Obra nº: EP0041	Obra nome: EMBARCACAO DE SERVIÇOS GERAIS - APIAKÁ DO BAIXO TELES	
Código Nº: HTP-AN-DOC- 009	Título do doc.: FOLHETO DE TRIM E ESTABILIDADE	
Nº doc. Armador:	Armador: ***TELES PIRES***	Construtor: ABSNAVAL CONSTRUÇÕES E MONTAGEM LTDA
Contrato (s): (navios 01/02/03) 4503100796		Casco nº:

DESTINO	QT
Estaleiro	DIG
Armador	X
DPC	X
SC	X

HISTÓRICO DE EMISSÕES				
HTP	EPNO	DESCRIÇÃO	DATA	RUBR.
0	0	Emitido	10/10/14	MG
A	A	Evolução de projeto	15/12/14	MG
B	B	Evolução de projeto	18/03/15	MG
C	C	Evolução de projeto	22/04/15	MG
D	D	Emissão final	03/12/15	MG

Feito por: M.Guttemberg Data: 10/10/14	Verif. por: M.Guttemberg Data: 10/10/14	Aprov. por: M.Guttemberg Data: 10/10/14	Arquivo nº:	Esc:	

Sumário

1 CARACTERÍSTICAS PRINCIPAIS

–	Comprimento Total:	15,00 m
–	Comprimento entre Perpendiculares:	14,00 m
–	Boca Moldada:	5,00 m
–	Pontal Moldado:	1,85 m
–	Calado de Projeto:	1,13 m
–	TCI	0,710 T/cm
–	Cb	0,7405
–	Área de Navegação / Tipo de Serviço:	A1
–	Tipo da embarcação (Acordo Cap. 02 da NORMAM 02/DPC):	CARGA GERAL/ PASSAGEIROS
–	Material do casco:	AÇO

2 SIMBOLOGIA

Draught – Calado (m);

Volume – Volume (m^3);

Displ FW – Deslocamento em água doce (T);

Displ – Deslocamento (T);

LCB - Posição longitudinal do centro de carena em relação ao espelho de popa (m);

TCB - Posição transversal do centro de carena em relação à linha de centro (m);

VCB - Posição vertical do centro de carena em relação à linha de base moldada (m);

AwL - Área de linha d'água (m^2);

LCF - Posição longitudinal do centro de flutuação em relação à perpendicular de ré (positivo a Vante);

KMt - Posição vertical do metacentro transversal em relação à linha de base moldada (m);

KMl - Posição vertical do metacentro longitudinal em relação à linha de base moldada (m);

MCT - Momento para trimar 1 cm;

TPcm - Toneladas por centímetro de imersão (t/cm);

LCG - Posição longitudinal do centro de gravidade em relação ao espelho de popa (m);

TCG - Posição transversal do centro de gravidade em relação à linha de centro (m);

VCG - Posição vertical do centro de gravidade em relação à linha de base moldada (m);

BML - Distância do metacentro longitudinal ao centro de carena (m);

BMt - Distância do metacentro transversal ao centro de carena (m);

CB - Coeficiente de bloco;

CEE - Curva de Estabilidade Estática;

CP - Coeficiente prismático;

CWL - Coeficiente de linha d'água;

CMN - Coeficiente da seção de meio navio;

FSM - Momento de Superfície Livre em relação à linha de centro (t.m);

GGo - Redução de GMT devido ao efeito do Momento de Superfície Livre (m);

GMo - Altura metacêntrica inicial corrigida para efeito do Momento de Superfície Livre (m);

GMt - Distância do metacentro transversal ao centro de carena (m);

GZ - Braço de endireitamento (m);

Hc - Calado a meia nau (m);

Hr - Calado na perpendicular de ré (m);

Hv - Calado na perpendicular de vante (m);

Ix - Momento de inércia transversal em relação a linha de base (ton.m)

KB - Posição vertical do centro de carena em relação à linha de base moldada (m);

KG - Posição vertical do centro de gravidade (m);

KGo - Posição vertical do centro de gravidade da condição corrigida para o efeito do Momento de Superfície Livre (m);

LPP - Comprimento entre perpendiculares (m);

γ - Densidade: t/m^3 (t);

Δ - Deslocamento em água salgada γ = 1.025 t/m^3 (t);

θ - Ângulo de inclinação (radianos);

T - Trim (m);

S - Esforço cortante (t)

B - Momento fletor (t*m)

3 CAPACIDADES

TCG - Posição transversal do centro de gravidade em relação a linha de centro. (para tanques simétricos BB e BE, TCG apresentado em módulo, considerar positivo a BB e negativo a BE)

3.1 TQ AGUA DOCE – BB

Água Doce BB

Relative density:		**1.0000**	**Trim:**	**Level trim**	**Heeling angle:**		**No Heel**
Sounding	**Ullage**	**Volume**	**Weight**	**LCG**	**TCG**	**VCG**	**Free surface**
(m)	*(m)*	*(m^3)*	*(tonnes)*	*(m)*	*(m)*	*(m)*	*(t*m)*
0.000	**1.752**	0.000	0.000	0.000	0.000 (CL)	0.000	0.000
0.050	**1.702**	0.000	0.000	2.942	1.818 (PS)	0.135	0.000
0.100	**1.652**	0.001	0.001	2.896	1.836 (PS)	0.172	0.000
0.150	**1.602**	0.003	0.003	2.858	1.855 (PS)	0.208	0.000
0.200	**1.552**	0.007	0.007	2.824	1.874 (PS)	0.245	0.001
0.250	**1.502**	0.013	0.013	2.794	1.893 (PS)	0.281	0.001
0.300	**1.452**	0.022	0.022	2.767	1.912 (PS)	0.318	0.002
0.350	**1.402**	0.033	0.033	2.741	1.931 (PS)	0.354	0.004
0.400	**1.352**	0.047	0.047	2.717	1.950 (PS)	0.390	0.006
0.450	**1.302**	0.065	0.065	2.694	1.969 (PS)	0.427	0.010
0.500	**1.252**	0.086	0.086	2.673	1.989 (PS)	0.463	0.014
0.550	**1.202**	0.111	0.111	2.655	2.008 (PS)	0.498	0.018
0.600	**1.152**	0.138	0.138	2.639	2.026 (PS)	0.533	0.020
0.650	**1.102**	0.167	0.167	2.624	2.041 (PS)	0.566	0.023
0.700	**1.052**	0.198	0.198	2.611	2.054 (PS)	0.598	0.024
0.750	**1.002**	0.231	0.231	2.599	2.065 (PS)	0.630	0.026
0.800	**0.952**	0.264	0.264	2.588	2.075 (PS)	0.660	0.027
0.850	**0.902**	0.298	0.298	2.578	2.083 (PS)	0.690	0.028
0.900	**0.852**	0.332	0.332	2.570	2.090 (PS)	0.719	0.028
0.950	**0.802**	0.366	0.366	2.564	2.095 (PS)	0.748	0.028
1.000	**0.752**	0.401	0.401	2.558	2.100 (PS)	0.776	0.028
1.050	**0.702**	0.435	0.435	2.554	2.104 (PS)	0.803	0.028
1.100	**0.652**	0.469	0.469	2.550	2.107 (PS)	0.830	0.028
1.150	**0.602**	0.504	0.504	2.546	2.110 (PS)	0.857	0.028
1.200	**0.552**	0.538	0.538	2.544	2.113 (PS)	0.883	0.028
1.250	**0.502**	0.572	0.572	2.541	2.115 (PS)	0.910	0.028
1.300	**0.452**	0.607	0.607	2.539	2.117 (PS)	0.936	0.028
1.350	**0.402**	0.641	0.641	2.537	2.119 (PS)	0.962	0.028
1.400	**0.352**	0.675	0.675	2.535	2.120 (PS)	0.988	0.028
1.450	**0.302**	0.709	0.709	2.533	2.122 (PS)	1.014	0.028
1.500	**0.252**	0.744	0.744	2.531	2.123 (PS)	1.039	0.028
1.550	**0.202**	0.778	0.778	2.530	2.124 (PS)	1.065	0.028
1.600	**0.152**	0.812	0.812	2.529	2.125 (PS)	1.091	0.028
1.650	**0.102**	0.847	0.847	2.528	2.126 (PS)	1.116	0.028
1.700	**0.052**	0.881	0.881	2.527	2.127 (PS)	1.142	0.028
1.750	**0.002**	0.915	0.915	2.526	2.128 (PS)	1.167	0.028
1.752	**0.000**	0.917	0.917	2.526	2.128 (PS)	1.169	0.028

Tabela 1 - Tanque de Agua Doce BB

3.2 TQ AGUA DOCE – BE

Água Doce BE

Relative density:		1.0000	Trim:	Level trim	Heeling angle:		No Heel
Sounding	Ullage	Volume	Weight	LCG	TCG	VCG	Free surface
(m)	*(m)*	*(m^3)*	*(tonnes)*	*(m)*	*(m)*	*(m)*	*(t*m)*
0.000	**1.752**	0.000	0.000	0.000	0.000 (CL)	0.000	0.000
0.050	**1.702**	0.000	0.000	2.942	-1.818 (SB)	0.135	0.000
0.100	**1.652**	0.001	0.001	2.896	-1.836 (SB)	0.172	0.000
0.150	**1.602**	0.003	0.003	2.858	-1.855 (SB)	0.208	0.000
0.200	**1.552**	0.007	0.007	2.824	-1.874 (SB)	0.245	0.001
0.250	**1.502**	0.013	0.013	2.794	-1.893 (SB)	0.281	0.001
0.300	**1.452**	0.022	0.022	2.767	-1.912 (SB)	0.318	0.002
0.350	**1.402**	0.033	0.033	2.741	-1.931 (SB)	0.354	0.004
0.400	**1.352**	0.047	0.047	2.717	-1.950 (SB)	0.390	0.006
0.450	**1.302**	0.065	0.065	2.694	-1.969 (SB)	0.427	0.010
0.500	**1.252**	0.086	0.086	2.673	-1.989 (SB)	0.463	0.014
0.550	**1.202**	0.111	0.111	2.655	-2.008 (SB)	0.498	0.018
0.600	**1.152**	0.138	0.138	2.639	-2.026 (SB)	0.533	0.020
0.650	**1.102**	0.167	0.167	2.624	-2.041 (SB)	0.566	0.023
0.700	**1.052**	0.198	0.198	2.611	-2.054 (SB)	0.598	0.024
0.750	**1.002**	0.231	0.231	2.599	-2.065 (SB)	0.630	0.026
0.800	**0.952**	0.264	0.264	2.588	-2.075 (SB)	0.660	0.027
0.850	**0.902**	0.298	0.298	2.578	-2.083 (SB)	0.690	0.028
0.900	**0.852**	0.332	0.332	2.570	-2.090 (SB)	0.719	0.028
0.950	**0.802**	0.366	0.366	2.564	-2.095 (SB)	0.748	0.028
1.000	**0.752**	0.401	0.401	2.558	-2.100 (SB)	0.776	0.028
1.050	**0.702**	0.435	0.435	2.554	-2.104 (SB)	0.803	0.028
1.100	**0.652**	0.469	0.469	2.550	-2.107 (SB)	0.830	0.028
1.150	**0.602**	0.504	0.504	2.546	-2.110 (SB)	0.857	0.028
1.200	**0.552**	0.538	0.538	2.544	-2.113 (SB)	0.883	0.028
1.250	**0.502**	0.572	0.572	2.541	-2.115 (SB)	0.910	0.028
1.300	**0.452**	0.607	0.607	2.539	-2.117 (SB)	0.936	0.028
1.350	**0.402**	0.641	0.641	2.537	-2.119 (SB)	0.962	0.028
1.400	**0.352**	0.675	0.675	2.535	-2.120 (SB)	0.988	0.028
1.450	**0.302**	0.709	0.709	2.533	-2.122 (SB)	1.014	0.028
1.500	**0.252**	0.744	0.744	2.531	-2.123 (SB)	1.039	0.028
1.550	**0.202**	0.778	0.778	2.530	-2.124 (SB)	1.065	0.028
1.600	**0.152**	0.812	0.812	2.529	-2.125 (SB)	1.091	0.028
1.650	**0.102**	0.847	0.847	2.528	-2.126 (SB)	1.116	0.028
1.700	**0.052**	0.881	0.881	2.527	-2.127 (SB)	1.142	0.028
1.750	**0.002**	0.915	0.915	2.526	-2.128 (SB)	1.167	0.028
1.752	**0.000**	0.917	0.917	2.526	-2.128 (SB)	1.169	0.028

Tabela 2 - Tanque de Agua Doce BE

3.3 TQ. DE SERVICO DE OLEO DIESEL – BB

ODS BB							
Relative density:		0.87	Trim:	Level trim	Heeling angle:		No Heel
Sounding	Ullage	Volume	Weight	LCG	TCG	VCG	Free surface
(m)	*(m)*	*(m^3)*	*(tonnes)*	*(m)*	*(m)*	*(m)*	*(t*m)*
0	**1.35**	0	0	0	0.000 (CL)	0	0.057
0.05	**1.3**	0.02	0.017	6.892	1.000 (PS)	0.529	0.171
0.1	**1.25**	0.059	0.051	6.828	1.000 (PS)	0.561	0.284
0.15	**1.2**	0.108	0.094	6.792	1.000 (PS)	0.59	0.284
0.2	**1.15**	0.157	0.136	6.779	1.000 (PS)	0.617	0.284
0.25	**1.1**	0.206	0.179	6.772	1.000 (PS)	0.642	0.284
0.3	**1.05**	0.255	0.222	6.768	1.000 (PS)	0.668	0.284
0.35	**1**	0.304	0.264	6.765	1.000 (PS)	0.693	0.284
0.4	**0.95**	0.353	0.307	6.763	1.000 (PS)	0.719	0.284
0.45	**0.9**	0.402	0.35	6.761	1.000 (PS)	0.744	0.284
0.5	**0.85**	0.451	0.392	6.76	1.000 (PS)	0.769	0.284
0.55	**0.8**	0.5	0.435	6.759	1.000 (PS)	0.794	0.284
0.6	**0.75**	0.549	0.477	6.758	1.000 (PS)	0.819	0.284
0.65	**0.7**	0.598	0.52	6.758	1.000 (PS)	0.844	0.284
0.7	**0.65**	0.647	0.563	6.757	1.000 (PS)	0.869	0.284
0.75	**0.6**	0.696	0.605	6.757	1.000 (PS)	0.894	0.284
0.8	**0.55**	0.745	0.648	6.756	1.000 (PS)	0.919	0.284
0.85	**0.5**	0.794	0.691	6.756	1.000 (PS)	0.944	0.284
0.9	**0.45**	0.843	0.733	6.755	1.000 (PS)	0.969	0.284
0.95	**0.4**	0.892	0.776	6.755	1.000 (PS)	0.994	0.284
1	**0.35**	0.941	0.818	6.755	1.000 (PS)	1.019	0.284
1.05	**0.3**	0.99	0.861	6.755	1.000 (PS)	1.044	0.284
1.1	**0.25**	1.039	0.904	6.754	1.000 (PS)	1.069	0.284
1.15	**0.2**	1.088	0.946	6.754	1.000 (PS)	1.095	0.284
1.2	**0.15**	1.137	0.989	6.754	1.000 (PS)	1.12	0.284
1.25	**0.1**	1.186	1.032	6.754	1.000 (PS)	1.145	0.284
1.3	**0.05**	1.235	1.074	6.754	1.000 (PS)	1.17	0.284
1.35	**0**	1.284	1.117	6.754	1.000 (PS)	1.195	0.284

Tabela 3- Tanque de Servico de Oleo Diesel, BB

3.4 TQ. DE SERVIÇO DE OLEO DIESEL – BE

ODS BE							
Relative density:		0.87	Trim:	Level trim	Heeling angle:		No Heel
Sounding	Ullage	Volume	Weight	LCG	TCG	VCG	Free surface
(m)	*(m)*	*(m^3)*	*(tonnes)*	*(m)*	*(m)*	*(m)*	*(t*m)*
0	**1.35**	0	0	0	0.000 (CL)	0	0.057
0.05	**1.3**	0.02	0.017	6.892	-1.000 (SB)	0.529	0.171
0.1	**1.25**	0.059	0.051	6.828	-1.000 (SB)	0.561	0.284
0.15	**1.2**	0.108	0.094	6.792	-1.000 (SB)	0.590	0.284
0.2	**1.15**	0.157	0.136	6.779	-1.000 (SB)	0.617	0.284
0.25	**1.1**	0.206	0.179	6.772	-1.000 (SB)	0.642	0.284
0.3	**1.05**	0.255	0.222	6.768	-1.000 (SB)	0.668	0.284
0.35	**1**	0.304	0.264	6.765	-1.000 (SB)	0.693	0.284
0.4	**0.95**	0.353	0.307	6.763	-1.000 (SB)	0.719	0.284
0.45	**0.9**	0.402	0.35	6.761	-1.000 (SB)	0.744	0.284
0.5	**0.85**	0.451	0.392	6.76	-1.000 (SB)	0.769	0.284
0.55	**0.8**	0.5	0.435	6.759	-1.000 (SB)	0.794	0.284
0.6	**0.75**	0.549	0.477	6.758	-1.000 (SB)	0.819	0.284
0.65	**0.7**	0.598	0.52	6.758	-1.000 (SB)	0.844	0.284
0.7	**0.65**	0.647	0.563	6.757	-1.000 (SB)	0.869	0.284
0.75	**0.6**	0.696	0.605	6.757	-1.000 (SB)	0.894	0.284
0.8	**0.55**	0.745	0.648	6.756	-1.000 (SB)	0.919	0.284
0.85	**0.5**	0.794	0.691	6.756	-1.000 (SB)	0.944	0.284
0.9	**0.45**	0.843	0.733	6.755	-1.000 (SB)	0.969	0.284
0.95	**0.4**	0.892	0.776	6.755	-1.000 (SB)	0.994	0.284
1	**0.35**	0.941	0.818	6.755	-1.000 (SB)	1.019	0.284
1.05	**0.3**	0.99	0.861	6.755	-1.000 (SB)	1.044	0.284
1.1	**0.25**	1.039	0.904	6.754	-1.000 (SB)	1.069	0.284
1.15	**0.2**	1.088	0.946	6.754	-1.000 (SB)	1.095	0.284
1.2	**0.15**	1.137	0.989	6.754	-1.000 (SB)	1.120	0.284
1.25	**0.1**	1.186	1.032	6.754	-1.000 (SB)	1.145	0.284
1.3	**0.05**	1.235	1.074	6.754	-1.000 (SB)	1.170	0.284
1.35	**0**	1.284	1.117	6.754	-1.000 (SB)	1.195	0.284

Tabela 4- Tanque de Servico de Oleo Diesel, BE

3.5 TQ. ESG. SANITARIO

Esg. Sanitário							
Relative density:		1	Trim:	Level trim	Heeling angle:		No Heel
Sounding	Ullage	Volume	Weight	LCG	TCG	VCG	Free surface
(m)	*(m)*	*(m^3)*	*(tonnes)*	*(m)*	*(m)*	*(m)*	*(t*m)*
0	**0.5**	0	0	5.219	1.525 (PS)	0	0.008
0.05	**0.45**	0.039	0.039	4.761	1.525 (PS)	0.027	0.024
0.1	**0.4**	0.09	0.09	4.644	1.525 (PS)	0.055	0.027
0.15	**0.35**	0.144	0.144	4.59	1.525 (PS)	0.081	0.027
0.2	**0.3**	0.197	0.197	4.566	1.525 (PS)	0.107	0.027
0.25	**0.25**	0.251	0.251	4.552	1.525 (PS)	0.132	0.027
0.3	**0.2**	0.305	0.305	4.542	1.525 (PS)	0.157	0.027
0.35	**0.15**	0.359	0.359	4.536	1.525 (PS)	0.183	0.027
0.4	**0.1**	0.413	0.413	4.531	1.525 (PS)	0.208	0.027
0.45	**0.05**	0.467	0.467	4.528	1.525 (PS)	0.233	0.027
0.5	**0**	0.521	0.521	4.525	1.525 (PS)	0.258	0.027

