





MSC Flaminia: The New ECO-Ship MSC Geneva: Widening of Container Ships

5th International Conference on Ship
Efficiency, September 2015



Agenda

- 1** Introduction
- 2** MSC Flaminia: The New ECO Ship
 - Bulbous Bow
 - Propeller
 - Turbo Charger Cut Out
 - Trim Assistant at Loading Computer
 - Performance Monitoring
 - Ballast Water Treatment
- 3** MSC Geneva: Widening of Container Ships
 - Video
 - Cutting and Widening
 - Efficiency
 - Pictures
 - Reefer Plugs

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NSB CREWING SOLUTIONS



Nautical Technical Simulation Centre
NSB academy

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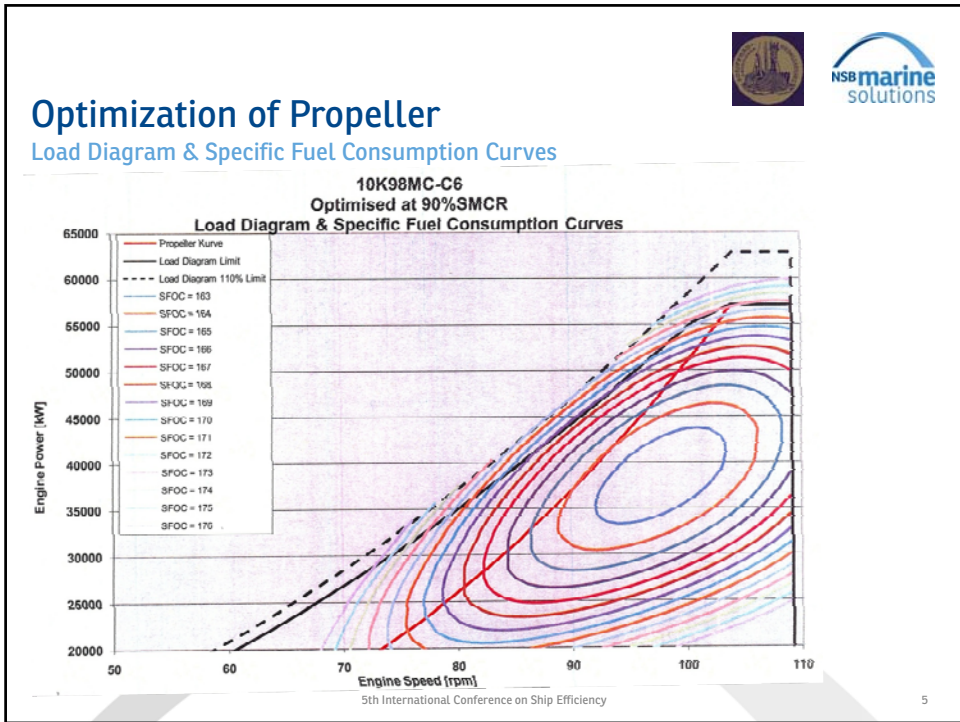
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Optimization of Propeller

Comparison Old Propeller vs New Propeller

Old Propeller		New Propeller	
PB:	57,100 kW	PB:	36,000 kW
n:	104 rpm	n:	92.2 rpm
D:	8200 mm	D:	8600 mm
P/D:	1,045 mm	P/D:	1,032 mm
z:	6	z:	5
M:	79200 kg	M:	60710 kg

