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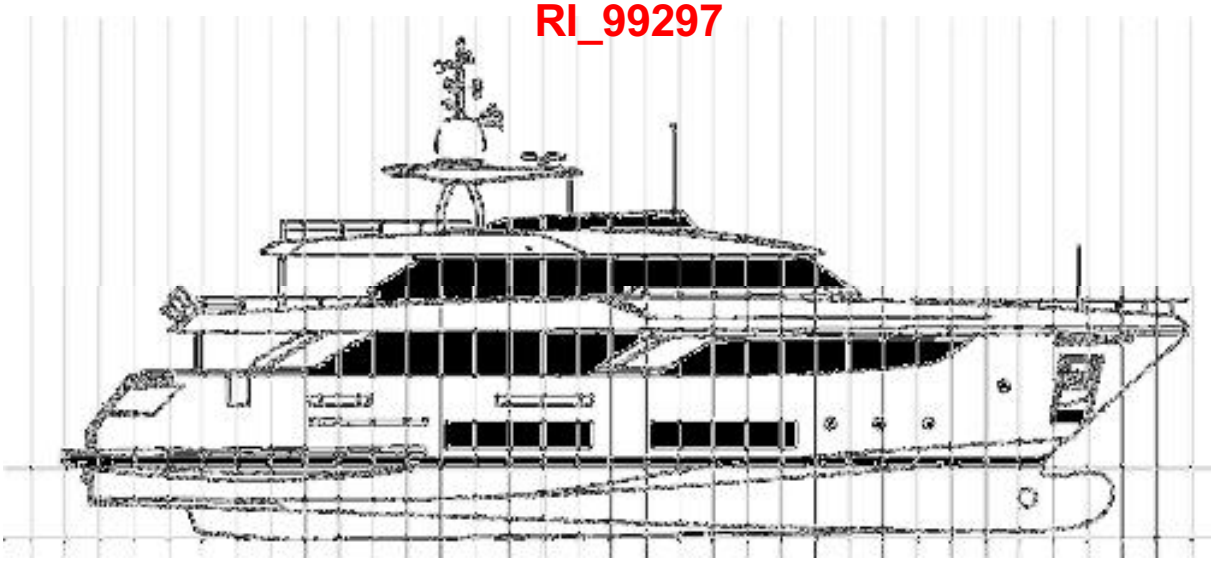
Builder/building number:FERRETTI-Ancona,Italy-N.B. N33-16

Stability Booklet

Instruction to the master

Intact stability

RI_99297



Approval:

RINA | Italy Yachting Plan Approval

Approvato
Approved

In conformità ai vigenti Regolamenti del RINA
(In compliance with RINA Rules in force)

N. DIP0000104708

15 JAN 2021
Genova

RINA Stefano Moscatelli

Stefano Moscatelli

See letter: DIP/2021/00083/STEMS

C, ✠ HULL, ● MACH
Y, UNRESTRICTED NAVIGATION

	Project: **CUSTOM LINE NAVETTA33#16**	Approved by	
	Name: **STABILITY BOOKLET**	Checked by	
		Drawn by	

[redacted]

This booklet consists of 61 pages cover included

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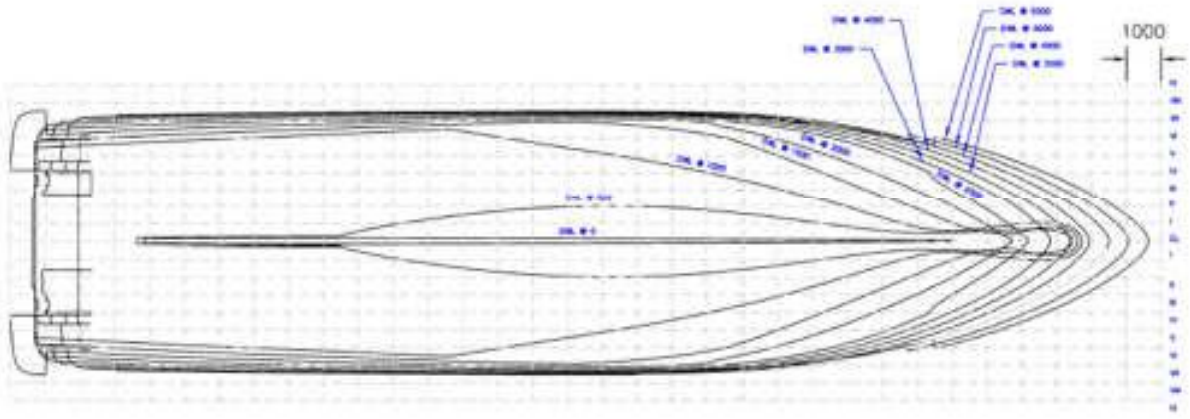
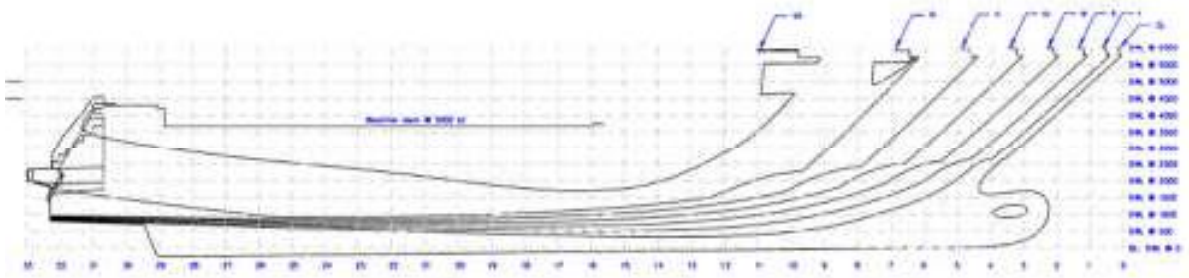
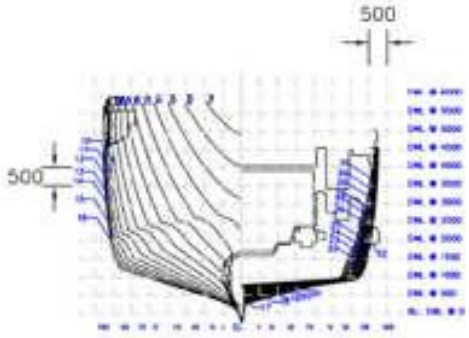
LINES PLAN







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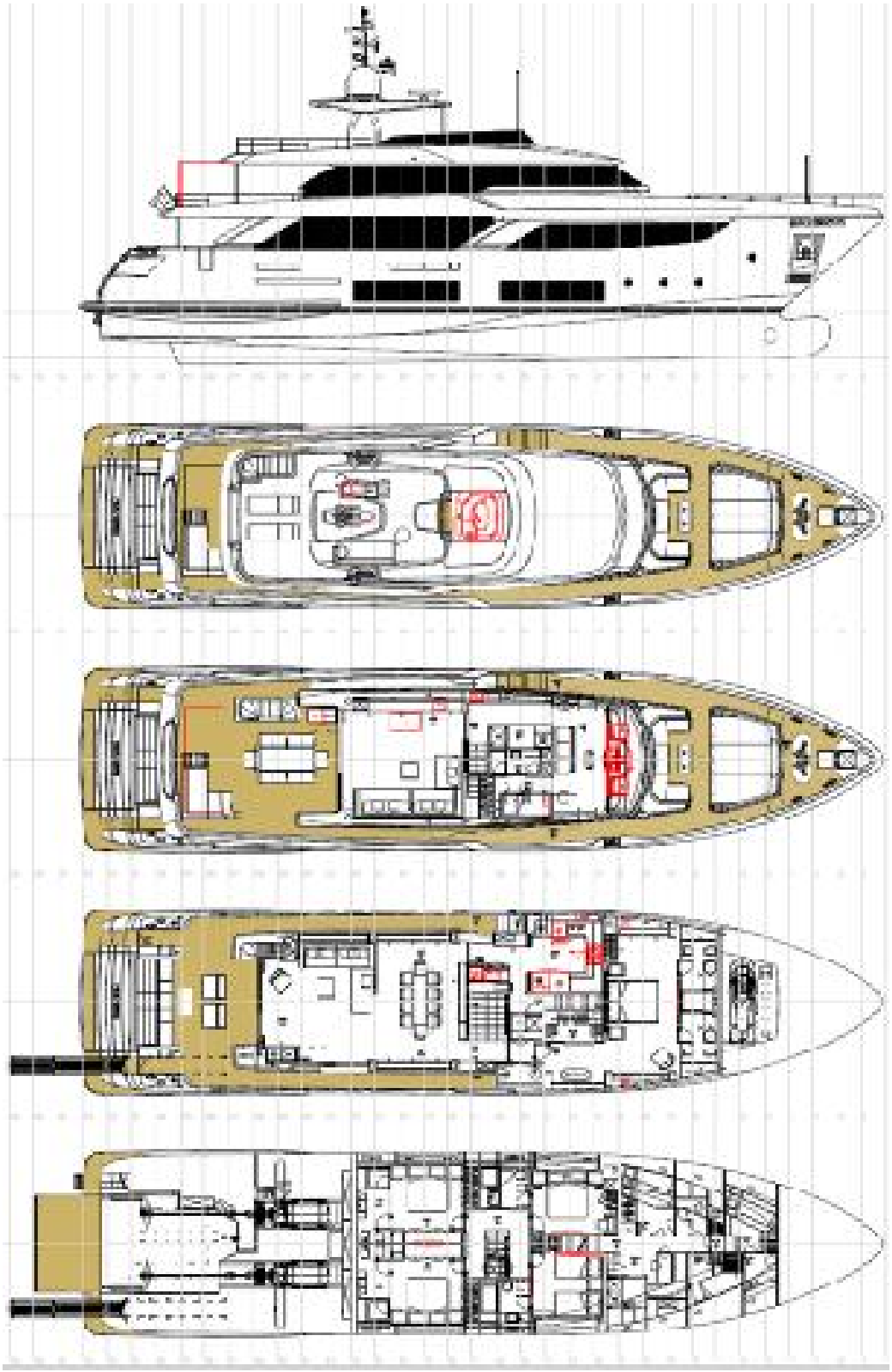
GENERAL ARRANGEMENT



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General particulars

Ship's name:	[redacted]
Port of registry:	[redacted]
Owner's name and address:	[redacted]
Classification Society	RINA Spa
Builder:	Ferretti
Yard Number:	N33-16
Date of keel laying:	2019

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Dimensions

Length overall:	Loa= 33.00 m
Length between perpendicolar:	Lbp=32.274 m
Beam moulded:	B= 7.52 m
Depth:	D=3.637 m
Area of operation	Unrestricted (Only Pleasure)
Standard of survivability:	Intact stability
Number of passengers:	20

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NOTES FOR THE MASTER

1. General Instructions

A stamped, approved copy of this booklet must be kept on board the vessel at all times. It must also be complete, legible and readily available for use. If this booklet is lost or becomes unusable a replacement copy of the approved booklet must be obtained immediately.

The Operating Manual should be used in conjunction with the approved Stability Information Booklet (SIB). The loading conditions shown in the SIB represent typical service conditions. Where a loading condition departs from those shown in the SIB a separate calculation should be made to ensure compliance with the stability criteria.

2. General stability requirements

It is important to ensure that in any sailing condition the stability of the yacht complies with the criteria of Rina Rules of Pleasure Yacht.

The minimum criteria for Intact Stability in "Rules for the Classification of Pleasure Yacht”

If the vertical centre of gravity of any sailing condition, after correction for free surface effects, lies below the limiting KG curve on page 20 compliance with the requirements of the Code for intact stability is ensured. It must be appreciated however, that compliance can never guarantee survivability in the event of damage and good seamanship must prevail under such circumstances.

This vessel has not been assessed for damage stability, and therefore might not remain afloat in the event of damage or flooding.

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3. Precautions against capsize

Compliance with the stability criteria does not ensure immunity against capsize or absolve the Master from his responsibilities. Masters should therefore exercise prudence and good seamanship having regard to the season of year, weather forecast and the navigational zone.

Before a voyage commences care should be taken to ensure large items of equipment and stores are properly stowed. All external hull doors and flush hatches, listed below, are to be closed and secured. Other superstructure doors are to be kept closed as much as possible. If poor weather is likely to be encountered during the passage additionally storm boards and shutters should be fitted.

The following external hull doors and flush hatches are fitted:

- Aft stern door
- Passarelle hatch
- Shore cable hatch SB transom stair

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4. Operating Restriction

The Master is to be aware of the fact that review and classification of the vessel are on condition that the speed is appropriately reduced with increasing sea conditions, with regard to limiting dynamic hull responses. Speed reduction and/or course change should be considered by the Master when excessive pitching or rolling occurs, causing for example:

- slamming of the bow
- propeller emergence
- taking on green water
- unacceptable discomfort for crew and/or guests
- broaching

5. Masters ship board procedures

As part of familiarisation with the yacht all persons, including passengers, should be briefed on the operation of watertight doors and lifesaving equipment.

IN SHELTERED ANCHORAGES AND IN PORT:

The master is responsible for evaluating the risks and hazards present and taking appropriate precautions.
The door from the garage to the engine room is to be kept closed whenever the garage hull door is open. An alarm has been installed to have an instant alarm (no delay) as soon as the bulkhead door is opened when the transom door is open. An additional sensor is placed in the dogging system so that the alarm goes if the door is open OR the dogs are loosened.

PREPARING FOR SEA

External hull doors and flush hatches (listed above) are to be closed, secured and recorded.
Internal WT door from the garage to the engine room is to be checked immediately before departure.
Sidelights capable of being opened are to be secured closed.

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PREPARING FOR ROUGH WEATHER PASSAGE

- The master is responsible for taking appropriate precautions whenever rough weather is anticipated. The precautions should include (but are not limited to) the following:
- All loose gear (including tenders, jet skis etc,) on deck, and in the tender garage are to be securely lashed in place.
- Large or heavy items of furniture to be secured
- The shutters provided are to be put up over the windows
- Deadlights are to be closed and secured
- Secure closing devices as appropriate

AT SEA

Internal WT door from the tender garage to the engine room is to be closed at sea in accordance with Part. B "Rules for the Classification of Pleasure Yacht". The WT door should be checked daily to ensure that nothing has been placed in way of the door or where it might fall into the opening and prevent the door from closing.

USE of SUN DECK POOL

The loading conditions have been verified with the sun deck pool full and its maximum FSM

The Master is responsible to evaluate to use or not sun deck pool.
When wheather forecast and/or sea condition is not “favourable” i.e. “fine, clear settled wheather with a sea state such as to cause only moderate rolling and/or pitching” the sun deck pool is to be emptied.

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6. Tank Usage and Free Surface Moments

Provided a tank is completely filled with liquid no movement of the liquid is possible and the effect on the ship's stability is precisely the same as if the tank contained solid material.

Immediately a quantity of liquid is withdrawn from the tank the situation changes completely and the stability of the ship is adversely affected by what is known as the 'free surface effect'. This adverse effect on the stability is referred to as a 'loss in GM' or as a 'virtual rise in VCG' and is calculated as follows:

EQ.1 $$\text{Loss of GM} = \frac{\text{Free Surface Mmt (Tonnes M)}}{\text{Vessel Displacement (Tonnes)}}$$

Free surface effects are to be considered whenever the filling level in a tank is less than 98% of full condition. Free surface effects need not be considered where a tank is nominally full, i.e. filling level is 98% or above. Free surface effects for small tanks may be ignored under the condition where:

$$\frac{M_{fs}}{\Delta_{min}} < 0,01\,\text{m}$$

Δmin : Minimum yacht displacement, in t, calculated at dmin
dmin : Minimum mean service draught, in m, of yacht without cargo, with 10% stores and minimum water ballast, if required.

The number of slack tanks should be kept to a minimum.

Where port and starboard tanks are cross coupled, such connection should be closed at sea to minimise the reduction in stability.

Dirty water in the bilge's must be kept to a minimum.

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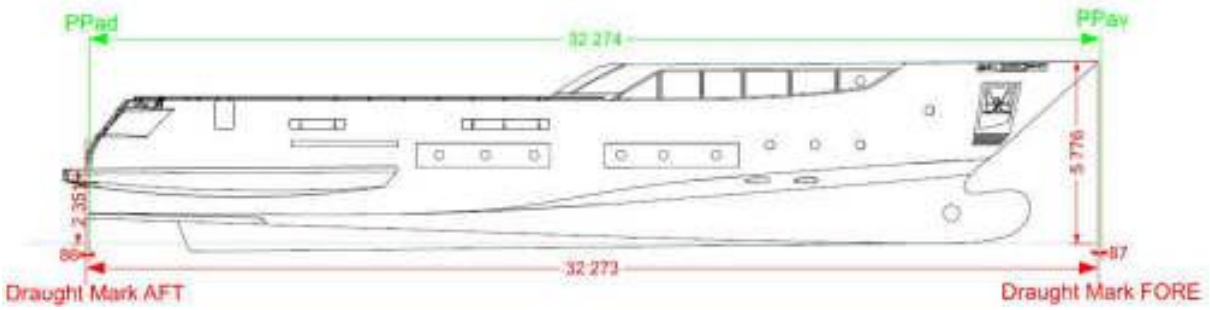
Draught marks freeboard

Mark and reference information



Longitudinal datum	=	AP
Transverse datum	=	centerline
Vertical datum	=	base line
Aft Mark	=	0.086 metres transom
Fwd Mark	=	32.273 metres fwd AP

[the above drawing is to include details of the keel thickness and, if the yacht has a rake of keel, the profile is to be modified to show the rake of keel and include dimensions]

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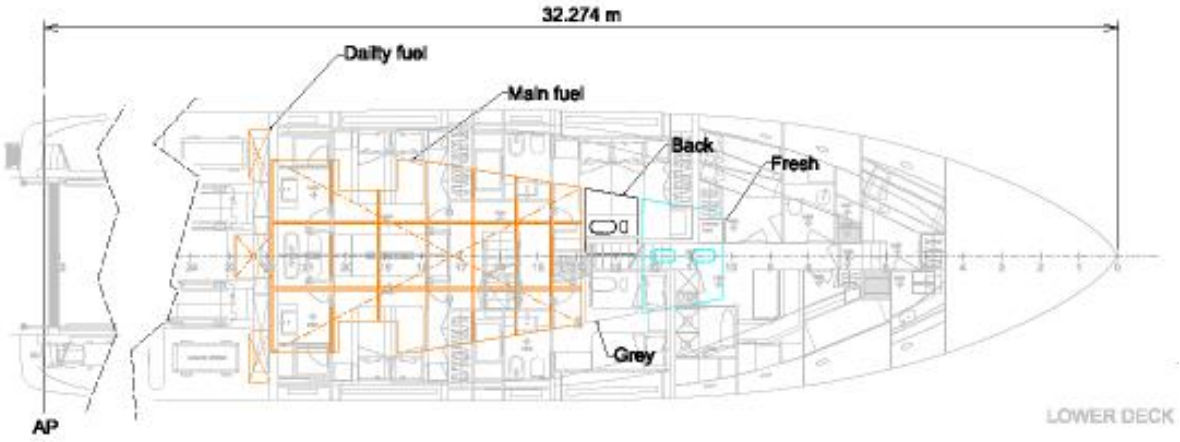
Capacity Plan



Tank Name	Sounding m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
Fuel Main	0.963	100.000	16.232	13.635	14.173	0.000	0.825	46.390
Fuel Daily	2.154	100.000	2.645	2.222	10.051	0.000	2.343	8.085
Fresh Water	1.050	100.000	3.218	3.218	20.933	0.000	0.759	3.074
Black water	0.990	100.000	1.274	1.274	19.151	-0.675	0.770	0.472
Grey water	0.990	100.000	1.274	1.274	19.151	0.675	0.770	0.472

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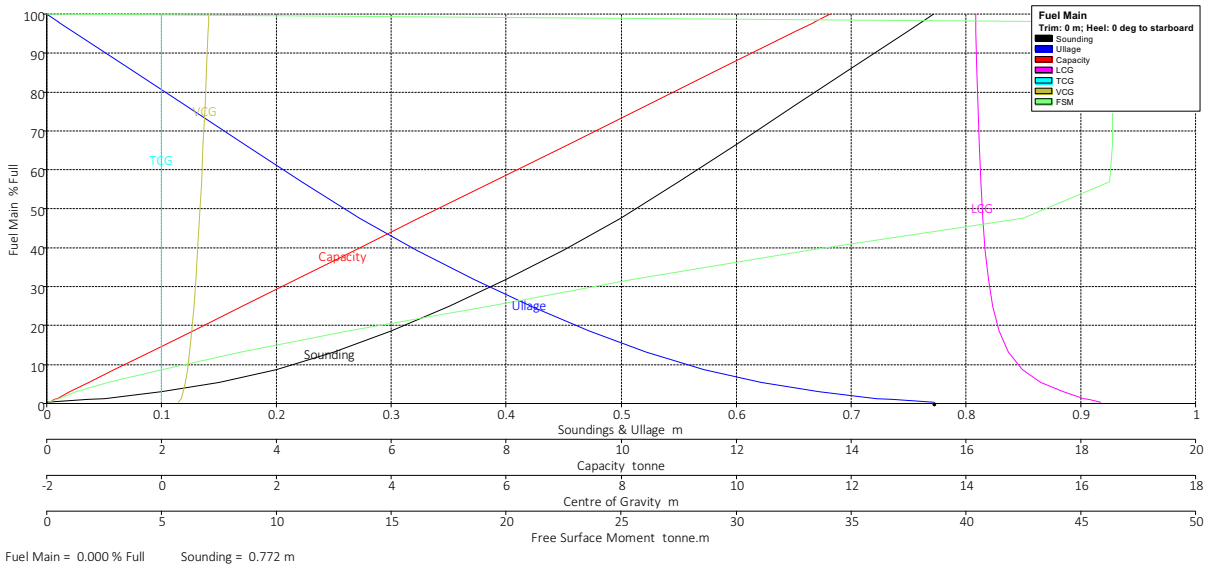
Tank Calibrations - Fuel Main

Fluid Type = Diesel Specific gravity = 0.84
Permeability = 91.2 %
Trim = 0 m (+ve by stern); Heel = 0 deg to starboard



Fuel Main = 0.000 % Full Sounding = 0.772 m

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
Fuel Main	0.772	0.000	100.000	16.232	13.635	14.173	0.000	0.825	0.000
	0.762	0.010	98.000	15.908	13.362	14.175	0.000	0.819	46.390
	0.761	0.011	97.900	15.891	13.349	14.175	0.000	0.819	46.390
	0.750	0.022	95.730	15.539	13.053	14.178	0.000	0.813	46.390
	0.700	0.072	86.026	13.964	11.730	14.191	0.000	0.784	46.390
	0.650	0.122	76.321	12.389	10.406	14.208	0.000	0.755	46.390
	0.600	0.172	66.616	10.813	9.083	14.230	0.000	0.725	46.390
	0.550	0.222	56.912	9.238	7.760	14.260	0.000	0.693	46.257
	0.500	0.272	47.490	7.709	6.475	14.299	0.000	0.659	42.483
	0.450	0.322	39.352	6.388	5.366	14.339	0.000	0.627	33.194
	0.400	0.372	31.821	5.165	4.339	14.393	0.000	0.595	25.469
	0.350	0.422	24.896	4.041	3.395	14.470	0.000	0.562	19.208
	0.300	0.472	18.669	3.030	2.546	14.578	0.000	0.528	13.121
	0.250	0.522	13.211	2.144	1.801	14.737	0.000	0.493	8.459
	0.200	0.572	8.667	1.407	1.182	14.981	0.000	0.455	5.013
	0.150	0.622	5.425	0.881	0.740	15.306	0.000	0.420	2.656
	0.100	0.672	3.006	0.488	0.410	15.692	0.000	0.384	1.280
	0.050	0.722	1.345	0.218	0.183	16.050	0.000	0.345	0.557
	0.036	0.736	1.000	0.162	0.136	16.140	0.000	0.333	0.433
	0.000	0.772	0.379	0.062	0.052	16.340	0.000	0.289	0.089