Tabela 5 - Tanque Septico

3.6 TQ. DE ESGOTO OLEOSO

Esg. Oleoso							
Relative density:		1	Trim:	Level trim	Heeling angle:		No Heel
Sounding	Ullage	Volume	Weight	LCG	TCG	VCG	Free surface
(m)	*(m)*	*(m^3)*	*(tonnes)*	*(m)*	*(m)*	*(m)*	*(t*m)*
0	**0.5**	0	0	5.219	-1.525 (SB)	0.000	0.008
0.05	**0.45**	0.039	0.039	4.761	-1.525 (SB)	0.027	0.024
0.1	**0.4**	0.09	0.09	4.644	-1.525 (SB)	0.055	0.027
0.15	**0.35**	0.144	0.144	4.59	-1.525 (SB)	0.081	0.027
0.2	**0.3**	0.197	0.197	4.566	-1.525 (SB)	0.107	0.027
0.25	**0.25**	0.251	0.251	4.552	-1.525 (SB)	0.132	0.027
0.3	**0.2**	0.305	0.305	4.542	-1.525 (SB)	0.157	0.027
0.35	**0.15**	0.359	0.359	4.536	-1.525 (SB)	0.183	0.027
0.4	**0.1**	0.413	0.413	4.531	-1.525 (SB)	0.208	0.027
0.45	**0.05**	0.467	0.467	4.528	-1.525 (SB)	0.233	0.027
0.5	**0**	0.521	0.521	4.525	-1.525 (SB)	0.258	0.027

Tabela 6 - Tanque de Esgoto Oleoso

3.7 TQ. DE BORRA

Borra							
Relative density:		1	Trim:	Level trim	Heeling angle:		No Heel
Sounding	Ullage	Volume	Weight	LCG	TCG	VCG	Free surface
(m)	*(m)*	*(m^3)*	*(tonnes)*	*(m)*	*(m)*	*(m)*	*(t*m)*
0	**0.5**	0	0	0	0.000 (CL)	0	0.041
0.05	**0.45**	0.025	0.025	5.75	0.000 (CL)	0.025	0.041
0.1	**0.4**	0.049	0.049	5.75	0.000 (CL)	0.05	0.041
0.15	**0.35**	0.074	0.074	5.75	0.000 (CL)	0.075	0.041
0.2	**0.3**	0.098	0.098	5.75	0.000 (CL)	0.1	0.041
0.25	**0.25**	0.123	0.123	5.75	0.000 (CL)	0.125	0.041
0.3	**0.2**	0.147	0.147	5.75	0.000 (CL)	0.15	0.041
0.35	**0.15**	0.172	0.172	5.75	0.000 (CL)	0.175	0.041
0.4	**0.1**	0.196	0.196	5.75	0.000 (CL)	0.2	0.041
0.45	**0.05**	0.221	0.221	5.75	0.000 (CL)	0.225	0.041
0.5	**0**	0.245	0.245	5.75	0.000 (CL)	0.25	0.041

Tabela 7 - Tanque de Borra

4 TABELAS HIDROSTÁTICAS

Trim: -0.500 (m)

Draft	Lwl	Vol. mould	Volume	Displ FW	LCB	VCB	TCB	Cb	Aw	LCF	KMt	KMl	MCT	TpCm
(m)	*(m)*	*(m^3)*	*(m^3)*	*(tonnes)*	*(m)*	*(m)*	*(m)*		*(m^2)*	*(m)*	*(m)*	*(m)*	*(t*m/cm)*	*(t/cm)*
0.5	11.133	21.511	21.887	21.887	6.779	0.287	0	0.786	53.604	7.133	5.084	24.68	0.356	0.536
0.51	11.18	22.046	22.425	22.425	6.787	0.293	0	0.787	53.949	7.137	5.024	24.45	0.361	0.539
0.52	11.227	22.584	22.966	22.966	6.796	0.298	0	0.787	54.287	7.141	4.965	24.22	0.366	0.543
0.53	11.274	23.125	23.51	23.51	6.804	0.304	0	0.787	54.618	7.144	4.906	24.01	0.372	0.546
0.54	11.324	23.67	24.058	24.058	6.811	0.309	0	0.787	54.948	7.147	4.848	23.81	0.377	0.549
0.55	11.373	24.218	24.609	24.609	6.819	0.315	0	0.787	55.27	7.149	4.791	23.63	0.382	0.553
0.56	11.422	24.769	25.164	25.164	6.826	0.32	0	0.787	55.586	7.152	4.734	23.45	0.388	0.556
0.57	11.474	25.323	25.721	25.721	6.833	0.326	0	0.787	55.901	7.153	4.678	23.29	0.394	0.559
0.58	11.526	25.88	26.282	26.282	6.84	0.331	0	0.786	56.209	7.153	4.622	23.13	0.4	0.562
0.59	11.578	26.441	26.845	26.845	6.847	0.337	0	0.786	56.51	7.153	4.567	22.98	0.405	0.565
0.6	11.632	27.004	27.412	27.412	6.853	0.343	0	0.786	56.811	7.152	4.512	22.85	0.411	0.568
0.61	11.686	27.57	27.981	27.981	6.859	0.348	0	0.785	57.105	7.151	4.458	22.72	0.417	0.571
0.62	11.741	28.139	28.554	28.554	6.865	0.354	0	0.785	57.393	7.148	4.405	22.59	0.423	0.574
0.63	11.797	28.711	29.129	29.129	6.87	0.359	0	0.784	57.681	7.145	4.351	22.48	0.43	0.577
0.64	11.854	29.286	29.707	29.707	6.876	0.365	0	0.783	57.962	7.141	4.299	22.37	0.436	0.58
0.65	11.912	29.864	30.288	30.288	6.881	0.37	0	0.782	58.239	7.135	4.247	22.26	0.442	0.582
0.66	11.971	30.444	30.872	30.872	6.885	0.376	0	0.782	58.517	7.129	4.196	22.16	0.448	0.585
0.67	12.03	31.028	31.458	31.458	6.89	0.382	0	0.781	58.796	7.123	4.146	22.06	0.455	0.588
0.68	12.09	31.614	32.048	32.048	6.894	0.387	0	0.78	59.082	7.116	4.099	21.98	0.461	0.591
0.69	12.152	32.203	32.64	32.64	6.898	0.393	0	0.779	59.37	7.109	4.054	21.91	0.468	0.594
0.7	12.214	32.794	33.235	33.235	6.901	0.399	0	0.777	59.662	7.101	4.01	21.84	0.475	0.597
0.71	12.277	33.389	33.833	33.833	6.905	0.404	0	0.776	59.96	7.093	3.968	21.78	0.482	0.6
0.72	12.341	33.987	34.434	34.434	6.908	0.41	0	0.775	60.258	7.085	3.928	21.73	0.489	0.603
0.73	12.406	34.587	35.038	35.038	6.911	0.416	0	0.774	60.564	7.076	3.889	21.69	0.497	0.606
0.74	12.472	35.191	35.645	35.645	6.913	0.421	0	0.772	60.871	7.067	3.851	21.66	0.505	0.609
0.75	12.538	35.798	36.256	36.256	6.916	0.427	0	0.771	61.183	7.057	3.815	21.63	0.512	0.612
0.76	12.606	36.408	36.869	36.869	6.918	0.433	0	0.77	61.499	7.047	3.78	21.61	0.521	0.615
0.77	12.674	37.021	37.486	37.486	6.92	0.438	0	0.768	61.817	7.037	3.746	21.59	0.529	0.618
0.78	12.743	37.637	38.106	38.106	6.922	0.444	0	0.767	62.142	7.026	3.714	21.59	0.537	0.621
0.79	12.812	38.257	38.729	38.729	6.923	0.45	0	0.765	62.468	7.015	3.682	21.58	0.546	0.625
0.8	12.883	38.879	39.356	39.356	6.924	0.456	0	0.764	62.799	7.004	3.652	21.59	0.554	0.628
0.81	12.954	39.506	39.985	39.985	6.925	0.461	0	0.762	63.132	6.992	3.623	21.6	0.563	0.631
0.82	13.026	40.135	40.619	40.619	6.926	0.467	0	0.761	63.469	6.98	3.595	21.61	0.573	0.635
0.83	13.098	40.768	41.255	41.255	6.927	0.473	0	0.759	63.809	6.968	3.568	21.63	0.582	0.638
0.84	13.171	41.404	41.895	41.895	6.927	0.479	0	0.757	64.151	6.955	3.541	21.65	0.591	0.642
0.85	13.244	42.044	42.539	42.539	6.927	0.485	0	0.756	64.497	6.942	3.516	21.68	0.601	0.645
0.86	13.318	42.687	43.185	43.185	6.927	0.49	0	0.754	64.844	6.929	3.491	21.71	0.611	0.648
0.87	13.392	43.333	43.836	43.836	6.927	0.496	0	0.752	65.194	6.915	3.468	21.74	0.621	0.652
0.88	13.466	43.983	44.49	44.49	6.927	0.502	0	0.751	65.545	6.902	3.445	21.78	0.631	0.655
0.89	13.54	44.637	45.147	45.147	6.926	0.508	0	0.749	65.899	6.888	3.423	21.82	0.641	0.659
0.9	13.615	45.294	45.808	45.808	6.925	0.514	0	0.748	66.253	6.874	3.401	21.86	0.652	0.663
0.91	13.636	45.953	46.471	46.471	6.925	0.52	0	0.749	66.417	6.88	3.376	21.7	0.656	0.664
0.92	13.658	46.615	47.135	47.135	6.924	0.526	0	0.75	66.579	6.886	3.351	21.55	0.661	0.666
0.93	13.679	47.278	47.801	47.801	6.924	0.532	0	0.751	66.742	6.892	3.327	21.4	0.665	0.667
0.94	13.7	47.942	48.468	48.468	6.923	0.537	0	0.753	66.903	6.899	3.304	21.26	0.67	0.669
0.95	13.722	48.608	49.137	49.137	6.923	0.543	0	0.754	67.065	6.905	3.282	21.12	0.674	0.671
0.96	13.743	49.276	49.808	49.808	6.923	0.549	0	0.755	67.225	6.911	3.26	20.99	0.679	0.672
0.97	13.765	49.945	50.48	50.48	6.923	0.555	0	0.756	67.384	6.917	3.239	20.85	0.683	0.674
0.98	13.786	50.616	51.154	51.154	6.923	0.561	0	0.757	67.543	6.924	3.218	20.72	0.688	0.675
0.99	13.808	51.289	51.829	51.829	6.923	0.566	0	0.758	67.702	6.93	3.198	20.6	0.692	0.677
1	13.829	51.963	52.506	52.506	6.923	0.572	0	0.759	67.859	6.937	3.179	20.47	0.697	0.679
1.01	13.851	52.638	53.184	53.184	6.923	0.578	0	0.76	68.016	6.943	3.16	20.35	0.701	0.68

1.02	13.872	53.315	53.864	53.864	6.924	0.584	0	0.761	68.172	6.95	3.142	20.23	0.706	0.682
1.03	13.893	53.994	54.546	54.546	6.924	0.589	0	0.762	68.327	6.957	3.124	20.12	0.71	0.683
1.04	13.915	54.674	55.229	55.229	6.925	0.595	0	0.763	68.482	6.963	3.106	20.01	0.715	0.685
1.05	13.936	55.356	55.914	55.914	6.925	0.601	0	0.764	68.635	6.97	3.089	19.9	0.719	0.686
1.06	13.958	56.039	56.6	56.6	6.926	0.607	0	0.765	68.787	6.977	3.073	19.79	0.724	0.688
1.07	13.979	56.724	57.288	57.288	6.926	0.612	0	0.766	68.939	6.984	3.056	19.68	0.728	0.689
1.08	14.001	57.411	57.977	57.977	6.927	0.618	0	0.767	69.09	6.991	3.041	19.58	0.733	0.691
1.09	14.022	58.098	58.668	58.668	6.928	0.624	0	0.768	69.239	6.999	3.025	19.47	0.737	0.692
1.1	14.044	58.788	59.36	59.36	6.929	0.629	0	0.769	69.388	7.006	3.01	19.37	0.742	0.694
1.11	14.065	59.478	60.054	60.054	6.93	0.635	0	0.769	69.536	7.013	2.995	19.28	0.746	0.695
1.12	14.086	60.171	60.749	60.749	6.931	0.641	0	0.77	69.683	7.021	2.981	19.18	0.751	0.697
1.13	14.108	60.864	61.445	61.445	6.932	0.646	0	0.771	69.828	7.028	2.967	19.08	0.755	0.698
1.14	14.129	61.56	62.143	62.143	6.933	0.652	0	0.772	69.972	7.036	2.953	18.99	0.76	0.7
1.15	14.151	62.256	62.843	62.843	6.934	0.658	0	0.772	70.115	7.044	2.94	18.9	0.764	0.701
1.16	14.172	62.954	63.544	63.544	6.936	0.663	0	0.773	70.257	7.052	2.927	18.81	0.769	0.703
1.17	14.194	63.653	64.246	64.246	6.937	0.669	0	0.774	70.397	7.06	2.914	18.72	0.773	0.704
1.18	14.215	64.354	64.95	64.95	6.938	0.675	0	0.774	70.537	7.068	2.901	18.63	0.778	0.705
1.19	14.236	65.056	65.655	65.655	6.94	0.68	0	0.775	70.674	7.076	2.889	18.54	0.782	0.707
1.2	14.258	65.76	66.361	66.361	6.941	0.686	0	0.776	70.811	7.084	2.877	18.46	0.786	0.708
1.21	14.279	66.465	67.069	67.069	6.943	0.692	0	0.776	70.946	7.093	2.865	18.37	0.791	0.709
1.22	14.301	67.171	67.778	67.778	6.945	0.697	0	0.777	71.079	7.101	2.853	18.29	0.795	0.711
1.23	14.322	67.878	68.489	68.489	6.946	0.703	0	0.778	71.211	7.11	2.841	18.21	0.799	0.712
1.24	14.344	68.587	69.2	69.2	6.948	0.708	0	0.778	71.341	7.119	2.83	18.13	0.804	0.713
1.25	14.365	69.297	69.913	69.913	6.95	0.714	0	0.779	71.47	7.128	2.819	18.05	0.808	0.715
1.26	14.387	70.009	70.628	70.628	6.952	0.72	0	0.779	71.597	7.137	2.808	17.97	0.812	0.716
1.27	14.408	70.721	71.343	71.343	6.954	0.725	0	0.78	71.722	7.147	2.797	17.89	0.816	0.717
1.28	14.429	71.435	72.06	72.06	6.956	0.731	0	0.78	71.846	7.156	2.786	17.81	0.82	0.718
1.29	14.451	72.15	72.778	72.778	6.958	0.736	0	0.781	71.968	7.166	2.776	17.73	0.824	0.72
1.3	14.472	72.867	73.497	73.497	6.96	0.742	0	0.781	72.088	7.176	2.765	17.65	0.829	0.721
1.31	14.494	73.584	74.218	74.218	6.962	0.747	0	0.782	72.206	7.186	2.755	17.57	0.833	0.722
1.32	14.515	74.303	74.939	74.939	6.964	0.753	0	0.782	72.322	7.196	2.745	17.5	0.837	0.723
1.33	14.537	75.023	75.662	75.662	6.967	0.759	0	0.783	72.437	7.206	2.735	17.42	0.84	0.724
1.34	14.558	75.743	76.386	76.386	6.969	0.764	0	0.783	72.549	7.217	2.725	17.34	0.844	0.725
1.35	14.58	76.465	77.111	77.111	6.971	0.77	0	0.784	72.66	7.228	2.715	17.27	0.848	0.727
1.36	14.601	77.189	77.837	77.837	6.974	0.775	0	0.784	72.769	7.238	2.705	17.19	0.852	0.728
1.37	14.622	77.913	78.564	78.564	6.976	0.781	0	0.784	72.878	7.249	2.696	17.12	0.856	0.729
1.38	14.644	78.638	79.292	79.292	6.979	0.786	0	0.785	72.988	7.26	2.687	17.05	0.86	0.73
1.39	14.665	79.364	80.021	80.021	6.982	0.792	0	0.785	73.097	7.271	2.678	16.98	0.863	0.731
1.4	14.687	80.092	80.752	80.752	6.984	0.797	0	0.785	73.206	7.282	2.669	16.91	0.867	0.732
1.41	14.708	80.82	81.483	81.483	6.987	0.803	0	0.786	73.316	7.293	2.661	16.84	0.871	0.733
1.42	14.73	81.55	82.216	82.216	6.99	0.808	0	0.786	73.425	7.304	2.652	16.77	0.875	0.734
1.43	14.751	82.281	82.949	82.949	6.993	0.814	0	0.786	73.535	7.315	2.644	16.71	0.879	0.735
1.44	14.772	83.013	83.684	83.684	6.996	0.819	0	0.787	73.644	7.325	2.636	16.64	0.883	0.736
1.45	14.794	83.746	84.42	84.42	6.999	0.825	0	0.787	73.753	7.336	2.629	16.58	0.887	0.738
1.46	14.815	84.48	85.157	85.157	7.002	0.83	0	0.787	73.863	7.347	2.621	16.52	0.891	0.739
1.47	14.837	85.215	85.895	85.895	7.005	0.836	0	0.788	73.972	7.358	2.614	16.46	0.894	0.74
1.48	14.858	85.951	86.634	86.634	7.008	0.841	0	0.788	74.081	7.369	2.607	16.4	0.898	0.741
1.49	14.88	86.688	87.374	87.374	7.011	0.847	0	0.788	74.191	7.38	2.6	16.34	0.902	0.742
1.5	14.901	87.426	88.115	88.115	7.014	0.852	0	0.788	74.3	7.391	2.594	16.28	0.906	0.743
1.51	14.923	88.166	88.858	88.858	7.017	0.858	0	0.789	74.409	7.402	2.587	16.22	0.91	0.744
1.52	14.944	88.906	89.601	89.601	7.021	0.863	0	0.789	74.519	7.412	2.581	16.17	0.914	0.745
1.53	14.965	89.648	90.346	90.346	7.024	0.869	0	0.789	74.628	7.423	2.575	16.11	0.918	0.746
1.54	14.987	90.391	91.092	91.092	7.027	0.874	0	0.789	74.738	7.434	2.569	16.06	0.922	0.747
1.55	15.008	91.134	91.838	91.838	7.031	0.88	0	0.79	74.847	7.445	2.563	16.01	0.926	0.748
1.56	15.008	91.879	92.585	92.585	7.034	0.885	0	0.791	74.878	7.448	2.556	15.91	0.927	0.749
1.57	15.008	92.624	93.333	93.333	7.037	0.891	0	0.792	74.909	7.451	2.55	15.81	0.928	0.749
1.58	15.008	93.369	94.081	94.081	7.041	0.896	0	0.793	74.939	7.454	2.544	15.71	0.929	0.749
1.59	15.008	94.114	94.829	94.829	7.044	0.902	0	0.795	74.968	7.457	2.538	15.62	0.93	0.75