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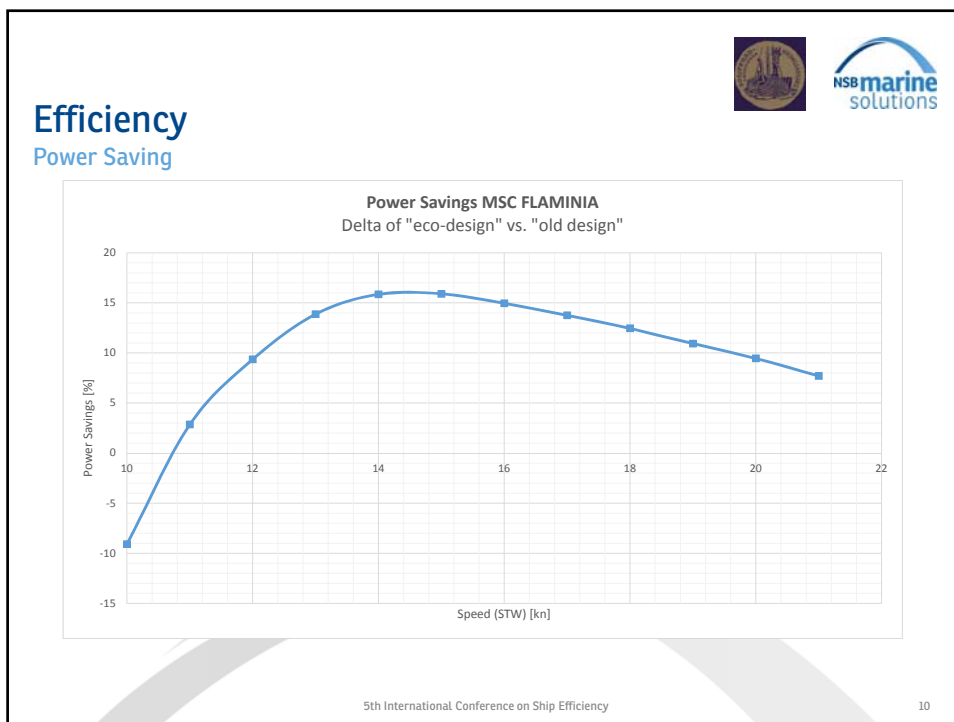
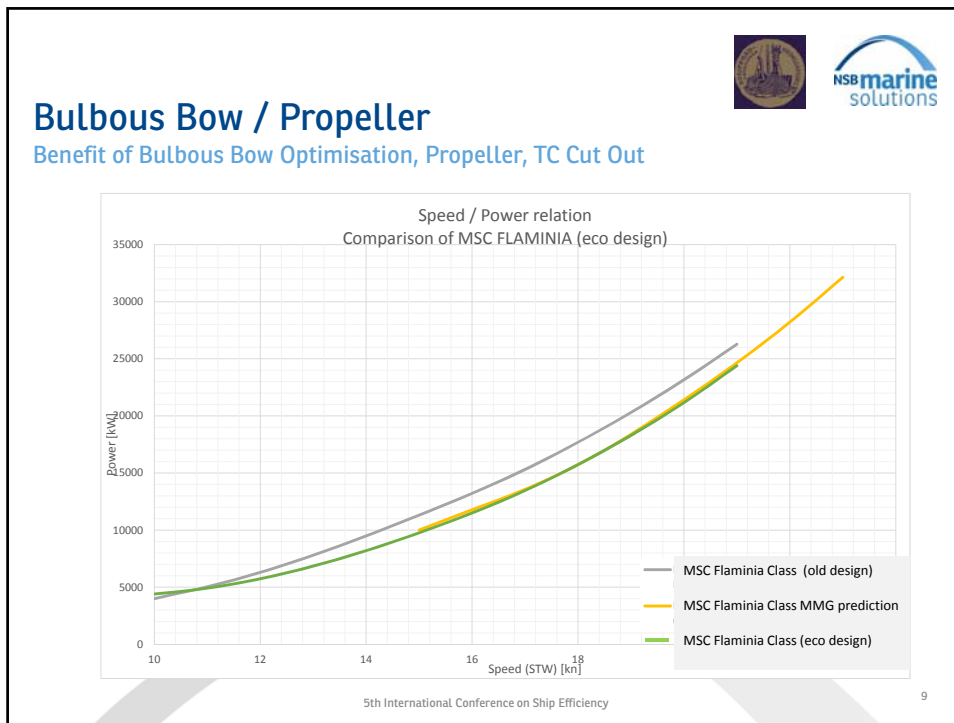


Bulbous Bow

Construction





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Performance Monitoring

NSB Tools



Piston Ring Measuring Sheet

Target: **Merco Charter**
Ref Type: **W815, B.C.**

Ref.	Part	Part No.	Part Name	Part Description
100	100	100	100	100
101	101	101	101	101
102	102	102	102	102
103	103	103	103	103
104	104	104	104	104
105	105	105	105	105
106	106	106	106	106
107	107	107	107	107
108	108	108	108	108
109	109	109	109	109
110	110	110	110	110
111	111	111	111	111
112	112	112	112	112
113	113	113	113	113
114	114	114	114	114
115	115	115	115	115
116	116	116	116	116
117	117	117	117	117
118	118	118	118	118
119	119	119	119	119
120	120	120	120	120