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Tank Calibrations - Fuel Daily

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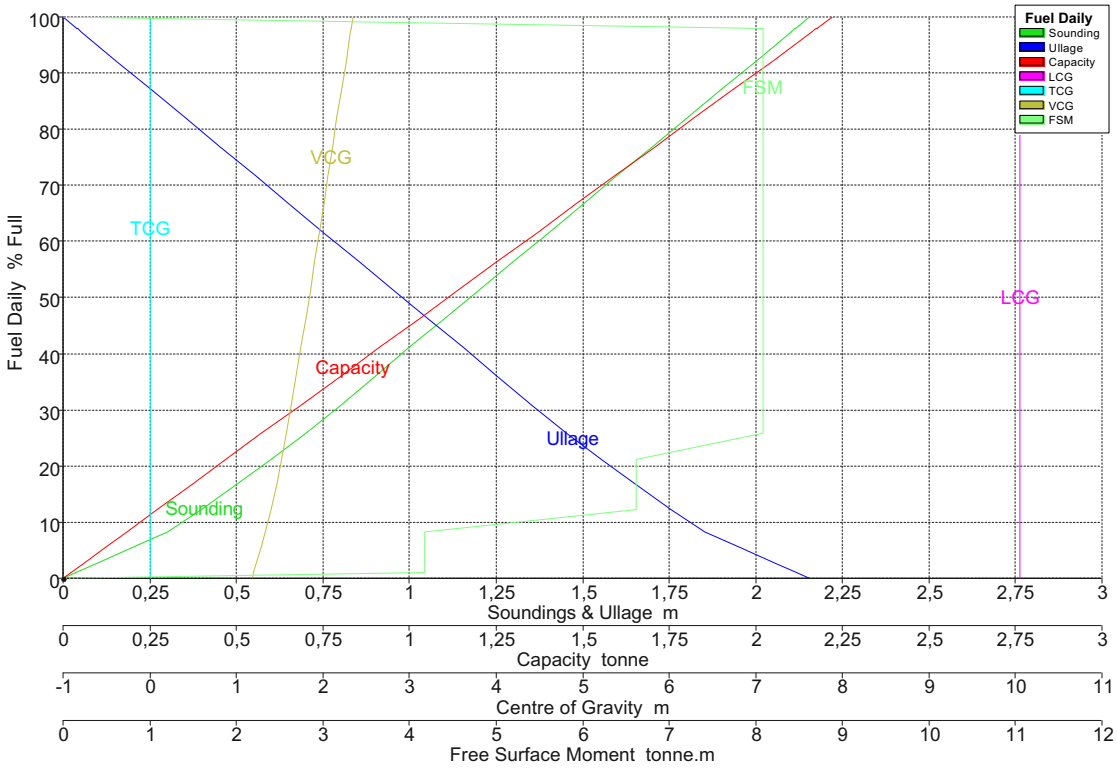
Fluid Type = Diesel Specific gravity = 0,84
Permeability = 87,1 %
Trim = 0 m (+ve by stern); Heel = 0 deg to starboard



Fuel Daily = 0,003 % Full Sounding = 0,000 m

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
Fuel Daily	2,154	0,000	100,000	2,645	2,222	10,051	0,000	2,343	0,000
	2,115	0,039	98,000	2,592	2,177	10,051	0,000	2,323	8,085
	2,113	0,041	97,900	2,589	2,175	10,051	0,000	2,322	8,085
	2,100	0,054	97,244	2,572	2,161	10,051	0,000	2,316	8,085
	2,000	0,154	92,139	2,437	2,047	10,051	0,000	2,265	8,085
	1,900	0,254	87,034	2,302	1,934	10,051	0,000	2,214	8,085
	1,800	0,354	81,930	2,167	1,820	10,051	0,000	2,163	8,085
	1,700	0,454	76,825	2,032	1,707	10,051	0,000	2,112	8,085
	1,600	0,554	71,721	1,897	1,593	10,051	0,000	2,061	8,085
	1,500	0,654	66,616	1,762	1,480	10,051	0,000	2,009	8,085
	1,400	0,754	61,511	1,627	1,367	10,051	0,000	1,958	8,085
	1,300	0,854	56,407	1,492	1,253	10,051	0,000	1,905	8,085
	1,200	0,954	51,302	1,357	1,140	10,051	0,000	1,853	8,085
	1,100	1,054	46,198	1,222	1,026	10,051	0,000	1,800	8,085
	1,000	1,154	41,093	1,087	0,913	10,051	0,000	1,746	8,085
	0,900	1,254	35,989	0,952	0,800	10,051	0,000	1,691	8,085
	0,800	1,354	30,884	0,817	0,686	10,051	0,000	1,635	8,085
	0,700	1,454	25,779	0,682	0,573	10,051	0,000	1,576	8,085
	0,600	1,554	21,144	0,559	0,470	10,051	0,000	1,519	6,619
	0,500	1,654	16,675	0,441	0,370	10,051	0,000	1,462	6,619
	0,400	1,754	12,205	0,323	0,271	10,051	0,000	1,399	6,619
	0,300	1,854	8,282	0,219	0,184	10,051	0,000	1,333	4,180
	0,200	1,954	5,521	0,146	0,123	10,051	0,000	1,283	4,180
	0,100	2,054	2,761	0,073	0,061	10,051	0,000	1,233	4,180
	0,036	2,118	1,000	0,026	0,022	10,051	0,000	1,201	4,180
	0,000	2,154	0,000	0,000	0,000	10,051	0,000	1,183	0,000

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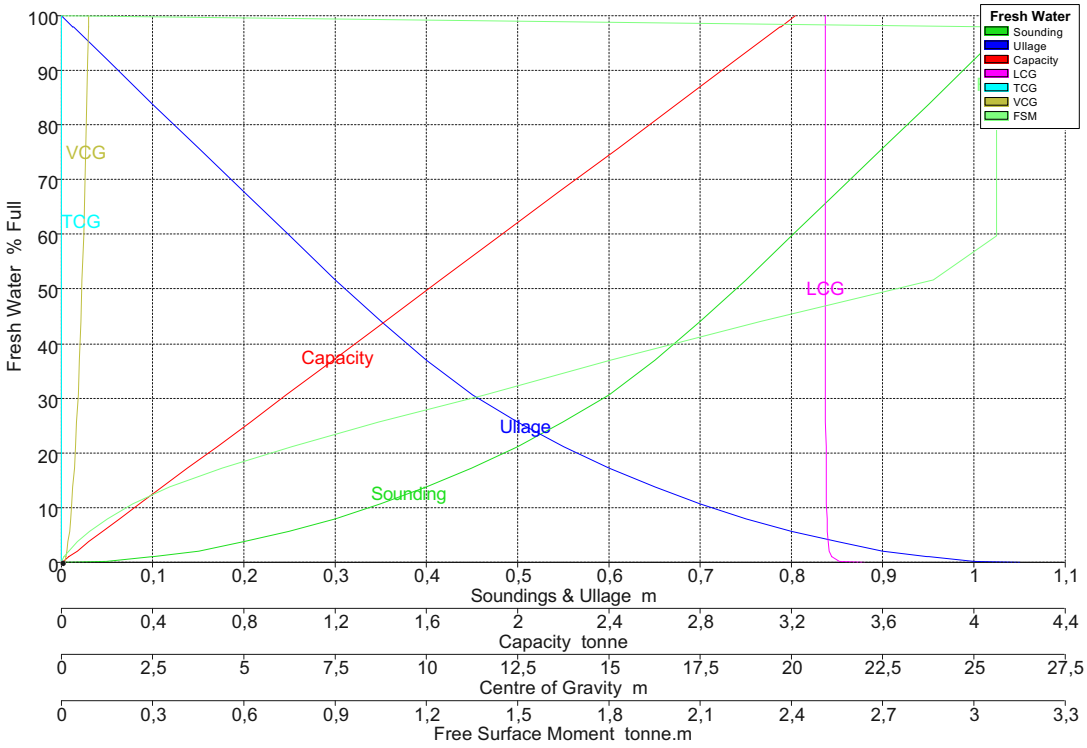
Tank Calibrations - Fresh Water

Fluid Type = Fresh Water Specific gravity = 1
Permeability = 90,5 %
Trim = 0 m (+ve by stern); Heel = 0 deg to starboard



Fresh Water = 0,003 % Full Sounding = 0,001 m

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
Fresh Water	1,050	0,000	100,000	3,218	3,218	20,933	0,000	0,759	0,000
	1,038	0,012	98,000	3,153	3,153	20,933	0,000	0,752	3,074
	1,037	0,013	97,900	3,150	3,150	20,933	0,000	0,752	3,074
	1,000	0,050	91,936	2,958	2,958	20,932	0,000	0,731	3,074
	0,950	0,100	83,871	2,699	2,699	20,932	0,000	0,702	3,074
	0,900	0,150	75,807	2,439	2,439	20,932	0,000	0,671	3,074
	0,850	0,200	67,742	2,180	2,180	20,931	0,000	0,640	3,074
	0,800	0,250	59,678	1,920	1,920	20,931	0,000	0,607	3,074
	0,750	0,300	51,672	1,663	1,663	20,931	0,000	0,572	2,866
	0,700	0,350	44,099	1,419	1,419	20,932	0,000	0,535	2,297
	0,650	0,400	37,089	1,193	1,193	20,933	0,000	0,497	1,807
	0,600	0,450	30,642	0,986	0,986	20,936	0,000	0,458	1,391
	0,550	0,500	25,696	0,827	0,827	20,938	0,000	0,423	1,042
	0,500	0,550	21,226	0,683	0,683	20,942	0,000	0,389	0,756
	0,450	0,600	17,233	0,555	0,555	20,947	0,000	0,355	0,528
	0,400	0,650	13,711	0,441	0,441	20,954	0,000	0,322	0,357
	0,350	0,700	10,629	0,342	0,342	20,962	0,000	0,289	0,235
	0,300	0,750	7,954	0,256	0,256	20,972	0,000	0,256	0,151
	0,250	0,800	5,660	0,182	0,182	20,987	0,000	0,224	0,093
	0,200	0,850	3,724	0,120	0,120	21,008	0,000	0,192	0,053
	0,150	0,900	2,151	0,069	0,069	21,041	0,000	0,160	0,026
	0,101	0,949	1,000	0,032	0,032	21,101	0,000	0,128	0,009
	0,100	0,950	0,973	0,031	0,031	21,104	0,000	0,127	0,009
	0,050	1,000	0,232	0,007	0,007	21,302	0,000	0,095	0,001
	0,000	1,050	0,000	0,000	0,000	21,984	0,000	0,060	0,000

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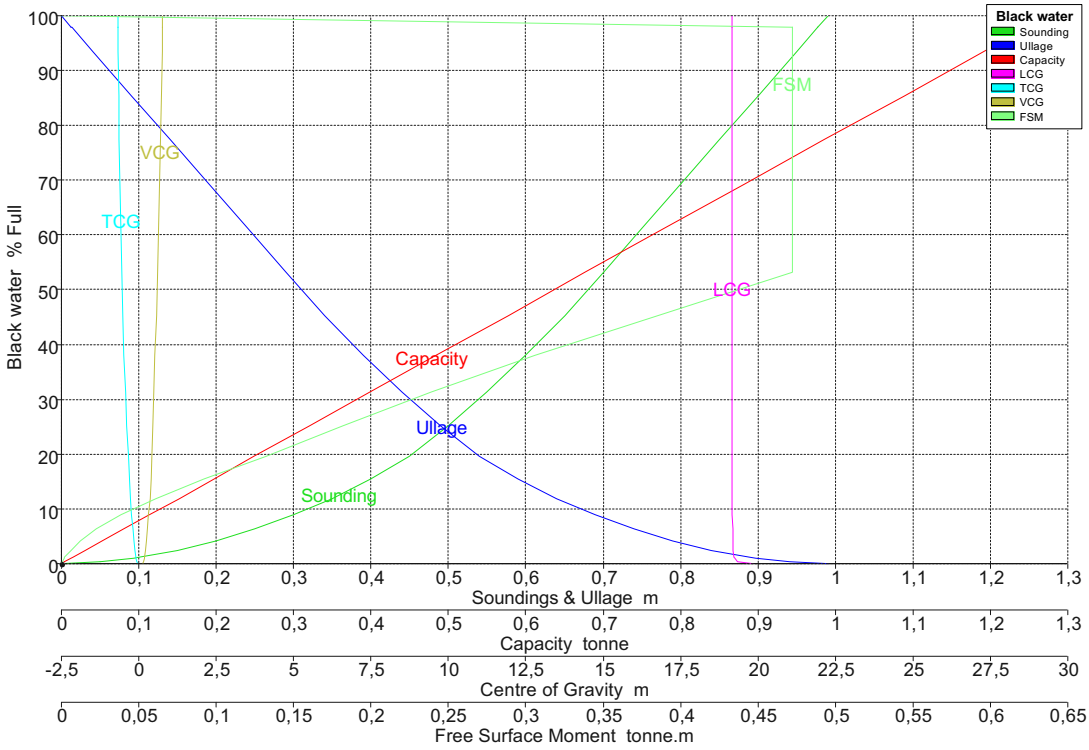
Tank Calibrations - Black water

Fluid Type = Fresh Water Specific gravity = 1
Permeability = 90,4 %
Trim = 0 m (+ve by stern); Heel = 0 deg to starboard



Black water = 0,003 % Full Sounding = 0,000 m

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
Black water	0,990	0,000	100,000	1,274	1,274	19,151	-0,675	0,770	0,000
	0,978	0,012	98,000	1,249	1,249	19,151	-0,672	0,763	0,472
	0,977	0,013	97,900	1,247	1,247	19,151	-0,672	0,763	0,472
	0,950	0,040	93,534	1,192	1,192	19,151	-0,666	0,748	0,472
	0,900	0,090	85,452	1,089	1,089	19,151	-0,652	0,720	0,472
	0,850	0,140	77,369	0,986	0,986	19,151	-0,636	0,691	0,472
	0,800	0,190	69,287	0,883	0,883	19,152	-0,616	0,661	0,472
	0,750	0,240	61,204	0,780	0,780	19,152	-0,591	0,631	0,472
	0,700	0,290	53,122	0,677	0,677	19,153	-0,558	0,598	0,472
	0,650	0,340	45,287	0,577	0,577	19,154	-0,520	0,564	0,385
	0,600	0,390	38,009	0,484	0,484	19,154	-0,480	0,529	0,306
	0,550	0,440	31,287	0,399	0,399	19,155	-0,439	0,493	0,239
	0,500	0,490	25,125	0,320	0,320	19,157	-0,396	0,456	0,181
	0,450	0,540	19,536	0,249	0,249	19,159	-0,349	0,416	0,132
	0,400	0,590	15,503	0,198	0,198	19,162	-0,310	0,383	0,092
	0,350	0,640	11,961	0,152	0,152	19,165	-0,272	0,349	0,061
	0,300	0,690	8,903	0,113	0,113	19,169	-0,236	0,316	0,038
	0,250	0,740	6,305	0,080	0,080	19,176	-0,200	0,283	0,023
	0,200	0,790	4,149	0,053	0,053	19,185	-0,165	0,251	0,012
	0,150	0,840	2,421	0,031	0,031	19,200	-0,130	0,218	0,006
	0,100	0,890	1,131	0,014	0,014	19,228	-0,095	0,186	0,002
	0,094	0,896	1,000	0,013	0,013	19,234	-0,090	0,182	0,002
	0,050	0,940	0,294	0,004	0,004	19,325	-0,061	0,154	0,000
	0,000	0,990	0,000	0,000	0,000	19,826	-0,040	0,120	0,000

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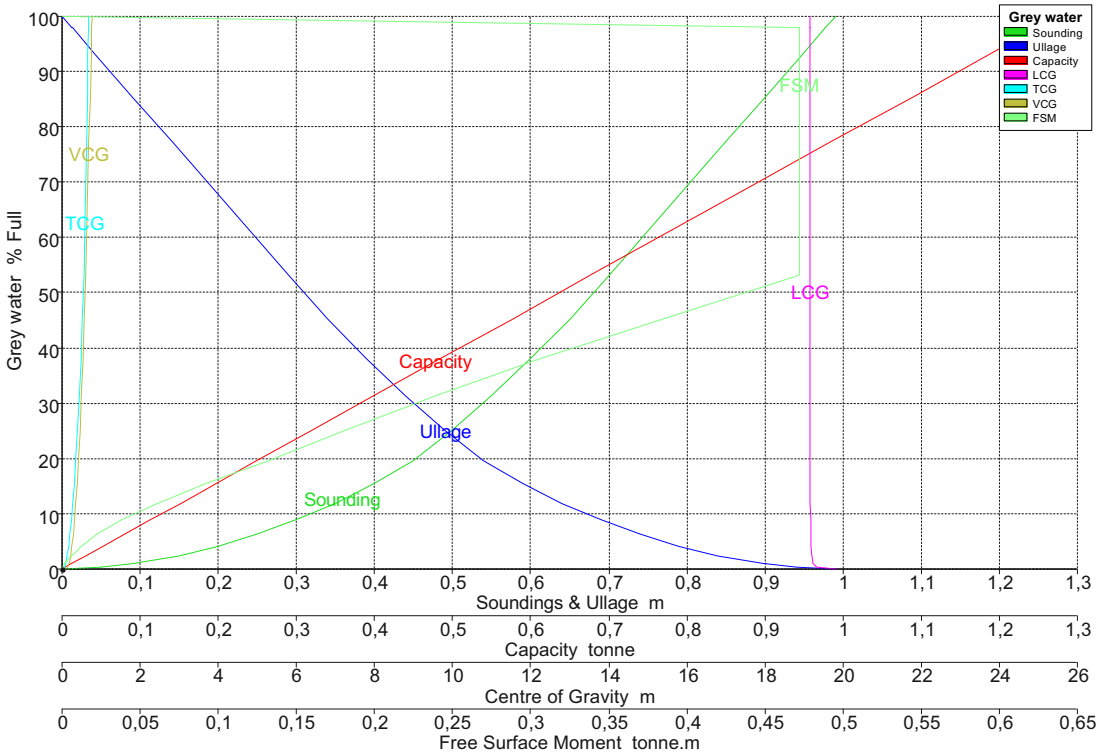
Tank Calibrations - Grey water

Fluid Type = Fresh Water Specific gravity = 1
Permeability = 90,4 %
Trim = 0 m (+ve by stern); Heel = 0 deg to starboard



Grey water = 0,003 % Full Sounding = 0,000 m

Tank Name	Sounding m	Ullage m	% Full	Capacity m^3	Capacity tonne	LCG m	TCG m	VCG m	FSM tonne.m
Grey water	0,990	0,000	100,000	1,274	1,274	19,151	0,675	0,770	0,000
	0,978	0,012	98,000	1,249	1,249	19,151	0,672	0,763	0,472
	0,977	0,013	97,900	1,247	1,247	19,151	0,672	0,763	0,472
	0,950	0,040	93,534	1,192	1,192	19,151	0,666	0,748	0,472
	0,900	0,090	85,452	1,089	1,089	19,151	0,652	0,720	0,472
	0,850	0,140	77,369	0,986	0,986	19,151	0,636	0,691	0,472
	0,800	0,190	69,287	0,883	0,883	19,152	0,616	0,661	0,472
	0,750	0,240	61,204	0,780	0,780	19,152	0,591	0,631	0,472
	0,700	0,290	53,122	0,677	0,677	19,153	0,558	0,598	0,472
	0,650	0,340	45,287	0,577	0,577	19,154	0,520	0,564	0,385
	0,600	0,390	38,009	0,484	0,484	19,154	0,480	0,529	0,306
	0,550	0,440	31,287	0,399	0,399	19,155	0,439	0,493	0,239
	0,500	0,490	25,125	0,320	0,320	19,157	0,396	0,456	0,181
	0,450	0,540	19,536	0,249	0,249	19,159	0,349	0,416	0,132
	0,400	0,590	15,503	0,198	0,198	19,162	0,310	0,383	0,092
	0,350	0,640	11,961	0,152	0,152	19,165	0,272	0,349	0,061
	0,300	0,690	8,903	0,113	0,113	19,169	0,236	0,316	0,038
	0,250	0,740	6,305	0,080	0,080	19,176	0,200	0,283	0,023
	0,200	0,790	4,149	0,053	0,053	19,185	0,165	0,251	0,012
	0,150	0,840	2,421	0,031	0,031	19,200	0,130	0,218	0,006
	0,100	0,890	1,131	0,014	0,014	19,228	0,095	0,186	0,002
	0,094	0,896	1,000	0,013	0,013	19,234	0,090	0,182	0,002
	0,050	0,940	0,294	0,004	0,004	19,325	0,061	0,154	0,000
	0,000	0,990	0,000	0,000	0,000	19,826	0,040	0,120	0,000

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Stability criteria

The Stability of any vessel depends on the relative heights above the keel of the Centre of Gravity (VCG) and the Transverse Metacentre (KMT).

At any angle of heel the Righting Arm (GZ) is the horizontal distance between the force of Gravity, applied on the centre of Gravity (G), and the force of Buonyancy acting throughout the Centre of Buoyancy (B).

For any given draught and trim, the height KMT is fixed and depends only on the underwater shape of the ship.
KMT is obtained directly form the Hydrostatic Data of the ship at the draught, and trim if possible, corresponding to the current Displacement.

The centre of Gravity (G) depends on the amount and distribution of the weight on ships (Loading Condition).

If the Weight and Longitudinal and Vertical position of the Centre of Gravity of the Lightship are known, then the position of Centre of Gravity may be calculated for any Loading condition. The Master must evaluate the position of Centre of Gravity for the forecast Loading Condition.

The ship's Stability is positive when the Vertical Centre of Gravity is less than the Transversal Metacentre Height (KMT)

It is most important to censure that in any sailing condition the stability complies at least with the following minimum criteria.

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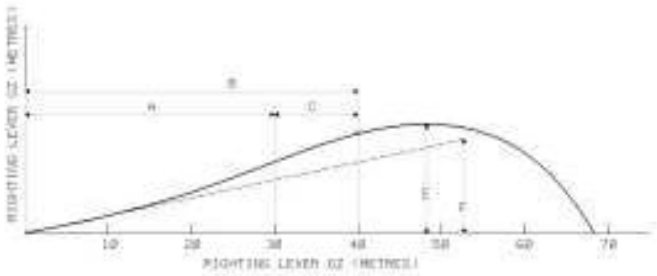

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Following minimum criteria of "Rules for the Classification of Pleasure Yacht"

Criteria				RINA Part B
Area under GZ stability (*) up to 30°……not less than	>=	0.055	m*rad	2.1.1
Area under stability curve up to min (*40° downfloading angle*) (**)……not less than	>=	0.090	m*rad	2.1.1
Area under stability curve from 30° to min (*40° downfloading angle*) (**)……....not less than	>=	0.030	m*rad	2.1.1
Max Righting Arm (GZ max) at angle…….. not less than	>=	25°	degree	2.1.1
Max Righting Arm (GZ max) must be…….. not less than	>=	0.2	m	2.1.1
Initial Transversal Metacentric height-GM,corrected due to free surface effects…. not less than	>=	0.15	m	2.1.1
Crowding angle of equilibrium	<=	10	degree	2.1.1

(*) The Stability Curve must include the effects of Free Surface in tanks. (See also appendix C-5)
(**) min (40° downflooding angle). Use the minimum angle between 40° and the angle at which the lower edges of any openings in the hull. S uperstructure or deck house which cause progressive flooding and cannot be closed weathertight.