1.6	15.008	94.86	95.577	95.577	7.047	0.907	0	0.796	74.996	7.459	2.532	15.52	0.931	0.75
1.61	14.708	95.598	96.327	96.327	7.05	0.912	0	0.797	73.517	7.612	2.493	14.57	0.877	0.735
1.62	14.408	96.322	97.063	97.063	7.054	0.918	0	0.798	72.037	7.764	2.455	13.67	0.825	0.72
1.63	14.108	97.031	97.784	97.784	7.059	0.923	0	0.799	70.556	7.917	2.418	12.82	0.775	0.706
1.64	13.808	97.725	98.49	98.49	7.066	0.928	0	0.8	69.074	8.069	2.382	12.01	0.727	0.691
1.65	13.507	98.405	99.182	99.182	7.072	0.933	0	0.801	67.591	8.222	2.346	11.24	0.682	0.676
1.66	13.207	99.07	99.858	99.858	7.08	0.937	0	0.802	66.107	8.374	2.311	10.51	0.638	0.661
1.67	12.986	99.719	100.52	100.52	7.088	0.942	0	0.802	64.637	8.525	2.277	9.83	0.596	0.646
1.68	12.986	100.355	101.168	101.168	7.098	0.947	0	0.802	63.227	8.67	2.244	9.21	0.558	0.632
1.69	12.986	100.978	101.807	101.807	7.107	0.951	0	0.803	62.425	8.759	2.215	8.84	0.535	0.624
1.7	12.986	101.595	102.441	102.441	7.116	0.955	0	0.803	61.85	8.819	2.189	8.59	0.522	0.618
1.71	12.986	102.206	103.07	103.07	7.126	0.96	0	0.803	61.273	8.877	2.163	8.37	0.509	0.613
1.72	12.986	102.812	103.694	103.694	7.136	0.964	0	0.803	60.696	8.932	2.137	8.16	0.497	0.607
1.73	12.986	103.411	104.311	104.311	7.146	0.968	0	0.803	60.118	8.986	2.112	7.97	0.487	0.601
1.74	12.986	104.003	104.917	104.917	7.156	0.972	0	0.803	58.939	9.088	2.082	7.66	0.467	0.589
1.75	12.986	104.58	105.506	105.506	7.167	0.976	0	0.803	57.447	9.214	2.051	7.3	0.445	0.574
1.76	12.986	105.143	106.081	106.081	7.178	0.98	0	0.803	55.954	9.338	2.02	6.96	0.423	0.56
1.77	12.986	105.691	106.641	106.641	7.189	0.984	0	0.803	54.461	9.462	1.99	6.66	0.403	0.545
1.78	12.986	106.224	107.185	107.185	7.201	0.988	0	0.802	52.966	9.583	1.96	6.38	0.385	0.53
1.79	12.986	106.741	107.715	107.715	7.212	0.991	0	0.802	51.471	9.703	1.93	6.12	0.369	0.515
1.8	12.986	107.244	108.23	108.23	7.224	0.995	0	0.801	49.974	9.82	1.9	5.89	0.353	0.5
1.81	12.986	107.733	108.73	108.73	7.236	0.998	0	0.8	48.477	9.936	1.871	5.68	0.339	0.485
1.82	12.986	108.206	109.215	109.215	7.248	1.001	0	0.8	46.979	10.049	1.842	5.49	0.327	0.47
1.83	12.986	108.664	109.685	109.685	7.26	1.005	0	0.799	45.479	10.16	1.813	5.32	0.316	0.455
1.84	12.986	109.107	110.14	110.14	7.272	1.008	0	0.798	43.979	10.267	1.785	5.17	0.306	0.44
1.85	12.986	109.536	110.581	110.581	7.284	1.011	0	0.796	42.483	10.372	1.756	5.04	0.297	0.425

Trim: 0.000 (m)

Draft	Lwl	Vol. mould	Volume	Displ FW	LCB	VCB	TCB	Cb	Aw	LCF	KMt	KMl	MCT	TpCm
(m)	*(m)*	*(m^3)*	*(m^3)*	*(tonnes)*	*(m)*	*(m)*	*(m)*		*(m^2)*	*(m)*	*(m)*	*(m)*	*(t*m/cm)*	*(t/cm)*
0.5	11.149	21.26	21.638	21.638	7.595	0.271	0	0.776	54.404	7.585	5.33	25.41	0.363	0.544
0.51	11.19	21.802	22.183	22.183	7.595	0.277	0	0.777	54.649	7.585	5.24	25.1	0.367	0.546
0.52	11.231	22.347	22.731	22.731	7.595	0.282	0	0.778	54.884	7.585	5.152	24.79	0.371	0.549
0.53	11.272	22.894	23.281	23.281	7.595	0.288	0	0.779	55.114	7.586	5.066	24.5	0.376	0.551
0.54	11.313	23.444	23.833	23.833	7.594	0.294	0	0.78	55.34	7.588	4.983	24.23	0.38	0.553
0.55	11.354	23.995	24.387	24.387	7.594	0.3	0	0.781	55.565	7.589	4.903	23.96	0.385	0.556
0.56	11.395	24.549	24.944	24.944	7.594	0.305	0	0.782	55.788	7.59	4.826	23.71	0.389	0.558
0.57	11.437	25.105	25.503	25.503	7.594	0.311	0	0.782	56.01	7.592	4.752	23.46	0.394	0.56
0.58	11.478	25.663	26.064	26.064	7.594	0.317	0	0.783	56.23	7.594	4.68	23.23	0.398	0.562
0.59	11.52	26.224	26.627	26.627	7.594	0.322	0	0.783	56.451	7.595	4.611	23	0.403	0.565
0.6	11.563	26.787	27.193	27.193	7.594	0.328	0	0.784	56.671	7.597	4.545	22.79	0.407	0.567
0.61	11.605	27.351	27.76	27.76	7.594	0.334	0	0.784	56.89	7.598	4.482	22.58	0.412	0.569
0.62	11.647	27.918	28.33	28.33	7.594	0.339	0	0.785	57.109	7.6	4.42	22.39	0.416	0.571
0.63	11.69	28.488	28.902	28.902	7.595	0.345	0	0.785	57.331	7.602	4.361	22.2	0.421	0.573
0.64	11.734	29.059	29.477	29.477	7.595	0.351	0	0.785	57.552	7.603	4.304	22.03	0.426	0.576
0.65	11.777	29.633	30.053	30.053	7.595	0.356	0	0.785	57.773	7.605	4.249	21.86	0.431	0.578
0.66	11.821	30.209	30.632	30.632	7.595	0.362	0	0.785	57.996	7.606	4.196	21.7	0.436	0.58
0.67	11.866	30.787	31.213	31.213	7.595	0.368	0	0.785	58.221	7.607	4.145	21.54	0.441	0.582
0.68	11.911	31.367	31.796	31.796	7.596	0.373	0	0.785	58.446	7.608	4.096	21.4	0.446	0.584
0.69	11.955	31.95	32.382	32.382	7.596	0.379	0	0.785	58.671	7.609	4.048	21.26	0.451	0.587
0.7	12.002	32.534	32.97	32.97	7.596	0.384	0	0.785	58.901	7.609	4.003	21.13	0.456	0.589
0.71	12.048	33.121	33.56	33.56	7.596	0.39	0	0.785	59.133	7.61	3.958	21.01	0.461	0.591
0.72	12.095	33.711	34.152	34.152	7.597	0.396	0	0.784	59.364	7.61	3.916	20.89	0.467	0.594
0.73	12.142	34.303	34.747	34.747	7.597	0.401	0	0.784	59.597	7.61	3.875	20.78	0.472	0.596
0.74	12.191	34.897	35.344	35.344	7.597	0.407	0	0.784	59.835	7.61	3.835	20.68	0.478	0.598
0.75	12.24	35.493	35.944	35.944	7.597	0.413	0	0.783	60.073	7.61	3.796	20.59	0.483	0.601
0.76	12.288	36.092	36.545	36.545	7.597	0.418	0	0.783	60.312	7.609	3.759	20.49	0.489	0.603
0.77	12.339	36.693	37.15	37.15	7.598	0.424	0	0.782	60.557	7.608	3.723	20.41	0.495	0.606

0.78	12.389	37.297	37.757	37.757	7.598	0.43	0	0.781	60.803	7.607	3.689	20.34	0.501	0.608
0.79	12.44	37.903	38.366	38.366	7.598	0.435	0	0.781	61.048	7.606	3.655	20.26	0.507	0.61
0.8	12.492	38.512	38.978	38.978	7.598	0.441	0	0.78	61.299	7.605	3.623	20.2	0.513	0.613
0.81	12.544	39.123	39.592	39.592	7.598	0.446	0	0.779	61.553	7.603	3.591	20.14	0.52	0.616
0.82	12.597	39.736	40.209	40.209	7.598	0.452	0	0.779	61.807	7.601	3.561	20.08	0.526	0.618
0.83	12.65	40.353	40.828	40.828	7.598	0.458	0	0.778	62.064	7.599	3.532	20.03	0.533	0.621
0.84	12.705	40.971	41.45	41.45	7.598	0.463	0	0.777	62.325	7.596	3.503	19.98	0.539	0.623
0.85	12.759	41.593	42.075	42.075	7.598	0.469	0	0.776	62.587	7.593	3.476	19.94	0.546	0.626
0.86	12.814	42.217	42.702	42.702	7.598	0.475	0	0.775	62.852	7.59	3.449	19.91	0.553	0.629
0.87	12.871	42.843	43.332	43.332	7.598	0.48	0	0.774	63.122	7.587	3.424	19.88	0.56	0.631
0.88	12.927	43.473	43.965	43.965	7.597	0.486	0	0.773	63.391	7.583	3.399	19.85	0.568	0.634
0.89	12.984	44.105	44.6	44.6	7.597	0.492	0	0.772	63.665	7.579	3.374	19.83	0.575	0.637
0.9	13.043	44.74	45.239	45.239	7.597	0.498	0	0.771	63.942	7.575	3.351	19.81	0.582	0.639
0.91	13.101	45.377	45.88	45.88	7.597	0.503	0	0.77	64.22	7.57	3.329	19.8	0.59	0.642
0.92	13.16	46.018	46.523	46.523	7.596	0.509	0	0.769	64.502	7.566	3.307	19.79	0.598	0.645
0.93	13.22	46.661	47.17	47.17	7.596	0.515	0	0.767	64.788	7.56	3.286	19.78	0.606	0.648
0.94	13.28	47.307	47.82	47.82	7.595	0.52	0	0.766	65.074	7.555	3.265	19.78	0.614	0.651
0.95	13.341	47.956	48.472	48.472	7.594	0.526	0	0.765	65.365	7.55	3.245	19.78	0.622	0.654
0.96	13.403	48.607	49.127	49.127	7.594	0.532	0	0.764	65.658	7.544	3.226	19.79	0.631	0.657
0.97	13.464	49.262	49.786	49.786	7.593	0.537	0	0.762	65.951	7.538	3.207	19.8	0.639	0.66
0.98	13.528	49.92	50.447	50.447	7.592	0.543	0	0.761	66.252	7.531	3.189	19.81	0.648	0.663
0.99	13.591	50.581	51.111	51.111	7.591	0.549	0	0.76	66.552	7.524	3.172	19.83	0.657	0.666
1	13.654	51.244	51.778	51.778	7.59	0.555	0	0.758	66.855	7.518	3.155	19.85	0.666	0.669
1.01	13.719	51.911	52.449	52.449	7.589	0.56	0	0.757	67.162	7.51	3.139	19.87	0.675	0.672
1.02	13.783	52.581	53.122	53.122	7.588	0.566	0	0.756	67.469	7.503	3.123	19.9	0.685	0.675
1.03	13.848	53.254	53.799	53.799	7.587	0.572	0	0.754	67.78	7.495	3.107	19.92	0.694	0.678
1.04	13.914	53.93	54.479	54.479	7.586	0.578	0	0.753	68.094	7.487	3.092	19.96	0.704	0.681
1.05	13.98	54.609	55.161	55.161	7.584	0.584	0	0.752	68.408	7.479	3.078	19.99	0.714	0.684
1.06	14.046	55.291	55.847	55.847	7.583	0.589	0	0.75	68.726	7.471	3.064	20.03	0.724	0.687
1.07	14.113	55.976	56.537	56.537	7.582	0.595	0	0.749	69.045	7.462	3.051	20.07	0.734	0.69
1.08	14.18	56.665	57.229	57.229	7.58	0.601	0	0.747	69.367	7.453	3.037	20.11	0.744	0.694
1.09	14.247	57.357	57.925	57.925	7.578	0.607	0	0.746	69.69	7.445	3.025	20.15	0.755	0.697
1.1	14.314	58.052	58.624	58.624	7.577	0.613	0	0.745	70.014	7.435	3.013	20.19	0.765	0.7
1.11	14.382	58.75	59.326	59.326	7.575	0.618	0	0.743	70.34	7.426	3.001	20.24	0.776	0.703
1.12	14.45	59.452	60.031	60.031	7.573	0.624	0	0.742	70.668	7.417	2.989	20.29	0.787	0.707
1.13	14.518	60.157	60.74	60.74	7.571	0.63	0	0.74	70.997	7.407	2.978	20.34	0.798	0.71
1.14	14.586	60.865	61.452	61.452	7.569	0.636	0	0.739	71.327	7.398	2.967	20.39	0.809	0.713
1.15	14.654	61.576	62.167	62.167	7.567	0.642	0	0.738	71.657	7.388	2.957	20.44	0.821	0.717
1.16	14.677	62.29	62.884	62.884	7.565	0.648	0	0.739	71.826	7.395	2.944	20.35	0.826	0.718
1.17	14.7	63.005	63.603	63.603	7.563	0.653	0	0.74	71.993	7.402	2.931	20.26	0.832	0.72
1.18	14.723	63.723	64.323	64.323	7.561	0.659	0	0.74	72.161	7.41	2.919	20.18	0.837	0.722
1.19	14.746	64.442	65.045	65.045	7.56	0.665	0	0.741	72.327	7.417	2.907	20.09	0.842	0.723
1.2	14.769	65.162	65.768	65.768	7.558	0.671	0	0.742	72.493	7.424	2.895	20.01	0.848	0.725
1.21	14.792	65.884	66.494	66.494	7.557	0.677	0	0.743	72.658	7.432	2.883	19.93	0.853	0.727
1.22	14.815	66.608	67.221	67.221	7.556	0.683	0	0.744	72.822	7.439	2.872	19.85	0.859	0.728
1.23	14.838	67.334	67.949	67.949	7.554	0.688	0	0.745	72.986	7.447	2.862	19.77	0.864	0.73
1.24	14.862	68.061	68.679	68.679	7.553	0.694	0	0.745	73.149	7.454	2.851	19.69	0.87	0.731
1.25	14.885	68.789	69.411	69.411	7.552	0.7	0	0.746	73.311	7.462	2.841	19.62	0.875	0.733
1.26	14.908	69.52	70.144	70.144	7.552	0.706	0	0.747	73.472	7.47	2.831	19.54	0.881	0.735
1.27	14.931	70.252	70.879	70.879	7.551	0.712	0	0.748	73.632	7.478	2.821	19.47	0.886	0.736
1.28	14.954	70.985	71.616	71.616	7.55	0.717	0	0.748	73.792	7.486	2.811	19.4	0.892	0.738
1.29	14.977	71.72	72.354	72.354	7.549	0.723	0	0.749	73.95	7.493	2.802	19.33	0.897	0.74
1.3	15	72.457	73.094	73.094	7.549	0.729	0	0.75	74.108	7.502	2.793	19.26	0.903	0.741
1.31	15	73.195	73.835	73.835	7.549	0.735	0	0.751	74.181	7.501	2.783	19.12	0.905	0.742
1.32	15	73.933	74.576	74.576	7.548	0.741	0	0.753	74.253	7.501	2.773	18.99	0.907	0.743
1.33	15	74.672	75.318	75.318	7.548	0.746	0	0.755	74.322	7.5	2.763	18.86	0.91	0.743
1.34	15	75.412	76.06	76.06	7.547	0.752	0	0.757	74.389	7.5	2.753	18.73	0.912	0.744

1.35	15	76.153	76.804	76.804	7.547	0.758	0	0.759	74.455	7.5	2.744	18.61	0.914	0.745
1.36	15	76.894	77.548	77.548	7.546	0.764	0	0.76	74.518	7.499	2.735	18.48	0.916	0.745
1.37	15	77.636	78.292	78.292	7.546	0.769	0	0.762	74.58	7.499	2.726	18.36	0.918	0.746
1.38	15	78.378	79.037	79.037	7.545	0.775	0	0.764	74.639	7.499	2.717	18.23	0.92	0.746
1.39	15	79.121	79.783	79.783	7.545	0.781	0	0.765	74.696	7.498	2.708	18.11	0.922	0.747
1.4	15	79.865	80.529	80.529	7.544	0.786	0	0.767	74.751	7.498	2.7	17.99	0.924	0.748
1.41	15	80.609	81.276	81.276	7.544	0.792	0	0.769	74.804	7.498	2.691	17.87	0.925	0.748
1.42	15	81.354	82.023	82.023	7.544	0.798	0	0.77	74.855	7.497	2.683	17.75	0.927	0.749
1.43	15	82.099	82.771	82.771	7.543	0.803	0	0.772	74.904	7.497	2.674	17.63	0.929	0.749
1.44	15	82.844	83.519	83.519	7.543	0.809	0	0.773	74.95	7.497	2.666	17.51	0.93	0.75
1.45	15	83.59	84.268	84.268	7.542	0.815	0	0.775	74.994	7.497	2.658	17.4	0.932	0.75
1.46	15	84.337	85.017	85.017	7.542	0.82	0	0.776	75.036	7.497	2.65	17.28	0.933	0.75
1.47	15	85.084	85.767	85.767	7.542	0.826	0	0.778	75.076	7.497	2.642	17.17	0.934	0.751
1.48	15	85.831	86.517	86.517	7.541	0.832	0	0.779	75.113	7.496	2.634	17.05	0.936	0.751
1.49	15	86.578	87.267	87.267	7.541	0.837	0	0.781	75.148	7.496	2.627	16.94	0.937	0.751
1.5	15	87.326	88.018	88.018	7.54	0.843	0	0.782	75.18	7.496	2.619	16.83	0.938	0.752
1.51	15	88.074	88.768	88.768	7.54	0.848	0	0.784	75.21	7.496	2.612	16.71	0.939	0.752
1.52	15	88.823	89.52	89.52	7.54	0.854	0	0.785	75.237	7.496	2.604	16.6	0.94	0.752
1.53	15	89.572	90.271	90.271	7.539	0.86	0	0.787	75.262	7.496	2.597	16.49	0.941	0.753
1.54	15	90.321	91.023	91.023	7.539	0.865	0	0.788	75.285	7.497	2.589	16.38	0.941	0.753
1.55	15	91.07	91.774	91.774	7.539	0.871	0	0.789	75.305	7.497	2.582	16.27	0.942	0.753
1.56	15	91.819	92.526	92.526	7.538	0.876	0	0.791	75.322	7.497	2.574	16.16	0.943	0.753
1.57	15	92.569	93.279	93.279	7.538	0.882	0	0.792	75.337	7.497	2.567	16.05	0.943	0.753
1.58	15	93.318	94.031	94.031	7.538	0.887	0	0.794	75.349	7.498	2.56	15.94	0.944	0.753
1.59	15	94.068	94.783	94.783	7.537	0.893	0	0.795	75.359	7.498	2.553	15.83	0.944	0.754
1.6	15	94.818	95.536	95.536	7.537	0.899	0	0.796	75.366	7.499	2.546	15.72	0.944	0.754
1.61	15	95.568	96.288	96.288	7.537	0.904	0	0.797	75.37	7.499	2.538	15.61	0.944	0.754
1.62	15	96.318	97.041	97.041	7.536	0.91	0	0.799	75.374	7.5	2.531	15.51	0.944	0.754
1.63	15	97.068	97.793	97.793	7.536	0.915	0	0.8	75.377	7.5	2.525	15.4	0.944	0.754
1.64	15	97.818	98.546	98.546	7.536	0.921	0	0.801	75.379	7.5	2.518	15.3	0.944	0.754
1.65	15	98.568	99.298	99.298	7.536	0.926	0	0.802	75.38	7.5	2.511	15.19	0.944	0.754
1.66	15	99.318	100.051	100.051	7.535	0.932	0	0.804	75.379	7.5	2.505	15.09	0.944	0.754
1.67	15	100.068	100.804	100.804	7.535	0.937	0	0.805	75.379	7.5	2.498	14.99	0.944	0.754
1.68	15	100.818	101.556	101.556	7.535	0.942	0	0.806	75.379	7.5	2.492	14.89	0.944	0.754
1.69	15	101.568	102.309	102.309	7.535	0.948	0	0.807	75.379	7.5	2.486	14.79	0.944	0.754
1.7	15	102.318	103.061	103.061	7.534	0.953	0	0.808	75.38	7.5	2.48	14.7	0.944	0.754
1.71	15	103.068	103.814	103.814	7.534	0.959	0	0.809	75.38	7.5	2.475	14.6	0.944	0.754
1.72	15	103.818	104.567	104.567	7.534	0.964	0	0.811	75.379	7.5	2.469	14.51	0.944	0.754
1.73	15	104.568	105.319	105.319	7.534	0.97	0	0.812	75.379	7.5	2.464	14.42	0.944	0.754
1.74	15	105.318	106.072	106.072	7.533	0.975	0	0.813	75.38	7.5	2.459	14.33	0.944	0.754
1.75	15	106.068	106.824	106.824	7.533	0.981	0	0.814	75.38	7.5	2.454	14.24	0.944	0.754
1.76	15	106.818	107.577	107.577	7.533	0.986	0	0.815	75.379	7.5	2.449	14.15	0.944	0.754
1.77	15	107.568	108.33	108.33	7.533	0.991	0	0.816	75.38	7.5	2.444	14.06	0.944	0.754
1.78	15	108.318	109.082	109.082	7.532	0.997	0	0.817	75.38	7.5	2.439	13.98	0.944	0.754
1.79	15	109.068	109.835	109.835	7.532	1.002	0	0.818	75.38	7.5	2.435	13.9	0.944	0.754
1.8	15	109.818	110.587	110.587	7.532	1.008	0	0.819	75.38	7.5	2.43	13.81	0.944	0.754
1.81	15	110.568	111.34	111.34	7.532	1.013	0	0.82	75.38	7.5	2.426	13.73	0.944	0.754
1.82	15	111.318	112.093	112.093	7.532	1.018	0	0.821	75.38	7.5	2.422	13.65	0.944	0.754
1.83	15	112.068	112.845	112.845	7.531	1.024	0	0.822	75.38	7.5	2.418	13.57	0.944	0.754
1.84	15	112.818	113.598	113.598	7.531	1.029	0	0.823	75.38	7.5	2.414	13.49	0.944	0.754
1.85	15	113.568	114.35	114.35	7.531	1.034	0	0.824	71.188	7.779	2.379	12.62	0.883	0.712