Running Hours History


Ref.	Part	Part No.	Part Name	Part Description
100	100	100	100	100
101	101	101	101	101
102	102	102	102	102
103	103	103	103	103
104	104	104	104	104
105	105	105	105	105
106	106	106	106	106
107	107	107	107	107
108	108	108	108	108
109	109	109	109	109
110	110	110	110	110
111	111	111	111	111
112	112	112	112	112
113	113	113	113	113
114	114	114	114	114
115	115	115	115	115
116	116	116	116	116
117	117	117	117	117
118	118	118	118	118
119	119	119	119	119
120	120	120	120	120

Oilwater Layer Thickness (µm)

Ref.	Part	Part No.	Part Name	Part Description
100	100	100	100	100
101	101	101	101	101
102	102	102	102	102
103	103	103	103	103
104	104	104	104	104
105	105	105	105	105
106	106	106	106	106
107	107	107	107	107
108	108	108	108	108
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112	112	112	112	112
113	113	113	113	113
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116	116	116	116	116
117	117	117	117	117
118	118	118	118	118
119	119	119	119	119
120	120	120	120	120

Piston-Ring Ring Clearance (mm)

Ref.	Part	Part No.	Part Name	Part Description
100	100	100	100	100
101	101	101	101	101
102	102	102	102	102
103	103	103	103	103
104	104	104	104	104
105	105	105	105	105
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117	117	117	117	117
118	118	118	118	118
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120	120	120	120	120





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Ballast Water Treatment

3D Laser Scan



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Video MSC Geneva Widening premiere




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Cutting and Widening

History

- Until 2010 Panamax Container vessels were the optimum in the class between 3,000 TEU and 5,000 TEU.
- Today the favourite vessels are the so-called Wide Beams.
- Wide Ships have a higher lateral stability and need less ballast water.
- But: wide ships have a higher hull resistance and therefore they need more power at same speed.
- The proportion shifted due to the enormous increase of fuel price: wide ships are the winners, plus the broadening of the Panama-Canal with new locks 2015/16.




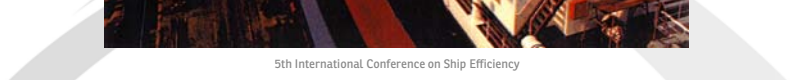
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Cutting and Widening

History: Capacity Increase 1980



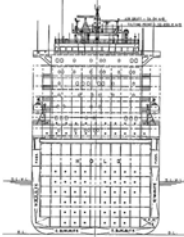


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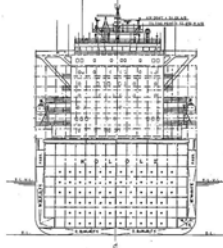



