Capital Link's 4th Annual Invest in International Shipping Forum The Added Value of Classification to Financial Institutions & Owners in Today's Capital Markets

Dr Hermann J. Klein, Member of Executive Board of GL







Containerships – Total Exposure

Туре	TEUs	Approx Value	Average TEU value, cargo	Average TEU value, cont.	TOTAL VALUE EXPOSED
			USD 80,000	05D 5,000	
Feeder	900 – 2,000	25 – 35 m\$	72 – 160 m\$	4.5 – 10 m\$	100 – 200 m\$
Sub Panamax	2,800	45 m\$	224 m\$	14 m\$	300 m\$
Panamax	5,000	65 m\$	400 m\$	25 m\$	500 m\$
Post Panamax	7,500	90 m\$	600 m\$	37.5 m\$	750 m\$
Suezmax	10,000	120 m\$	800 m\$	50 m\$	970 m\$
Mega Carrier	14,000	160 m\$	1,040 m\$	65 m\$	1,300 m\$

Excluding:

Oil pollution – Personal Injury / Death – Delay / Loss of Use – Bad Will.

Classification – the stakeholders' safety net

• Cargo underwriters

- Marine insurance companies
- National maritime authorities
- Charterers
 - Shipowners
- Banks
- Shipyards
- Subcontractors

What are the objectives of class?

- safety
- operational reliability
- environmentally friendly
- fit for purpose
- efficiency
- optimized maintenance
- profitability!



How long should it last?

25 years lifetime

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Influence on maintenance



Regulatory Pressure

Energy efficiency of shipping





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Timeline: environmental regulations



Market Forces

Fuel Oil Prices

Heavy fuel oil price [USD per metric ton]



* Rotterdam

Fuel prices will go up



Source: GL research. The analysis excludes inflation effects.

Technical Options



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Ship efficiency

investment





Efficiency influencing parameters





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Do you want to save 127m US-Dollars?

Lines optimization

DoE – selected Pareto-Frontiers



Smart alternatives make a difference

	Existing Design	Concept A	Concept B				
tdw	133,000/165,300	166,000/197,000	168,000/197,000				
TEU	14,000	14,200	15,000				
В	51.20 m	51.20 m	53.90 m				
C _B	0.73	0.85	0.81				
P _B	72.2 MW	22.8 MW	22.8 MW				
V (85% MCR)	24.0 kn	16.7 kn	16.7 kn				
Lightship	53,000 t	<51,000 t	53,000 t				
Other parameters (length, Td/Ts,) fixed							



Background – Concept A

- Reduction of main engine
- The hold is cut out and the same length is inserted in front of engine room
- Approximate gain: 198 TEU (in-hold)





Background – Concept B

- Widening by one row (gain abt. 794 TEU)
- Reduction of Main Engine
- The hold is cut out and the same length is inserted in front of engine room
- Approximate gain: 198 TEU (in-hold)
- Total gain incl. Cb-increase: abt. 1,000 TEU



Superior performance

- Optimization of propeller and rudder
- Optimization of hull and stern form
- Optimization of scantlings and ballast water
- Optimization auxiliaries, energy management system
- Proposal for operational optimization
- Trim Assistant / monitoring system

Overview comparison

	Existing Design	Design slow	Concept A	Concept B
TEU	14,000	14,000	14,200	15,000
DWT (Td)	133,000	133,000	166,000	168,000
Designspeed (85% MCR)	24.0 kn	16.7 kn	16.7 kn	16.7 kn
Miles/day	576	400	400	400
Cost/day	141,250	86,690	69,500	69,900

Comparison of designs and speeds

Effects "New concepts" vs. existing design

- Reduced cost
 - Bunker main engine
 - Operating costs (lubes, spares, ...)
 - Capital costs (depr., financing)
 - Auxiliary energy
- Increased capacity (TEU, dwt) per ship
- Lower speeds: Additional ships needed

Cost rate to integrate all

economically relevant factors

Daily operating costs/(dwt • Etmal)

Comparison of TEU-cost rate

- TEU-cost rate*, US\$ -



* Total operating costs/(TEU · Etmal) · 1,000

What can be done, fast?



GL puts optimum speed for boxships at 14 knots

Low cargo volumes and rates plus rising fuel costs are key factors

Felicity Landon

THE most economical service speed for large containerships in today's climate is probably 14 knots and could even be as low as 12 knots, according to Germanischer Lloyd executive board member Hermanit Klein.

The combination of low cargo volumes, low interest rates and low chartering rates, combined with rising fuel costs, makes such a low speed the right solution, he said. There is much less cargo on board than one year ago, the interest rate has gone down and charter rates are much lower than one year ago. On the other hand, we have quite a high fuel price --\$380 per tonne. All these factors in a nutshell lead to a new and quite different most economical ship speed.

"For larger container vessels it is not 25, 20 or 18 knots — it is much less. Our calculations lead us to the most efficient vessel speeds of about 14 knots or even less."

Containerships reached "technical bardets" with this kind of drop in speed, Dr Klein said. "A normal container vessel designed for 25-knot operations run at 14 knots or even 12 knots only needs about 15% of the installed propeiler power, or even less, and it is nuite difficult to operate these extremely large engines with such a low load in the long term."

Technical issues have to be discussed in detail with engine and equipment manufacturers, he said. "But this is the second step. The first step is that owners and operators have to realise that the situation regarding speed is very different today."

According to Det Nerske Veritas, one operator has successfully been running ships' engines at 10% of power on certain legs of voyages, "Rather than arrive early and waft at the port for 10 hours, they can

"The first step is that owners and operators have to realise that the situation regarding speed is very different today"

Hermann Klein, Germanischer Lloyd executive board member

make huge economies this way," said DNV head of maritime Tor Svensen.

Owners and operators are looking at every conceivable way of saving fuel and therefore costs, and in some cases operators are paying for modifications to optimise ships they do not even owa, Mr Svensen said.

"It can be worth investing in a ship to save fuel even if the ship isa't yours." he said, "We are seeing proactive maintenance on buil and propeller condition, for example, and it makes economic sense even if it isn't your ship, but a chartered ship."

Lloyd's Register environmental services manager Peter Catchpole also reported that some chatterers were installing packages to enhance hydrodynamic performance. He said huel performance clauses in charter party agreements could become much more onerous on owners in future.



Klein: it is difficult to operate very large englues with low loads in the long term.





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Thank you