The curves of righting levers (also known as GZ curve), for each condition of loading should be obtained at the trim shown in the condition by interpolation between the appropriate sets of trimmed cross curves (KN curves).
Areas under the curve may be calculated by a suitable numerical method. Alternatively the values of GZ righting arm levers may be plotted against heel angles on graph paper and the number of squares under the curve may be manually counted.
This vessel has not been assessed for Damage Stability, and therefore might not remain afloat in the event of damage or flooding.

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Calculation methods

Note: If the Transeverse Centre of Gravity of the loadcase is in the Centreplane (TGC=0.0), the relative column could be omitted.

Initial Stability (GM)

For each Loading Conditions, the hydrostatic data are calculated for the final real equilibrium (heel /trim).
Initial Metacentric Height (GM) include the free surface effects (Free Surface Moment= FSM).
The Free Surface Moment for each tank (filling with less than 98% and more than 3%)is:
*) for storage tanks: the real FSM (actual FSM for the current filling condition of each tank)
*) for service tanks: the maximum FSM (max FSM for tank)
The Free Surface Moment in the Tank Calibration Tables include the Spec. gravity of the liquid. SEE ALSO APPENDIX-C-5

Stability Curve (GZ) and free trim calculation

The righting arm curves (GZ) are evaluated in 'free trim condition and include the real effect of free surfaces.

Aft Garage

The aft garage is considered open. All stability calculations are performed without aft door. So the seawater is free to enter . To consider the wrost condition the garage was modelled symmetrical so to give the minimum hydrostatic component when the sea flow in.

Superstructures and bulwark

On the safety side, the main deck bulwarks and I° order of superstructures is NOT considered for the stability curve. The doors of superstructure are as follows:

- The side doors weathertight
- The aft access to Main Salon has sliding door (stainless steel structures with glass) and it could be a potential downflooding point.

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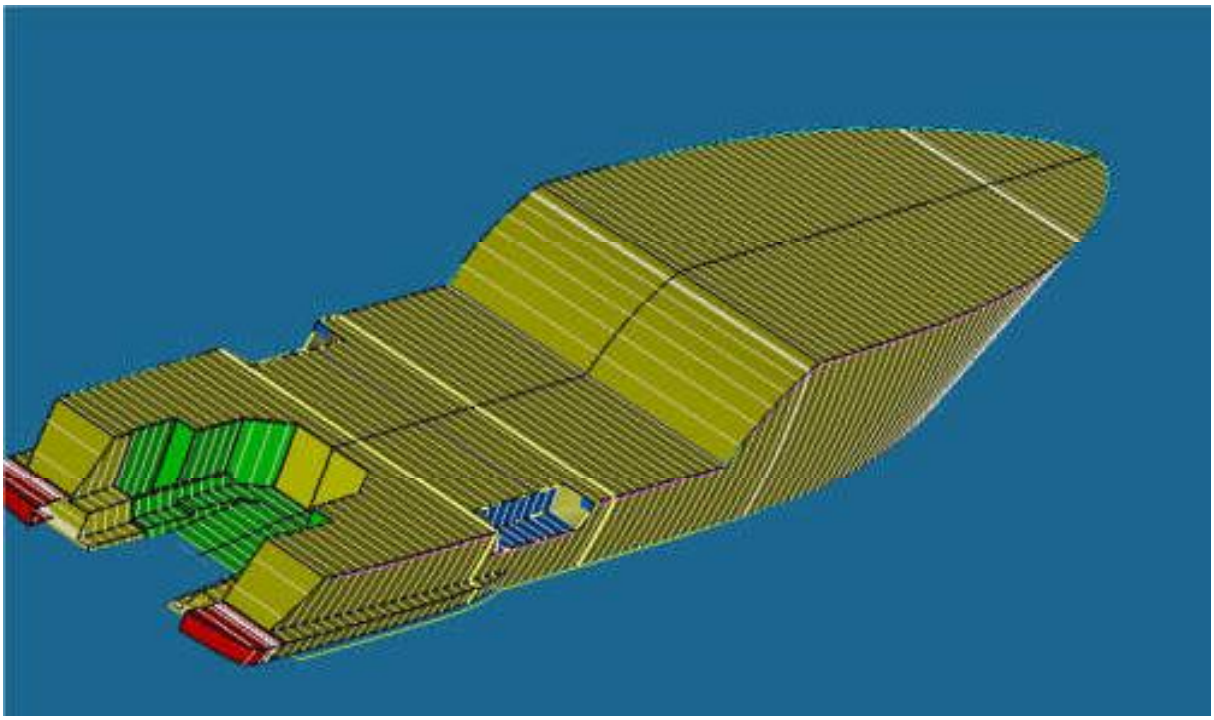
Hydromax sketch



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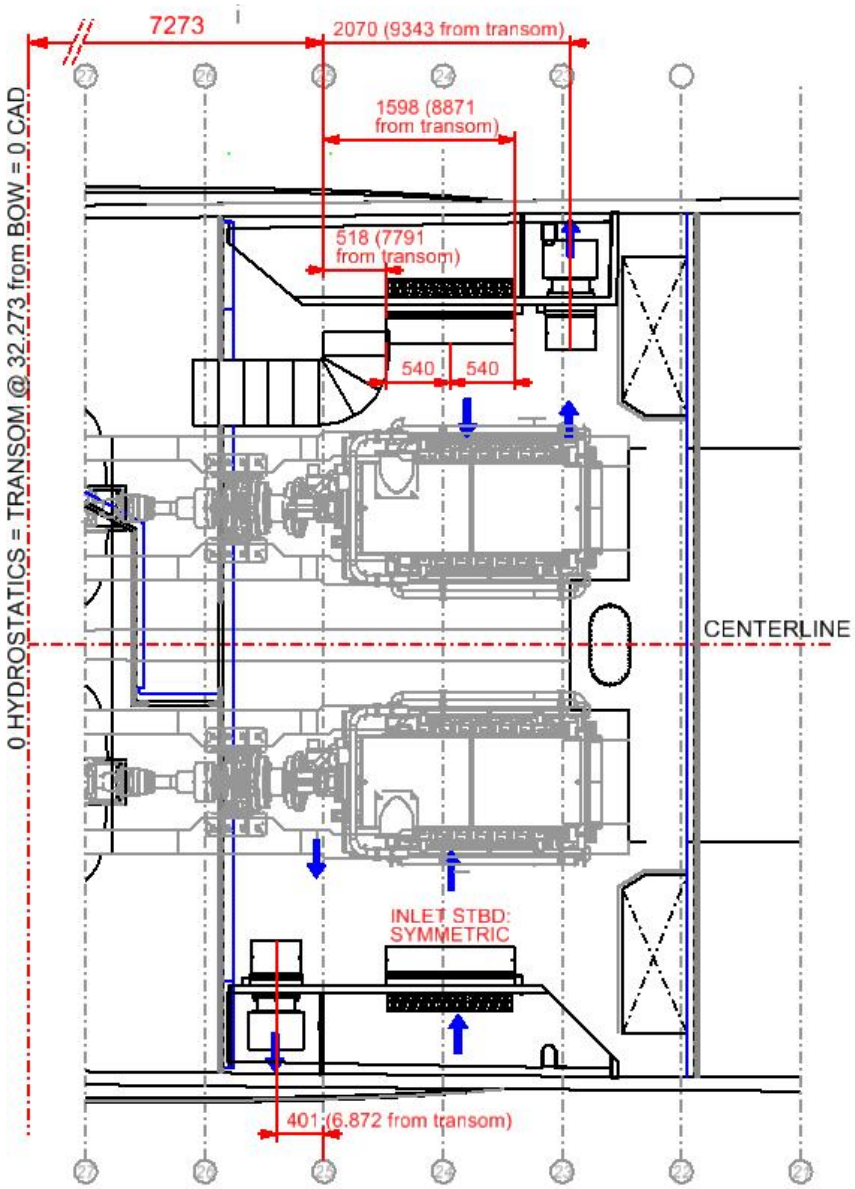
Critical and down flooding points

Door-hatches's closing device

Type	Description	status
Watertight	Hinged	Closed during navigation
Weathertight	Hinged- only on or above Main Deck/freeboard Deck	Open or closed according to weather condition and under Master responsability

Ventilation



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Downflooding point definition

Name	Long. Pos. m	Offset m	Height m
ER INLET PORT - Aft	7.791	2.495	3.263
ER INLET PORT - Fwd	8.871	2.495	3.263
ER OUTLET PORT	9.343	2.485	3.263
ER OUTLT STBD (mirror(*))	6.872	2.482	3.265

(*) hydrostatic model is completely symmetric in geometry, tanks and loadcases, so ER OUTLET STB point has been mirrored to STBD in order to report stability with heel angle to PORT only. Anyway, as per following calculations, critical downflooding points in GZ curve are INLET ones.

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Lightship History

The resulting lightship figures are as follows:

Lightship	LCG	VCG	TCG
161.917	12.88	2.926 m	0.00 m

The above lightship does not include the following items which are to be included in the loading condition as deadweight items. Should any of these items be changed during the life of the yacht, the loading conditions are to be modified to take account of the difference in weight and centres of gravity and their effect on the stability of the yacht:

Item	Weight
[tender]	1200 kg
[Jet sky]	433 kg
[tender]	380 kg

Whenever a significant change is made to the lightship, verified either by inclining experiment, lightweight check or calculation, the results are to be indicated in the following table and endorsed by an approved surveyor.

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Lightship	LCG	VCG	TCG	Date	Reason

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LOADING CONDITIONS

LIGHT SHIP (including Circulating Fluids)

Inclining Experiment carried out 24/04/2018 in Ferretti, Ancona Italy

FULL LOAD DEPARTURE condition (with 98% consumables, stores,….)

Guests: n.20

Ship in the full loaded condition with full (98%) stores and fuel and with the full number of crew and guests with their luggage and all other tanks.

FULL LOAD ARRIVAL Condition (with 10% consumables)

Guests: n.20

Ship in the loaded Arrival condition with the full number of crew and guests and their luggage, with 10% of consumables remaining

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Loadcase - Lighship

Loadcase - Lighship
Damage Case - Intact
Free to Trim
Specific gravity = 1,025; (Density = 1,025 tonne/m^3)
Fluid analysis method: Simulate fluid movement

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m
Lightship	1	161,917	161,917			12,880	0,000	2,926
Total lightship			161,917			12,880	0,000	2,926
Tender (garage)	0	1,200	0,000			2,774	0,000	2,700
Jet sky (garage)	0	0,433	0,000			2,274	0,000	3,200
Tender (bow)	0	0,380	0,000			26,274	0,000	6,000
Spare parts	0	0,500	0,000			7,274	0,000	2,000
Total fixed			0,000			0,000	0,000	0,000
Passengers	0	0,075	0,000			11,774	0,000	6,000
Lugagge	0	0,025	0,000			20,274	0,000	2,000
Pantry	0	0,050	0,000			19,274	0,000	4,000
Total removable			0,000			0,000	0,000	0,000
Fuel Main	0%	13,635	0,000	16,232	0,000	18,375	0,000	0,147
Fuel Daily	0%	2,222	0,000	2,645	0,000	10,309	0,000	1,183
Fresh Water	0%	3,218	0,000	3,218	0,000	21,984	0,000	0,060
Black water	0%	1,274	0,000	1,274	0,000	19,826	-0,027	0,120
Grey water	0%	1,274	0,000	1,274	0,000	19,826	0,027	0,120
Total liquid	0%	21,623	0,000	24,643	0,000	0,000	0,000	0,000
Total Loadcase			161,917	24,643	0,000	12,880	0,000	2,926

Draft Amidships m	1,817
Displacement t	161,9
Heel deg	0,0
Draft at FP m	1,882
Draft at AP m	1,751
Draft at LCF m	1,803
Trim (+ve by stern) m	-0,131
WL Length m	28,057
Beam max extents on WL m	7,030
Wetted Area m^2	235,404
Waterpl. Area m^2	157,834
Prismatic coeff. (Cp)	0,739
Block coeff. (Cb)	0,396
Max Sect. area coeff. (Cm)	0,563
Waterpl. area coeff. (Cwp)	0,800
LCB from aft perp. (+ve fwd) m	12,887
LCF from aft perp. (+ve fwd) m	12,701
KB m	1,244
KG solid m	2,926
BMt m	3,453
BML m	48,629
GMt corrected m	1,771
GML m	46,947
KMt m	4,697
KML m	49,873
Immersion (TPc) tonne/cm	1,618
MTc tonne.m	2,355
RM at 1deg = GMt.Disp.sin(1) tonne.m	5,006
Max deck inclination deg	0,2333
Trim angle (+ve by stern) deg	-0,2333

Key point	Type	Freeboard m
Margin Line (freeboard pos = 9,602 m)		1,198
Deck Edge (freeboard pos = 9,602 m)		1,274
ER INLET PORT - Aft	Downflooding point	1,480
ER INLET PORT - Fwd	Downflooding point	1,476
ER OUTLET PORT	Downflooding point	1,474
ER OUTLT STBD (mirror(*))	Downflooding point	1,486

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Loadcase - Departure

Damage Case - Intact
Free to Trim
Specific gravity = 1,025; (Density = 1,025 tonne/m^3)
Fluid analysis method: Simulate fluid movement

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m
Lightship	1	161,917	161,917			12,880	0,000	2,926
Total lightship			161,917			12,880	0,000	2,926
Tender (garage)	1	1,200	1,200			2,774	0,000	2,700
Jet sky (garage)	1	0,433	0,433			2,274	0,000	3,200
Tender (bow)	1	0,380	0,380			26,274	0,000	6,000
Spare parts	1	0,500	0,500			7,274	0,000	2,000
Total fixed			2,513			7,137	0,000	3,146
Passengers	20	0,075	1,500			11,774	0,000	9,000
Lugagge	20	0,025	0,500			20,274	0,000	2,000
Pantry	20	0,050	1,000			19,274	0,000	4,000
Total removable			3,000			15,691	0,000	6,167
Fuel Main	98%	13,635	13,362	16,232	15,908	14,228	0,000	0,819
Fuel Daily	98%	2,222	2,177	2,645	2,592	10,052	0,000	2,323
Fresh Water	98%	3,218	3,153	3,218	3,153	20,938	0,000	0,752
Black water	10%	1,274	0,127	1,274	0,127	19,175	-0,249	0,329
Grey water	10%	1,274	0,127	1,274	0,127	19,175	0,249	0,329
Total liquid	87,63%	21,623	18,948	24,643	21,908	14,931	0,000	0,974
Total Loadcase			186,378	24,643	21,908	13,056	0,000	2,783

Draft Amidships m	1,981
Displacement t	186,4
Heel deg	0,0
Draft at FP m	2,116
Draft at AP m	1,846
Draft at LCF m	1,955
Trim (+ve by stern) m	-0,270
WL Length m	28,119
Beam max extents on WL m	7,084
Wetted Area m^2	248,390
Waterpl. Area m^2	159,988
Prismatic coeff. (Cp)	0,741
Block coeff. (Cb)	0,428
Max Sect. area coeff. (Cm)	0,591
Waterpl. area coeff. (Cwp)	0,803
LCB from aft perp. (+ve fwd) m	13,066
LCF from aft perp. (+ve fwd) m	13,008
KB m	1,328
KG solid m	2,783
BMt m	3,154
BML m	43,139
GMt corrected m	1,699
GML m	41,684
KMt m	4,482
KML m	44,466
Immersion (TPc) tonne/cm	1,640
MTc tonne.m	2,407
RM at 1deg = GMt.Disp.sin(1) tonne.m	5,527
Max deck inclination deg	0,4801
Trim angle (+ve by stern) deg	-0,4801

Key point	Type	Freeboard m
Margin Line (freeboard pos = 9,602 m)		1,062
Deck Edge (freeboard pos = 9,602 m)		1,138
ER INLET PORT - Aft	Downflooding point	1,352
ER INLET PORT - Fwd	Downflooding point	1,343
ER OUTLET PORT	Downflooding point	1,339
ER OUTLT STBD (mirror(*))	Downflooding point	1,362

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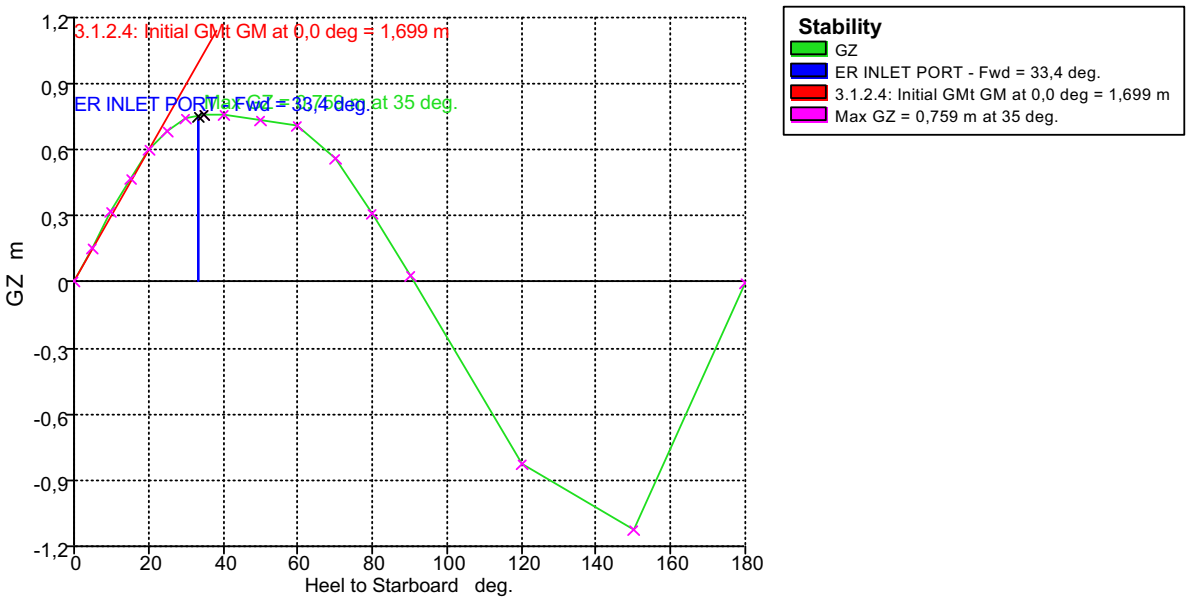

Heel to Starboard deg	0,0	5,0	10,0	15,0	20,0	25,0	30,0	35,0	40,0
GZ m	0,000	0,153	0,319	0,471	0,603	0,688	0,740	0,759	0,759
Area under GZ curve from zero heel m.rad	0,0000	0,3827	1,5640	3,5409	6,2276	9,4569	13,0270	16,7733	20,5672
Displacement t	186,4	186,4	186,4	186,4	186,4	186,4	186,4	186,4	186,4
Draft at FP m	2,116	2,116	2,105	2,057	1,974	1,882	1,785	1,653	1,478
Draft at AP m	1,846	1,835	1,813	1,808	1,800	1,753	1,657	1,550	1,437
WL Length m	28,119	28,909	28,902	28,874	28,264	28,226	28,209	30,078	30,222
Beam max extents on WL m	7,084	7,105	7,126	7,142	6,772	6,482	6,326	6,292	6,350
Wetted Area m^2	248,390	252,985	255,883	257,904	256,769	251,502	250,112	250,004	250,487
Waterpl. Area m^2	159,988	163,519	162,606	160,145	152,584	142,248	136,391	131,313	127,497
Prismatic coeff. (Cp)	0,741	0,723	0,728	0,735	0,751	0,751	0,750	0,697	0,681
Block coeff. (Cb)	0,428	0,419	0,427	0,436	0,487	0,472	0,456	0,411	0,391
LCB from aft perp. (+ve fwd) m	13,066	13,067	13,068	13,066	13,063	13,060	13,060	13,059	13,056
LCF from aft perp. (+ve fwd) m	13,008	12,846	12,958	13,024	13,232	13,753	14,025	14,534	15,061
Max deck inclination deg	0,4801	5,0246	10,0129	15,0060	20,0020	25,0008	30,0006	35,0003	40,0000
Trim angle (+ve by stern) deg	-0,4801	-0,4988	-0,5182	-0,4435	-0,3090	-0,2288	-0,2269	-0,1826	-0,0723

Heel to Starboard deg	50,0	60,0	70,0	80,0	90,0	120,0	150,0	180,0
GZ m	0,738	0,710	0,561	0,314	0,026	-0,824	-1,125	0,000
Area under GZ curve from zero heel m.rad	28,0492	35,2866	41,6420	46,0188	47,7171	35,7374	6,4931	-10,3864
Displacement t	186,4	186,4	186,4	186,4	186,4	186,4	186,4	186,4
Draft at FP m	0,922	-0,105	-2,663	-10,664	n/a	-10,120	-7,035	-6,406
Draft at AP m	1,200	0,940	0,957	1,280	n/a	-0,553	-1,002	-1,276
WL Length m	30,294	29,471	27,238	27,970	28,583	29,868	31,513	28,524
Beam max extents on WL m	6,728	6,568	5,686	5,265	5,053	5,383	7,282	7,477
Wetted Area m^2	252,602	250,052	236,254	229,520	228,473	230,794	255,422	298,182
Waterpl. Area m^2	124,229	117,592	103,133	91,786	86,486	88,255	131,404	187,603
Prismatic coeff. (Cp)	0,640	0,616	0,644	0,613	0,590	0,540	0,479	0,477
Block coeff. (Cb)	0,351	0,365	0,405	0,369	0,340	0,259	0,208	0,393
LCB from aft perp. (+ve fwd) m	13,042	13,021	12,970	12,908	12,848	12,742	12,802	12,859
LCF from aft perp. (+ve fwd) m	16,013	16,323	15,631	15,715	15,630	15,065	13,494	13,684
Max deck inclination deg	50,0007	60,0043	70,0153	80,0208	90,0000	119,6431	148,7481	170,9671
Trim angle (+ve by stern) deg	0,4939	1,8538	6,3987	20,3084	n/a	16,5125	10,5886	9,0329

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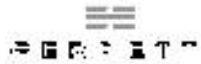

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Key point	Type	Immersion angle deg	Emergence angle deg
Margin Line (immersion pos = 9,602 m)		17,2	n/a
Deck Edge (immersion pos = 9,602 m)		18,4	n/a
ER INLET PORT - Aft	Downflooding point	33,5	0
ER INLET PORT - Fwd	Downflooding point	33,4	0
ER OUTLET PORT	Downflooding point	33,6	0
ER OUTLT STBD (mirror(*))	Downflooding point	33,9	0

Code	Criteria	Value	Units	Actual	Status	Margin %
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 30	3,1513	m.deg	13,0270	Pass	+313,38
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 40	5,1566	m.deg	15,5971	Pass	+202,47
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 30 to 40	1,7189	m.deg	2,5701	Pass	+49,52
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.2: Max GZ at 30 or greater	0,200	m	0,759	Pass	+279,50
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.3: Angle of maximum GZ	25,0	deg	35,0	Pass	+40,00
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.4: Initial GMt	0,150	m	1,699	Pass	+1032,67