Trim: 0.500 (m)

Draft	Lwl	Vol. mould	Volume	Displ FW	LCB	VCB	TCB	Cb	Aw	LCF	KMt	KMl	MCT	TpCm
(m)	*(m)*	*(m^3)*	*(m^3)*	*(tonnes)*	*(m)*	*(m)*	*(m)*		*(m^2)*	*(m)*	*(m)*	*(m)*	*(t*m/cm)*	*(t/cm)*
0.5	11.312	21.81	22.19	22.19	8.42	0.29	0	0.785	54.303	8.032	5.061	25.33	0.37	0.543
0.51	11.355	22.351	22.735	22.735	8.411	0.296	0	0.785	54.639	8.03	5.001	25.07	0.376	0.546
0.52	11.399	22.896	23.283	23.283	8.402	0.302	0	0.786	54.968	8.027	4.942	24.83	0.381	0.55

0.53	11.442	23.444	23.834	23.834	8.393	0.307	0	0.786	55.285	8.025	4.883	24.59	0.386	0.553
0.54	11.484	23.996	24.389	24.389	8.385	0.313	0	0.787	55.595	8.024	4.824	24.36	0.391	0.556
0.55	11.527	24.55	24.946	24.946	8.377	0.318	0	0.787	55.896	8.022	4.766	24.15	0.396	0.559
0.56	11.57	25.107	25.506	25.506	8.369	0.324	0	0.787	56.19	8.021	4.709	23.93	0.401	0.562
0.57	11.612	25.667	26.069	26.069	8.361	0.329	0	0.788	56.473	8.021	4.652	23.73	0.407	0.565
0.58	11.654	26.23	26.635	26.635	8.354	0.335	0	0.788	56.749	8.02	4.596	23.53	0.412	0.567
0.59	11.696	26.795	27.204	27.204	8.347	0.341	0	0.788	57.016	8.021	4.54	23.34	0.417	0.57
0.6	11.738	27.364	27.775	27.775	8.341	0.346	0	0.789	57.277	8.021	4.484	23.15	0.422	0.573
0.61	11.78	27.934	28.349	28.349	8.334	0.352	0	0.789	57.529	8.022	4.43	22.96	0.427	0.575
0.62	11.821	28.507	28.925	28.925	8.328	0.357	0	0.789	57.776	8.024	4.376	22.78	0.432	0.578
0.63	11.863	29.083	29.504	29.504	8.322	0.363	0	0.79	58.018	8.026	4.323	22.61	0.438	0.58
0.64	11.905	29.661	30.085	30.085	8.316	0.369	0	0.79	58.257	8.028	4.272	22.44	0.443	0.583
0.65	11.947	30.242	30.668	30.668	8.311	0.374	0	0.79	58.492	8.03	4.222	22.28	0.448	0.585
0.66	11.988	30.824	31.254	31.254	8.306	0.38	0	0.79	58.725	8.033	4.173	22.12	0.453	0.587
0.67	12.03	31.409	31.842	31.842	8.301	0.385	0	0.79	58.955	8.036	4.125	21.96	0.458	0.59
0.68	12.072	31.997	32.432	32.432	8.296	0.391	0	0.79	59.184	8.039	4.079	21.81	0.463	0.592
0.69	12.113	32.586	33.025	33.025	8.292	0.397	0	0.79	59.41	8.042	4.034	21.67	0.468	0.594
0.7	12.155	33.178	33.619	33.619	8.287	0.402	0	0.79	59.636	8.045	3.991	21.53	0.474	0.596
0.71	12.197	33.772	34.216	34.216	8.283	0.408	0	0.79	59.86	8.048	3.949	21.39	0.479	0.599
0.72	12.239	34.368	34.816	34.816	8.279	0.413	0	0.79	60.083	8.052	3.908	21.26	0.484	0.601
0.73	12.281	34.967	35.417	35.417	8.275	0.419	0	0.79	60.306	8.055	3.868	21.14	0.489	0.603
0.74	12.323	35.568	36.021	36.021	8.272	0.425	0	0.79	60.529	8.059	3.829	21.02	0.495	0.605
0.75	12.365	36.171	36.627	36.627	8.268	0.43	0	0.79	60.75	8.062	3.792	20.9	0.5	0.608
0.76	12.408	36.776	37.235	37.235	8.265	0.436	0	0.79	60.971	8.066	3.755	20.79	0.505	0.61
0.77	12.45	37.383	37.845	37.845	8.262	0.441	0	0.79	61.192	8.069	3.72	20.68	0.511	0.612
0.78	12.493	37.993	38.458	38.458	8.259	0.447	0	0.789	61.414	8.072	3.686	20.57	0.516	0.614
0.79	12.536	38.605	39.073	39.073	8.256	0.453	0	0.789	61.636	8.076	3.652	20.47	0.522	0.616
0.8	12.579	39.218	39.69	39.69	8.253	0.458	0	0.789	61.857	8.079	3.62	20.38	0.527	0.619
0.81	12.622	39.835	40.309	40.309	8.25	0.464	0	0.789	62.078	8.083	3.589	20.29	0.533	0.621
0.82	12.666	40.453	40.93	40.93	8.248	0.47	0	0.788	62.302	8.086	3.558	20.2	0.538	0.623
0.83	12.71	41.074	41.554	41.554	8.246	0.475	0	0.788	62.525	8.089	3.529	20.11	0.544	0.625
0.84	12.754	41.696	42.18	42.18	8.243	0.481	0	0.787	62.749	8.093	3.5	20.03	0.55	0.627
0.85	12.798	42.322	42.808	42.808	8.241	0.486	0	0.787	62.973	8.096	3.473	19.96	0.556	0.63
0.86	12.844	42.949	43.438	43.438	8.239	0.492	0	0.787	63.2	8.098	3.446	19.89	0.562	0.632
0.87	12.889	43.578	44.071	44.071	8.237	0.498	0	0.786	63.428	8.101	3.42	19.82	0.568	0.634
0.88	12.934	44.21	44.706	44.706	8.235	0.503	0	0.786	63.655	8.104	3.394	19.75	0.574	0.637
0.89	12.98	44.844	45.343	45.343	8.233	0.509	0	0.785	63.884	8.107	3.37	19.69	0.58	0.639
0.9	13.027	45.481	45.983	45.983	8.232	0.515	0	0.784	64.117	8.109	3.346	19.63	0.586	0.641
0.91	13.074	46.12	46.624	46.624	8.23	0.52	0	0.784	64.35	8.111	3.323	19.58	0.592	0.643
0.92	13.121	46.761	47.269	47.269	8.228	0.526	0	0.783	64.582	8.113	3.3	19.53	0.599	0.646
0.93	13.168	47.404	47.915	47.915	8.227	0.532	0	0.783	64.818	8.115	3.278	19.48	0.605	0.648
0.94	13.217	48.05	48.564	48.564	8.226	0.537	0	0.782	65.058	8.117	3.257	19.44	0.612	0.651
0.95	13.265	48.698	49.216	49.216	8.224	0.543	0	0.781	65.297	8.119	3.236	19.4	0.619	0.653
0.96	13.314	49.348	49.869	49.869	8.223	0.549	0	0.78	65.536	8.12	3.216	19.37	0.626	0.655
0.97	13.364	50.001	50.525	50.525	8.221	0.554	0	0.78	65.78	8.121	3.197	19.33	0.633	0.658
0.98	13.414	50.657	51.184	51.184	8.22	0.56	0	0.779	66.026	8.122	3.178	19.31	0.64	0.66
0.99	13.464	51.314	51.845	51.845	8.219	0.566	0	0.778	66.272	8.123	3.16	19.28	0.647	0.663
1	13.515	51.975	52.509	52.509	8.218	0.571	0	0.777	66.519	8.124	3.142	19.25	0.654	0.665
1.01	13.567	52.637	53.175	53.175	8.217	0.577	0	0.776	66.771	8.124	3.125	19.24	0.661	0.668
1.02	13.619	53.303	53.843	53.843	8.215	0.583	0	0.775	67.024	8.124	3.108	19.22	0.669	0.67
1.03	13.671	53.97	54.514	54.514	8.214	0.588	0	0.774	67.276	8.125	3.092	19.2	0.677	0.673
1.04	13.724	54.641	55.188	55.188	8.213	0.594	0	0.773	67.534	8.124	3.077	19.19	0.684	0.675
1.05	13.777	55.314	55.864	55.864	8.212	0.6	0	0.772	67.793	8.124	3.061	19.19	0.692	0.678
1.06	13.806	55.989	56.542	56.542	8.211	0.606	0	0.773	67.962	8.114	3.045	19.1	0.697	0.68
1.07	13.835	56.665	57.222	57.222	8.21	0.611	0	0.773	68.132	8.104	3.029	19.02	0.702	0.681
1.08	13.865	57.344	57.904	57.904	8.208	0.617	0	0.773	68.304	8.094	3.013	18.95	0.708	0.683
1.09	13.895	58.024	58.587	58.587	8.207	0.623	0	0.774	68.477	8.083	2.998	18.88	0.713	0.685

1.1	13.925	58.706	59.272	59.272	8.205	0.628	0	0.774	68.649	8.072	2.983	18.8	0.718	0.686
1.11	13.956	59.389	59.958	59.958	8.204	0.634	0	0.774	68.825	8.061	2.968	18.74	0.724	0.688
1.12	13.988	60.075	60.647	60.647	8.202	0.64	0	0.774	69.001	8.049	2.954	18.67	0.729	0.69
1.13	14.019	60.762	61.337	61.337	8.2	0.645	0	0.774	69.176	8.038	2.94	18.61	0.735	0.692
1.14	14.052	61.45	62.029	62.029	8.198	0.651	0	0.774	69.355	8.025	2.927	18.55	0.74	0.694
1.15	14.085	62.141	62.722	62.722	8.196	0.657	0	0.774	69.534	8.013	2.914	18.5	0.746	0.695
1.16	14.117	62.833	63.418	63.418	8.194	0.662	0	0.775	69.713	8	2.901	18.44	0.752	0.697
1.17	14.151	63.528	64.115	64.115	8.192	0.668	0	0.774	69.894	7.987	2.889	18.39	0.758	0.699
1.18	14.185	64.224	64.814	64.814	8.189	0.674	0	0.774	70.077	7.974	2.877	18.34	0.764	0.701
1.19	14.22	64.921	65.515	65.515	8.187	0.679	0	0.774	70.258	7.96	2.865	18.3	0.769	0.703
1.2	14.254	65.621	66.218	66.218	8.184	0.685	0	0.774	70.442	7.946	2.854	18.25	0.775	0.704
1.21	14.29	66.322	66.923	66.923	8.182	0.69	0	0.774	70.627	7.932	2.843	18.21	0.782	0.706
1.22	14.325	67.026	67.629	67.629	8.179	0.696	0	0.774	70.812	7.917	2.832	18.17	0.788	0.708
1.23	14.361	67.731	68.338	68.338	8.176	0.702	0	0.774	70.998	7.903	2.821	18.13	0.794	0.71
1.24	14.397	68.438	69.048	69.048	8.173	0.707	0	0.774	71.185	7.887	2.811	18.09	0.8	0.712
1.25	14.434	69.147	69.76	69.76	8.17	0.713	0	0.773	71.372	7.872	2.801	18.06	0.807	0.714
1.26	14.471	69.857	70.474	70.474	8.167	0.719	0	0.773	71.56	7.856	2.791	18.02	0.813	0.716
1.27	14.508	70.57	71.19	71.19	8.164	0.724	0	0.773	71.749	7.84	2.782	17.99	0.819	0.717
1.28	14.545	71.284	71.908	71.908	8.16	0.73	0	0.772	71.938	7.824	2.772	17.96	0.826	0.719
1.29	14.583	72.001	72.627	72.627	8.157	0.735	0	0.772	72.127	7.808	2.763	17.93	0.833	0.721
1.3	14.621	72.719	73.349	73.349	8.153	0.741	0	0.772	72.318	7.791	2.754	17.9	0.839	0.723
1.31	14.659	73.439	74.072	74.072	8.15	0.747	0	0.771	72.507	7.774	2.745	17.87	0.846	0.725
1.32	14.697	74.161	74.798	74.798	8.146	0.752	0	0.771	72.698	7.757	2.737	17.85	0.853	0.727
1.33	14.736	74.885	75.525	75.525	8.142	0.758	0	0.771	72.889	7.74	2.728	17.82	0.859	0.729
1.34	14.774	75.611	76.254	76.254	8.138	0.763	0	0.77	73.079	7.722	2.72	17.8	0.866	0.731
1.35	14.813	76.339	76.985	76.985	8.134	0.769	0	0.77	73.27	7.704	2.712	17.78	0.873	0.733
1.36	14.852	77.068	77.718	77.718	8.129	0.775	0	0.77	73.461	7.686	2.704	17.75	0.88	0.735
1.37	14.891	77.8	78.453	78.453	8.125	0.78	0	0.769	73.651	7.668	2.697	17.73	0.887	0.737
1.38	14.93	78.533	79.19	79.19	8.121	0.786	0	0.769	73.842	7.649	2.689	17.71	0.894	0.738
1.39	14.969	79.268	79.928	79.928	8.116	0.791	0	0.768	74.031	7.631	2.682	17.69	0.9	0.74
1.4	15.008	80.005	80.669	80.669	8.112	0.797	0	0.768	74.22	7.612	2.674	17.67	0.907	0.742
1.41	15.008	80.744	81.41	81.41	8.107	0.802	0	0.769	74.267	7.608	2.666	17.55	0.909	0.743
1.42	15.008	81.483	82.151	82.151	8.103	0.808	0	0.771	74.314	7.603	2.657	17.43	0.91	0.743
1.43	15.008	82.222	82.893	82.893	8.098	0.814	0	0.772	74.36	7.599	2.648	17.31	0.912	0.744
1.44	15.008	82.962	83.636	83.636	8.094	0.819	0	0.774	74.405	7.595	2.64	17.2	0.913	0.744
1.45	15.008	83.702	84.379	84.379	8.089	0.825	0	0.775	74.449	7.591	2.632	17.08	0.914	0.744
1.46	15.008	84.442	85.122	85.122	8.085	0.83	0	0.777	74.492	7.587	2.624	16.97	0.916	0.745
1.47	15.008	85.183	85.865	85.865	8.08	0.836	0	0.778	74.535	7.583	2.616	16.86	0.917	0.745
1.48	15.008	85.925	86.61	86.61	8.076	0.841	0	0.78	74.577	7.579	2.609	16.75	0.918	0.746
1.49	15.008	86.667	87.354	87.354	8.072	0.847	0	0.781	74.618	7.575	2.601	16.64	0.92	0.746
1.5	15.008	87.409	88.099	88.099	8.068	0.852	0	0.782	74.659	7.572	2.594	16.53	0.921	0.747
1.51	15.008	88.152	88.844	88.844	8.063	0.858	0	0.784	74.698	7.568	2.587	16.43	0.922	0.747
1.52	15.008	88.895	89.59	89.59	8.059	0.863	0	0.785	74.737	7.564	2.581	16.32	0.923	0.747
1.53	15.008	89.638	90.336	90.336	8.055	0.869	0	0.787	74.775	7.561	2.574	16.22	0.925	0.748
1.54	15.008	90.382	91.083	91.083	8.051	0.874	0	0.788	74.812	7.557	2.567	16.12	0.926	0.748
1.55	15.008	91.126	91.83	91.83	8.047	0.88	0	0.789	74.848	7.554	2.561	16.02	0.927	0.748
1.56	15.008	91.871	92.577	92.577	8.043	0.885	0	0.791	74.883	7.551	2.555	15.92	0.928	0.749
1.57	15.008	92.615	93.324	93.324	8.039	0.891	0	0.792	74.917	7.548	2.549	15.82	0.929	0.749
1.58	15.008	93.361	94.072	94.072	8.035	0.896	0	0.793	74.951	7.544	2.543	15.73	0.93	0.75
1.59	15.008	94.106	94.82	94.82	8.031	0.901	0	0.794	74.983	7.541	2.537	15.63	0.931	0.75
1.6	15.008	94.852	95.569	95.569	8.027	0.907	0	0.796	75.014	7.538	2.531	15.54	0.932	0.75
1.61	14.708	95.591	96.319	96.319	8.024	0.912	0	0.797	73.538	7.386	2.493	14.59	0.878	0.735
1.62	14.408	96.315	97.055	97.055	8.019	0.918	0	0.798	72.061	7.233	2.456	13.69	0.826	0.721
1.63	14.108	97.024	97.777	97.777	8.013	0.923	0	0.799	70.582	7.08	2.419	12.83	0.776	0.706
1.64	13.808	97.718	98.483	98.483	8.007	0.928	0	0.8	69.103	6.928	2.383	12.02	0.728	0.691
1.65	13.507	98.398	99.175	99.175	7.999	0.933	0	0.801	67.622	6.775	2.347	11.26	0.683	0.676
1.66	13.207	99.063	99.852	99.852	7.991	0.937	0	0.801	66.141	6.623	2.312	10.53	0.639	0.661
1.67	12.907	99.713	100.514	100.514	7.982	0.942	0	0.802	64.658	6.471	2.278	9.84	0.597	0.647
1.68	12.607	100.349	101.161	101.161	7.973	0.947	0	0.802	63.175	6.318	2.244	9.2	0.556	0.632

