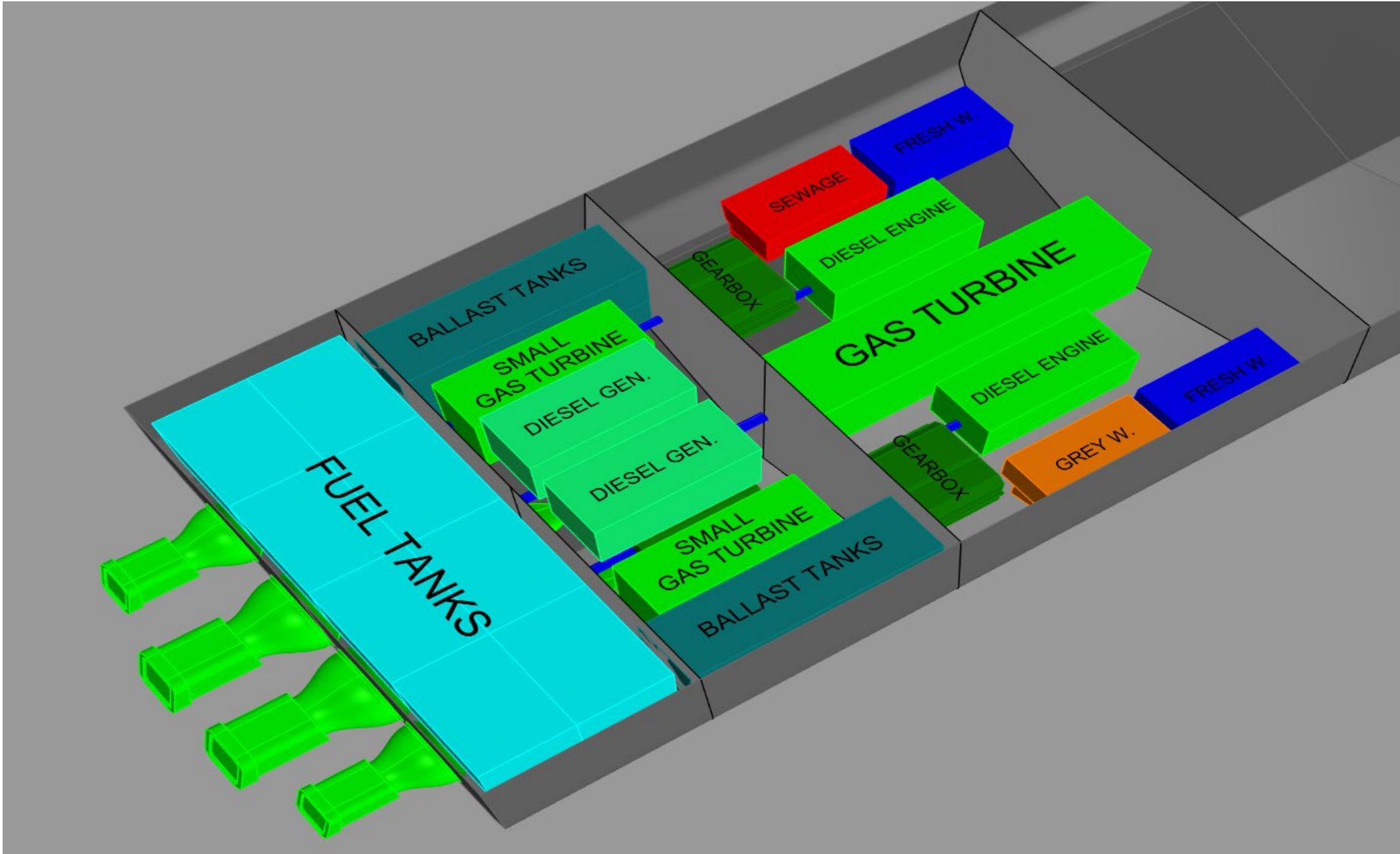
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Eliche e propulsione

- **Propellers:** Two – 6 blades CPP surface, piercing propellers with diameter $D = 2,7$ m, having $P/D = 1,27$, blade aeration $A_E = 0,5$ and immersion ration $T/D = 0,35$. Max inclination of propellers: 8 degrees maximum.