18/12/2020

Loadcase - Arrival

Damage Case - Intact
Free to Trim
Specific gravity = 1,025; (Density = 1,025 tonne/m^3)
Fluid analysis method: Simulate fluid movement

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m
Lightship	1	161,917	161,917			12,880	0,000	2,926
Total lightship			161,917			12,880	0,000	2,926
Tender (garage)	1	1,200	1,200			2,774	0,000	2,700
Jet sky (garage)	1	0,433	0,433			2,274	0,000	3,200
Tender (bow)	1	0,380	0,380			26,274	0,000	6,000
Spare parts	1	0,500	0,500			7,274	0,000	2,000
Total fixed			2,513			7,137	0,000	3,146
Passengers	20	0,075	1,500			11,774	0,000	9,000
Lugagge	20	0,025	0,500			20,274	0,000	2,000
Pantry	2	0,050	0,100			19,274	0,000	4,000
Total removable			2,100			14,155	0,000	7,095
Fuel Main	10%	13,635	1,364	16,232	1,623	15,156	0,000	0,468
Fuel Daily	10%	2,222	0,222	2,645	0,264	10,052	0,000	1,364
Fresh Water	10%	3,218	0,322	3,218	0,322	20,974	0,000	0,282
Black water	98%	1,274	1,249	1,274	1,249	19,152	-0,672	0,763
Grey water	98%	1,274	1,249	1,274	1,249	19,152	0,672	0,763
Total liquid	20,37%	21,623	4,405	24,643	4,707	17,589	0,000	0,667
Total Loadcase			170,935	24,643	4,707	12,933	0,000	2,922

Draft Amidships m	1,876
Displacement t	170,9
Heel deg	0,0
Draft at FP m	1,963
Draft at AP m	1,790
Draft at LCF m	1,859
Trim (+ve by stern) m	-0,173
WL Length m	28,065
Beam max extents on WL m	7,050
Wetted Area m^2	240,204
Waterpl. Area m^2	158,611
Prismatic coeff. (Cp)	0,740
Block coeff. (Cb)	0,408
Max Sect. area coeff. (Cm)	0,574
Waterpl. area coeff. (Cwp)	0,802
LCB from aft perp. (+ve fwd) m	12,939
LCF from aft perp. (+ve fwd) m	12,813
KB m	1,275
KG solid m	2,922
BMt m	3,332
BML m	46,398
GMt corrected m	1,610
GML m	44,676
KMt m	4,607
KML m	47,673
Immersion (TPc) tonne/cm	1,626
MTc tonne.m	2,366
RM at 1deg = GMt.Disp.sin(1) tonne.m	4,802
Max deck inclination deg	0,3064
Trim angle (+ve by stern) deg	-0,3064

Key point	Type	Freeboard m
Margin Line (freeboard pos = 9,602 m)		1,146
Deck Edge (freeboard pos = 9,602 m)		1,222
ER INLET PORT - Aft	Downflooding point	1,431
ER INLET PORT - Fwd	Downflooding point	1,425
ER OUTLET PORT	Downflooding point	1,423
ER OUTLT STBD (mirror(*))	Downflooding point	1,438

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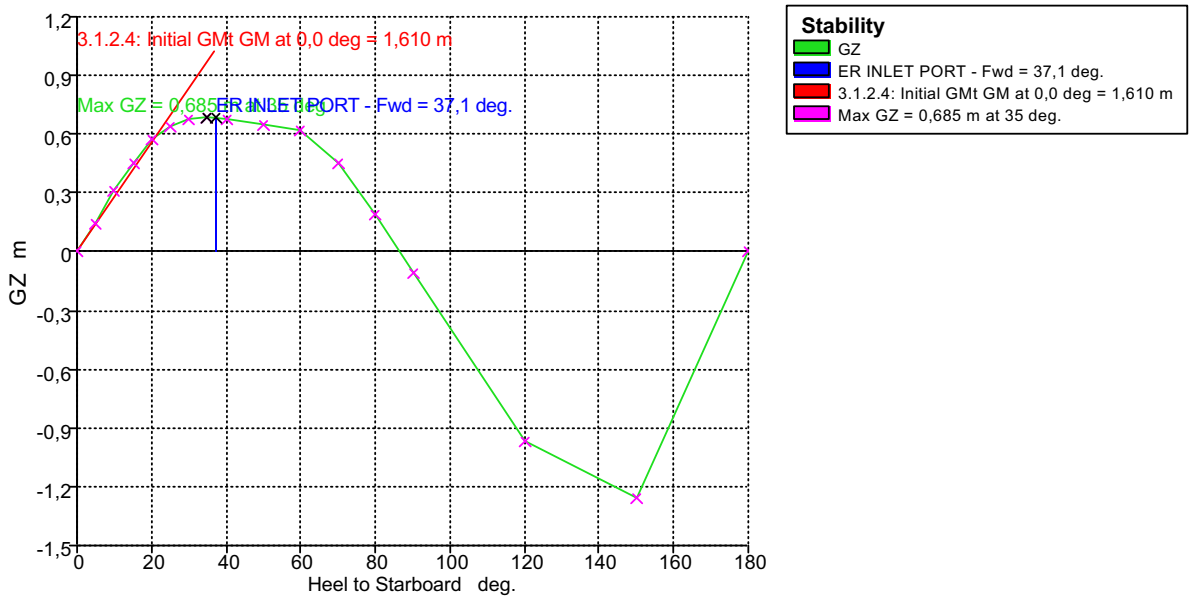

Heel to Starboard deg	0,0	5,0	10,0	15,0	20,0	25,0	30,0	35,0	40,0
GZ m	0,000	0,148	0,312	0,457	0,572	0,637	0,673	0,685	0,677
Area under GZ curve from zero heel m.rad	0,0000	0,3701	1,5199	3,4424	6,0162	9,0390	12,3130	15,7068	19,1113
Displacement t	170,9	170,9	170,9	170,9	170,9	170,9	170,9	170,9	170,9
Draft at FP m	1,963	1,961	1,949	1,897	1,810	1,724	1,628	1,509	1,346
Draft at AP m	1,790	1,782	1,759	1,751	1,734	1,664	1,551	1,413	1,263
WL Length m	28,065	28,739	28,817	28,797	28,211	28,219	30,085	30,197	30,281
Beam max extents on WL m	7,050	7,066	7,067	7,005	6,562	6,280	6,141	6,113	6,171
Wetted Area m^2	240,204	243,766	245,461	247,867	244,908	240,372	238,060	238,005	238,434
Waterpl. Area m^2	158,611	162,184	162,456	157,961	148,684	138,181	135,623	130,728	127,570
Prismatic coeff. (Cp)	0,740	0,725	0,729	0,735	0,751	0,751	0,702	0,694	0,680
Block coeff. (Cb)	0,408	0,400	0,408	0,423	0,479	0,469	0,424	0,406	0,387
LCB from aft perp. (+ve fwd) m	12,939	12,941	12,941	12,936	12,929	12,926	12,927	12,927	12,926
LCF from aft perp. (+ve fwd) m	12,813	12,629	12,603	12,738	13,072	13,603	13,888	14,340	14,776
Max deck inclination deg	0,3064	5,0099	10,0055	15,0020	20,0004	25,0002	30,0002	35,0002	40,0001
Trim angle (+ve by stern) deg	-0,3064	-0,3169	-0,3374	-0,2590	-0,1346	-0,1067	-0,1373	-0,1699	-0,1473

Heel to Starboard deg	50,0	60,0	70,0	80,0	90,0	120,0	150,0	180,0
GZ m	0,644	0,621	0,455	0,191	-0,109	-0,969	-1,261	0,000
Area under GZ curve from zero heel m.rad	25,7191	32,0443	37,4216	40,6500	41,0583	24,8892	-8,5583	-27,4735
Displacement t	170,9	170,9	170,9	170,9	170,9	170,9	170,9	170,9
Draft at FP m	0,823	-0,218	-2,900	-11,092	n/a	-10,295	-7,181	-6,494
Draft at AP m	0,926	0,548	0,332	-0,194	n/a	-1,042	-1,122	-1,348
WL Length m	30,267	28,227	26,948	27,682	28,320	29,638	31,204	27,963
Beam max extents on WL m	6,554	6,628	5,622	5,212	4,996	5,323	7,037	7,484
Wetted Area m^2	240,062	234,279	218,690	217,126	216,968	219,243	241,204	287,573
Waterpl. Area m^2	124,530	119,701	98,195	88,712	84,114	85,788	124,330	181,619
Prismatic coeff. (Cp)	0,641	0,641	0,649	0,618	0,594	0,542	0,476	0,468
Block coeff. (Cb)	0,350	0,367	0,410	0,374	0,343	0,255	0,205	0,380
LCB from aft perp. (+ve fwd) m	12,917	12,892	12,838	12,778	12,716	12,617	12,672	12,727
LCF from aft perp. (+ve fwd) m	15,652	15,660	15,704	15,739	15,580	14,989	13,444	13,354
Max deck inclination deg	50,0001	60,0023	70,0122	80,0173	90,0000	119,6658	148,7379	170,9402
Trim angle (+ve by stern) deg	0,1823	1,3604	5,7191	18,6581	n/a	15,9984	10,6323	9,0598

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Key point	Type	Immersion angle deg	Emergence angle deg
Margin Line (immersion pos = 9,602 m)		18,6	n/a
Deck Edge (immersion pos = 9,602 m)		19,8	n/a
ER INLET PORT - Aft	Downflooding point	37,1	0
ER INLET PORT - Fwd	Downflooding point	37,1	0
ER OUTLET PORT	Downflooding point	37,2	0
ER OUTLT STBD (mirror(*))	Downflooding point	37,5	0

Code	Criteria	Value	Units	Actual	Status	Margin %
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 30	3,1513	m.deg	12,3130	Pass	+290,73
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 40	5,1566	m.deg	17,1172	Pass	+231,95
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 30 to 40	1,7189	m.deg	4,8043	Pass	+179,50
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.2: Max GZ at 30 or greater	0,200	m	0,685	Pass	+242,50
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.3: Angle of maximum GZ	25,0	deg	35,0	Pass	+40,00
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.4: Initial GMt	0,150	m	1,610	Pass	+973,33

18/12/2020

Loadcase – Arrival pool full

Loadcase - Arrival
Damage Case - Intact
Free to Trim
Specific gravity = 1,025; (Density = 1,025 tonne/m^3)
Fluid analysis method: Use corrected VCG

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m
Lightship	1	161,917	161,917			12,880	0,000	2,926
jacuzzi	1	2,000	2,000			15,658	0,000	8,800
Total lighship			163,917			12,914	0,000	2,998
Tender garage	0	1,200	0,000			2,774	0,000	2,700
Jet sky garage	1	0,433	0,433			2,274	0,000	3,200
Tender bow	1	0,380	0,380			26,274	0,000	6,000
Spare parts	0	0,500	0,000			7,274	0,000	2,000
Total fixed			0,813			13,492	0,000	4,509
Passengers	20	0,075	1,500			11,774	0,000	9,000
Lugagge	20	0,025	0,500			20,274	0,000	2,000
Total removable			2,000			13,899	0,000	7,250
Pantry	2	0,050	0,100			19,274	0,000	4,000
Fuel Main	10%	13,635	1,364	16,232	1,623	14,891	0,000	0,467
Fuel Daily	10%	2,222	0,222	2,645	0,264	10,051	0,000	1,364
Fresh Water	10%	3,218	0,322	3,218	0,322	20,964	0,000	0,282
Black water	98%	1,274	1,249	1,274	1,249	19,151	-0,672	0,763
Grey water	98%	1,274	1,249	1,274	1,249	19,151	0,672	0,763
Total comsumables			4,505			17,545	0,000	0,741
Total Loadcase			171,235	24,643	4,707	13,050	0,000	2,995
FS correction								0,075
VCG fluid								3,070

Draft Amidships m	1,887
Displacement t	171,2
Heel deg	0,0
Draft at FP m	2,017
Draft at AP m	1,757
Draft at LCF m	1,861
Trim (+ve by stern) m	-0,260
WL Length m	28,109
Beam max extents on WL m	7,054
Wetted Area m^2	239,588
Waterpl. Area m^2	159,703
Prismatic coeff. (Cp)	0,736
Block coeff. (Cb)	0,412
Max Sect. area coeff. (Cm)	0,574
Waterpl. area coeff. (Cwp)	0,805
LCB from zero pt. (+ve fwd) m	13,065
LCF from zero pt. (+ve fwd) m	12,800
KB m	1,277
KG fluid m	3,070
BMt m	3,333
BML m	47,163
GMt corrected m	1,540
GML m	45,370
KMt m	4,611
KML m	48,439
Immersion (TPc) tonne/cm	1,637
MTc tonne.m	2,407
RM at 1deg = GMt.Disp.sin(1) tonne.m	4,603
Max deck inclination deg	0,4612
Trim angle (+ve by stern) deg	-0,4612

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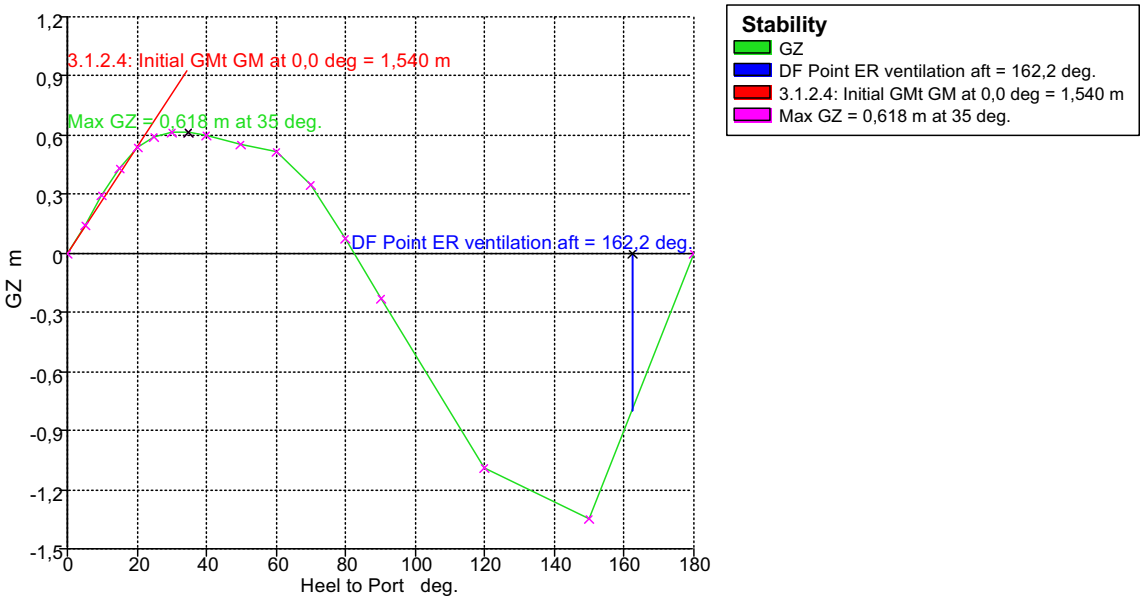

Heel to Port deg	0,0	5,0	10,0	15,0	20,0	25,0	30,0	35,0	40,0
GZ m	0,000	0,139	0,295	0,434	0,539	0,591	0,616	0,618	0,601
Area under GZ curve from zero heel m.deg	0,0000	0,3485	1,4354	3,2599	5,6938	8,5199	11,5378	14,6220	17,6692
Displacement t	171,2	171,2	171,2	171,2	171,2	171,2	171,2	171,2	171,2
Draft at FP m	2,017	2,013	2,002	1,953	1,874	1,795	1,701	1,585	1,427
Draft at AP m	1,757	1,752	1,729	1,718	1,694	1,616	1,500	1,357	1,201
WL Length m	28,109	28,696	28,838	28,816	28,221	28,209	29,963	30,150	30,254
Beam max extents on WL m	7,054	7,070	7,071	6,995	6,551	6,280	6,150	6,125	6,185
Wetted Area m^2	239,588	243,039	244,761	247,514	242,782	239,485	237,815	237,856	238,277
Waterpl. Area m^2	159,703	163,061	164,010	159,139	148,444	139,040	136,154	131,582	128,598
Prismatic coeff. (Cp)	0,736	0,723	0,725	0,731	0,747	0,748	0,702	0,693	0,679
Block coeff. (Cb)	0,412	0,406	0,413	0,429	0,488	0,472	0,428	0,408	0,389
LCB from zero pt. (+ve fwd) m	13,065	13,065	13,065	13,063	13,061	13,060	13,061	13,062	13,061
LCF from zero pt. (+ve fwd) m	12,800	12,641	12,590	12,739	13,186	13,626	13,849	14,314	14,749
Max deck inclination deg	0,4612	5,0212	10,0113	15,0053	20,0022	25,0016	30,0014	35,0014	40,0010
Trim angle (+ve by stern) deg	-0,4612	-0,4630	-0,4843	-0,4187	-0,3203	-0,3178	-0,3566	-0,4046	-0,4006

Heel to Port deg	50,0	60,0	70,0	80,0	90,0	120,0	150,0	180,0
GZ m	0,552	0,518	0,345	0,073	-0,233	-1,088	-1,347	0,000
Area under GZ curve from zero heel m.deg	23,4344	28,7832	33,0963	35,1836	34,3827	14,5775	-21,9393	-42,1431
Displacement t	171,2	171,2	171,2	171,2	171,2	171,2	171,2	171,2
Draft at FP m	0,917	-0,078	-2,626	-10,479	n/a	-10,065	-7,097	-6,445
Draft at AP m	0,844	0,424	0,087	-0,751	n/a	-1,240	-1,183	-1,382
WL Length m	30,287	29,369	27,119	27,886	28,509	29,805	31,350	28,260
Beam max extents on WL m	6,569	6,606	5,627	5,214	4,999	5,326	7,062	7,483
Wetted Area m^2	239,977	235,383	217,267	216,803	216,782	219,153	240,269	288,008
Waterpl. Area m^2	125,731	122,619	98,083	89,208	84,554	86,437	124,553	185,646
Prismatic coeff. (Cp)	0,640	0,615	0,643	0,612	0,589	0,537	0,471	0,461
Block coeff. (Cb)	0,351	0,356	0,419	0,383	0,351	0,260	0,206	0,383
LCB from zero pt. (+ve fwd) m	13,053	13,032	12,983	12,926	12,866	12,773	12,836	12,902
LCF from zero pt. (+ve fwd) m	15,662	15,871	15,915	15,878	15,724	15,129	13,624	13,672
Max deck inclination deg	50,0001	60,0010	70,0086	80,0138	90,0000	119,6955	148,7953	171,0850
Trim angle (+ve by stern) deg	-0,1302	0,8925	4,8047	16,7741	n/a	15,2941	10,3839	8,9150

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Key point	Type	Immersion angle deg	Emergence angle deg
Margin Line (immersion pos = 9,602 m)		18,8	n/a
Deck Edge (immersion pos = 9,602 m)		20	n/a
DF point ICLL	Potential downflooding point	155,8	0
DF Point ER ventilation aft	Downflooding point	162,2	0
DF Point ER ventilation fwd	Downflooding point	170,9	0

Code	Criteria	Value	Units	Actual	Status	Margin %
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 30	3,1513	m.deg	11,5378	Pass	+266,13
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 0 to 40	5,1566	m.deg	17,6692	Pass	+242,65
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.1: Area 30 to 40	1,7189	m.deg	6,1314	Pass	+256,70
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.2: Max GZ at 30 or greater	0,200	m	0,618	Pass	+209,00
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.3: Angle of maximum GZ	25,0	deg	35,0	Pass	+40,00
A.749(18) Ch3 - Design criteria applicable to all ships	3.1.2.4: Initial GMt	0,150	m	1,540	Pass	+926,67

18/12/2020

Hydrostatics - NA33

Damage Case - Intact

Fixed Trim = 0 m (+ve by stern)
Specific gravity = 1,025; (Density = 1,025 tonne/m^3)

Draft Amidships m	**1,800**	**1,810**	**1,820**	**1,830**	**1,840**	**1,850**	**1,860**	**1,870**	**1,880**	**1,890**	**1,900**	**1,910**	**1,920**
Displacement t	161,6	163,2	164,8	166,4	168,0	169,6	171,3	172,9	174,5	176,1	177,7	179,3	180,9
Heel deg	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Draft at FP m	1,800	1,810	1,820	1,830	1,840	1,850	1,860	1,870	1,880	1,890	1,900	1,910	1,920
Draft at AP m	1,800	1,810	1,820	1,830	1,840	1,850	1,860	1,870	1,880	1,890	1,900	1,910	1,920
Draft at LCF m	1,800	1,810	1,820	1,830	1,840	1,850	1,860	1,870	1,880	1,890	1,900	1,910	1,920
Trim (+ve by stern) m	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
WL Length m	28,011	28,007	28,002	27,998	27,995	27,991	27,988	27,985	27,983	27,981	27,979	27,977	27,975
Beam max extents on WL m	7,024	7,027	7,031	7,034	7,037	7,041	7,044	7,047	7,051	7,054	7,057	7,060	7,064
Wetted Area m^2	235,836	236,887	237,651	238,702	239,469	240,524	241,294	242,351	243,817	244,887	245,740	247,056	248,377
Waterpl. Area m^2	157,214	157,152	157,381	157,313	157,537	157,465	157,686	157,610	157,001	156,920	157,065	156,736	156,410
Prismatic coeff. (Cp)	0,744	0,744	0,745	0,746	0,746	0,747	0,748	0,748	0,749	0,749	0,750	0,750	0,751
Block coeff. (Cb)	0,389	0,391	0,393	0,395	0,396	0,398	0,400	0,402	0,403	0,405	0,407	0,408	0,410
Max Sect. area coeff. (Cm)	0,562	0,564	0,566	0,568	0,569	0,571	0,573	0,575	0,577	0,578	0,580	0,582	0,584
Waterpl. area coeff. (Cwp)	0,799	0,798	0,799	0,799	0,800	0,799	0,800	0,799	0,796	0,795	0,795	0,793	0,792
LCB from aft perp. (+ve fwd) m	12,686	12,686	12,685	12,685	12,685	12,686	12,686	12,687	12,688	12,690	12,692	12,694	12,696
LCF from aft perp. (+ve fwd) m	12,639	12,668	12,678	12,708	12,718	12,747	12,757	12,785	12,857	12,886	12,901	12,949	12,997
KB m	1,242	1,248	1,253	1,259	1,265	1,270	1,276	1,281	1,287	1,292	1,298	1,303	1,308
KG m	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930
BMt m	3,454	3,431	3,408	3,386	3,364	3,342	3,322	3,301	3,263	3,243	3,223	3,201	3,180
BML m	48,256	47,697	47,354	46,815	46,483	45,964	45,643	45,143	44,157	43,679	43,319	42,633	41,974
GMt m	2,767	2,749	2,732	2,715	2,699	2,683	2,667	2,652	2,620	2,605	2,590	2,574	2,558
GML m	47,568	47,015	46,677	46,144	45,817	45,304	44,989	44,494	43,513	43,041	42,687	42,006	41,353
KMt m	4,697	4,679	4,662	4,645	4,629	4,613	4,597	4,582	4,550	4,535	4,520	4,504	4,488
KML m	49,498	48,945	48,607	48,074	47,747	47,234	46,919	46,424	45,443	44,971	44,617	43,936	43,283
Immersion (TPc) tonne/cm	1,611	1,611	1,613	1,612	1,615	1,614	1,616	1,615	1,609	1,608	1,610	1,607	1,603
MTc tonne.m	2,381	2,377	2,383	2,379	2,385	2,381	2,387	2,383	2,352	2,348	2,350	2,334	2,318
RM at 1deg = GMt.Disp.sin(1) tonne.m	7,801	7,828	7,857	7,884	7,914	7,942	7,972	8,000	7,977	8,005	8,033	8,054	8,078
Max deck inclination deg	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
Trim angle (+ve by stern) deg	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000