1.69	12.307	100.969	101.793	101.793	7.963	0.951	0	0.802	61.689	6.166	2.211	8.58	0.518	0.617
1.7	12.007	101.575	102.411	102.411	7.952	0.955	0	0.802	60.203	6.014	2.178	8.01	0.481	0.602
1.71	11.706	102.166	103.014	103.014	7.941	0.959	0	0.802	58.716	5.863	2.145	7.46	0.447	0.587
1.72	11.406	102.743	103.602	103.602	7.929	0.963	0	0.802	57.227	5.711	2.113	6.95	0.413	0.572
1.73	11.106	103.304	104.175	104.175	7.917	0.967	0	0.802	55.737	5.559	2.081	6.47	0.382	0.557
1.74	10.806	103.851	104.733	104.733	7.904	0.971	0	0.802	54.246	5.408	2.05	6.01	0.352	0.542
1.75	10.506	104.383	105.276	105.276	7.891	0.974	0	0.801	52.754	5.257	2.019	5.59	0.324	0.528
1.76	10.206	104.899	105.804	105.804	7.878	0.978	0	0.801	51.26	5.105	1.988	5.19	0.297	0.513
1.77	9.905	105.401	106.318	106.318	7.865	0.981	0	0.8	49.765	4.954	1.958	4.81	0.272	0.498
1.78	9.605	105.889	106.816	106.816	7.852	0.985	0	0.799	48.269	4.803	1.928	4.46	0.248	0.483
1.79	9.305	106.361	107.3	107.3	7.838	0.988	0	0.798	46.771	4.652	1.898	4.14	0.225	0.468
1.8	9.005	106.818	107.768	107.768	7.824	0.991	0	0.797	45.273	4.502	1.868	3.84	0.204	0.453
1.81	9.005	107.26	108.222	108.222	7.81	0.994	0	0.796	43.777	4.351	1.839	3.55	0.185	0.438
1.82	9.005	107.688	108.661	108.661	7.796	0.997	0	0.795	42.276	4.201	1.81	3.29	0.166	0.423
1.83	9.005	108.1	109.084	109.084	7.783	1	0	0.794	40.773	4.05	1.78	3.05	0.149	0.408
1.84	9.005	108.498	109.493	109.493	7.769	1.002	0	0.793	39.268	3.9	1.752	2.83	0.133	0.393
1.85	9.005	108.88	109.887	109.887	7.755	1.005	0	0.791	37.763	3.75	1.723	2.62	0.118	0.378

Tabela 8 - Tabelas Hidrostáticas

5 TABELA DE CURVAS CRUZADAS DE ESTABILIDADE

OBS:

– O ponto de alagamento considerado foi a entrada para a casaria, localizada entre as caverna 4 e 5 (cotas: 2,00 m à vante do espelho de popa, 1,50 m da linha de centro e 2,05 m acima da linha de base).

– A tabela de curvas cruzadas de estabilidade só se aplica a pequenos ângulos de trim.

– A tabela foi elaborada considerando o KG na quilha.

Δ	ANGULO											
	0.0º	2.0º	5.0º	10.0º	15.0º	20.0º	25.0º	30.0º	35.0º	40.0º	50.0º	60.0º
	KN senθ											
29	0	0.151	0.374	0.713	1.018	1.283	1.476	1.618	1.721	1.776	1.783	1.696
30	0	0.148	0.367	0.703	1.004	1.27	1.467	1.612	1.715	1.768	1.775	1.688
31	0	0.145	0.361	0.693	0.992	1.258	1.459	1.607	1.708	1.76	1.766	1.68
32	0	0.142	0.354	0.683	0.98	1.246	1.45	1.601	1.701	1.751	1.756	1.671
33	0	0.139	0.348	0.674	0.968	1.235	1.442	1.595	1.692	1.742	1.747	1.663
34	0	0.137	0.342	0.665	0.957	1.223	1.433	1.588	1.684	1.732	1.737	1.655
35	0	0.134	0.336	0.657	0.947	1.212	1.425	1.581	1.675	1.722	1.727	1.646
36	0	0.132	0.331	0.649	0.937	1.201	1.417	1.573	1.665	1.712	1.717	1.638
37	0	0.13	0.325	0.641	0.928	1.19	1.409	1.565	1.655	1.701	1.707	1.629
38	0	0.128	0.321	0.634	0.919	1.18	1.401	1.556	1.645	1.691	1.696	1.621
39	0	0.126	0.316	0.627	0.911	1.17	1.393	1.546	1.634	1.679	1.686	1.613
40	0	0.124	0.312	0.62	0.903	1.161	1.385	1.536	1.623	1.668	1.675	1.605
41	0	0.123	0.308	0.613	0.895	1.152	1.377	1.526	1.612	1.656	1.664	1.597
42	0	0.121	0.304	0.607	0.887	1.143	1.368	1.516	1.6	1.644	1.654	1.589
43	0	0.12	0.3	0.601	0.88	1.135	1.36	1.505	1.588	1.632	1.643	1.581
44	0	0.119	0.297	0.595	0.873	1.127	1.35	1.493	1.576	1.62	1.632	1.573
45	0	0.117	0.293	0.589	0.866	1.119	1.341	1.482	1.564	1.608	1.621	1.565
46	0	0.116	0.29	0.583	0.86	1.111	1.331	1.47	1.551	1.595	1.611	1.557
47	0	0.115	0.288	0.578	0.853	1.104	1.32	1.458	1.538	1.583	1.6	1.549
48	0	0.114	0.285	0.573	0.847	1.097	1.309	1.445	1.526	1.57	1.589	1.541
49	0	0.113	0.282	0.567	0.841	1.09	1.298	1.433	1.512	1.557	1.578	1.534
50	0	0.112	0.28	0.562	0.835	1.083	1.287	1.42	1.499	1.544	1.568	1.526
51	0	0.111	0.278	0.558	0.83	1.076	1.276	1.407	1.486	1.532	1.557	1.519
52	0	0.11	0.275	0.553	0.824	1.07	1.264	1.394	1.472	1.519	1.546	1.511
53	0	0.109	0.273	0.549	0.818	1.064	1.253	1.38	1.459	1.506	1.536	1.504
54	0	0.108	0.271	0.545	0.813	1.057	1.241	1.367	1.445	1.493	1.525	1.496
55	0	0.108	0.269	0.541	0.808	1.05	1.23	1.353	1.432	1.48	1.514	1.489
56	0	0.107	0.268	0.537	0.803	1.043	1.218	1.339	1.418	1.467	1.504	1.482
57	0	0.106	0.266	0.533	0.797	1.035	1.206	1.325	1.404	1.454	1.493	1.474
58	0	0.106	0.264	0.529	0.792	1.028	1.194	1.311	1.39	1.441	1.482	1.467
59	0	0.105	0.263	0.526	0.787	1.02	1.182	1.297	1.377	1.428	1.472	1.46
60	0	0.104	0.261	0.522	0.782	1.011	1.17	1.283	1.363	1.415	1.461	1.453
61	0	0.104	0.259	0.519	0.778	1.003	1.158	1.269	1.349	1.402	1.451	1.446

Tabela 9 - Tabela de curvas cruzadas de estabilidade

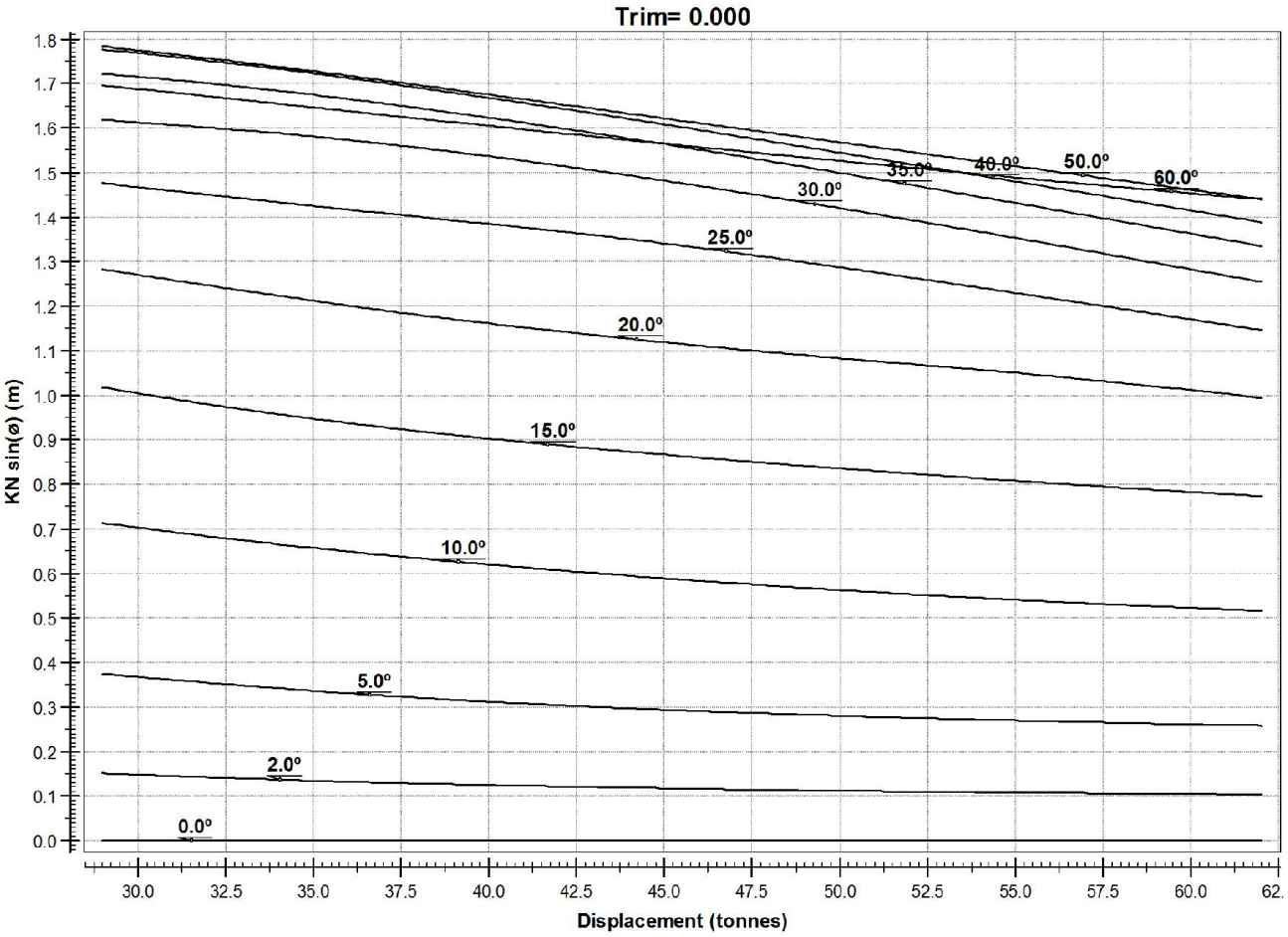


Figura 1 – Curvas Cruzadas

6 ESTABILIDADE

6.1 CONDIÇÕES DE CARREGAMENTO

NORMAM 02 Cap. 6 – Seção V 0635 – Condições de Carregamento

1) A avaliação da estabilidade deverá ser efetuada para as condições de carregamento nas quais o proprietário pretende operar a embarcação, além das condições apresentadas neste item para cada tipo de serviço específico. Sempre que o proprietário não souber informar com exatidão as condições usuais de operação da embarcação a análise poderá ficar restrita às condições de carregamento padrões apresentados a seguir.

2) Na condição de carga total, de partida deve-se supor que as embarcações estão carregadas, até a marca de borda-livre ou até o seu calado máximo permissível, com seus tanques de lastro vazios, caso a embarcação esteja isenta da atribuição de uma borda-livre.

3) Se for necessário o lastreamento com água em qualquer condição de carregamento, deverão ser analisadas condições de carregamento adicionais, levando-se em conta o lastro com água. A quantidade e a disposição da água de lastro deverão ser especificadas.

4) Em todos os casos deve ser assumido que a carga (inclusive a carga transportada no convés) é inteiramente homogênea, a menos que esta condição seja inconsis-tente com serviço normal da embarcação.

6.2 CRITÉRIOS PARA ESTABILIDADE INTACTA

REGRA NORMAM 02 E RBNA

1) O braço de endireitamento (GZ) máximo não deve ser menor que 0,2m e ocorrer a um ângulo de inclinação maior ou igual à 30°;

2) O braço de endireitamento (GZ) máximo deve ocorrer à um ângulo de inclinação maior que 25º;

3) A altura metacêntrica inicial (GMo) não deve ser inferior à 0,15m.

4) Ângulo de alagamento superior a 25º.

5) Estabilidade Dinamica Residual (Area entre as curvas de Estabilidade Estatica e o Momento de emborcamento entre o primeiro ponto de interseção entre elas e este ponto acrescido de 40º ou ate o ângulo de alagamento,o que for menor) .

6) "Escorting Heeling Moment" inferior a 15º.

6.3 ESTABILIDADE INTACTA

NOTA: A CONDIÇÃO DE CARGA MÁXIMA CONSIDERADA NESTE ESTUDO É AQUELA EM QUE A EMBARCAÇÃO ESTÁ PROVIDA DE 100% DE CONSUMÍVEIS E 25.0 TONELADAS DE CARGA NO CONVÉS. ESTA NÃO NECESSARIAMENTE É A CONDIÇÃO MAIS CRÍTICA MAS SIM AQUELA QUE ATENDE AS NECESSIDADES DO CLIENTE.

6.3.1 LISTA DE PESOS

DISCIPLINA	$PESO_I$ (t)	(+)5.25%	(+)4.00%	(+)3.00%	$PESO_F$ (t)	LCG (m)	VCG (m)	TCG (m)
ESTRUTURA	22.411	SIM	SIM	SIM	25.101	7.266	1.416	0.002
SEGURANÇA E LUZES	0.215	NÃO	NÃO	SIM	0.221	2.798	6.721	0.000
OUTFITTING	3.291	SIM	NÃO	SIM	3.554	6.154	1.469	0.089
PINTURA	0.200	NÃO	NÃO	SIM	0.206	7.500	0.950	0.000
RESULTADOS	**26.117**	**1.285**	**0.896**	**0.784**	**29.082**	**7.091**	**1.462**	**0.013**

6.3.2 RESUMO DAS CONDIÇÕES DE ESTABILIDADE

Description	Density	Draft	Trim	List	Displ.	VCG'	GM'	Complies
	(t/m)	*(m)*	*(m)*	*(Degr.)*	*(tonnes)*	*(m)*	*(m)*	
LEVE	1.0000	0.644	-0.282	0.0 (CL)	29.735	1.45	2.829	YES
DESCARREGADO + 10%	1.0000	0.671	-0.383	0.0 (CL)	31.378	1.42	2.719	YES
DESCARREGADO + 100%	1.0000	0.712	-0.53	0.0 (CL)	34.015	1.454	2.507	YES
CARREGADO PASSAGEIROS + 10%	1.0000	0.738	-0.396	0.0 (CL)	35.378	1.545	2.306	YES
CARREGADO PASSAGEIROS + 100%	1.0000	0.78	-0.538	0.0 (CL)	38.157	1.566	2.153	YES
CARREGADO CARGA + 10%	1.0000	1.096	0.142	0.0 (CL)	58.378	2.082	0.924	YES
CARREGADO CARGA + 100%	1.0000	1.136	0.031	0.0 (CL)	61.121	2.071	0.898	YES
CARREGADO PASSAGEIROS + CARGA + 10%	1.0000	0.887	-0.018	0.0 (CL)	44.378	1.844	1.54	YES
CARREGADO PASSAGEIROS + CARGA + 100%	1.0000	0.929	-0.161	0.0 (CL)	47.157	1.843	1.455	YES

6.3.3 RESUMO DOS ESFORÇOS

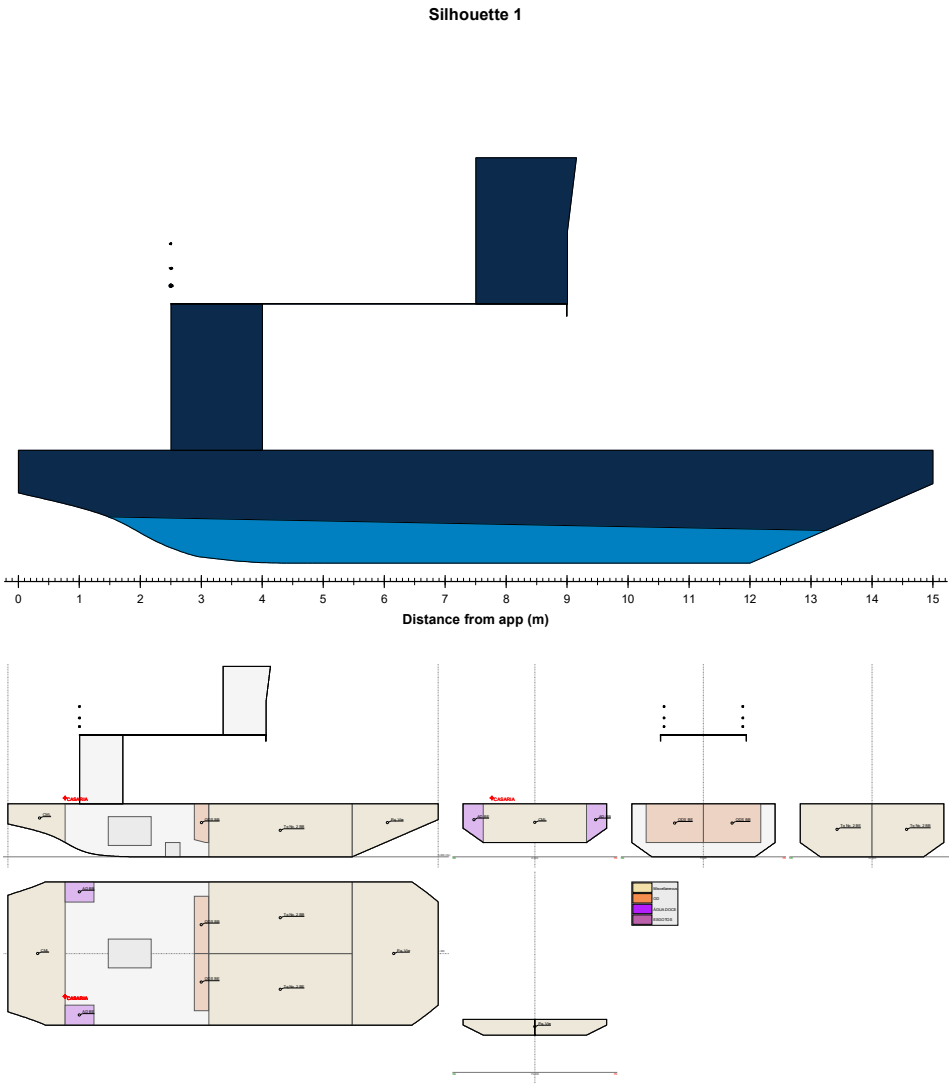
Description	SF min	X SF min	SF max	X SF max	BM min	X BM min	BM max	X BM max
	(tonnes)	*(m)*	*(tonnes)*	*(m)*	*(t*m)*	*(m)*	*(t*m)*	*(m)*
LEVE	-3.965	12.280	4.383	2.480	0.000	0.000	17.304	7.120
DESCARREGADO + 10%	-3.992	12.280	4.115	2.440	0.000	0.000	17.001	7.400
DESCARREGADO + 100%	-4.016	12.280	4.771	3.000	0.000	0.000	16.417	7.760
CARREGADO PASSAGEIROS + 10%	-3.930	12.360	3.741	2.240	0.000	14.994	15.730	7.640
CARREGADO PASSAGEIROS + 100%	-3.955	12.360	4.295	3.000	0.000	14.994	15.166	8.000
CARREGADO CARGA + 10%	-2.322	12.520	2.935	1.920	0.000	0.000	7.471	8.960
CARREGADO CARGA + 100%	-2.376	12.560	2.482	2.680	0.000	0.000	7.227	9.440
CARREGADO PASSAGEIROS + CARGA + 10%	-3.617	12.440	3.736	2.200	0.000	0.000	13.835	7.760
CARREGADO PASSAGEIROS + CARGA + 100%	-3.693	12.440	4.080	3.000	0.000	14.994	13.478	8.200

7 CONCLUSÃO

Após análise das cinco condições básicas de carregamento acima apresentadas, conclui-se que a embarcação do tipo carga geral para transporte de carga no conves com capacidade para trasnportar 25.00 t de carga no conves, satisfaz todos os critérios de estabilidade intacta das regras supra citadas.