WATERJET SELECTION

- **Booster jets:** type WTJ 1620 jet, 2 set

Transom flange: 2.075 mm.

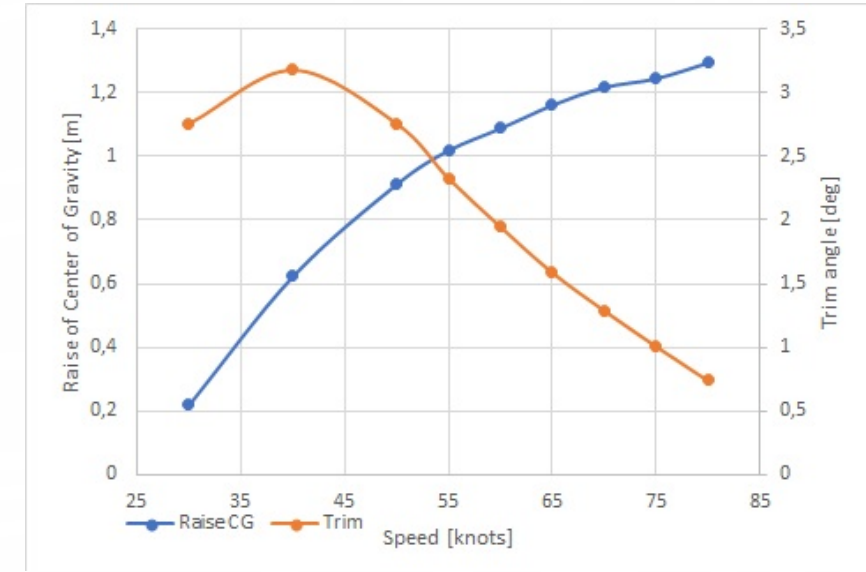
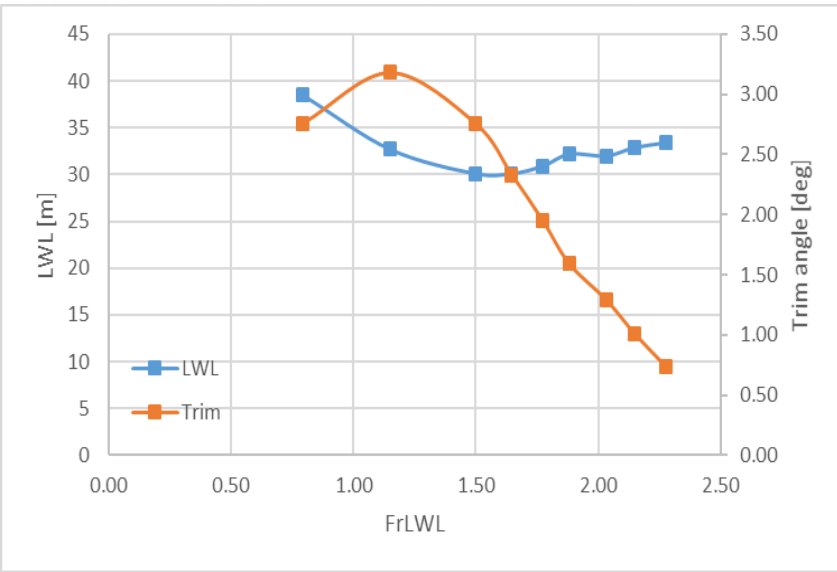