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Draft Amidships m	1,930	1,940	1,950	1,960	1,970	1,980	1,990	2,000	2,010	2,020	2,030	2,040	2,050
Displacement t	182,5	184,1	185,7	187,3	188,9	190,5	192,1	193,7	195,3	197,0	198,6	200,2	201,8
Heel deg	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Draft at FP m	1,930	1,940	1,950	1,960	1,970	1,980	1,990	2,000	2,010	2,020	2,030	2,040	2,050
Draft at AP m	1,930	1,940	1,950	1,960	1,970	1,980	1,990	2,000	2,010	2,020	2,030	2,040	2,050
Draft at LCF m	1,930	1,940	1,950	1,960	1,970	1,980	1,990	2,000	2,010	2,020	2,030	2,040	2,050
Trim (+ve by stern) m	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
WL Length m	27,974	27,973	27,972	27,971	27,970	27,970	27,970	28,863	28,869	28,876	28,882	28,889	28,895
Beam max extents on WL m	7,067	7,070	7,073	7,077	7,080	7,083	7,086	7,089	7,249	7,254	7,260	7,265	7,271
Wetted Area m^2	249,470	250,789	251,623	252,704	253,549	254,631	255,483	256,575	268,344	269,759	270,895	272,336	273,500
Waterpl. Area m^2	156,306	155,985	156,145	156,065	156,219	156,135	156,288	156,200	158,900	158,509	158,399	157,994	157,851
Prismatic coeff. (Cp)	0,751	0,752	0,752	0,752	0,753	0,753	0,753	0,730	0,731	0,731	0,731	0,731	0,731
Block coeff. (Cb)	0,411	0,413	0,415	0,416	0,418	0,419	0,420	0,409	0,401	0,403	0,404	0,405	0,406
Max Sect. area coeff. (Cm)	0,585	0,587	0,589	0,590	0,592	0,594	0,595	0,597	0,598	0,600	0,601	0,603	0,604
Waterpl. area coeff. (Cwp)	0,791	0,789	0,789	0,788	0,789	0,788	0,789	0,763	0,759	0,757	0,755	0,753	0,751
LCB from aft perp. (+ve fwd) m	12,699	12,702	12,705	12,708	12,712	12,715	12,719	12,723	12,725	12,726	12,728	12,730	12,733
LCF from aft perp. (+ve fwd) m	13,031	13,077	13,089	13,117	13,131	13,158	13,172	13,199	12,880	12,927	12,958	13,007	13,037
KB m	1,314	1,319	1,325	1,330	1,335	1,341	1,346	1,351	1,357	1,362	1,368	1,373	1,379
KG m	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930
BMt m	3,158	3,139	3,121	3,104	3,086	3,069	3,052	3,035	3,317	3,297	3,277	3,257	3,238
BML m	41,443	40,836	40,545	40,141	39,842	39,452	39,162	38,786	42,375	41,796	41,353	40,801	40,397
GMt m	2,542	2,528	2,516	2,504	2,491	2,480	2,468	2,457	2,744	2,729	2,714	2,700	2,687
GML m	40,827	40,225	39,939	39,541	39,248	38,863	38,578	38,208	41,802	41,228	40,791	40,244	39,846
KMt m	4,472	4,458	4,446	4,434	4,421	4,410	4,398	4,387	4,674	4,659	4,644	4,630	4,617
KML m	42,757	42,155	41,869	41,471	41,178	40,793	40,508	40,138	43,732	43,158	42,721	42,174	41,776
Immersion (TPc) tonne/cm	1,602	1,599	1,600	1,600	1,601	1,600	1,602	1,601	1,629	1,625	1,624	1,619	1,618
MTc tonne.m	2,309	2,295	2,298	2,295	2,298	2,294	2,297	2,294	2,530	2,516	2,510	2,497	2,492
RM at 1deg = GMt.Disp.sin(1) tonne.m	8,098	8,123	8,154	8,186	8,214	8,246	8,275	8,307	9,356	9,381	9,408	9,434	9,465
Max deck inclination deg	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000
Trim angle (+ve by stern) deg	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000	0,0000

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Fixed Trim = -0,2 m (+ve by stern)
Specific gravity = 1,025; (Density = 1,025 tonne/m^3)

Draft Amidships m	**1,800**	**1,810**	**1,820**	**1,830**	**1,840**	**1,850**	**1,860**	**1,870**	**1,880**	**1,890**	**1,900**	**1,910**	**1,920**
Displacement t	158,0	159,7	161,3	162,9	164,6	166,2	167,8	169,5	171,1	172,7	174,4	176,0	177,6
Heel deg	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Draft at FP m	1,900	1,910	1,920	1,930	1,940	1,950	1,960	1,970	1,980	1,990	2,000	2,010	2,020
Draft at AP m	1,700	1,710	1,720	1,730	1,740	1,750	1,760	1,770	1,780	1,790	1,800	1,810	1,820
Draft at LCF m	1,778	1,788	1,798	1,809	1,819	1,829	1,839	1,849	1,859	1,869	1,879	1,889	1,900
Trim (+ve by stern) m	-0,200	-0,200	-0,200	-0,200	-0,200	-0,200	-0,200	-0,200	-0,200	-0,200	-0,200	-0,200	-0,200
WL Length m	28,092	28,089	28,087	28,085	28,083	28,082	28,081	28,079	28,079	28,078	28,077	28,077	28,077
Beam max extents on WL m	7,025	7,028	7,032	7,035	7,038	7,042	7,045	7,048	7,052	7,055	7,058	7,061	7,065
Wetted Area m^2	232,765	233,416	234,352	235,046	236,077	236,819	238,046	239,087	240,127	240,882	241,927	242,685	243,738
Waterpl. Area m^2	158,705	158,944	158,885	159,119	159,056	159,287	159,430	159,527	159,457	159,679	159,607	159,825	159,753
Prismatic coeff. (Cp)	0,733	0,734	0,735	0,736	0,736	0,737	0,738	0,739	0,739	0,740	0,740	0,741	0,742
Block coeff. (Cb)	0,395	0,397	0,398	0,400	0,402	0,404	0,406	0,408	0,409	0,411	0,413	0,414	0,416
Max Sect. area coeff. (Cm)	0,559	0,561	0,563	0,565	0,567	0,569	0,570	0,572	0,574	0,576	0,578	0,580	0,581
Waterpl. area coeff. (Cwp)	0,804	0,805	0,804	0,805	0,805	0,806	0,806	0,806	0,805	0,806	0,805	0,806	0,805
LCB from aft perp. (+ve fwd) m	12,998	12,994	12,991	12,988	12,985	12,982	12,979	12,977	12,975	12,973	12,971	12,969	12,968
LCF from aft perp. (+ve fwd) m	12,624	12,633	12,663	12,672	12,701	12,710	12,724	12,742	12,771	12,780	12,808	12,817	12,846
KB m	1,231	1,237	1,242	1,248	1,254	1,259	1,265	1,270	1,276	1,282	1,287	1,293	1,298
KG m	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930
BMt m	3,518	3,494	3,469	3,446	3,423	3,400	3,378	3,356	3,335	3,314	3,293	3,273	3,253
BML m	50,787	50,407	49,792	49,424	48,830	48,475	48,062	47,620	47,070	46,736	46,207	45,885	45,375
GMt m	2,838	2,820	2,801	2,784	2,766	2,749	2,732	2,716	2,700	2,685	2,670	2,655	2,641
GML m	50,107	49,733	49,123	48,761	48,173	47,823	47,416	46,980	46,436	46,108	45,584	45,267	44,763
KMt m	4,749	4,730	4,712	4,694	4,676	4,659	4,643	4,627	4,610	4,595	4,580	4,565	4,551
KML m	52,017	51,642	51,033	50,671	50,083	49,733	49,326	48,890	48,345	48,017	47,493	47,176	46,672
Immersion (TPc) tonne/cm	1,627	1,629	1,629	1,631	1,630	1,633	1,634	1,635	1,634	1,637	1,636	1,638	1,637
MTc tonne.m	2,454	2,460	2,455	2,462	2,456	2,463	2,466	2,467	2,462	2,468	2,463	2,469	2,464
RM at 1deg = GMt.Disp.sin(1) tonne.m	7,829	7,858	7,885	7,915	7,943	7,973	8,002	8,033	8,063	8,094	8,124	8,156	8,188
Max deck inclination deg	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551
Trim angle (+ve by stern) deg	-0,3551	-0,3551	-0,3551	-0,3551	-0,3551	-0,3551	-0,3551	-0,3551	-0,3551	-0,3551	-0,3551	-0,3551	-0,3551

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Draft Amidships m	1,930	1,940	1,950	1,960	1,970	1,980	1,990	2,000	2,010	2,020	2,030	2,040	2,050
Displacement t	179,3	180,9	182,6	184,2	185,8	187,5	189,1	190,7	192,4	194,0	195,6	197,3	198,9
Heel deg	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Draft at FP m	2,030	2,040	2,050	2,060	2,070	2,080	2,090	2,100	2,110	2,120	2,130	2,140	2,150
Draft at AP m	1,830	1,840	1,850	1,860	1,870	1,880	1,890	1,900	1,910	1,920	1,930	1,940	1,950
Draft at LCF m	1,910	1,920	1,930	1,940	1,950	1,961	1,971	1,981	1,991	2,002	2,012	2,022	2,032
Trim (+ve by stern) m	-0,200	-0,200	-0,200	-0,200	-0,200	-0,200	-0,200	-0,200	-0,200	-0,200	-0,200	-0,200	-0,200
WL Length m	28,076	28,077	28,077	28,077	28,078	28,078	28,079	28,080	28,081	28,082	28,083	28,084	28,086
Beam max extents on WL m	7,068	7,071	7,074	7,077	7,081	7,084	7,087	7,090	7,093	7,096	7,099	7,102	7,106
Wetted Area m^2	244,499	245,558	246,614	247,718	248,971	249,944	251,024	251,897	253,296	254,705	255,839	257,030	257,835
Waterpl. Area m^2	159,966	159,892	159,813	159,694	159,448	159,328	159,249	159,375	158,971	158,570	158,450	158,269	158,485
Prismatic coeff. (Cp)	0,742	0,743	0,743	0,744	0,744	0,745	0,745	0,746	0,746	0,747	0,747	0,747	0,748
Block coeff. (Cb)	0,418	0,419	0,421	0,423	0,424	0,426	0,427	0,429	0,430	0,432	0,433	0,435	0,436
Max Sect. area coeff. (Cm)	0,583	0,585	0,586	0,588	0,590	0,591	0,593	0,595	0,596	0,598	0,599	0,601	0,602
Waterpl. area coeff. (Cwp)	0,806	0,805	0,805	0,804	0,802	0,801	0,800	0,801	0,798	0,796	0,795	0,793	0,794
LCB from aft perp. (+ve fwd) m	12,967	12,966	12,965	12,965	12,965	12,965	12,965	12,966	12,967	12,968	12,970	12,972	12,974
LCF from aft perp. (+ve fwd) m	12,855	12,884	12,912	12,944	12,984	13,020	13,049	13,065	13,119	13,172	13,206	13,242	13,252
KB m	1,304	1,309	1,315	1,320	1,326	1,331	1,337	1,342	1,348	1,353	1,359	1,364	1,369
KG m	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930
BMt m	3,233	3,214	3,195	3,171	3,150	3,125	3,108	3,090	3,070	3,052	3,034	3,016	3,001
BML m	45,064	44,574	44,096	43,575	42,996	42,408	41,969	41,625	40,922	40,255	39,767	39,298	39,068
GMt m	2,627	2,613	2,600	2,581	2,566	2,546	2,534	2,522	2,507	2,494	2,482	2,470	2,460
GML m	44,457	43,973	43,500	42,985	42,411	41,829	41,396	41,057	40,359	39,698	39,215	38,752	38,527
KMt m	4,537	4,524	4,510	4,492	4,476	4,456	4,444	4,432	4,418	4,405	4,392	4,380	4,371
KML m	46,367	45,883	45,410	44,895	44,321	43,739	43,306	42,966	42,269	41,608	41,125	40,662	40,437
Immersion (TPc) tonne/cm	1,640	1,639	1,638	1,637	1,634	1,633	1,632	1,634	1,629	1,625	1,624	1,622	1,624
MTc tonne.m	2,470	2,465	2,461	2,453	2,442	2,430	2,426	2,427	2,406	2,386	2,377	2,369	2,374
RM at 1deg = GMt.Disp.sin(1) tonne.m	8,220	8,252	8,283	8,298	8,322	8,330	8,364	8,395	8,419	8,446	8,474	8,503	8,540
Max deck inclination deg	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551
Trim angle (+ve by stern) deg	-0,3551	-0,3551	-0,3551	-0,3551	-0,3551	-0,3551	-0,3551	-0,3551	-0,3551	-0,3551	-0,3551	-0,3551	-0,3551

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Fixed Trim = -0,4 m (+ve by stern)
Specific gravity = 1,025; (Density = 1,025 tonne/m^3)

Draft Amidships m	**1,800**	**1,810**	**1,820**	**1,830**	**1,840**	**1,850**	**1,860**	**1,870**	**1,880**	**1,890**	**1,900**	**1,910**	**1,920**
Displacement t	154,4	156,1	157,7	159,4	161,0	162,7	164,3	166,0	167,6	169,3	171,0	172,6	174,3
Heel deg	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Draft at FP m	2,000	2,010	2,020	2,030	2,040	2,050	2,060	2,070	2,080	2,090	2,100	2,110	2,120
Draft at AP m	1,600	1,610	1,620	1,630	1,640	1,650	1,660	1,670	1,680	1,690	1,700	1,710	1,720
Draft at LCF m	1,755	1,765	1,776	1,787	1,797	1,807	1,817	1,827	1,838	1,848	1,858	1,869	1,879
Trim (+ve by stern) m	-0,400	-0,400	-0,400	-0,400	-0,400	-0,400	-0,400	-0,400	-0,400	-0,400	-0,400	-0,400	-0,400
WL Length m	28,188	28,187	28,187	28,186	28,186	28,186	28,185	28,186	28,186	28,186	28,187	28,187	28,188
Beam max extents on WL m	7,026	7,029	7,033	7,036	7,039	7,043	7,046	7,049	7,053	7,056	7,059	7,062	7,066
Wetted Area m^2	229,147	230,153	231,206	232,752	233,417	234,371	235,325	235,985	236,932	237,588	238,532	239,475	240,125
Waterpl. Area m^2	161,567	161,530	161,459	160,891	161,133	161,078	161,024	161,261	161,202	161,437	161,374	161,314	161,546
Prismatic coeff. (Cp)	0,719	0,720	0,721	0,722	0,723	0,724	0,724	0,725	0,726	0,727	0,728	0,728	0,729
Block coeff. (Cb)	0,394	0,396	0,398	0,400	0,402	0,404	0,405	0,407	0,409	0,411	0,413	0,414	0,416
Max Sect. area coeff. (Cm)	0,556	0,558	0,560	0,562	0,564	0,566	0,568	0,570	0,571	0,573	0,575	0,577	0,579
Waterpl. area coeff. (Cwp)	0,816	0,815	0,815	0,811	0,812	0,811	0,811	0,812	0,811	0,812	0,811	0,810	0,811
LCB from aft perp. (+ve fwd) m	13,339	13,330	13,321	13,313	13,306	13,300	13,293	13,287	13,282	13,277	13,272	13,267	13,263
LCF from aft perp. (+ve fwd) m	12,502	12,530	12,558	12,629	12,636	12,666	12,695	12,703	12,733	12,741	12,770	12,799	12,807
KB m	1,222	1,227	1,233	1,239	1,244	1,250	1,256	1,261	1,267	1,273	1,278	1,284	1,289
KG m	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930
BMt m	3,607	3,581	3,549	3,510	3,486	3,461	3,438	3,415	3,392	3,370	3,348	3,327	3,307
BML m	54,899	54,189	53,550	52,316	51,918	51,259	50,619	50,245	49,629	49,268	48,675	48,099	47,759
GMt m	2,934	2,913	2,887	2,854	2,835	2,817	2,799	2,782	2,765	2,749	2,732	2,717	2,702
GML m	54,225	53,521	52,888	51,660	51,267	50,615	49,980	49,612	49,001	48,646	48,059	47,488	47,154
KMt m	4,829	4,808	4,781	4,748	4,730	4,711	4,693	4,676	4,659	4,643	4,626	4,611	4,596
KML m	56,116	55,412	54,779	53,551	53,158	52,506	51,871	51,503	50,892	50,537	49,950	49,379	49,045
Immersion (TPc) tonne/cm	1,656	1,656	1,655	1,649	1,652	1,651	1,650	1,653	1,652	1,655	1,654	1,653	1,656
MTc tonne.m	2,594	2,588	2,585	2,551	2,558	2,551	2,545	2,552	2,545	2,552	2,546	2,540	2,546
RM at 1deg = GMt.Disp.sin(1) tonne.m	7,906	7,934	7,946	7,938	7,968	7,997	8,027	8,059	8,089	8,121	8,152	8,184	8,217
Max deck inclination deg	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101
Trim angle (+ve by stern) deg	-0,7101	-0,7101	-0,7101	-0,7101	-0,7101	-0,7101	-0,7101	-0,7101	-0,7101	-0,7101	-0,7101	-0,7101	-0,7101

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Draft Amidships m	1,930	1,940	1,950	1,960	1,970	1,980	1,990	2,000	2,010	2,020	2,030	2,040	2,050
Displacement t	175,9	177,6	179,2	180,9	182,5	184,2	185,9	187,5	189,2	190,9	192,5	194,2	195,9
Heel deg	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Draft at FP m	2,130	2,140	2,150	2,160	2,170	2,180	2,190	2,200	2,210	2,220	2,230	2,240	2,250
Draft at AP m	1,730	1,740	1,750	1,760	1,770	1,780	1,790	1,800	1,810	1,820	1,830	1,840	1,850
Draft at LCF m	1,889	1,899	1,909	1,920	1,930	1,940	1,950	1,961	1,971	1,981	1,991	2,002	2,012
Trim (+ve by stern) m	-0,400	-0,400	-0,400	-0,400	-0,400	-0,400	-0,400	-0,400	-0,400	-0,400	-0,400	-0,400	-0,400
WL Length m	28,189	28,190	28,191	28,193	28,194	28,195	28,197	28,199	28,200	28,202	28,205	28,209	28,213
Beam max extents on WL m	7,069	7,072	7,075	7,078	7,082	7,085	7,088	7,091	7,094	7,097	7,100	7,103	7,106
Wetted Area m^2	241,099	241,844	243,081	244,126	245,177	245,944	246,997	248,057	248,835	249,902	250,683	251,761	253,177
Waterpl. Area m^2	161,479	161,708	161,858	161,953	161,890	162,117	162,047	161,983	162,209	162,141	162,364	162,300	161,906
Prismatic coeff. (Cp)	0,730	0,730	0,731	0,732	0,732	0,733	0,734	0,734	0,735	0,735	0,736	0,736	0,737
Block coeff. (Cb)	0,418	0,419	0,421	0,423	0,424	0,426	0,428	0,429	0,431	0,432	0,434	0,435	0,437
Max Sect. area coeff. (Cm)	0,581	0,582	0,584	0,586	0,587	0,589	0,590	0,592	0,594	0,595	0,597	0,599	0,600
Waterpl. area coeff. (Cwp)	0,810	0,811	0,811	0,812	0,811	0,812	0,811	0,810	0,811	0,810	0,811	0,810	0,808
LCB from aft perp. (+ve fwd) m	13,259	13,255	13,251	13,247	13,244	13,241	13,238	13,235	13,233	13,231	13,229	13,227	13,226
LCF from aft perp. (+ve fwd) m	12,836	12,844	12,858	12,876	12,905	12,914	12,943	12,971	12,981	13,009	13,019	13,048	13,100
KB m	1,295	1,301	1,306	1,312	1,317	1,323	1,329	1,334	1,340	1,345	1,351	1,356	1,362
KG m	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930
BMt m	3,286	3,267	3,247	3,228	3,209	3,191	3,172	3,155	3,138	3,120	3,104	3,087	3,065
BML m	47,203	46,874	46,495	46,086	45,573	45,267	44,773	44,293	44,005	43,543	43,267	42,825	42,177
GMt m	2,687	2,673	2,659	2,646	2,632	2,620	2,607	2,595	2,583	2,572	2,560	2,549	2,533
GML m	46,604	46,281	45,907	45,504	44,996	44,696	44,207	43,733	43,451	42,994	42,724	42,287	41,645
KMt m	4,581	4,567	4,553	4,540	4,526	4,514	4,501	4,488	4,477	4,465	4,454	4,443	4,427
KML m	48,494	48,171	47,797	47,394	46,886	46,587	46,098	45,623	45,341	44,885	44,614	44,178	43,536
Immersion (TPc) tonne/cm	1,655	1,658	1,659	1,660	1,659	1,662	1,661	1,660	1,663	1,662	1,664	1,664	1,660
MTc tonne.m	2,540	2,546	2,549	2,550	2,545	2,551	2,546	2,541	2,547	2,543	2,549	2,544	2,527
RM at 1deg = GMt.Disp.sin(1) tonne.m	8,249	8,284	8,318	8,352	8,386	8,423	8,457	8,492	8,530	8,566	8,603	8,641	8,659
Max deck inclination deg	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101
Trim angle (+ve by stern) deg	-0,7101	-0,7101	-0,7101	-0,7101	-0,7101	-0,7101	-0,7101	-0,7101	-0,7101	-0,7101	-0,7101	-0,7101	-0,7101

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Fixed Trim = 0,2 m (+ve by stern)
Specific gravity = 1,025; (Density = 1,025 tonne/m^3)