8 ANEXO – SAÍDAS DO PROGRAMA PARA AS CONDIÇÕES ANALIZADAS

8.1 LEVE



Hydrostatic particulars

List	0.0 (CL)(Degr.)	**GG'**	0.000(m)
Draft aft pp	0.785(m)	**VCG'**	1.450(m)
Mean moulded draft	0.644(m)	**Max VCG'**	3.303(m)
Draft forward pp	0.503(m)	**GM solid**	2.829(m)
Trim	-0.282(m)	**G'M liquid**	2.829(m)
KM	4.279(m)	**Immersion rate**	0.577(t/cm)
VCG	1.450(m)	**MCT**	0.407(t*m/cm)

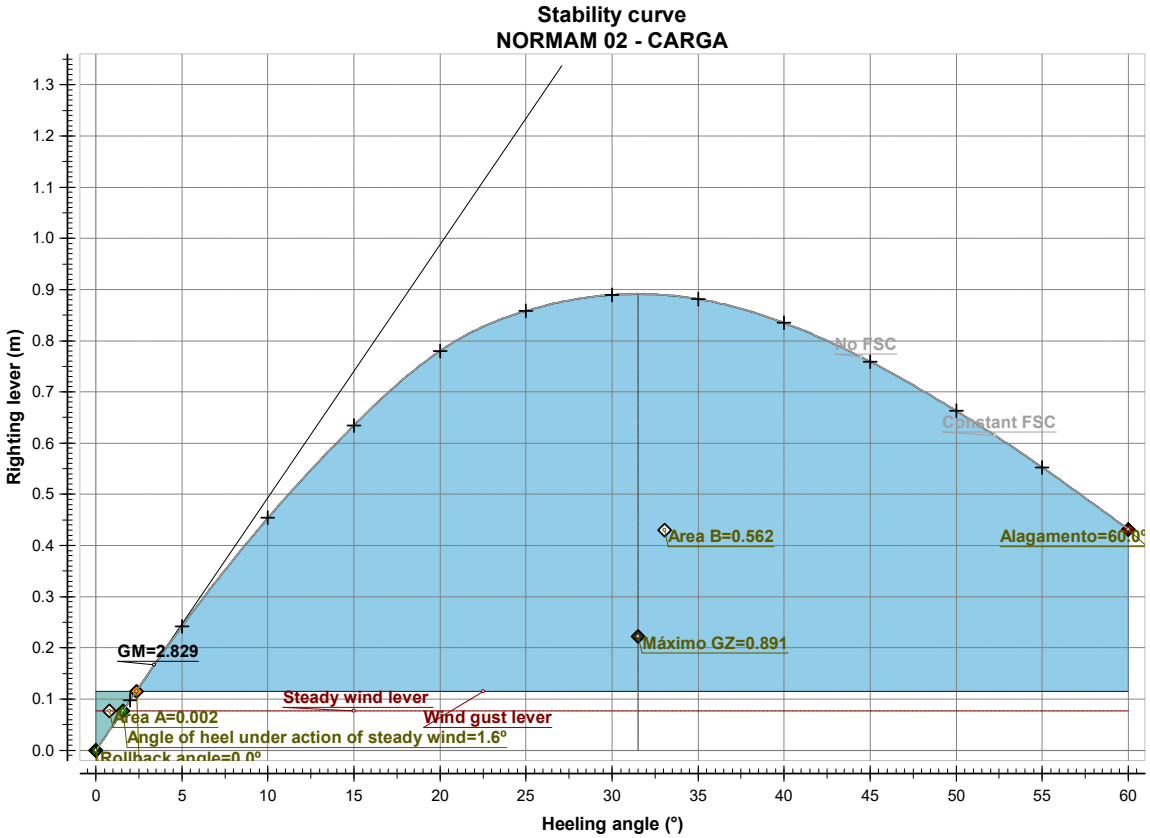
Summary

Description	Weight	LCG	TCG	VCG	FSM
	(tonnes)	*(m)*	*(m)*	*(m)*	*(t*m)*
Miscellaneous	0.000	0.000	0.000	0.000	0.000
OD	0.000	0.000	0.000	0.000	0.000
ÁGUA DOCE	0.000	0.000	0.000	0.000	0.000
Lightship	**29.735**	**7.212**	**0.000 (CL)**	**1.450**	
Deadweight	**0.000**	**0.000**	**0.000 (CL)**	**0.000**	**0.000**
Displacement	**29.735**	**7.212**	**0.000 (CL)**	**1.450**	**0.000**

Description	Density	Fill%	Weight	LCG	TCG	VCG	FSM
	(t/m³)		*(tonnes)*	*(m)*	*(m)*	*(m)*	*(t*m)*
Miscellaneous							
CML	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Tq No. 2 BE	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Tq No. 2 BB	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Pq. Vte	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Totals for Miscellaneous		**0.000**	**0.000**	**0.000 (CL)**	**0.000**	**0.000**	
OD							
ODS BB	0.8700	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
ODS BE	0.8700	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Totals for OD		**0.000**	**0.000**	**0.000 (CL)**	**0.000**	**0.000**	
ÁGUA DOCE							
AD BE	1.0000	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
AD BB	1.0000	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Totals for ÁGUA DOCE		**0.000**	**0.000**	**0.000 (CL)**	**0.000**	**0.000**	
Lightship			**29.735**	**7.212**	**0.000 (CL)**	**1.450**	
Deadweight			**0.000**	**0.000**	**0.000 (CL)**	**0.000**	**0.000**
Displacement			**29.735**	**7.212**	**0.000 (CL)**	**1.450**	**0.000**

Righting levers

Heeling angle	Draft	Trim	Displacement	KN sin(ø)	VCG sin(ø)	GG' sin(ø)	TCG cos(ø)	GZ	Area
(Degr.)	*(m)*	*(m)*	*(tonnes)*	*(m)*	*(m)*	*(m)*	*(m)*	*(m)*	*(mrad)*
0.0° (CL)	0.644	-0.282	29.735	0.000	0.000	0.000	0.000	0.000	0.000
2.0° (PS)	0.644	-0.282	29.735	0.149	0.051	0.000	0.000	0.098	0.002
5.0° (PS)	0.640	-0.284	29.735	0.369	0.126	0.000	0.000	0.242	0.011
10.0° (PS)	0.622	-0.286	29.735	0.706	0.252	0.000	0.000	0.454	0.041
15.0° (PS)	0.588	-0.282	29.735	1.010	0.375	0.000	0.000	0.635	0.089
20.0° (PS)	0.535	-0.279	29.735	1.276	0.496	0.000	0.000	0.780	0.151
25.0° (PS)	0.452	-0.284	29.735	1.471	0.613	0.000	0.000	0.859	0.223
30.0° (PS)	0.340	-0.296	29.735	1.615	0.725	0.000	0.000	0.890	0.300
35.0° (PS)	0.201	-0.335	29.735	1.713	0.832	0.000	0.000	0.881	0.377
40.0° (PS)	0.041	-0.401	29.735	1.767	0.932	0.000	0.000	0.835	0.452
45.0° (PS)	-0.145	-0.480	29.735	1.784	1.025	0.000	0.000	0.759	0.522
50.0° (PS)	-0.367	-0.574	29.735	1.774	1.111	0.000	0.000	0.663	0.584
55.0° (PS)	-0.640	-0.691	29.735	1.741	1.188	0.000	0.000	0.553	0.637
60.0° (PS)	-0.992	-0.842	29.735	1.688	1.256	0.000	0.000	0.432	0.680



Critical points

Description	Type	X coordinate	Y coordinate	Z coordinate	Dist. to wl	Submersion angle
		(m)	*(m)*	*(m)*	*(m)*	*(Degr.)*
CASARIA	Downflooding	2.000	-1.500 (SB)	2.050	1.302	-

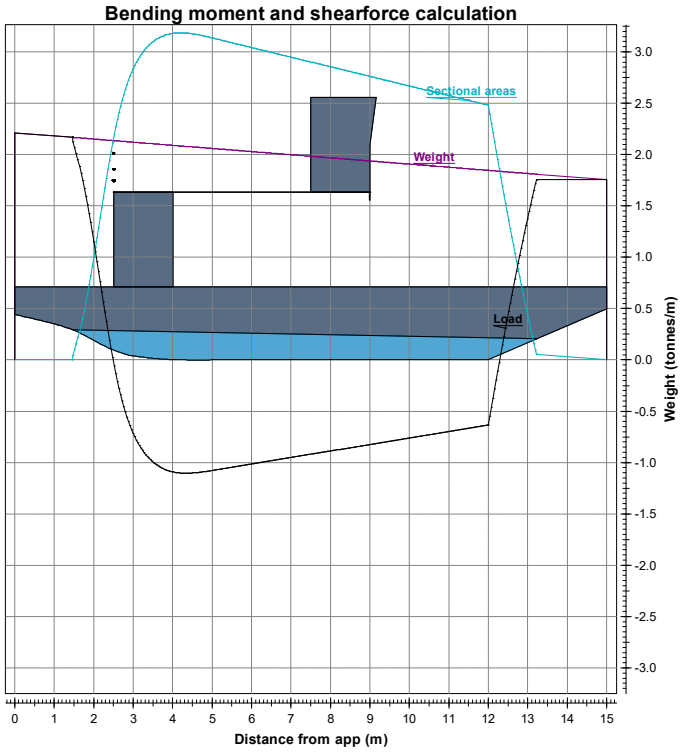
Evaluation of criteria

NORMAM 02 - CARGA

Carga NORMAM 02

Description	Attained value		Criterion	Required value		Complies
GMo	**2.829**	**(m)**	**>=**	**0.350**	**(m)**	**YES**
Alagamento	**60.0**	**(Degr.)**	**>=**	**30.0**	**(Degr.)**	**YES**
Ambiental						**YES**
Wind silhouette:	Silhouette 1					
Wind pressure	51.4(kg/m^2)					
Wind area	24.43(m^2)					
Steady wind lever	0.077(m)					
Wind gust lever	0.115(m)					
Ratio of areaA/areaB	0.004		<=	1.000		YES
Máximo GZ	**0.891**	**(m)**	**>=**	**0.150**	**(m)**	**YES**
Lower angle	0.0(Degr.)					
Upper angle	90.0(Degr.)					
Angulo de equilíbrio	**0.0**	**(Degr.)**	**<=**	**15.0**	**(Degr.)**	**YES**

The condition complies with the stability criteria



Summary

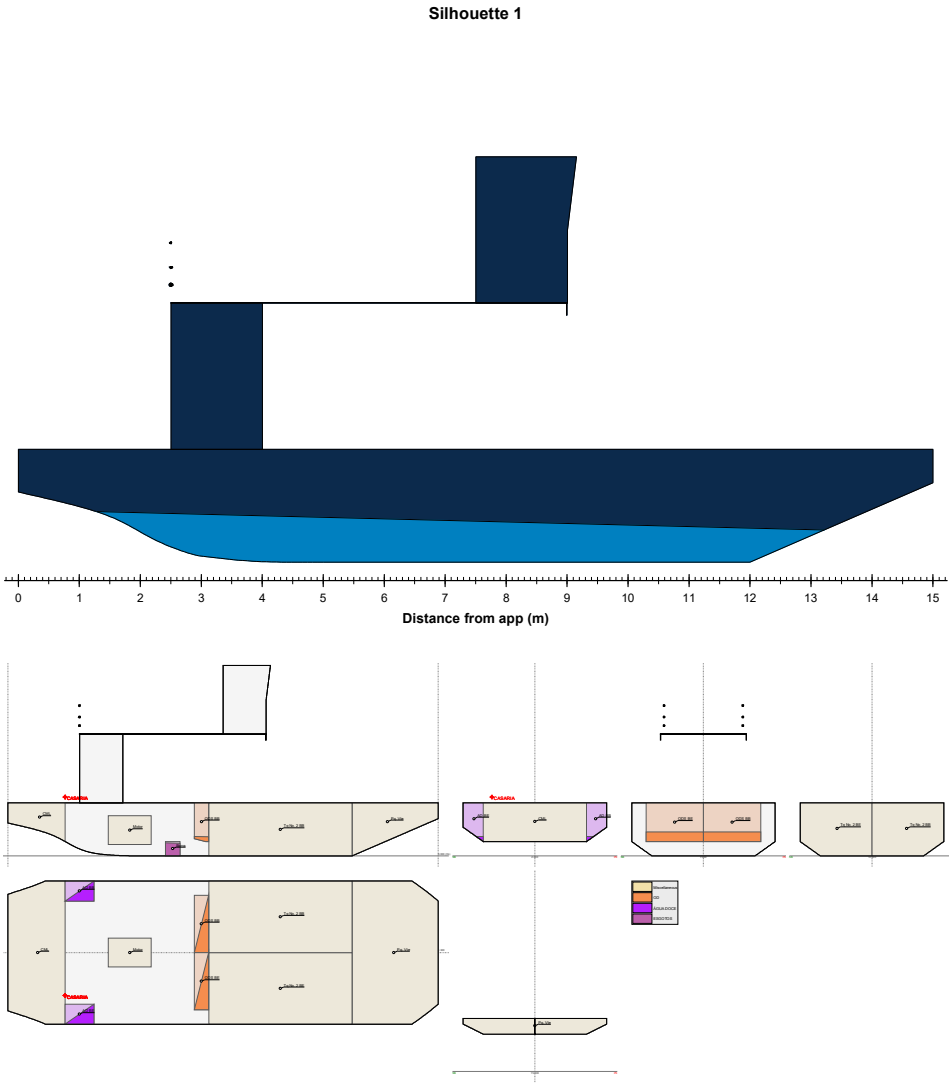
Mean moulded draft	0.644(m)	Trim	-0.282(m)
Displacement	29.735(tonnes)	GM	2.829(m)
Minimum shearforce	-3.965(tonnes)	Distance from app	12.280(m)
Maximum shearforce	4.383(tonnes)	Distance from app	2.480(m)
Maximum sagging moment	0.000(t*m)	Distance from app	0.000(m)
Maximum hogging moment	17.304(t*m)	Distance from app	7.120(m)

Bending moment and shearforce calculation

Distance from app	Weight	Buoyancy	Load	Shear force	Bending moment
(m)	*(tonnes/m)*	*(tonnes/m)*	*(tonnes/m)*	*(tonnes)*	*(t*m)*
0.003	2.212	0	2.212	0	0
1	2.181	0	2.181	2.183	1.607
2	2.151	1	1.151	4.108	4.356
3	2.12	2.836	-0.716	4.175	8.676
4	2.09	3.181	-1.091	3.211	12.416
5	2.059	3.135	-1.076	2.115	15.096
6	2.029	3.042	-1.013	1.071	16.702
7	1.998	2.948	-0.95	0.089	17.295
8	1.968	2.855	-0.887	-0.829	16.939
9	1.937	2.761	-0.824	-1.685	15.695
10	1.907	2.668	-0.761	-2.477	13.628
11	1.876	2.574	-0.698	-3.206	10.8

12	1.846	2.481	-0.635	-3.872	7.274
13	1.815	0.44	1.376	-3.462	3.458
14	1.785	0.031	1.754	-1.749	1.531
14.997	1.755	0	1.755	0	0

8.2 DESCARREGADO + 10%



Hydrostatic particulars

List	0.0 (CL)(Degr.)	**GG'**	0.023(m)
Draft aft pp	0.863(m)	**VCG'**	1.420(m)
Mean moulded draft	0.671(m)	**Max VCG'**	3.262(m)
Draft forward pp	0.479(m)	**GM solid**	2.742(m)
Trim	-0.383(m)	**G'M liquid**	2.719(m)
KM	4.139(m)	**Immersion rate**	0.585(t/cm)
VCG	1.397(m)	**MCT**	0.426(t*m/cm)

Summary

Description	Weight	LCG	TCG	VCG	FSM
	(tonnes)	*(m)*	*(m)*	*(m)*	*(t*m)*
Miscellaneous	0.000	0.000	0.000	0.000	0.000
OD	0.223	6.786	0.000	0.601	0.580
ÁGUA DOCE	0.239	2.739	0.000	1.295	0.059
ESGOTOS	1.180	4.742	0.000	0.228	0.097
Lightship	**29.735**	**7.212**	**0.000 (CL)**	**1.450**	