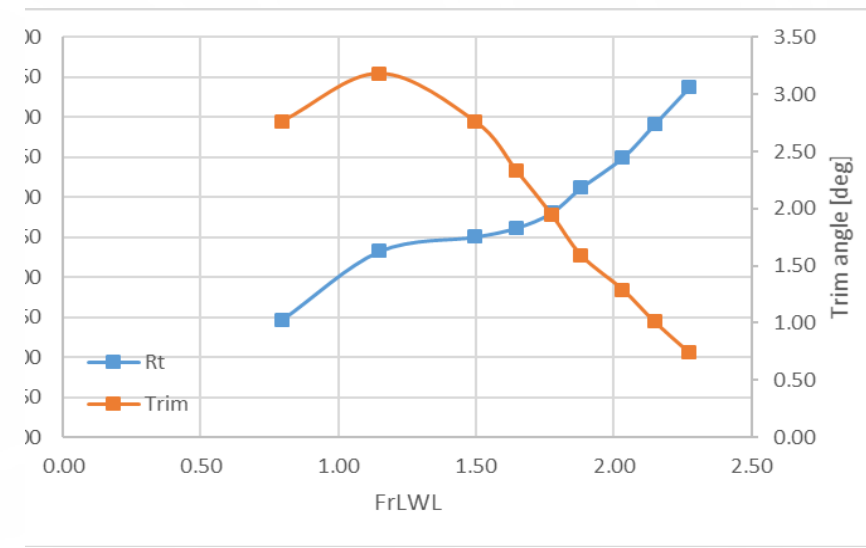
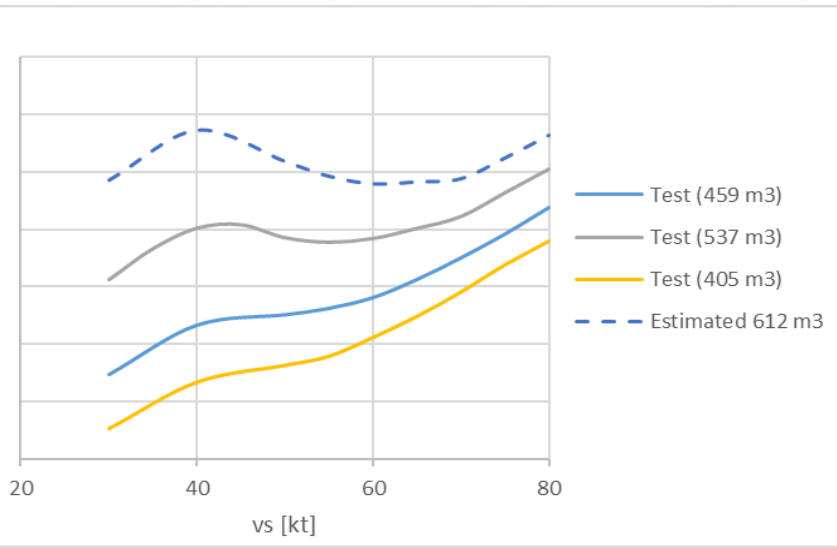
- **Steerable jet** at each side: type WTJ 1200 jet