Draft Amidships m	**1,800**	**1,810**	**1,820**	**1,830**	**1,840**	**1,850**	**1,860**	**1,870**	**1,880**	**1,890**	**1,900**	**1,910**	**1,920**
Displacement t	165,0	166,6	168,2	169,8	171,3	172,9	174,5	176,1	177,7	179,2	180,8	182,4	184,0
Heel deg	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Draft at FP m	1,700	1,710	1,720	1,730	1,740	1,750	1,760	1,770	1,780	1,790	1,800	1,810	1,820
Draft at AP m	1,900	1,910	1,920	1,930	1,940	1,950	1,960	1,970	1,980	1,990	2,000	2,010	2,020
Draft at LCF m	1,821	1,831	1,841	1,850	1,860	1,870	1,880	1,890	1,899	1,909	1,919	1,931	1,941
Trim (+ve by stern) m	0,200	0,200	0,200	0,200	0,200	0,200	0,200	0,200	0,200	0,200	0,200	0,200	0,200
WL Length m	27,955	27,947	27,939	27,931	27,925	27,918	27,913	27,908	27,903	27,898	28,788	28,790	28,793
Beam max extents on WL m	7,023	7,026	7,030	7,033	7,036	7,040	7,043	7,046	7,050	7,053	7,056	7,060	7,105
Wetted Area m^2	239,849	240,851	242,116	243,153	244,430	245,418	246,545	247,391	248,470	249,317	250,002	253,524	256,053
Waterpl. Area m^2	154,359	154,371	154,114	154,090	153,821	153,845	153,724	153,888	153,813	153,972	154,233	157,065	157,950
Prismatic coeff. (Cp)	0,748	0,749	0,749	0,750	0,751	0,751	0,752	0,752	0,753	0,753	0,730	0,731	0,731
Block coeff. (Cb)	0,383	0,385	0,387	0,389	0,390	0,392	0,394	0,395	0,397	0,399	0,388	0,389	0,389
Max Sect. area coeff. (Cm)	0,564	0,566	0,567	0,569	0,571	0,573	0,575	0,577	0,578	0,580	0,582	0,583	0,585
Waterpl. area coeff. (Cwp)	0,786	0,786	0,785	0,784	0,783	0,783	0,782	0,783	0,782	0,783	0,759	0,773	0,772
LCB from aft perp. (+ve fwd) m	12,397	12,401	12,404	12,408	12,412	12,417	12,421	12,426	12,431	12,436	12,441	12,445	12,447
LCF from aft perp. (+ve fwd) m	12,747	12,775	12,819	12,849	12,893	12,918	12,950	12,965	12,993	13,007	13,005	12,797	12,757
KB m	1,255	1,261	1,266	1,271	1,277	1,282	1,287	1,293	1,298	1,303	1,309	1,314	1,320
KG m	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930
BMt m	3,373	3,349	3,327	3,303	3,281	3,260	3,240	3,219	3,200	3,181	3,174	3,284	3,333
BML m	44,890	44,372	43,720	43,205	42,583	42,151	41,678	41,359	40,939	40,628	40,587	42,801	43,029
GMt m	2,675	2,657	2,639	2,621	2,605	2,589	2,574	2,559	2,546	2,531	2,530	2,645	2,700
GML m	44,192	43,680	43,033	42,523	41,907	41,480	41,013	40,698	40,284	39,979	39,943	42,162	42,396
KMt m	4,628	4,610	4,593	4,574	4,558	4,542	4,527	4,512	4,499	4,484	4,483	4,598	4,653
KML m	46,144	45,632	44,985	44,475	43,859	43,432	42,965	42,651	42,237	41,931	41,895	44,114	44,348
Immersion (TPc) tonne/cm	1,582	1,582	1,580	1,579	1,577	1,577	1,576	1,577	1,577	1,578	1,581	1,610	1,619
MTc tonne.m	2,259	2,255	2,242	2,237	2,225	2,222	2,217	2,220	2,218	2,220	2,238	2,383	2,417
RM at 1deg = GMt.Disp.sin(1) tonne.m	7,704	7,725	7,747	7,767	7,789	7,813	7,840	7,865	7,893	7,918	7,985	8,421	8,672
Max deck inclination deg	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551
Trim angle (+ve by stern) deg	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551

DIP-104708

DIP-104708

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Draft Amidships m	1,930	1,940	1,950	1,960	1,970	1,980	1,990	2,000	2,010	2,020	2,030	2,040	2,050
Displacement t	185,7	187,3	188,9	190,5	192,1	193,7	195,3	196,9	198,5	200,1	201,7	203,3	204,9
Heel deg	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Draft at FP m	1,830	1,840	1,850	1,860	1,870	1,880	1,890	1,900	1,910	1,920	1,930	1,940	1,950
Draft at AP m	2,030	2,040	2,050	2,060	2,070	2,080	2,090	2,100	2,110	2,120	2,130	2,140	2,150
Draft at LCF m	1,951	1,961	1,971	1,980	1,990	2,000	2,010	2,020	2,029	2,039	2,049	2,059	2,069
Trim (+ve by stern) m	0,200	0,200	0,200	0,200	0,200	0,200	0,200	0,200	0,200	0,200	0,200	0,200	0,200
WL Length m	28,796	28,799	28,803	28,807	28,811	28,815	28,819	28,824	28,829	28,834	28,839	28,845	28,850
Beam max extents on WL m	7,210	7,247	7,253	7,258	7,264	7,269	7,275	7,280	7,286	7,291	7,296	7,302	7,307
Wetted Area m^2	258,336	260,795	262,553	268,114	268,986	270,149	271,027	272,190	273,072	274,239	275,125	276,270	277,700
Waterpl. Area m^2	159,034	159,692	160,209	155,718	155,869	155,727	155,877	155,729	155,877	155,729	155,875	155,753	155,352
Prismatic coeff. (Cp)	0,731	0,732	0,732	0,733	0,733	0,733	0,733	0,733	0,734	0,734	0,734	0,734	0,734
Block coeff. (Cb)	0,384	0,384	0,385	0,387	0,388	0,389	0,390	0,391	0,393	0,394	0,395	0,396	0,397
Max Sect. area coeff. (Cm)	0,587	0,588	0,590	0,591	0,593	0,595	0,596	0,598	0,600	0,601	0,602	0,604	0,605
Waterpl. area coeff. (Cwp)	0,766	0,765	0,767	0,745	0,745	0,743	0,744	0,742	0,742	0,741	0,741	0,739	0,737
LCB from aft perp. (+ve fwd) m	12,450	12,452	12,455	12,458	12,461	12,465	12,469	12,473	12,477	12,481	12,486	12,490	12,495
LCF from aft perp. (+ve fwd) m	12,719	12,715	12,721	12,888	12,902	12,933	12,947	12,977	12,992	13,022	13,036	13,065	13,113
KB m	1,325	1,331	1,336	1,342	1,347	1,352	1,358	1,363	1,368	1,374	1,379	1,384	1,389
KG m	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930
BMt m	3,386	3,432	3,450	3,352	3,332	3,313	3,294	3,275	3,257	3,238	3,220	3,202	3,181
BML m	43,123	42,866	42,535	41,512	41,214	40,800	40,511	40,110	39,829	39,442	39,169	38,805	38,284
GMt m	2,758	2,810	2,833	2,741	2,726	2,712	2,699	2,685	2,672	2,659	2,647	2,634	2,618
GML m	42,495	42,244	41,918	40,901	40,608	40,200	39,915	39,520	39,244	38,863	38,595	38,237	37,720
KMt m	4,711	4,762	4,786	4,693	4,679	4,665	4,652	4,638	4,625	4,611	4,599	4,586	4,571
KML m	44,447	44,196	43,870	42,853	42,560	42,152	41,867	41,472	41,196	40,814	40,547	40,189	39,672
Immersion (TPc) tonne/cm	1,630	1,637	1,642	1,596	1,598	1,596	1,598	1,596	1,598	1,596	1,598	1,596	1,592
MTc tonne.m	2,445	2,451	2,454	2,415	2,417	2,413	2,416	2,411	2,414	2,410	2,412	2,409	2,395
RM at 1deg = GMt.Disp.sin(1) tonne.m	8,938	9,184	9,342	9,113	9,142	9,170	9,200	9,228	9,258	9,286	9,317	9,346	9,363
Max deck inclination deg	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551
Trim angle (+ve by stern) deg	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551	0,3551

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Fixed Trim = 0,4 m (+ve by stern)
Specific gravity = 1,025; (Density = 1,025 tonne/m^3)

Draft Amidships m	**1,800**	**1,810**	**1,820**	**1,830**	**1,840**	**1,850**	**1,860**	**1,870**	**1,880**	**1,890**	**1,900**	**1,910**	**1,920**
Displacement t	168,3	169,8	171,4	173,0	174,6	176,2	177,8	179,4	181,0	182,6	184,2	185,8	187,4
Heel deg	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Draft at FP m	1,600	1,610	1,620	1,630	1,640	1,650	1,660	1,670	1,680	1,690	1,700	1,710	1,720
Draft at AP m	2,000	2,010	2,020	2,030	2,040	2,050	2,060	2,070	2,080	2,090	2,100	2,110	2,120
Draft at LCF m	1,842	1,853	1,863	1,873	1,884	1,894	1,903	1,913	1,923	1,933	1,943	1,951	1,961
Trim (+ve by stern) m	0,400	0,400	0,400	0,400	0,400	0,400	0,400	0,400	0,400	0,400	0,400	0,400	0,400
WL Length m	30,594	30,566	30,531	30,487	30,425	30,303	28,794	28,791	28,788	28,786	28,785	28,784	28,784
Beam max extents on WL m	7,022	7,025	7,029	7,068	7,129	7,183	7,226	7,246	7,251	7,257	7,262	7,268	7,273
Wetted Area m^2	244,465	246,705	248,588	250,249	252,183	253,908	255,891	257,422	259,186	260,418	262,501	266,802	267,679
Waterpl. Area m^2	152,950	154,402	154,896	155,406	155,735	156,218	156,400	156,959	157,171	157,693	156,856	153,587	153,739
Prismatic coeff. (Cp)	0,680	0,681	0,683	0,684	0,686	0,689	0,726	0,727	0,727	0,728	0,728	0,729	0,729
Block coeff. (Cb)	0,344	0,346	0,348	0,348	0,348	0,348	0,366	0,367	0,368	0,370	0,371	0,372	0,373
Max Sect. area coeff. (Cm)	0,564	0,566	0,569	0,570	0,572	0,574	0,575	0,577	0,579	0,580	0,582	0,583	0,585
Waterpl. area coeff. (Cwp)	0,712	0,719	0,722	0,721	0,718	0,718	0,752	0,752	0,753	0,755	0,750	0,734	0,734
LCB from aft perp. (+ve fwd) m	12,139	12,144	12,149	12,153	12,158	12,162	12,166	12,170	12,174	12,179	12,183	12,188	12,194
LCF from aft perp. (+ve fwd) m	12,772	12,671	12,648	12,631	12,627	12,621	12,638	12,635	12,653	12,654	12,699	12,824	12,839
KB m	1,269	1,274	1,279	1,285	1,290	1,296	1,301	1,307	1,312	1,317	1,323	1,328	1,333
KG m	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930
BMt m	3,360	3,407	3,428	3,438	3,456	3,471	3,485	3,498	3,507	3,509	3,471	3,393	3,372
BML m	43,444	44,317	44,284	44,140	43,884	43,655	43,273	43,051	42,657	42,413	41,968	41,168	40,872
GMt m	2,649	2,702	2,728	2,744	2,767	2,788	2,807	2,826	2,840	2,848	2,815	2,742	2,727
GML m	42,733	43,612	43,584	43,445	43,195	42,971	42,595	42,378	41,990	41,752	41,312	40,518	40,227
KMt m	4,628	4,681	4,707	4,723	4,746	4,767	4,786	4,804	4,819	4,826	4,794	4,721	4,706
KML m	44,709	45,588	45,560	45,421	45,171	44,947	44,571	44,354	43,966	43,727	43,288	42,493	42,203
Immersion (TPc) tonne/cm	1,568	1,583	1,588	1,593	1,596	1,601	1,603	1,609	1,611	1,616	1,608	1,574	1,576
MTc tonne.m	2,228	2,295	2,315	2,329	2,337	2,346	2,347	2,356	2,355	2,363	2,358	2,333	2,336
RM at 1deg = GMt.Disp.sin(1) tonne.m	7,778	8,008	8,161	8,285	8,431	8,572	8,711	8,847	8,972	9,076	9,053	8,894	8,920
Max deck inclination deg	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101
Trim angle (+ve by stern) deg	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101

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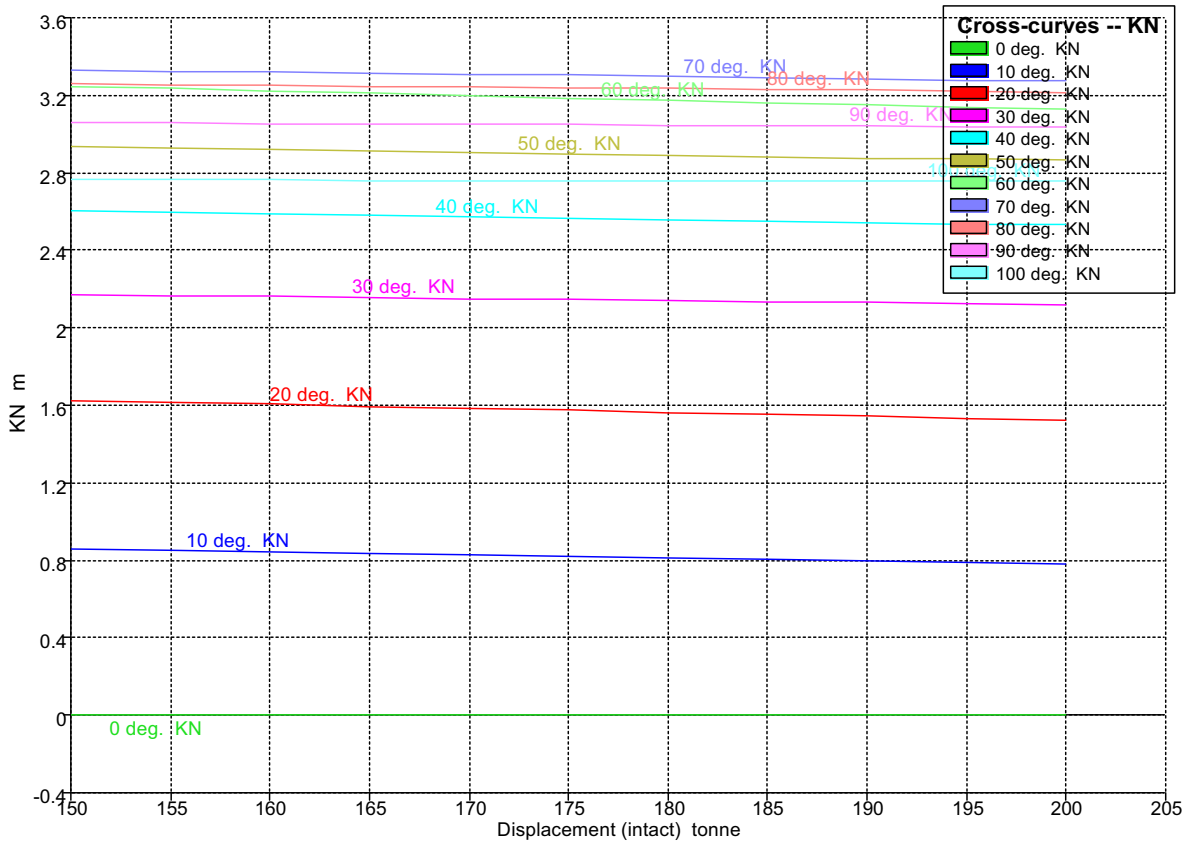
Draft Amidships m	1,930	1,940	1,950	1,960	1,970	1,980	1,990	2,000	2,010	2,020	2,030	2,040	2,050
Displacement t	189,0	190,6	192,1	193,7	195,3	196,8	198,4	200,0	201,5	203,0	204,6	206,1	207,7
Heel deg	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Draft at FP m	1,730	1,740	1,750	1,760	1,770	1,780	1,790	1,800	1,810	1,820	1,830	1,840	1,850
Draft at AP m	2,130	2,140	2,150	2,160	2,170	2,180	2,190	2,200	2,210	2,220	2,230	2,240	2,250
Draft at LCF m	1,970	1,980	1,990	2,000	2,008	2,018	2,027	2,037	2,046	2,055	2,065	2,075	2,085
Trim (+ve by stern) m	0,400	0,400	0,400	0,400	0,400	0,400	0,400	0,400	0,400	0,400	0,400	0,400	0,400
WL Length m	28,784	28,784	28,786	28,787	28,789	28,791	28,794	28,797	28,800	28,803	28,807	28,811	28,815
Beam max extents on WL m	7,279	7,284	7,290	7,295	7,300	7,306	7,311	7,317	7,322	7,328	7,333	7,339	7,344
Wetted Area m^2	268,851	269,729	270,903	271,783	273,878	275,187	276,757	278,049	280,154	281,708	282,613	283,513	284,417
Waterpl. Area m^2	153,602	153,750	153,611	153,755	152,696	152,411	151,878	151,614	150,554	150,040	150,191	150,335	150,484
Prismatic coeff. (Cp)	0,729	0,730	0,730	0,730	0,730	0,731	0,731	0,731	0,731	0,731	0,731	0,731	0,731
Block coeff. (Cb)	0,375	0,376	0,377	0,378	0,380	0,381	0,382	0,383	0,384	0,385	0,386	0,387	0,388
Max Sect. area coeff. (Cm)	0,586	0,588	0,590	0,592	0,593	0,595	0,596	0,598	0,599	0,600	0,602	0,603	0,605
Waterpl. area coeff. (Cwp)	0,733	0,733	0,732	0,732	0,727	0,725	0,721	0,720	0,714	0,711	0,711	0,711	0,711
LCB from aft perp. (+ve fwd) m	12,199	12,205	12,211	12,216	12,222	12,229	12,236	12,243	12,250	12,258	12,266	12,274	12,282
LCF from aft perp. (+ve fwd) m	12,870	12,885	12,916	12,931	13,031	13,072	13,125	13,162	13,242	13,290	13,305	13,319	13,333
KB m	1,339	1,344	1,349	1,354	1,360	1,365	1,370	1,375	1,380	1,385	1,391	1,396	1,401
KG m	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930	1,930
BMt m	3,352	3,332	3,313	3,293	3,253	3,231	3,210	3,190	3,170	3,151	3,135	3,118	3,102
BML m	40,466	40,178	39,785	39,505	38,466	38,009	37,487	37,085	36,434	35,994	35,759	35,526	35,296
GMt m	2,712	2,698	2,683	2,669	2,634	2,618	2,602	2,587	2,572	2,559	2,547	2,536	2,525
GML m	39,825	39,543	39,155	38,881	37,848	37,396	36,878	36,482	35,837	35,402	35,172	34,944	34,719
KMt m	4,691	4,676	4,662	4,648	4,612	4,596	4,580	4,565	4,550	4,537	4,525	4,513	4,502
KML m	41,801	41,519	41,131	40,856	39,823	39,371	38,854	38,457	37,812	37,377	37,147	36,919	36,694
Immersion (TPc) tonne/cm	1,574	1,576	1,575	1,576	1,565	1,562	1,557	1,554	1,543	1,538	1,539	1,541	1,542
MTc tonne.m	2,332	2,335	2,331	2,334	2,290	2,281	2,267	2,260	2,237	2,227	2,229	2,232	2,234
RM at 1deg = GMt.Disp.sin(1) tonne.m	8,945	8,971	8,997	9,024	8,978	8,994	9,010	9,028	9,045	9,067	9,095	9,122	9,150
Max deck inclination deg	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101
Trim angle (+ve by stern) deg	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101	0,7101

18/12/2020

KN Calculation - NA33

Damage Case - Intact

Fixed Trim = 0 m (+ve by stern)
Specific gravity = 1.025; (Density = 1.025 tonne/m^3)
VCG = 0 m; TCG = 0 m



DIP-104708

18/12/2020

Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	Assumed VCG m	KN 0.0 deg.	KN 10.0 deg. Port.	KN 20.0 deg. Port.	KN 30.0 deg. Port.	KN 40.0 deg. Port.	KN 50.0 deg. Port.
150.0	1.728	0.000 (fixed)	0.000	0.000	0.861	1.621	2.173	2.604	2.937
155.0	1.759	0.000 (fixed)	0.000	0.000	0.852	1.613	2.168	2.595	2.927
160.0	1.790	0.000 (fixed)	0.000	0.000	0.844	1.604	2.162	2.588	2.919
165.0	1.821	0.000 (fixed)	0.000	0.000	0.835	1.595	2.157	2.580	2.910
170.0	1.852	0.000 (fixed)	0.000	0.000	0.826	1.585	2.152	2.573	2.903
175.0	1.883	0.000 (fixed)	0.000	0.000	0.818	1.575	2.147	2.566	2.896
180.0	1.914	0.000 (fixed)	0.000	0.000	0.809	1.564	2.141	2.558	2.889
185.0	1.945	0.000 (fixed)	0.000	0.000	0.801	1.554	2.135	2.552	2.883
190.0	1.977	0.000 (fixed)	0.000	0.000	0.794	1.543	2.129	2.545	2.877
195.0	2.008	0.000 (fixed)	0.000	0.000	0.787	1.533	2.123	2.538	2.871
200.0	2.038	0.000 (fixed)	0.000	0.000	0.780	1.522	2.116	2.532	2.866

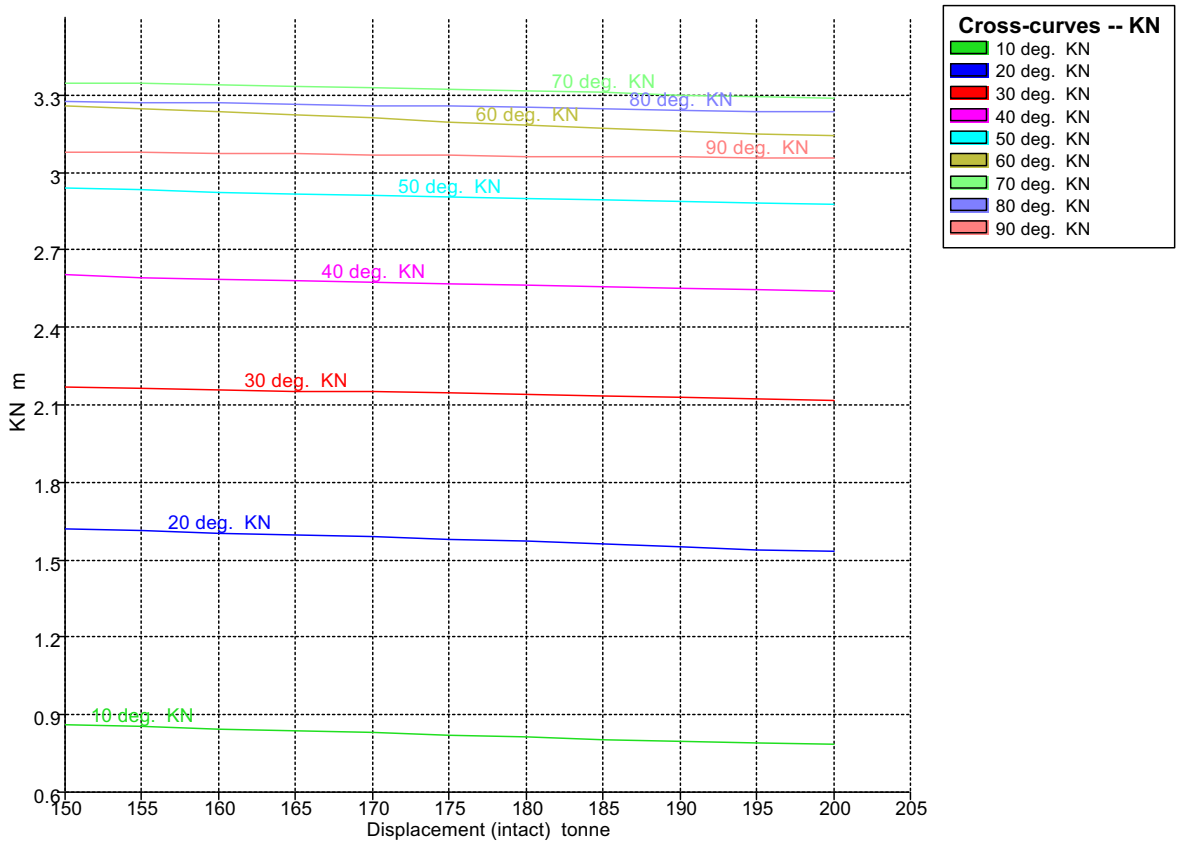
Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	Assumed VCG m	KN 60.0 deg. Port.	KN 70.0 deg. Port.	KN 80.0 deg. Port.	KN 90.0 deg. Port.	KN 100.0 deg. Port.
150.0	1.728	0.000 (fixed)	0.000	3.244	3.329	3.256	3.059	2.767
155.0	1.759	0.000 (fixed)	0.000	3.235	3.325	3.253	3.057	2.765
160.0	1.790	0.000 (fixed)	0.000	3.224	3.320	3.250	3.055	2.763
165.0	1.821	0.000 (fixed)	0.000	3.211	3.316	3.246	3.053	2.762
170.0	1.852	0.000 (fixed)	0.000	3.197	3.310	3.242	3.051	2.761
175.0	1.883	0.000 (fixed)	0.000	3.184	3.305	3.238	3.048	2.760
180.0	1.914	0.000 (fixed)	0.000	3.172	3.299	3.235	3.046	2.760
185.0	1.945	0.000 (fixed)	0.000	3.160	3.293	3.231	3.044	2.759
190.0	1.977	0.000 (fixed)	0.000	3.149	3.286	3.226	3.042	2.759
195.0	2.008	0.000 (fixed)	0.000	3.138	3.279	3.222	3.040	2.759
200.0	2.038	0.000 (fixed)	0.000	3.128	3.272	3.218	3.038	2.759