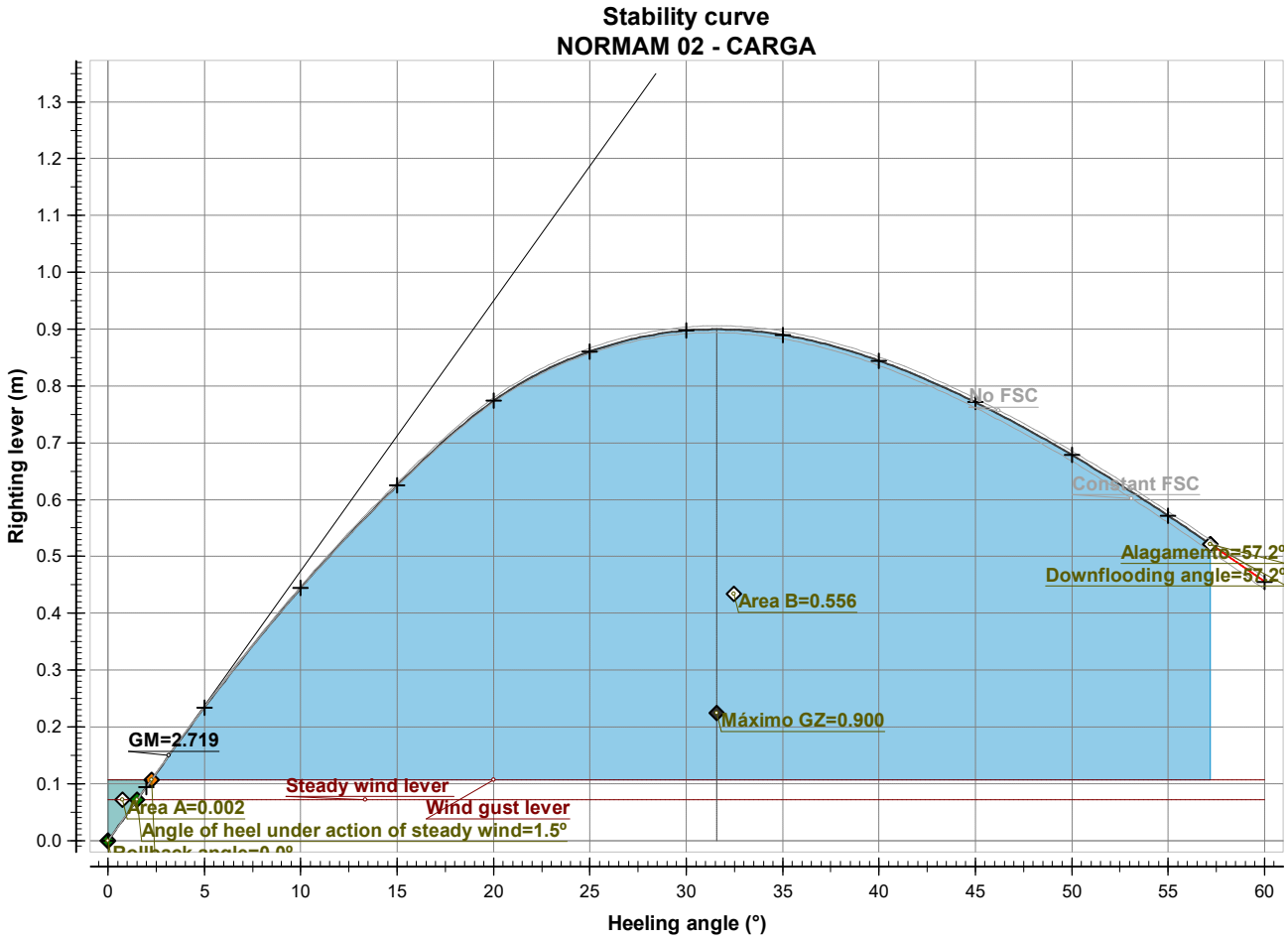
Summary

Description	Weight (tonnes)	LCG (m)	TCG (m)	VCG (m)	FSM (t*m)
Deadweight	**1.643**	**4.728**	**0.000 (CL)**	**0.434**	**0.736**
Displacement	**31.378**	**7.082**	**0.000 (CL)**	**1.397**	**0.736**

Description	Density (t/m^3)	Fill%	Weight (tonnes)	LCG (m)	TCG (m)	VCG (m)	FSM (t*m)
Miscellaneous							
CML	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Tq No. 2 BE	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Tq No. 2 BB	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Pq. Vte	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Motor	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Totals for Miscellaneous			**0.000**	**0.000**	**0.000 (CL)**	**0.000**	**0.000**
OD							
ODS BB	0.8700	10.0	0.112	6.786	1.000 (PS)	0.601	0.290
ODS BE	0.8700	10.0	0.112	6.786	-1.000 (SB)	0.601	0.290
Totals for OD			**0.223**	**6.786**	**0.000 (CL)**	**0.601**	**0.580**
ÁGUA DOCE							
AD BE	1.0000	10.3	0.094	2.667	-1.995 (SB)	0.474	0.016
AD BB	1.0000	10.3	0.094	2.667	1.995 (PS)	0.474	0.016
C. Agua	1.0000	12.9	0.051	3.000	0.000 (CL)	4.297	0.027
Totals for ÁGUA DOCE			**0.239**	**2.739**	**0.000 (CL)**	**1.295**	**0.059**
ESGOTOS							
Esg. Sanitário	1.0000	90.2	0.480	4.510	1.525 (PS)	0.229	0.028
Esg. Oleoso	1.0000	90.2	0.480	4.510	-1.525 (SB)	0.229	0.028
Borra	1.0000	90.0	0.221	5.750	0.000 (CL)	0.225	0.042
Totals for ESGOTOS			**1.180**	**4.742**	**0.000 (CL)**	**0.228**	**0.097**
Lightship			**29.735**	**7.212**	**0.000 (CL)**	**1.450**	
Deadweight			**1.643**	**4.728**	**0.000 (CL)**	**0.434**	**0.736**
Displacement			**31.378**	**7.082**	**0.000 (CL)**	**1.397**	**0.736**

Righting levers

Heeling angle (Degr.)	Draft (m)	Trim (m)	Displacement (tonnes)	KN sin(ø) (m)	VCG sin(ø) (m)	GG' sin(ø) (m)	TCG cos(ø) (m)	GZ (m)	Area (mrad)
0.0° (CL)	0.671	-0.383	31.378	0.000	0.000	0.000	0.000	0.000	0.000
2.0° (PS)	0.671	-0.383	31.378	0.144	0.049	0.001	0.000	0.094	0.002
5.0° (PS)	0.667	-0.383	31.378	0.358	0.122	0.002	0.000	0.234	0.010
10.0° (PS)	0.650	-0.383	31.378	0.691	0.243	0.004	0.000	0.444	0.040
15.0° (PS)	0.617	-0.376	31.378	0.991	0.362	0.005	0.000	0.625	0.087
20.0° (PS)	0.566	-0.376	31.378	1.257	0.478	0.005	0.000	0.774	0.148
25.0° (PS)	0.487	-0.388	31.378	1.457	0.590	0.006	0.000	0.861	0.220
30.0° (PS)	0.380	-0.415	31.378	1.602	0.698	0.006	0.000	0.897	0.297
35.0° (PS)	0.249	-0.482	31.378	1.697	0.801	0.007	0.000	0.890	0.375
40.0° (PS)	0.099	-0.579	31.378	1.749	0.898	0.007	0.000	0.844	0.451
45.0° (PS)	-0.076	-0.695	31.378	1.766	0.988	0.007	0.000	0.771	0.522
50.0° (PS)	-0.285	-0.834	31.378	1.756	1.070	0.007	0.000	0.679	0.585
55.0° (PS)	-0.542	-1.008	31.378	1.723	1.144	0.007	0.000	0.572	0.640
60.0° (PS)	-0.875	-1.216	31.378	1.673	1.210	0.007	0.000	0.456	0.685



Critical points

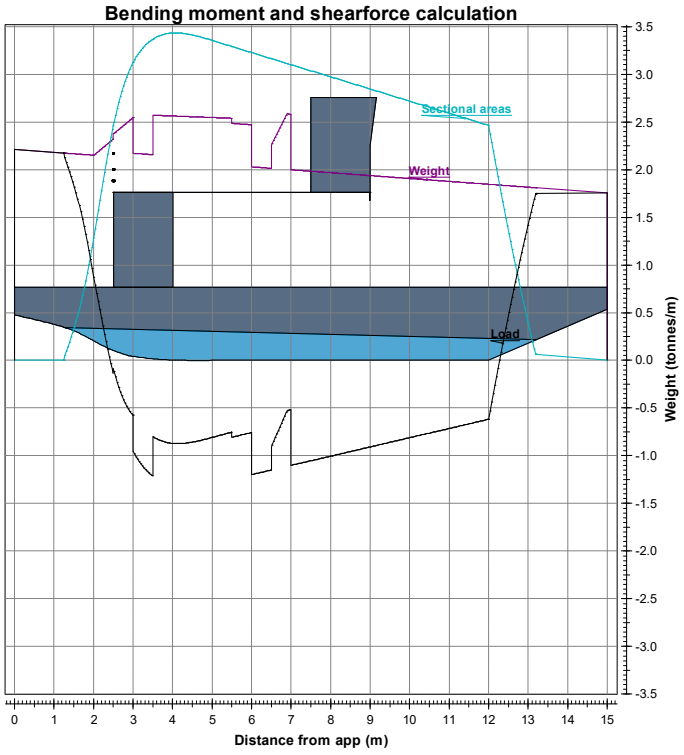
Description	Type	X coordinate	Y coordinate	Z coordinate	Dist. to wl	Submersion angle
		(m)	*(m)*	*(m)*	*(m)*	*(Degr.)*
CASARIA	Downflooding	2.000	-1.500 (SB)	2.050	1.238	-57.2 (SB)

Evaluation of criteria

NORMAM 02 - CARGA

Carga NORMAM 02

Description	Attained value	Criterion	Required value	Complies
GMo	**2.719(m)**	**>=**	**0.350(m)**	**YES**
Alagamento	**57.2(Degr.)**	**>=**	**30.0(Degr.)**	**YES**
Ambiental				**YES**
Wind silhouette:	Silhouette 1			
Wind pressure	51.4(kg/m^2)			
Wind area	24.09(m^2)			
Steady wind lever	0.072(m)			
Wind gust lever	0.107(m)			
Ratio of areaA/areaB	0.004	<=	1.000	YES
Máximo GZ	**0.900(m)**	**>=**	**0.150(m)**	**YES**
Lower angle	0.0(Degr.)			
Upper angle	90.0(Degr.)			
Angulo de equilíbrio	**0.0(Degr.)**	**<=**	**15.0(Degr.)**	**YES**



Summary

Mean moulded draft	0.671(m)	Trim	-0.383(m)
Displacement	31.378(tonnes)	GM	2.719(m)
Minimum shearforce	-3.992(tonnes)	Distance from app	12.280(m)
Maximum shearforce	4.115(tonnes)	Distance from app	2.440(m)
Maximum sagging moment	0.000(t*m)	Distance from app	0.000(m)
Maximum hogging moment	17.001(t*m)	Distance from app	7.400(m)

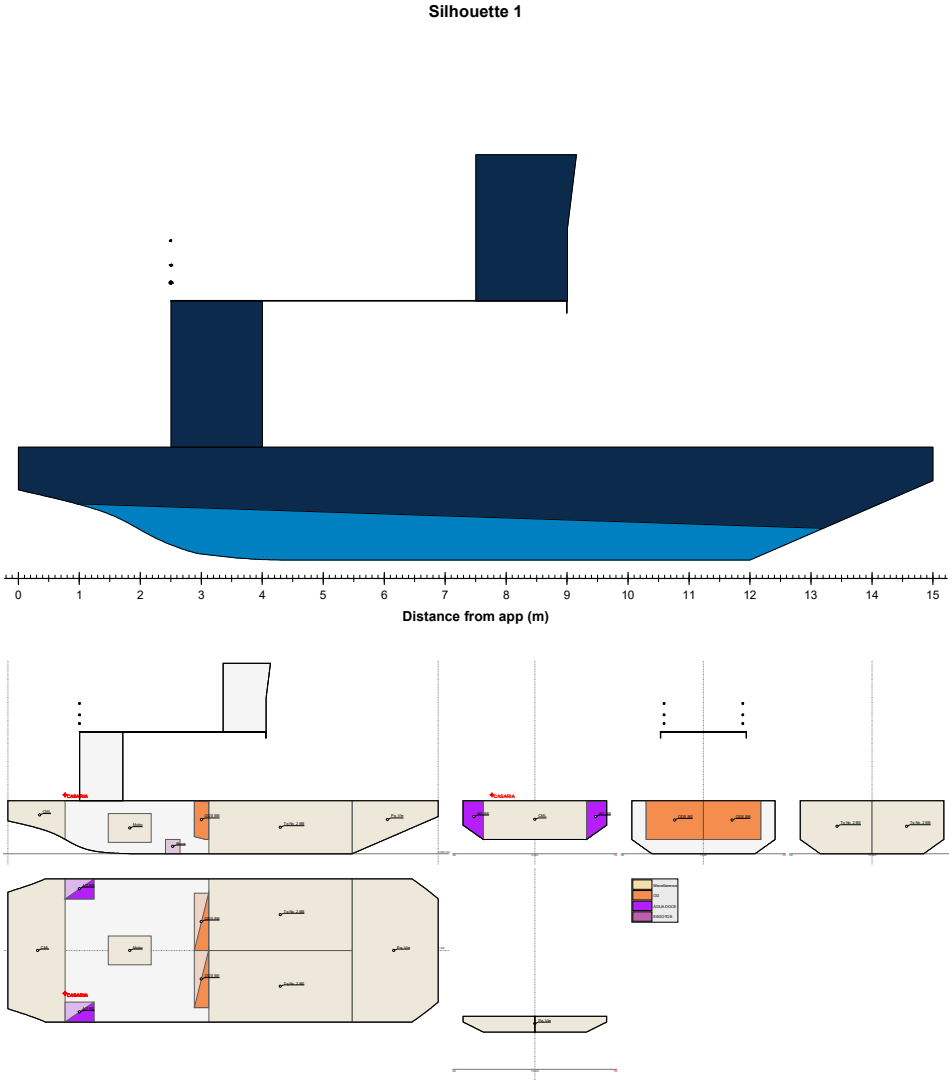
Weightlist

Description	Weight	LCG	TCG	VCG	Aft	Forward
	(tonnes)	*(m)*	*(m)*	*(m)*	*(m)*	*(m)*
Lightship	29.735	7.212	0.000 (CL)	1.450	0.003	14.997
ODS BB	0.112	6.786	1.000 (PS)	0.601	6.500	7.000
ODS BE	0.112	6.786	-1.000 (SB)	0.601	6.500	7.000
AD BE	0.094	2.667	-1.995 (SB)	0.474	2.000	3.001
AD BB	0.094	2.667	1.995 (PS)	0.474	2.000	3.001
Esg. Sanitário	0.480	4.510	1.525 (PS)	0.229	3.500	5.500
Esg. Oleoso	0.480	4.510	-1.525 (SB)	0.229	3.500	5.500
Borra	0.221	5.750	0.000 (CL)	0.225	5.500	6.000
C. Agua	0.051	3.000	0.000 (CL)	4.297	2.500	3.500

Bending moment and shearforce calculation

Distance from app	Weight	Buoyancy	Load	Shear force	Bending moment
(m)	*(tonnes/m)*	*(tonnes/m)*	*(tonnes/m)*	*(tonnes)*	*(t*m)*
0.003	2.212	0	2.212	0	0
1	2.181	0	2.181	2.186	1.392
2	2.151	1.269	0.882	3.945	4.322
3	2.496	3.11	-0.615	3.916	8.407
4	2.562	3.423	-0.86	2.928	11.824
5	2.546	3.346	-0.799	2.086	14.352
6	2.47	3.22	-0.75	1.313	16.076
7	2.582	3.095	-0.513	0.393	16.884
8	1.968	2.969	-1.001	-0.656	16.772
9	1.937	2.843	-0.906	-1.609	15.658
10	1.907	2.718	-0.811	-2.468	13.638
11	1.876	2.592	-0.716	-3.231	10.807
12	1.846	2.467	-0.621	-3.899	7.26
13	1.815	0.404	1.412	-3.463	3.436
14	1.785	0.035	1.75	-1.745	1.545
14.997	1.755	0	1.755	0	0

8.3 DESCARREGADO + 100%



Hydrostatic particulars

List	0.0 (CL)(Degr.)	**GG'**	0.002(m)
Draft aft pp	0.977(m)	**VCG'**	1.454(m)
Mean moulded draft	0.712(m)	**Max VCG'**	3.161(m)
Draft forward pp	0.447(m)	**GM solid**	2.509(m)
Trim	-0.530(m)	**G'M liquid**	2.507(m)
KM	3.961(m)	**Immersion rate**	0.602(t/cm)
VCG	1.452(m)	**MCT**	0.463(t*m/cm)

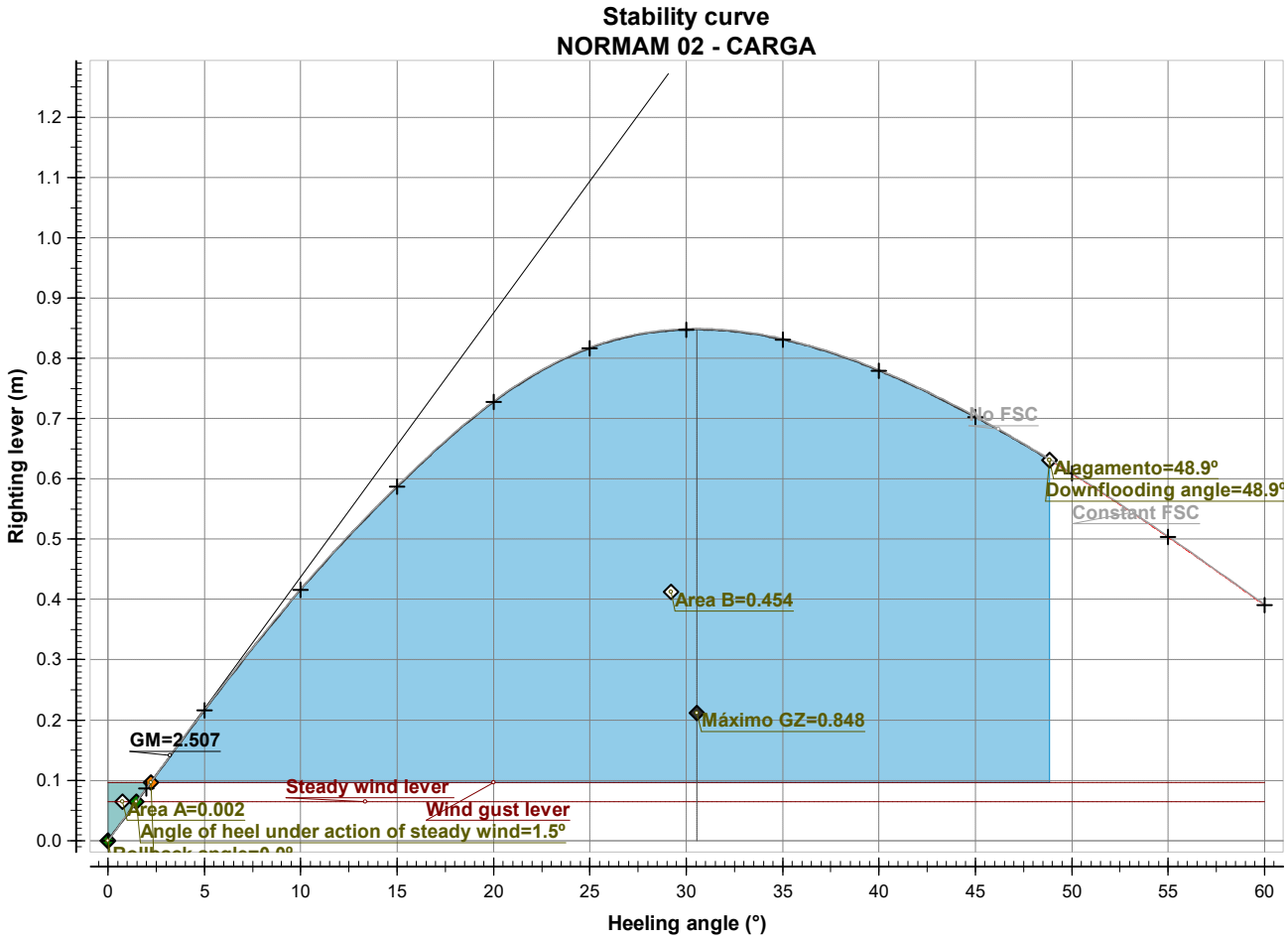
Summary

Description	Weight	LCG	TCG	VCG	FSM
	(tonnes)	*(m)*	*(m)*	*(m)*	*(t*m)*
Miscellaneous	0.000	0.000	0.000	0.000	0.000
OD	2.189	6.754	0.000	1.181	0.000
ÁGUA DOCE	2.091	2.618	0.000	1.770	0.057
ESGOTOS	0.000	0.000	0.000	0.000	0.000
Lightship	**29.735**	**7.212**	**0.000 (CL)**	**1.450**	
Deadweight	**4.280**	**4.733**	**0.000 (CL)**	**1.469**	**0.057**
Displacement	**34.015**	**6.900**	**0.000 (CL)**	**1.452**	**0.057**