Transom flange: 1.535 mm.

OPERATIVE MISSION – SPEED REQUIREMENT

Speed is defined at half load (630 Ton)

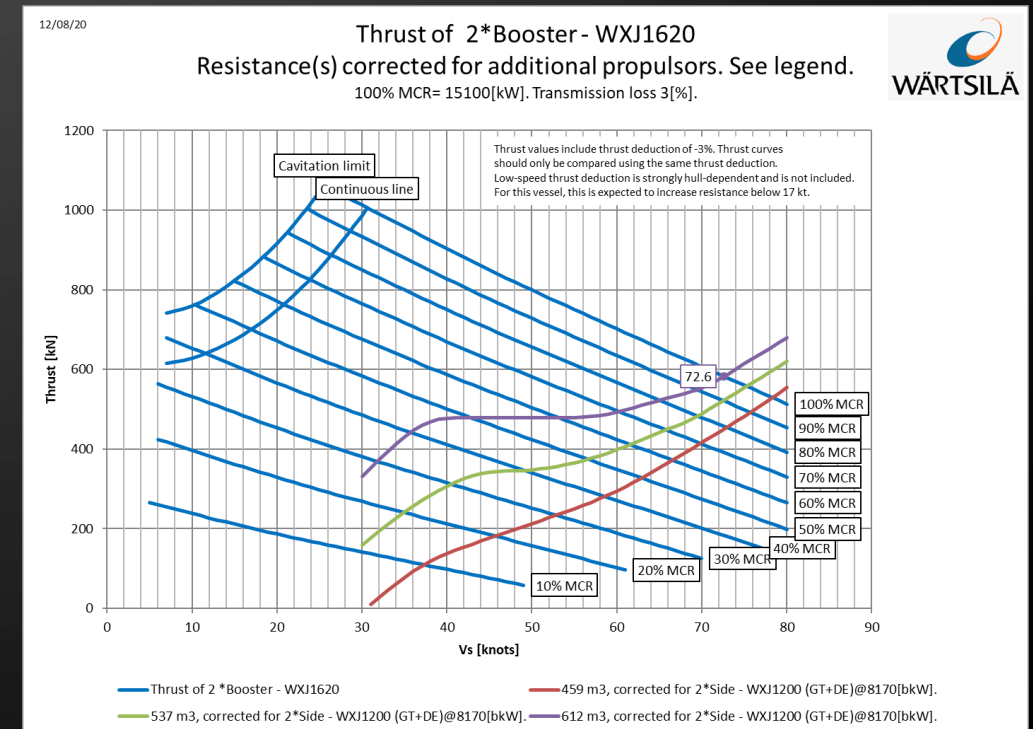
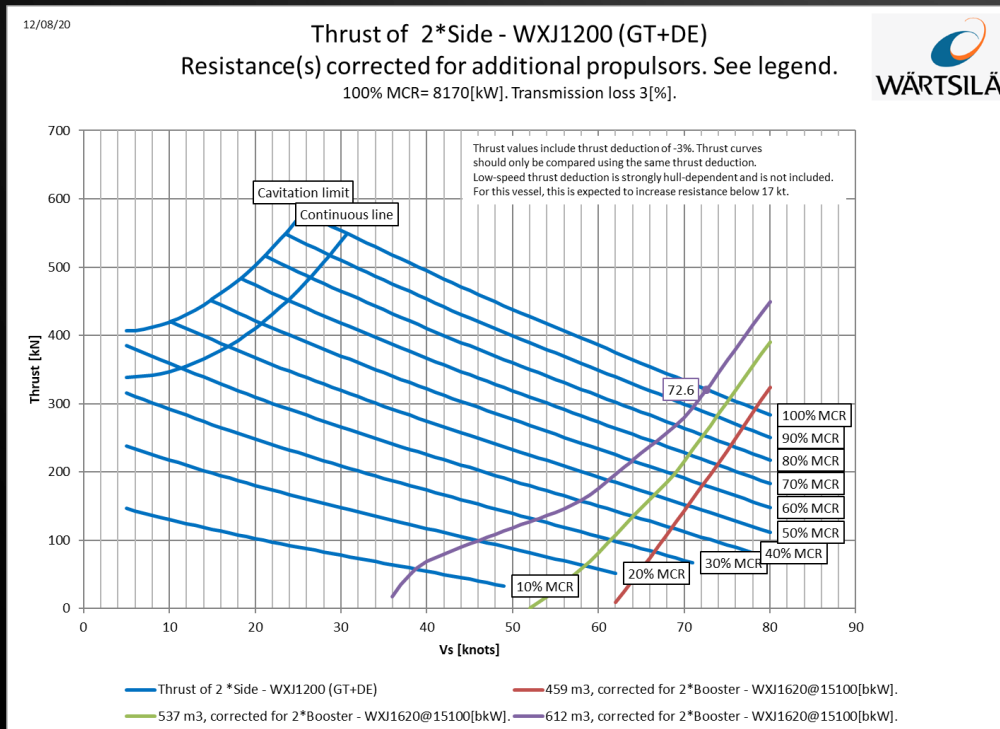
- 14 Knots with 2 diesel engines at 85% MCR
- 25 Knots with steerable jets at 100% MCR
- 71 knots with all jets at 100% MCR:



RESERVED PROPERTY

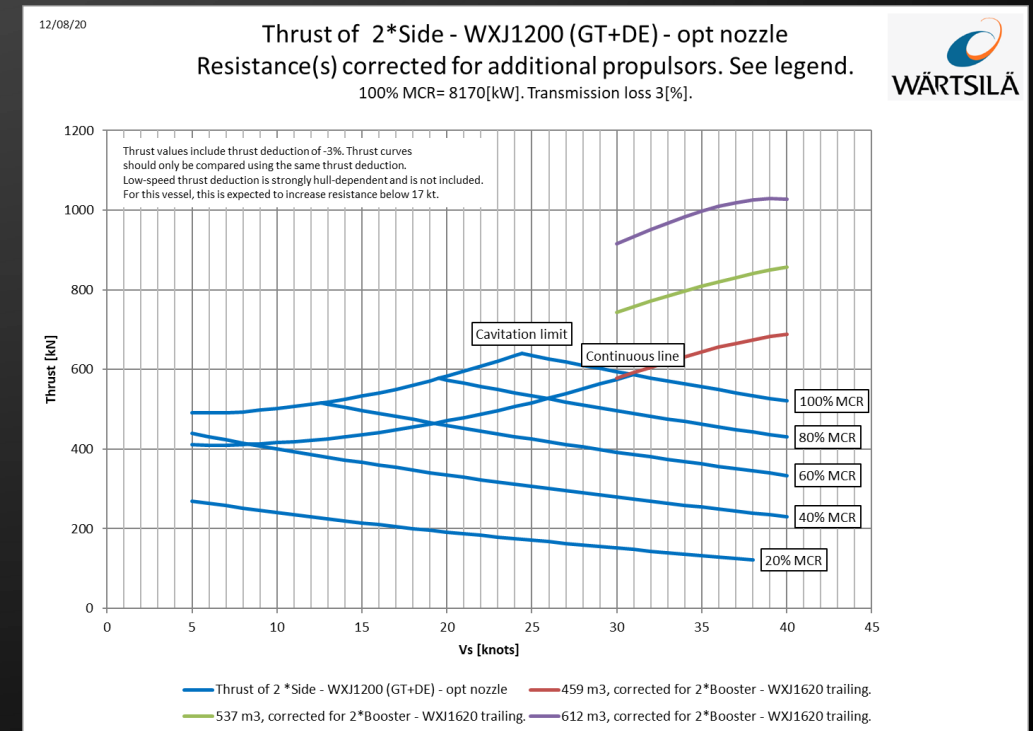
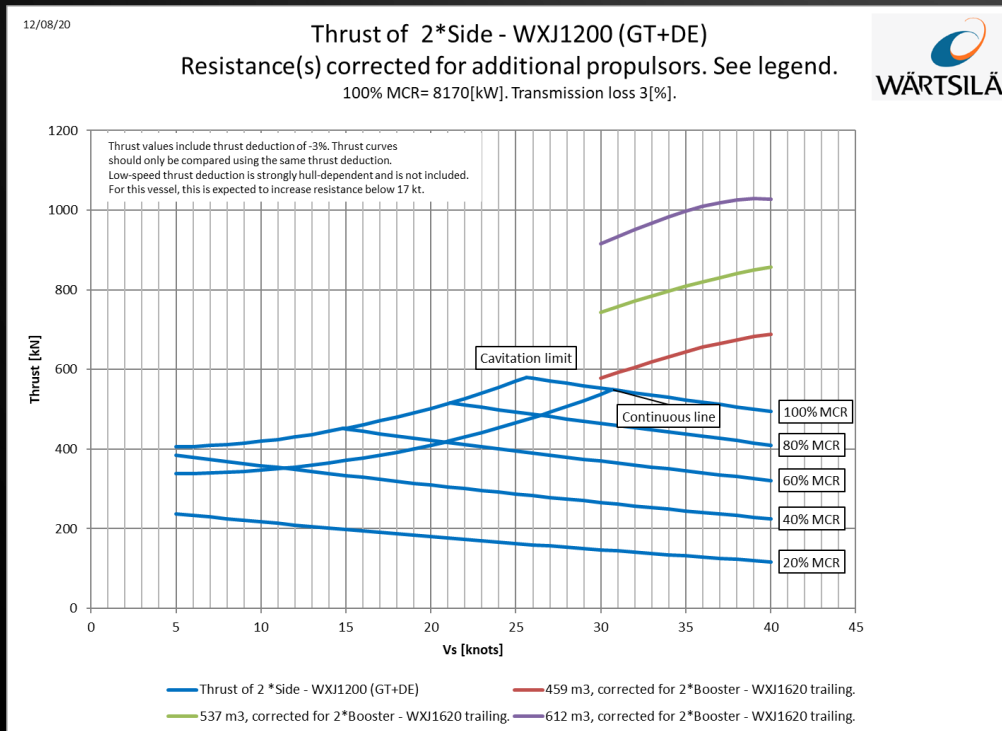
PERFORMANCE – 1620 & 1200 JETS