Cutting and Widening

Original Ship





After Conversion

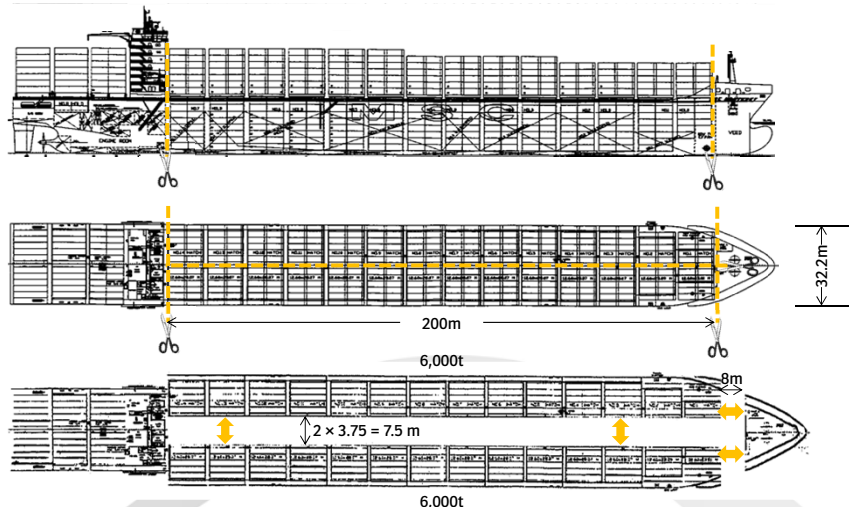


Length:	275.0m	Length:	283.0m
Breadth:	32.0m	Breadth:	39.76m
Draught:	12.0m	Draught:	12.0m
Deadweight:	52,095t	Deadweight:	65,343t
Speed:	24.0kn	Speed:	21.7kn
Capacity:	4,872 TEU	Capacity:	6,296 TEU
14t hom.:	3,105 TEU	14t hom.:	4,855 TEU
Reefer Plug:	560	Reefer Plug:	1131

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Cutting



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Cutting and Widening Inserting Middle-Section

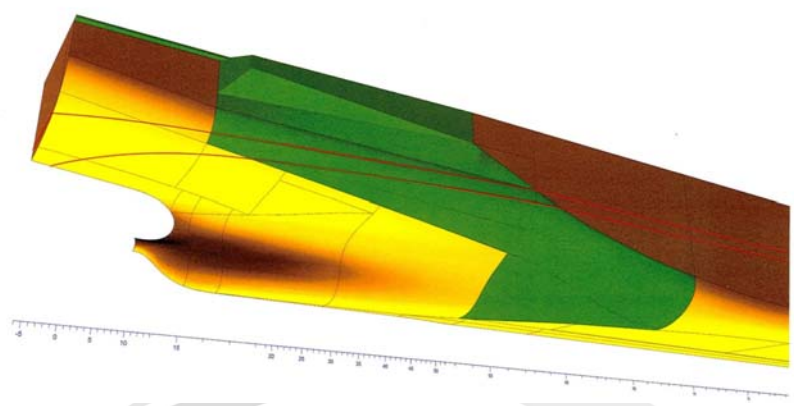
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Cutting and Widening New Parts in green

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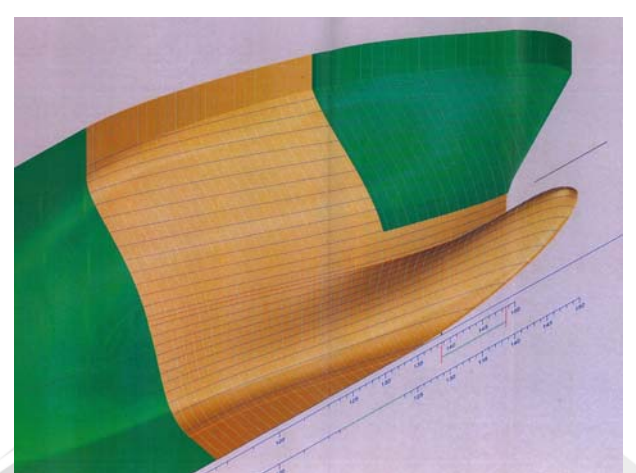
Cutting and Widening
Additional Capacity and Strength with Balconies