18/12/2020

Fixed Trim = -0.2 m (+ve by stern)

Specific gravity = 1.025; (Density = 1.025 tonne/m^3)

VCG = 0 m; TCG = 0 m



DIP-104708

DIP-104708

18/12/2020

Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.
150.0	1.750	-0.200 (fixed)	0.000	0.862	1.620	2.169	2.602	2.942
155.0	1.781	-0.200 (fixed)	0.000	0.853	1.612	2.164	2.595	2.933
160.0	1.812	-0.200 (fixed)	0.000	0.845	1.605	2.159	2.588	2.925
165.0	1.843	-0.200 (fixed)	0.000	0.837	1.597	2.154	2.581	2.917
170.0	1.873	-0.200 (fixed)	0.000	0.829	1.588	2.150	2.575	2.910
175.0	1.904	-0.200 (fixed)	0.000	0.821	1.580	2.145	2.569	2.904
180.0	1.934	-0.200 (fixed)	0.000	0.813	1.570	2.141	2.562	2.898
185.0	1.965	-0.200 (fixed)	0.000	0.805	1.560	2.136	2.556	2.892
190.0	1.995	-0.200 (fixed)	0.000	0.798	1.551	2.130	2.550	2.887
195.0	2.026	-0.200 (fixed)	0.000	0.790	1.540	2.125	2.544	2.882
200.0	2.057	-0.200 (fixed)	0.000	0.783	1.530	2.119	2.539	2.878

DIP-104708

Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	Assumed VCG m	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
150.0	1.750	-0.200 (fixed)	0.000	3.258	3.347	3.276	3.080
155.0	1.781	-0.200 (fixed)	0.000	3.248	3.343	3.272	3.077
160.0	1.812	-0.200 (fixed)	0.000	3.236	3.338	3.268	3.075
165.0	1.843	-0.200 (fixed)	0.000	3.223	3.332	3.264	3.072
170.0	1.873	-0.200 (fixed)	0.000	3.210	3.327	3.260	3.069
175.0	1.904	-0.200 (fixed)	0.000	3.197	3.321	3.255	3.067
180.0	1.934	-0.200 (fixed)	0.000	3.185	3.315	3.251	3.064
185.0	1.965	-0.200 (fixed)	0.000	3.173	3.308	3.247	3.062
190.0	1.995	-0.200 (fixed)	0.000	3.162	3.302	3.242	3.059
195.0	2.026	-0.200 (fixed)	0.000	3.151	3.294	3.238	3.056
200.0	2.057	-0.200 (fixed)	0.000	3.141	3.286	3.233	3.054

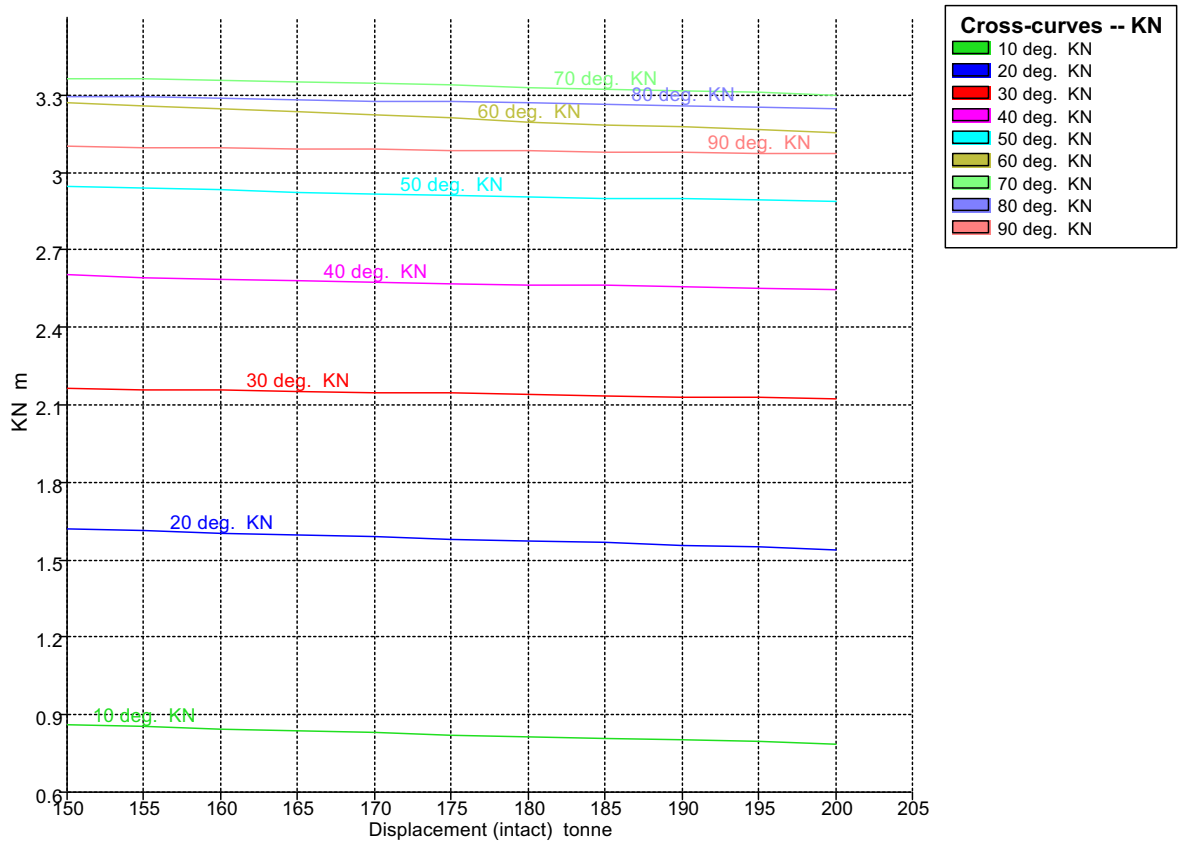
DIP-104708

18/12/2020

Fixed Trim = -0.4 m (+ve by stern)

Specific gravity = 1.025; (Density = 1.025 tonne/m^3)

VCG = 0 m; TCG = 0 m



DIP-104708

18/12/2020

Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.
150.0	1.773	-0.400 (fixed)	0.000	0.863	1.618	2.165	2.601	2.947
155.0	1.803	-0.400 (fixed)	0.000	0.854	1.611	2.160	2.595	2.939
160.0	1.834	-0.400 (fixed)	0.000	0.846	1.604	2.156	2.589	2.931
165.0	1.864	-0.400 (fixed)	0.000	0.838	1.596	2.152	2.583	2.924
170.0	1.894	-0.400 (fixed)	0.000	0.830	1.589	2.148	2.577	2.918
175.0	1.924	-0.400 (fixed)	0.000	0.823	1.582	2.144	2.572	2.912
180.0	1.955	-0.400 (fixed)	0.000	0.816	1.574	2.140	2.566	2.907
185.0	1.985	-0.400 (fixed)	0.000	0.809	1.565	2.136	2.561	2.902
190.0	2.015	-0.400 (fixed)	0.000	0.801	1.556	2.131	2.556	2.897
195.0	2.045	-0.400 (fixed)	0.000	0.794	1.547	2.126	2.551	2.893
200.0	2.075	-0.400 (fixed)	0.000	0.787	1.537	2.121	2.546	2.889

DIP-104708

Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	Assumed VCG m	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
150.0	1.773	-0.400 (fixed)	0.000	3.268	3.365	3.295	3.101
155.0	1.803	-0.400 (fixed)	0.000	3.258	3.360	3.291	3.098
160.0	1.834	-0.400 (fixed)	0.000	3.246	3.355	3.287	3.095
165.0	1.864	-0.400 (fixed)	0.000	3.234	3.349	3.282	3.091
170.0	1.894	-0.400 (fixed)	0.000	3.221	3.343	3.278	3.088
175.0	1.924	-0.400 (fixed)	0.000	3.209	3.337	3.273	3.085
180.0	1.955	-0.400 (fixed)	0.000	3.197	3.330	3.268	3.082
185.0	1.985	-0.400 (fixed)	0.000	3.186	3.324	3.263	3.080
190.0	2.015	-0.400 (fixed)	0.000	3.175	3.316	3.258	3.077
195.0	2.045	-0.400 (fixed)	0.000	3.164	3.308	3.253	3.073
200.0	2.075	-0.400 (fixed)	0.000	3.154	3.298	3.248	3.071

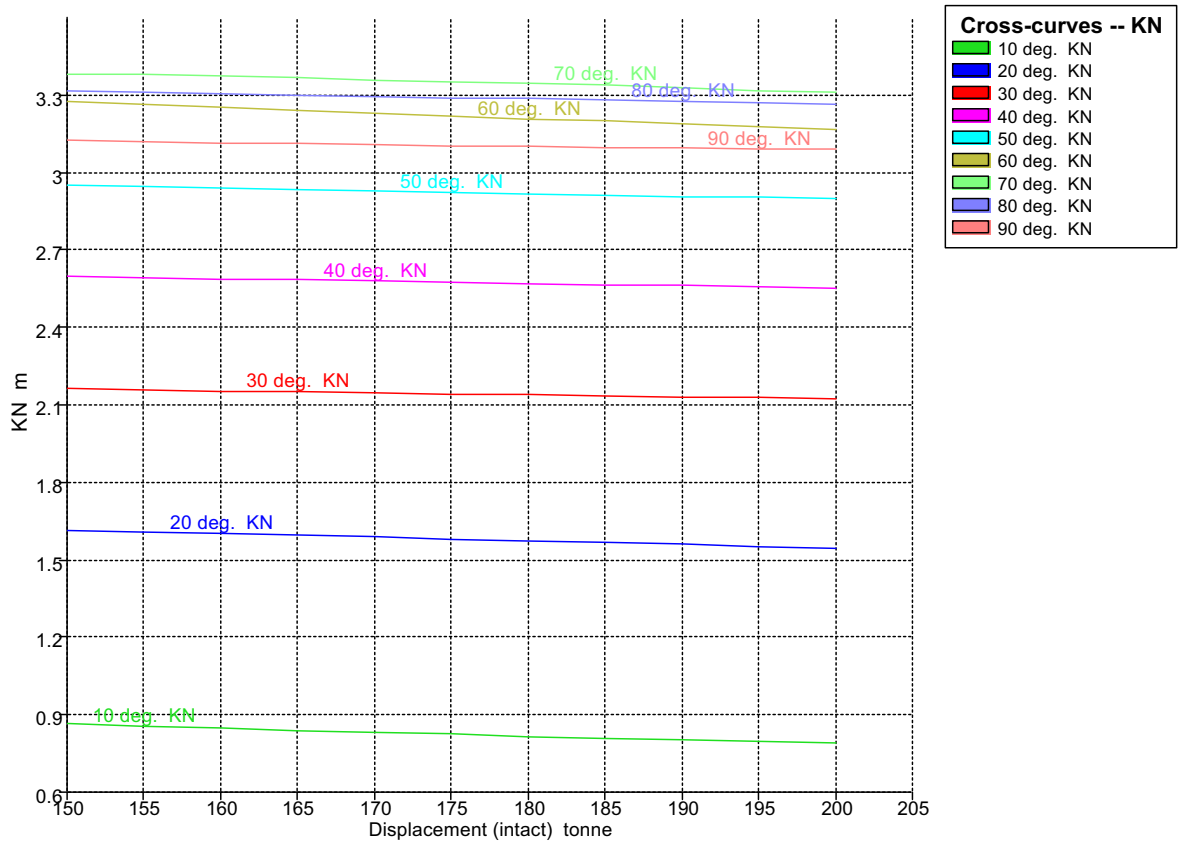
DIP-104708

18/12/2020

Fixed Trim = -0.6 m (+ve by stern)

Specific gravity = 1.025; (Density = 1.025 tonne/m^3)

VCG = 0 m; TCG = 0 m



18/12/2020

Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.
150.0	1.796	-0.600 (fixed)	0.000	0.865	1.615	2.161	2.600	2.951
155.0	1.826	-0.600 (fixed)	0.000	0.855	1.608	2.158	2.594	2.944
160.0	1.856	-0.600 (fixed)	0.000	0.846	1.602	2.154	2.589	2.937
165.0	1.886	-0.600 (fixed)	0.000	0.838	1.595	2.150	2.584	2.931
170.0	1.915	-0.600 (fixed)	0.000	0.830	1.588	2.147	2.579	2.926
175.0	1.945	-0.600 (fixed)	0.000	0.823	1.581	2.143	2.575	2.921
180.0	1.975	-0.600 (fixed)	0.000	0.816	1.574	2.139	2.570	2.916
185.0	2.005	-0.600 (fixed)	0.000	0.810	1.567	2.135	2.566	2.911
190.0	2.034	-0.600 (fixed)	0.000	0.803	1.560	2.131	2.561	2.907
195.0	2.064	-0.600 (fixed)	0.000	0.797	1.552	2.127	2.557	2.904
200.0	2.094	-0.600 (fixed)	0.000	0.791	1.543	2.122	2.553	2.900

Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	Assumed VCG m	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
150.0	1.796	-0.600 (fixed)	0.000	3.275	3.382	3.314	3.123
155.0	1.826	-0.600 (fixed)	0.000	3.265	3.377	3.309	3.119
160.0	1.856	-0.600 (fixed)	0.000	3.254	3.372	3.305	3.115
165.0	1.886	-0.600 (fixed)	0.000	3.243	3.366	3.300	3.111
170.0	1.915	-0.600 (fixed)	0.000	3.231	3.360	3.295	3.107
175.0	1.945	-0.600 (fixed)	0.000	3.220	3.353	3.290	3.104
180.0	1.975	-0.600 (fixed)	0.000	3.209	3.346	3.285	3.101
185.0	2.005	-0.600 (fixed)	0.000	3.198	3.338	3.280	3.097
190.0	2.034	-0.600 (fixed)	0.000	3.187	3.329	3.274	3.094
195.0	2.064	-0.600 (fixed)	0.000	3.176	3.319	3.269	3.091
200.0	2.094	-0.600 (fixed)	0.000	3.166	3.308	3.264	3.088

DIP-104708

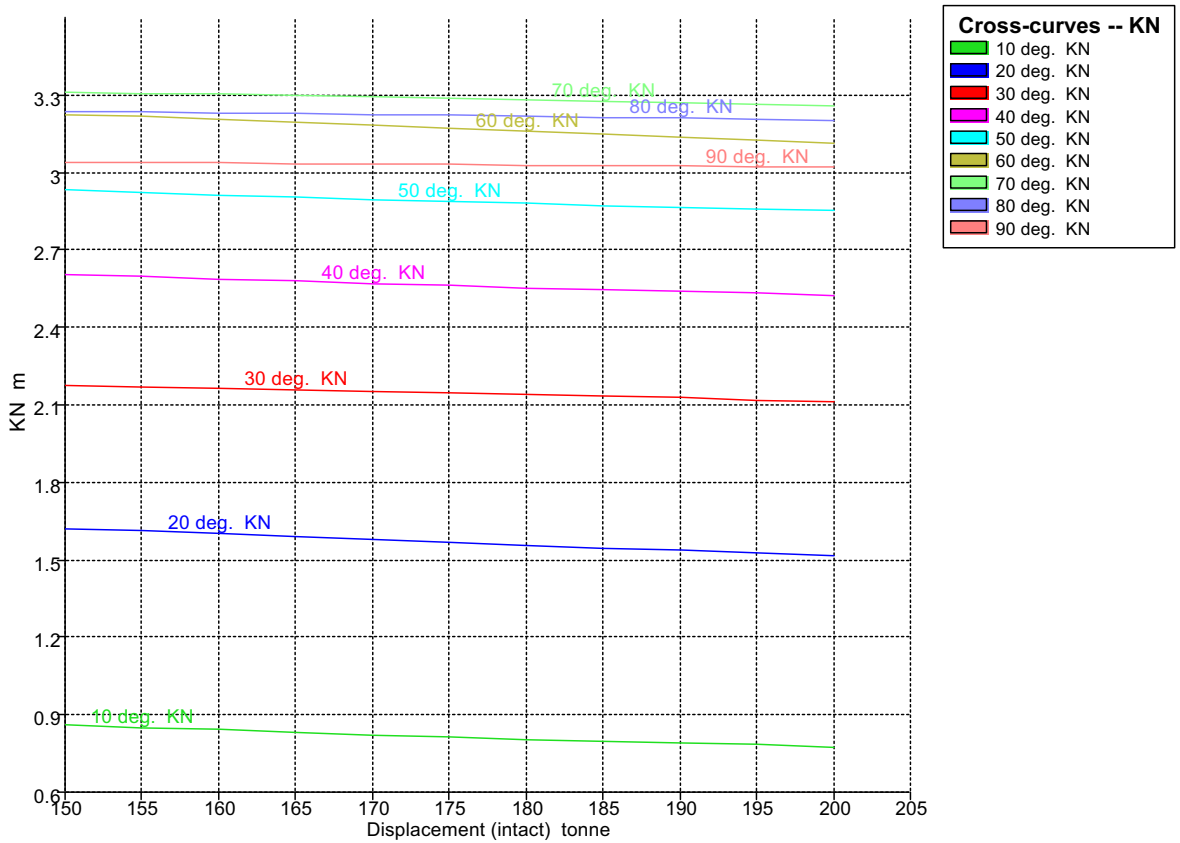
DIP-104708

18/12/2020

Fixed Trim = 0.2 m (+ve by stern)

Specific gravity = 1.025; (Density = 1.025 tonne/m^3)

VCG = 0 m; TCG = 0 m



DIP-104708

18/12/2020

Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.
150.0	1.705	0.200 (fixed)	0.000	0.860	1.622	2.178	2.604	2.932
155.0	1.737	0.200 (fixed)	0.000	0.850	1.612	2.172	2.596	2.922
160.0	1.768	0.200 (fixed)	0.000	0.841	1.601	2.166	2.587	2.912
165.0	1.800	0.200 (fixed)	0.000	0.831	1.590	2.160	2.579	2.903
170.0	1.831	0.200 (fixed)	0.000	0.822	1.579	2.154	2.570	2.895
175.0	1.863	0.200 (fixed)	0.000	0.813	1.568	2.147	2.562	2.887
180.0	1.895	0.200 (fixed)	0.000	0.805	1.557	2.141	2.554	2.880
185.0	1.926	0.200 (fixed)	0.000	0.797	1.546	2.134	2.547	2.873
190.0	1.957	0.200 (fixed)	0.000	0.790	1.536	2.127	2.539	2.867
195.0	1.987	0.200 (fixed)	0.000	0.783	1.525	2.120	2.532	2.861
200.0	2.018	0.200 (fixed)	0.000	0.776	1.514	2.112	2.524	2.855

Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	Assumed VCG m	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
150.0	1.705	0.200 (fixed)	0.000	3.226	3.311	3.237	3.039
155.0	1.737	0.200 (fixed)	0.000	3.218	3.307	3.234	3.037
160.0	1.768	0.200 (fixed)	0.000	3.208	3.303	3.231	3.036
165.0	1.800	0.200 (fixed)	0.000	3.196	3.298	3.228	3.034
170.0	1.831	0.200 (fixed)	0.000	3.183	3.294	3.225	3.032
175.0	1.863	0.200 (fixed)	0.000	3.170	3.288	3.222	3.030
180.0	1.895	0.200 (fixed)	0.000	3.158	3.283	3.218	3.028
185.0	1.926	0.200 (fixed)	0.000	3.147	3.277	3.214	3.027
190.0	1.957	0.200 (fixed)	0.000	3.136	3.271	3.210	3.025
195.0	1.987	0.200 (fixed)	0.000	3.126	3.264	3.206	3.023
200.0	2.018	0.200 (fixed)	0.000	3.116	3.257	3.202	3.022

DIP-104708

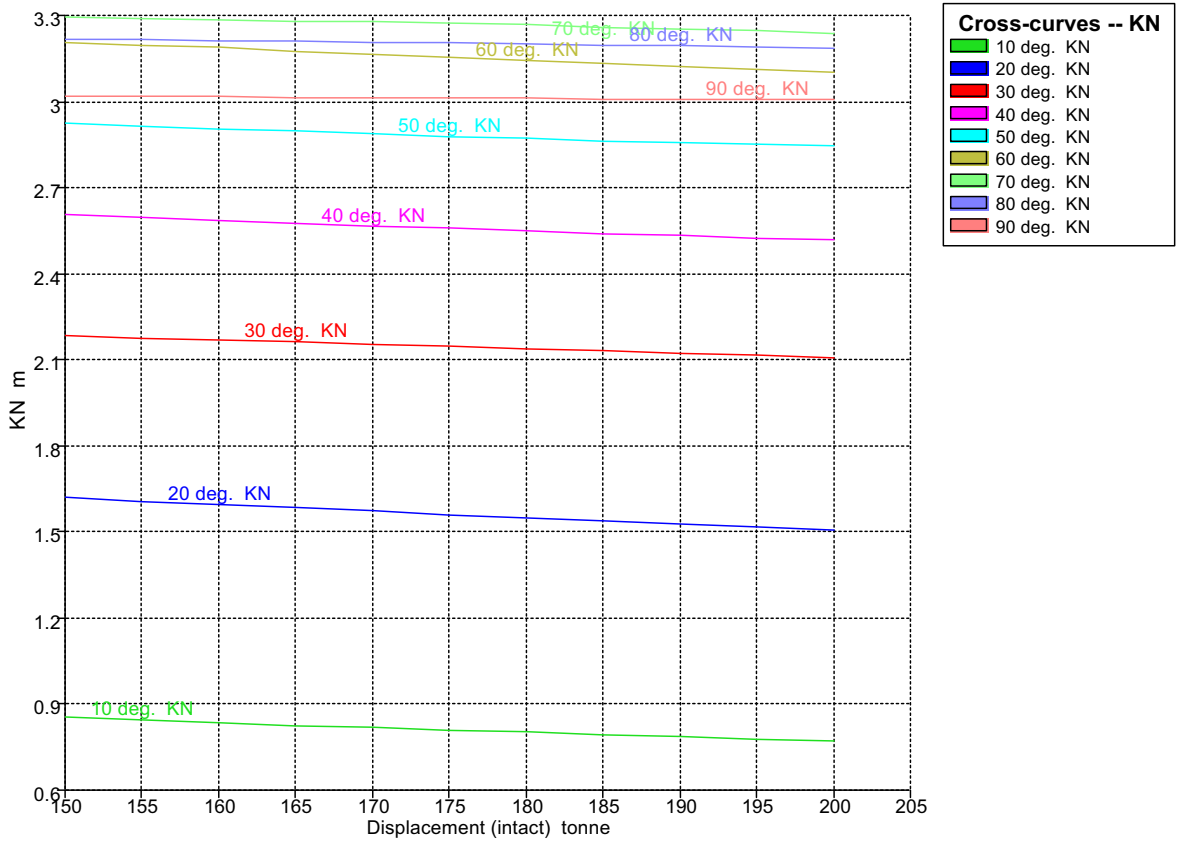
DIP-104708

18/12/2020

Fixed Trim = 0.4 m (+ve by stern)