- Booster jets: 2x WXJ1620, side (steerable) jets: 2x WXJ1200
- 100% MCR: estimated maximum speed @ 46.2 MW is 72.6 kt
- Due to very high speeds jets operate far from cavitation limit



PERFORMANCE – SIDE JETS GT+DE (100%)

- Side (steerable) jets: 2x WXJ1200 powered by DE+GT; booster jets trailing
- 24 kt unlikely to be met due to cavitation, but resistance unknown
- Optimized nozzle increases thrust, but does not help sufficiently

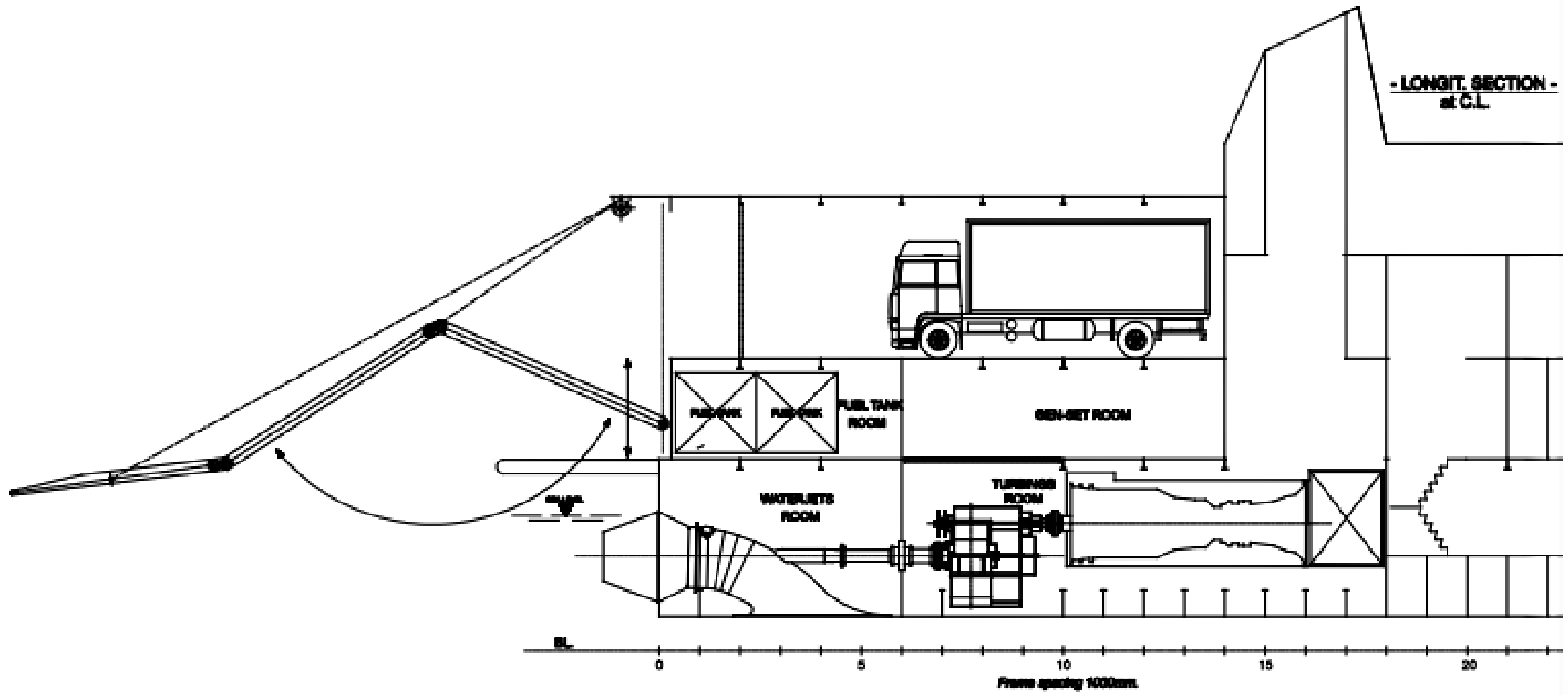




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A new generation of hull