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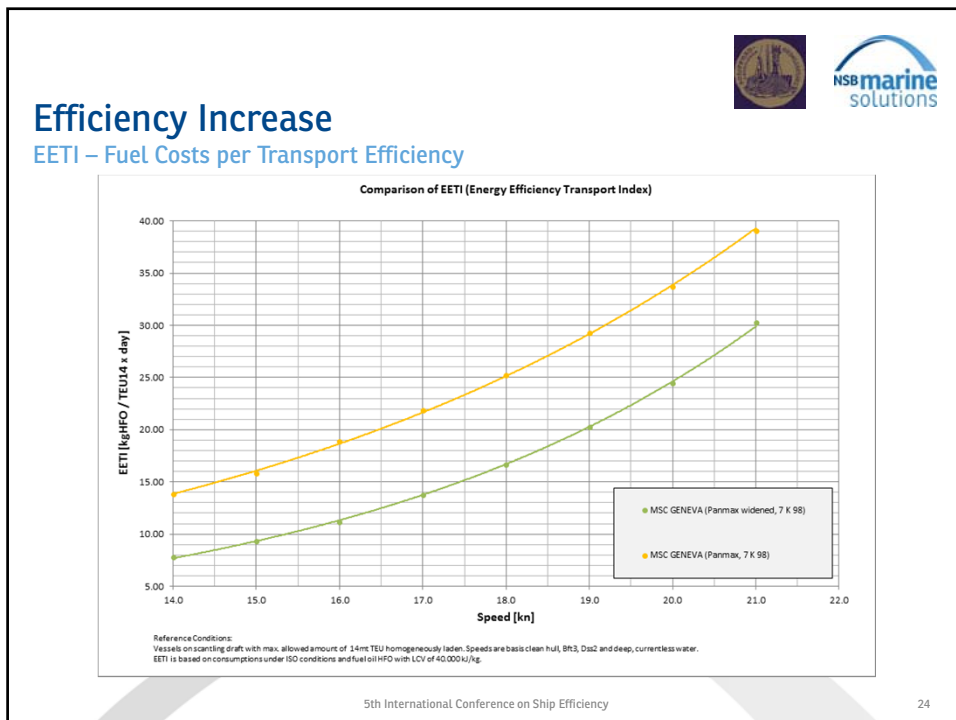
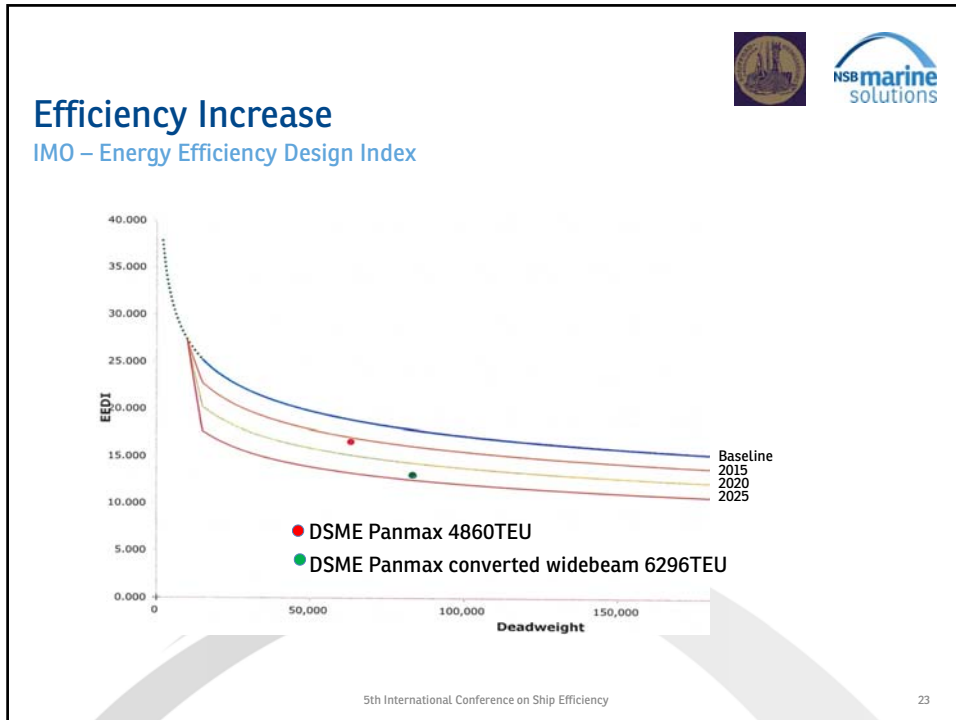
The image shows a 3D CAD model of a ship's hull section. The hull is cut away to reveal internal structures. The main hull body is colored yellow, while the added balcony structures are colored green and brown. A ruler is visible at the bottom of the model for scale. The text 'Cutting and Widening' is in a large blue font, with the subtitle 'Additional Capacity and Strength with Balconies' below it. The NSB marine solutions logo is in the top right corner.

Cutting and Widening
Optimized Bow for Lower Speed



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The image shows a 3D CAD model of a ship's bow section. The hull is cut away to reveal internal structures. The main hull body is colored orange, while the added balcony structures are colored green. A ruler is visible at the bottom of the model for scale. The text 'Cutting and Widening' is in a large blue font, with the subtitle 'Optimized Bow for Lower Speed' below it. The NSB marine solutions logo is in the top right corner.