Specific gravity = 1.025; (Density = 1.025 tonne/m^3)

VCG = 0 m; TCG = 0 m



KN CALCULATION

18/12/2020

Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.
150.0	1.683	0.400 (fixed)	0.000	0.857	1.619	2.183	2.605	2.927
155.0	1.715	0.400 (fixed)	0.000	0.846	1.607	2.176	2.595	2.916
160.0	1.747	0.400 (fixed)	0.000	0.836	1.596	2.169	2.586	2.906
165.0	1.779	0.400 (fixed)	0.000	0.827	1.584	2.162	2.577	2.896
170.0	1.811	0.400 (fixed)	0.000	0.818	1.573	2.155	2.567	2.887
175.0	1.843	0.400 (fixed)	0.000	0.809	1.561	2.148	2.559	2.879
180.0	1.874	0.400 (fixed)	0.000	0.801	1.550	2.140	2.550	2.871
185.0	1.905	0.400 (fixed)	0.000	0.793	1.538	2.132	2.541	2.864
190.0	1.936	0.400 (fixed)	0.000	0.786	1.527	2.124	2.533	2.857
195.0	1.967	0.400 (fixed)	0.000	0.779	1.516	2.116	2.525	2.851
200.0	1.998	0.400 (fixed)	0.000	0.773	1.506	2.107	2.517	2.845

Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	Assumed VCG m	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
150.0	1.683	0.400 (fixed)	0.000	3.207	3.292	3.218	3.019
155.0	1.715	0.400 (fixed)	0.000	3.198	3.289	3.215	3.018
160.0	1.747	0.400 (fixed)	0.000	3.188	3.285	3.213	3.016
165.0	1.779	0.400 (fixed)	0.000	3.177	3.281	3.210	3.015
170.0	1.811	0.400 (fixed)	0.000	3.166	3.277	3.208	3.013
175.0	1.843	0.400 (fixed)	0.000	3.155	3.272	3.204	3.012
180.0	1.874	0.400 (fixed)	0.000	3.144	3.266	3.201	3.011
185.0	1.905	0.400 (fixed)	0.000	3.133	3.261	3.198	3.010
190.0	1.936	0.400 (fixed)	0.000	3.123	3.255	3.194	3.008
195.0	1.967	0.400 (fixed)	0.000	3.114	3.248	3.190	3.007
200.0	1.998	0.400 (fixed)	0.000	3.104	3.240	3.187	3.006

KN CALCULATION

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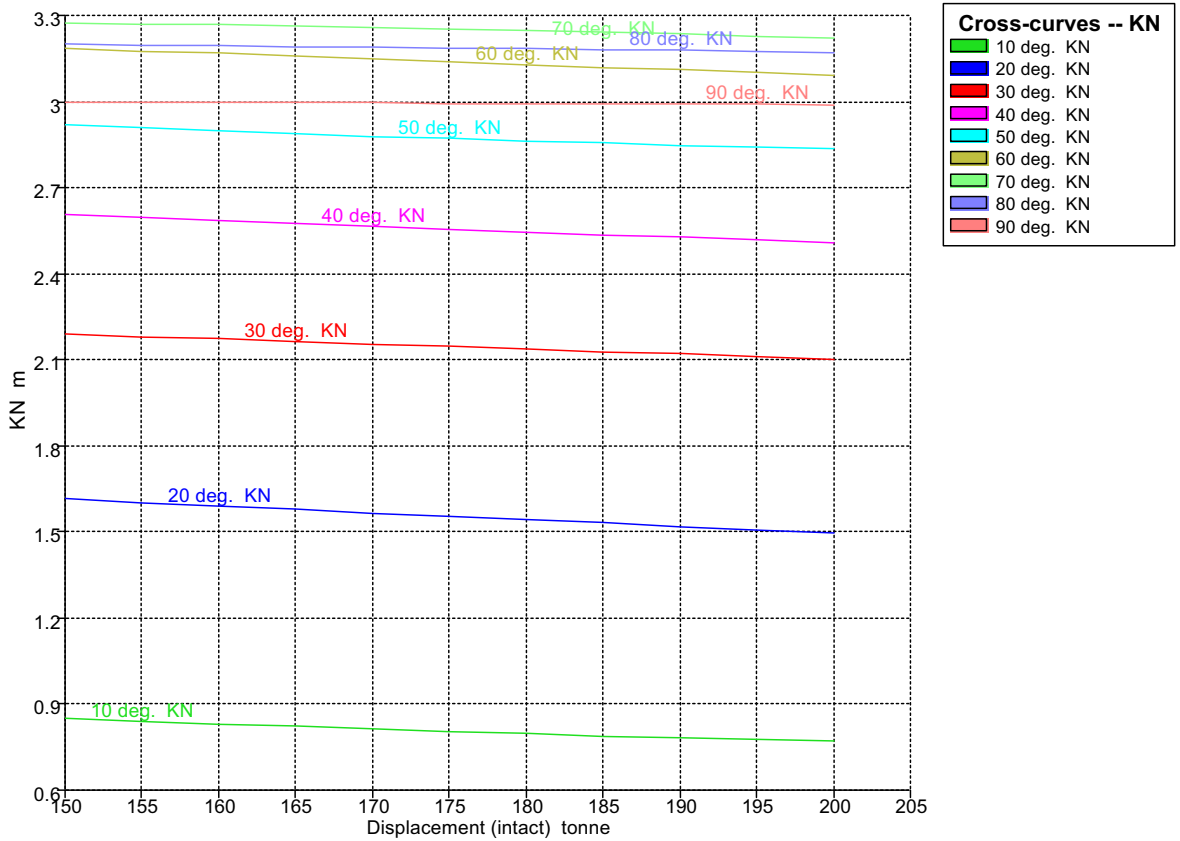
Fixed Trim = 0.6 m (+ve by stern)

Specific gravity = 1.025; (Density = 1.025 tonne/m^3)

VCG = 0 m; TCG = 0 m



KN CALCULATION

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Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	Assumed VCG m	KN 10.0 deg. Starb.	KN 20.0 deg. Starb.	KN 30.0 deg. Starb.	KN 40.0 deg. Starb.	KN 50.0 deg. Starb.
150.0	1.661	0.600 (fixed)	0.000	0.852	1.615	2.187	2.605	2.920
155.0	1.694	0.600 (fixed)	0.000	0.841	1.602	2.180	2.595	2.909
160.0	1.726	0.600 (fixed)	0.000	0.831	1.590	2.172	2.584	2.899
165.0	1.758	0.600 (fixed)	0.000	0.822	1.578	2.164	2.574	2.889
170.0	1.790	0.600 (fixed)	0.000	0.813	1.566	2.156	2.564	2.879
175.0	1.821	0.600 (fixed)	0.000	0.805	1.554	2.147	2.555	2.870
180.0	1.852	0.600 (fixed)	0.000	0.797	1.542	2.138	2.545	2.862
185.0	1.884	0.600 (fixed)	0.000	0.789	1.530	2.129	2.536	2.855
190.0	1.915	0.600 (fixed)	0.000	0.782	1.519	2.120	2.527	2.847
195.0	1.947	0.600 (fixed)	0.000	0.776	1.509	2.111	2.518	2.841
200.0	1.979	0.600 (fixed)	0.000	0.769	1.498	2.101	2.509	2.834

Displacement (intact) tonne	Draft Amidships m	Trim (+ve by stern) m	Assumed VCG m	KN 60.0 deg. Starb.	KN 70.0 deg. Starb.	KN 80.0 deg. Starb.	KN 90.0 deg. Starb.
150.0	1.661	0.600 (fixed)	0.000	3.186	3.274	3.199	2.999
155.0	1.694	0.600 (fixed)	0.000	3.177	3.271	3.197	2.998
160.0	1.726	0.600 (fixed)	0.000	3.168	3.268	3.195	2.997
165.0	1.758	0.600 (fixed)	0.000	3.157	3.264	3.193	2.996
170.0	1.790	0.600 (fixed)	0.000	3.147	3.259	3.190	2.995
175.0	1.821	0.600 (fixed)	0.000	3.137	3.255	3.187	2.995
180.0	1.852	0.600 (fixed)	0.000	3.128	3.249	3.184	2.994
185.0	1.884	0.600 (fixed)	0.000	3.119	3.244	3.181	2.993
190.0	1.915	0.600 (fixed)	0.000	3.110	3.237	3.178	2.992
195.0	1.947	0.600 (fixed)	0.000	3.101	3.229	3.175	2.991
200.0	1.979	0.600 (fixed)	0.000	3.092	3.221	3.171	2.990

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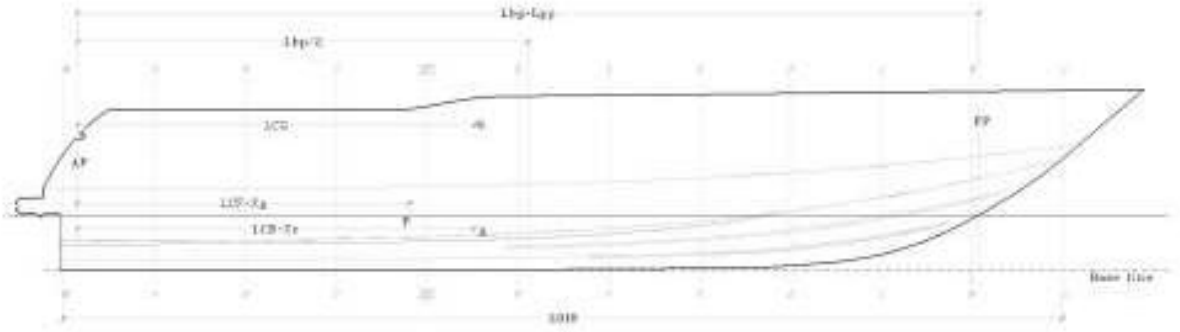
APP. – A : COORDINATE SYSTEM

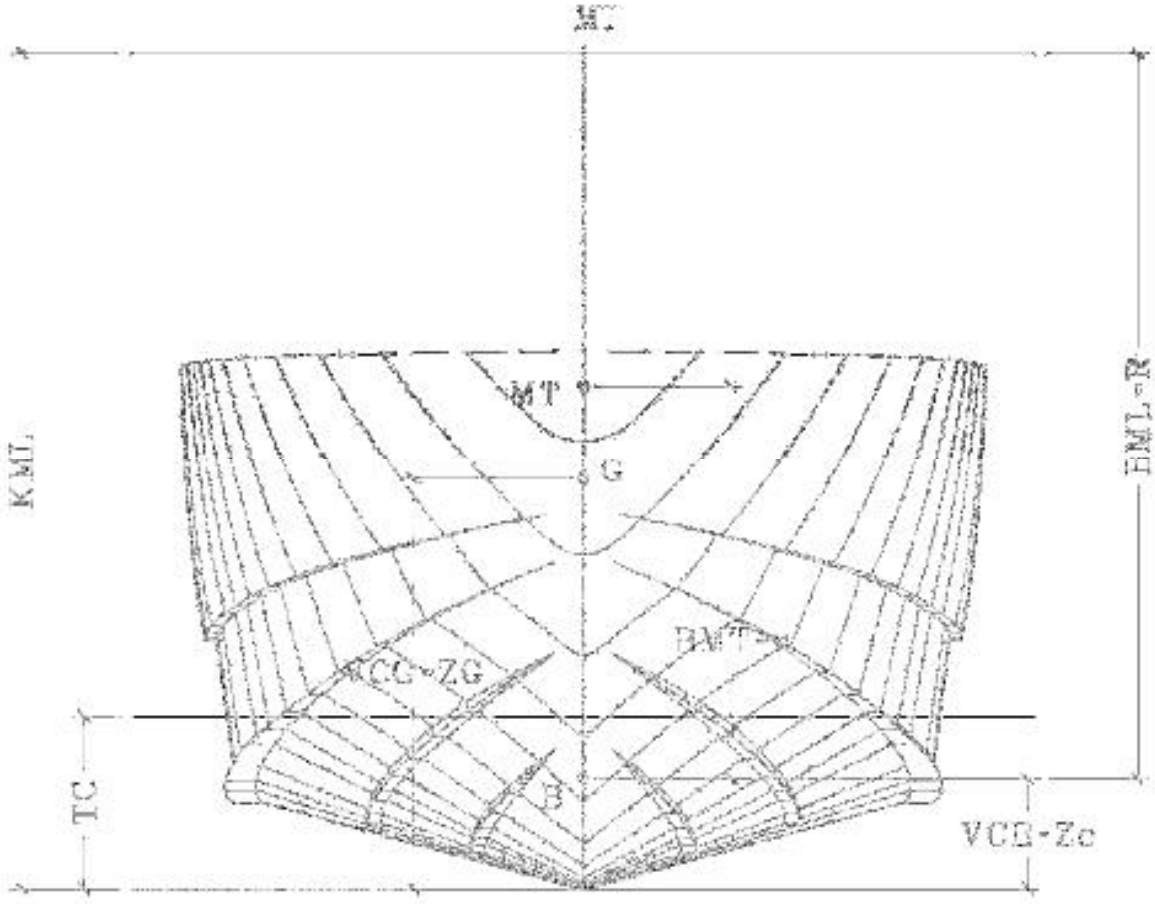
COORDINATE SYSTEM.

Unless separately specified hereafter, the co-ordinate system for reference is as follow:

Longitudinal (X axe) : from Aft Perpendicular - positive Forward -
Vertical (Z axe) : from Base Line (BL) -positive Up –
Transversal (Y axe) : from Centre (CL) - positive Starboard-
Trim : 'by stern' Positive if (Draught Aft > Draught For) – draught = from BL

DEFINITIONS.





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APP. – B : Unit's Conversion

The use of S.I. (Systeme International) UNITS IS STRONGLY RECOMMENDED

MULTIPLY BY	TO CONVERT FROM	TO OBTAIN	
0.039370079	Millimetres	inches	25.4
3.20839895	Meters	Feet	0.3048
0.546806649	Meters	Fathoms	1.8288
6	Fathoms	Feet	0.166667
0.0833333	Inches	Feet	12
0.000539957	Meters	Nautical miles	1852
0.001550003	Square millimetres	Square inches	645.16
0.00694444	Square inches	Square feet	144
35.314666213	Cubic meters	Cubic feet	0.028316847
0.000578704	Cubic inches	Cubic feet	1728
6.289774521	Cubic meters	Barrel of 42 US gallons	0.158988211
219.969441845	Cubic meters	Imp. Gallons	0.004546086
264.170529896	Cubic meters	Us gallons	0.004546086
0.178106580	Cubic feet	Barrel of 42 us gallons	5.614615691
6.228840940	Cubic feet	Imp. Gallons	0.160543512
7.480476369	Cubic feet	US gallons	0.133681326
0.027869623	Cubic feet	F.W. long tons	35.881360331
34.972548078	Barrels of 42 US gallons	Imp gallons	0.028593856
42	Barrels of 42 US gallons	US gallons	0.023809524
1.200941948	Imp. Gallons	Us GALLONS	0.832679716
0.156477225	Barrels of 42 US gallons	F.W. long tons	6.390706382
0.004474287	Imp gallons	F.W. long tons	223.499286199
0.003725648	Us gallons	F.W. long tons	268.409668050
2.204622476	Kilos	Pounds	0.453592400
0.984206463	Metric tons (1000 KG)	Long tons of 2240 lbs	1.016046976
1.102311238	Metric tons (1000 kg)	Short tons of 2000 lbs	0.907184800
1.12	Long tons	Short tons	0.892857143
3.229023827	Metric tons x meter	Long tons x feet	0.309691118
115.861765328	M4	Feet4	0.008630975
2.499884415	Metric tons/cm	Long tons / inch	0.400018494
8.201720521	Metric tons x m / cm	Long tons x feet/inch	0.121925637
14.223354831	Kg/cm2	Lbs/inch2	0.070306901
1.013868839	HP	HP metric	0.986320875
187.978263697	Meters x radians	Feet x degrees	0.005319764
	TO OBTAIN	**TO CONVERT FROM**	**MULTIPLY BY ABOVE**

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APP. – C: Eval.a different loading Cond.

1) WEIGHT CALCULATION *Fill the following form with the current weight's distribution on ship.*

	A	B	C	D	E	F	G
	Item Name	**Weight**	**Long Arm**	**Moment on A.P.**	**Vert Arm**	**Moment on B.L.**	**FS Mom**
		Tonne	**M**	**T*m**	**M**	**T*m**	**T*m**
				B * C		B * E	
1	Lightship + Liquids						
2							
3	**Total ****** LIGHTSHIP******						
4	Pax N.						
5	Crew N.						
6	Effect						
7	Store						
8	Provision						
9	**Total ***** PAX + CREW ****						
12	(1) Fuel						
19	**Total ***** FUEL*****						
23	(2) fresh water						
24							
25	**Total **FRESH WATER****						
26	(3) grey water						
27	(4) black water						
31	**Total **** VARIOUS ***						
37							
38							
39							
40	**Total ** OTHERS****						
	SUMMURY						
50	**Total****** LIGHTSHIP******						
51	**Total ***** PAX + CREW ****						
52	**Total ****** FUEL *****						
54	**Total ** FRESH WATER ****						
55	**Total **** VARIOUS ***						
56	**Total **** Others ***						
57	**TOTAL=**						
		DISPL	**LCG**		**VCG (KG)**		**FSM**
58				**FSM correction =**		**m**	
59				**VCG (KG) fluid=**		**m**	

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2) INITIAL STABILITY AND EQUILIBRIUM CALCULATION

Use the hydrostatic data (even keel) and use linear interpolation if necessary
***-> H** Use this value TO ENTER in the hydrostatic data **<- H** data FROM the hydrostatic data.*

70	Displacement sea water density 1.025	D =		t	->
71	KG corrected (BL)	KG corr=VCG corr =		m	
72	LCG (AP)	LCG=		m	
73	Draft at LCF (BL) (draft Amidsh even keel)	T=		m	<-
74	KB (centre of Buoyancy) from BL	KB=		m	<-
75	BMt Transverse Metacentric height	BMT=		m	<-
76	KMt from BL	KMT= KB+BMT=		m	
77	**GMT corrected for free surface effect**	**GMT=KMT-KG corr=**		**m**	
78	LCB from AP	LCB=		m	<-
79	BML	BML=		m	<-
80	KML from BL	KML=KB+BML=		m	
81	GML	GML=KML-KG corr=		m	
82	TRIM (+ve by stern) respect BL	D=-L (LCG-LCB)/GML=		m	
83	LCF from AP	LCF=		m	<-
84	T centre from BL	Tc= T-(L/2-LCF)d/L=		m	
85	Draft at AP (BL) T Aft	Ta= T+d/2=		m	
86	Draft at FP (BL) T For	Tf= T-d/2=		m	
87	Tonne per centimetre of Immersion	TPC=		t/cm	<-
88	Moment to change trim 1 centimentre	MTC=		t*m	<-
89	RM at 1 deg= GMt. Disp.sin(1)	GMT *Disp*sin(1)=		t*m	

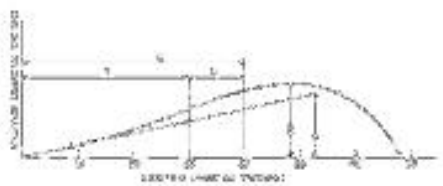
3) LARGE ANGLE STABILITY – Use of Cross Curves of Stability (KN)

Instead of the following procedure the Max VCG method can be used (see 16 MAX ALLOWABLE VCG for Intact Stability)

Use the Cross Stability (KN curves) for current Displacement and Trim – Use linear interpolation if necessary
Fill the following tables

KN m	**θ ° degrees**	**Sin θ**	**KG* sin θ m**	**GZ= KN-KG*sin θ**	**Area**
	1	0.0175			
	5	0.0872			
	10	0.1736			
	15	0.2588			
	20	0.3420			
	25	0.4226			
	30	0.500			
	35	0.5736			
	40	0.7071			
	50	0.7660			
	60	0.8660			
	70	0.9397			
	80	0.9848			

Example of GZ curve.Righting Lever **GZ=KN-KG sin θ**



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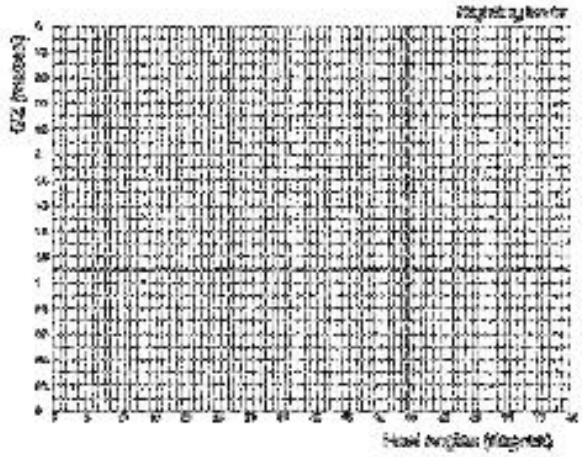
Plot the GZ Curve (Using the calculated values in the last column) against the Heel Angle (° degrees).



*Area under GZ curve 1 [m*rad] = 57.3 [m*degree] i.e. to convert from [m*degree] to [m*rad], ddivide per 57.3*

4) STABILITY EVALUATION

		Units		required	current
A	Area under stability curve(*) up to 30° not less then	m*rad	≥	0.055	
B	Area under stability curve up to x° (**)not less then	m*rad	≥	0.090	
C	Area under stability curve between 30° and x° (**) not less then	m*rad	≥	0.030	
D	Max Righting Arm (GZmax) at angle not less than	Degree	≥	25°	
E	Max Righting Arm (GZmax)must be not less than	m	≥	0.20	
F	Initial Transversal Metacentric height = GM, corrected due to free surface effects (*), not less than	m	≥	0.150	

(*) Including the effects of Free Surface in tanks

(**) x° =min (40°, downflooding angle). Use the minimum angle between 40° and the angle at which the lower edges of any opening in the hull, superstructure or deck house which cause progressive flooding and cannot be closed weathertight.

5) NOTES ON THE USE OF FREE SURFACE MOMENTS

Provided a tank is completely filled with liquid no movement of the liquid is possible and the effect on the ship's stability is precisely the same as if the tank contained solid material.
Immediately a quantity of liquid is withdrawn from the tank the situation changes completely and the stability of the ship is adversely affected by what is known as the "FREE SURFACE EFFECTS" . This adverse effect on the stability is referred to as a "LOSS IN GMT" or as a "VIRTYAL RISE IN VCG (KG)" and is calculated as follows:

$$\text{LOSS IN GMT (Due to Free Surface Effects (metres))} = \frac{\text{TOTAL (Free Surface Moment t*m) (++)}}{\text{Displacement of the vessel (t)}}$$

(++) TOTAL is the sum of the "Free Surf. Mom." of all the tanks not completely full.
The Free Surface Moment is the Tank Calibration Tables include the Spec. gravity of the liquid

When preparing loading conditions, it is to be noted that free surface effects must be allowed for the maximum number of tanks which are slack or shortly to become slack in that given loading condition. This will mean that, for departure conditions all main fuel tanks as well as fresh water tanks are considered to be slack.

Where ballast tanks are used they should be ' pressed full' or 'empty' as far as possible. Dirty water in the bilge's must be kept to a minimum.