Forecastle Removal



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Cutting and Pulling



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Cutting and Pulling



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Cutting and Pulling



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Installation of New Sections



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New Sections



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New Bulbous Bow



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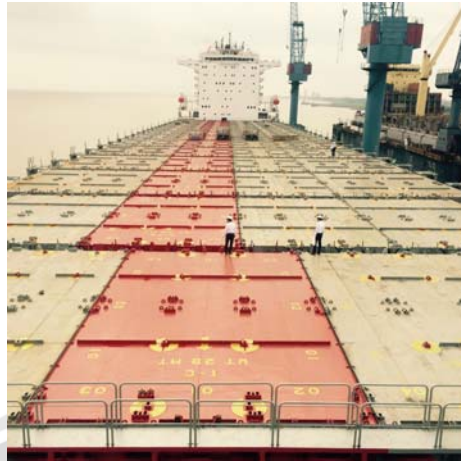
After Body



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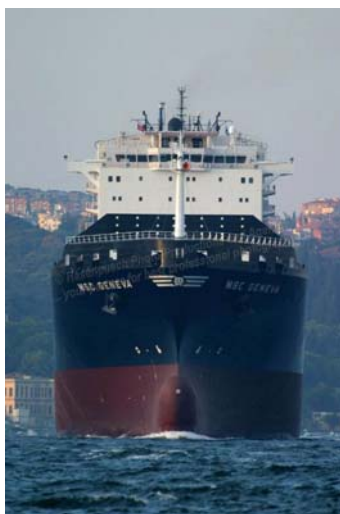
New Hedge Covers in Red



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Comparison: Original Ship vs. Converted Ship



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NSB Offers Widening for Your Ships

Four steps of our future business
Description



Step 1: Preliminary Pocket Plan

Step 2: Initial Design

Step 3: Basic Design	Customer's requirements
	Technical requirements
	Preparation of a timeline


Step 4: Building Supervision at Shipyard

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Contact

Please contact us for any additional information or a personal conversation.

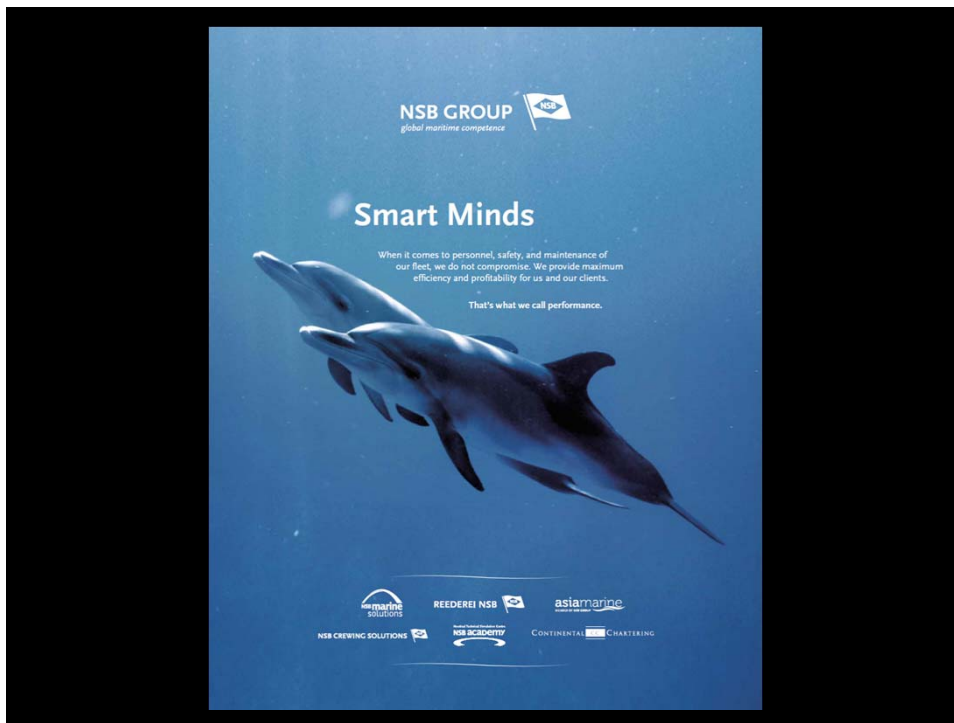


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Thank you for your attention!

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