Description	Density (t/m³)	Fill%	Weight (tonnes)	LCG (m)	TCG (m)	VCG (m)	FSM (t*m)
Miscellaneous							
CML	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Tq No. 2 BE	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Tq No. 2 BB	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Pq. Vte	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Motor	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Totals for Miscellaneous			**0.000**	**0.000**	**0.000 (CL)**	**0.000**	**0.000**
OD							
ODS BB	0.8700	98.0	1.095	6.754	1.000 (PS)	1.181	0.000
ODS BE	0.8700	98.0	1.095	6.754	-1.000 (SB)	1.181	0.000
Totals for OD			**2.189**	**6.754**	**0.000 (CL)**	**1.181**	**0.000**
ÁGUA DOCE							
AD BE	1.0000	92.3	0.846	2.528	-2.126 (SB)	1.116	0.029
AD BB	1.0000	92.3	0.846	2.528	2.126 (PS)	1.116	0.029
C. Agua	1.0000	100.0	0.400	3.000	0.000 (CL)	4.540	0.000
Totals for ÁGUA DOCE			**2.091**	**2.618**	**0.000 (CL)**	**1.770**	**0.057**
ESGOTOS							
Esg. Sanitário	1.0000	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Esg. Oleoso	1.0000	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Borra	1.0000	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Totals for ESGOTOS			**0.000**	**0.000**	**0.000 (CL)**	**0.000**	**0.000**
Lightship			**29.735**	**7.212**	**0.000 (CL)**	**1.450**	
Deadweight			**4.280**	**4.733**	**0.000 (CL)**	**1.469**	**0.057**
Displacement			**34.015**	**6.900**	**0.000 (CL)**	**1.452**	**0.057**

Righting levers

Heeling angle (Degr.)	Draft (m)	Trim (m)	Displacement (tonnes)	KN sin(ø) (m)	VCG sin(ø) (m)	GG' sin(ø) (m)	TCG cos(ø) (m)	GZ (m)	Area (mrad)
0.0° (CL)	0.712	-0.530	34.015	0.000	0.000	0.000	0.000	0.000	0.000
2.0° (PS)	0.712	-0.529	34.015	0.138	0.051	0.001	0.000	0.087	0.002
5.0° (PS)	0.708	-0.526	34.015	0.344	0.127	0.001	0.000	0.216	0.009
10.0° (PS)	0.692	-0.521	34.015	0.670	0.252	0.001	0.000	0.416	0.037
15.0° (PS)	0.661	-0.516	34.015	0.964	0.376	0.001	0.000	0.587	0.081
20.0° (PS)	0.613	-0.520	34.015	1.226	0.497	0.002	0.000	0.728	0.139
25.0° (PS)	0.541	-0.548	34.015	1.433	0.614	0.002	0.000	0.817	0.207
30.0° (PS)	0.444	-0.611	34.015	1.576	0.726	0.002	0.000	0.848	0.280
35.0° (PS)	0.327	-0.722	34.015	1.666	0.833	0.002	0.000	0.831	0.353
40.0° (PS)	0.191	-0.870	34.015	1.715	0.934	0.002	0.000	0.780	0.424
45.0° (PS)	0.034	-1.047	34.015	1.732	1.027	0.002	0.000	0.703	0.489
50.0° (PS)	-0.154	-1.252	34.015	1.723	1.113	0.002	0.000	0.609	0.546
55.0° (PS)	-0.389	-1.494	34.015	1.695	1.190	0.002	0.000	0.503	0.595
60.0° (PS)	-0.695	-1.787	34.015	1.650	1.258	0.002	0.000	0.390	0.634



Critical points

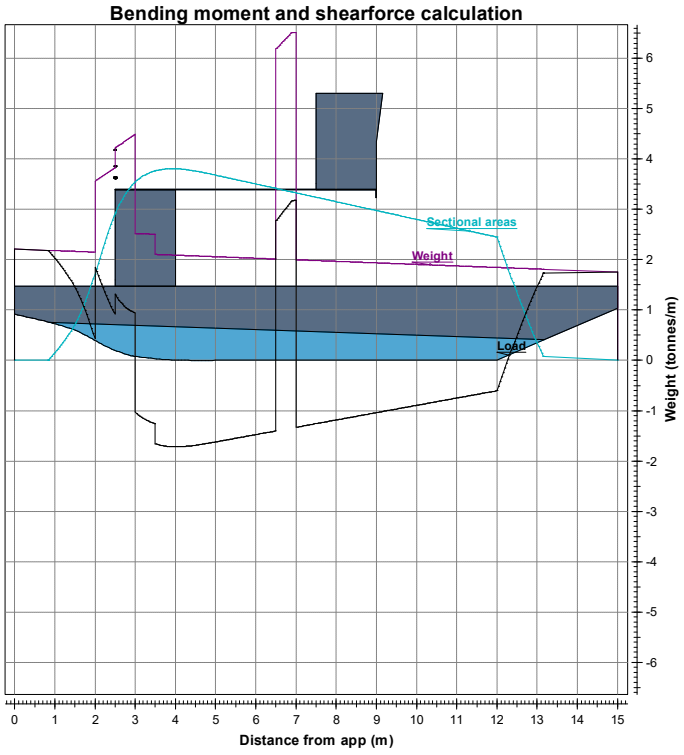
Description	Type	X coordinate	Y coordinate	Z coordinate	Dist. to wl	Submersion angle
		(m)	*(m)*	*(m)*	*(m)*	*(Degr.)*
CASARIA	Downflooding	2.000	-1.500 (SB)	2.050	1.143	-48.9 (SB)

Evaluation of criteria

NORMAM 02 - CARGA

Carga NORMAM 02

Description	Attained value	Criterion	Required value	Complies
GMo	**2.507(m)**	**>=**	**0.350(m)**	**YES**
Alagamento	**48.9(Degr.)**	**>=**	**30.0(Degr.)**	**YES**
Ambiental				**YES**
Wind silhouette:	Silhouette 1			
Wind pressure	51.4(kg/m^2)			
Wind area	23.55(m^2)			
Steady wind lever	0.064(m)			
Wind gust lever	0.096(m)			
Ratio of areaA/areaB	0.004	<=	1.000	YES
Máximo GZ	**0.848(m)**	**>=**	**0.150(m)**	**YES**
Lower angle	0.0(Degr.)			
Upper angle	90.0(Degr.)			
Angulo de equilíbrio	**0.0(Degr.)**	**<=**	**15.0(Degr.)**	**YES**



Summary

Mean moulded draft	0.712(m)	Trim	-0.530(m)
Displacement	34.015(tonnes)	GM	2.507(m)
Minimum shearforce	-4.016(tonnes)	Distance from app	12.280(m)
Maximum shearforce	4.771(tonnes)	Distance from app	3.000(m)
Maximum sagging moment	0.000(t*m)	Distance from app	0.000(m)
Maximum hogging moment	16.417(t*m)	Distance from app	7.760(m)

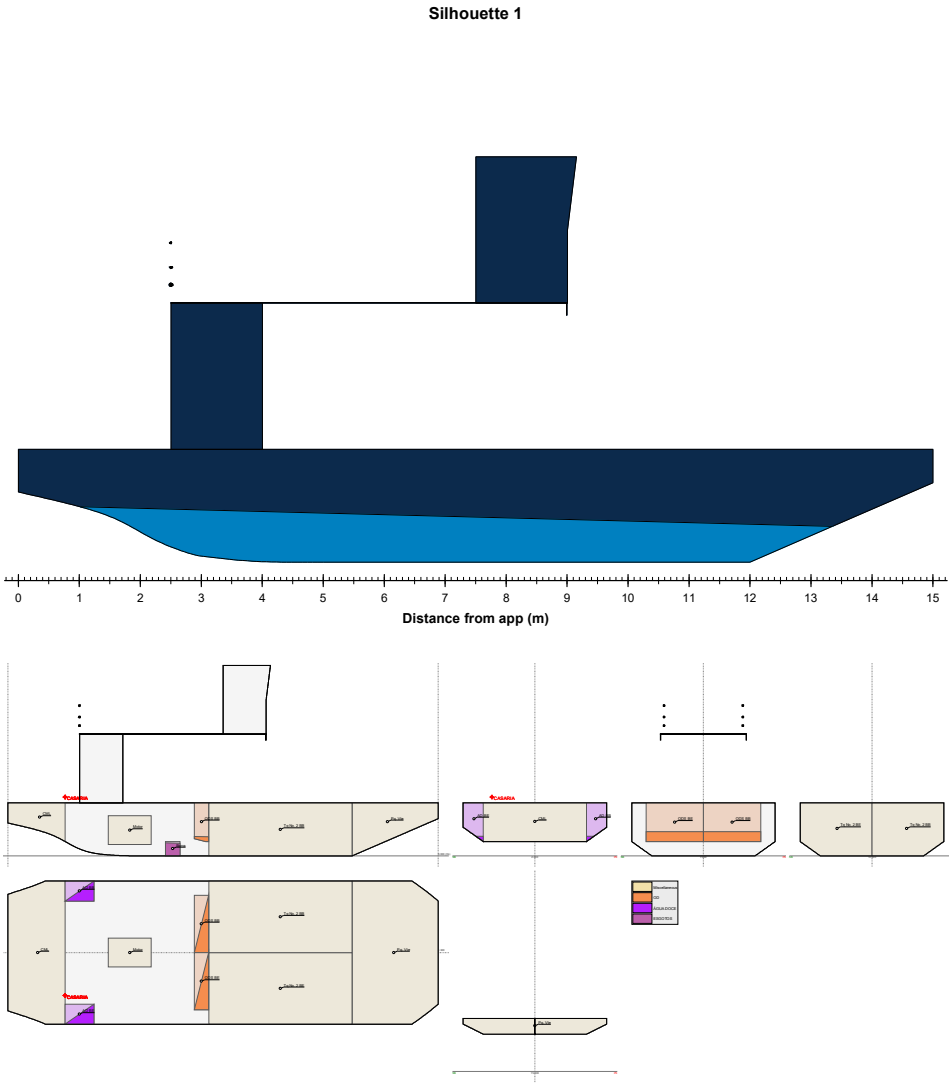
Weightlist

Description	Weight	LCG	TCG	VCG	Aft	Forward
	(tonnes)	*(m)*	*(m)*	*(m)*	*(m)*	*(m)*
Lightship	29.735	7.212	0.000 (CL)	1.450	0.003	14.997
ODS BB	1.095	6.754	1.000 (PS)	1.181	6.500	7.000
ODS BE	1.095	6.754	-1.000 (SB)	1.181	6.500	7.000
AD BE	0.846	2.528	-2.126 (SB)	1.116	2.000	3.000
AD BB	0.846	2.528	2.126 (PS)	1.116	2.000	3.000
C. Agua	0.400	3.000	0.000 (CL)	4.540	2.500	3.500

Bending moment and shearforce calculation

Distance from app	Weight	Buoyancy	Load	Shear force	Bending moment
(m)	*(tonnes/m)*	*(tonnes/m)*	*(tonnes/m)*	*(tonnes)*	*(t*m)*
0.003	2.212	0	2.212	0	0
1	2.181	0.072	2.109	2.187	1.133
2	2.151	1.627	0.523	3.644	4.219
3	4.093	3.463	0.63	4.753	8.571
4	2.09	3.737	-1.647	3.197	12.611
5	2.059	3.622	-1.562	1.58	15.033
6	2.029	3.458	-1.429	0.084	15.895
7	6.513	3.294	3.219	0.911	15.868
8	1.968	3.13	-1.163	-0.319	16.194
9	1.937	2.967	-1.029	-1.415	15.358
10	1.907	2.803	-0.896	-2.377	13.492
11	1.876	2.639	-0.763	-3.207	10.731
12	1.846	2.475	-0.63	-3.903	7.206
13	1.815	0.38	1.435	-3.457	3.395
14	1.785	0.041	1.744	-1.74	1.545
14.997	1.755	0	1.755	0	0

8.4 CARREGADO PASSGEIROS + 10%



Hydrostatic particulars

List	0.0 (CL)(Degr.)	**GG'**	0.021(m)
Draft aft pp	0.936(m)	**VCG'**	1.545(m)
Mean moulded draft	0.738(m)	**Max VCG'**	3.108(m)
Draft forward pp	0.540(m)	**GM solid**	2.327(m)
Trim	-0.396(m)	**G'M liquid**	2.306(m)
KM	3.851(m)	**Immersion rate**	0.604(t/cm)
VCG	1.524(m)	**MCT**	0.466(t*m/cm)

Summary

Description	Weight	LCG	TCG	VCG	FSM
	(tonnes)	*(m)*	*(m)*	*(m)*	*(t*m)*
Miscellaneous	2.000	8.750	0.000	1.000	0.000
OD	0.223	6.786	0.000	0.601	0.580
ÁGUA DOCE	0.239	2.739	0.000	1.295	0.059
ESGOTOS	1.180	4.742	0.000	0.228	0.097
PASSAGEIROS ACOMODADOS	2.000	5.500	0.000	4.050	0.000

Summary

Description	Weight	LCG	TCG	VCG	FSM
	(tonnes)	*(m)*	*(m)*	*(m)*	*(t*m)*
Lightship	**29.735**	**7.212**	**0.000 (CL)**	**1.450**	
Deadweight	**5.643**	**6.427**	**0.000 (CL)**	**1.916**	**0.736**
Displacement	**35.378**	**7.087**	**0.000 (CL)**	**1.524**	**0.736**

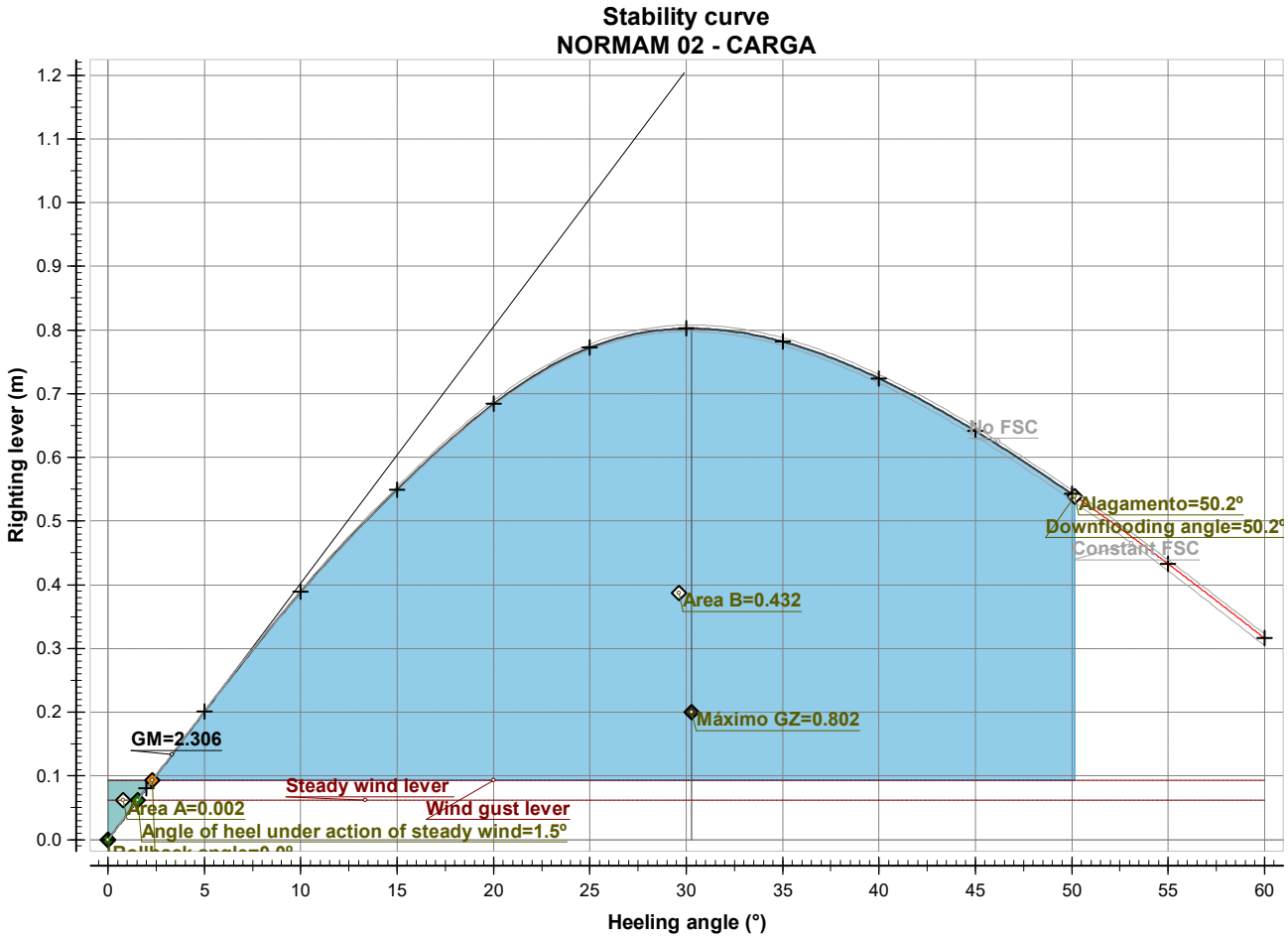
Description	Density	Fill%	Weight	LCG	TCG	VCG	FSM
	(t/m³)		*(tonnes)*	*(m)*	*(m)*	*(m)*	*(t*m)*
Miscellaneous							
CML	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Tq No. 2 BE	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Tq No. 2 BB	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Pq. Vte	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Motor	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Carga nos Paiós Laterias			1.000	6.500	0.000 (CL)	1.000	0.000
Carga no Paiol Frontal			1.000	11.000	0.000 (CL)	1.000	0.000
Totals for Miscellaneous			**2.000**	**8.750**	**0.000 (CL)**	**1.000**	**0.000**
OD							
ODS BB	0.8700	10.0	0.112	6.786	1.000 (PS)	0.601	0.290
ODS BE	0.8700	10.0	0.112	6.786	-1.000 (SB)	0.601	0.290
Totals for OD			**0.223**	**6.786**	**0.000 (CL)**	**0.601**	**0.580**
ÁGUA DOCE							
AD BE	1.0000	10.3	0.094	2.667	-1.995 (SB)	0.474	0.016
AD BB	1.0000	10.3	0.094	2.667	1.995 (PS)	0.474	0.016
C. Agua	1.0000	12.9	0.051	3.000	0.000 (CL)	4.297	0.027
Totals for ÁGUA DOCE			**0.239**	**2.739**	**0.000 (CL)**	**1.295**	**0.059**
ESGOTOS							
Esg. Sanitário	1.0000	90.2	0.480	4.510	1.525 (PS)	0.229	0.028
Esg. Oleoso	1.0000	90.2	0.480	4.510	-1.525 (SB)	0.229	0.028
Borra	1.0000	90.0	0.221	5.750	0.000 (CL)	0.225	0.042
Totals for ESGOTOS			**1.180**	**4.742**	**0.000 (CL)**	**0.228**	**0.097**
PASSAGEIROS ACOMODADOS							
PASSAGEIROS NO CP			1.000	4.500	0.000 (CL)	2.850	0.000
PASSAGEIROS NO CS			1.000	6.500	0.000 (CL)	5.250	0.000
Totals for PASSAGEIROS ACOMODADOS			**2.000**	**5.500**	**0.000 (CL)**	**4.050**	**0.000**
Lightship			**29.735**	**7.212**	**0.000 (CL)**	**1.450**	
Deadweight			**5.643**	**6.427**	**0.000 (CL)**	**1.916**	**0.736**
Displacement			**35.378**	**7.087**	**0.000 (CL)**	**1.524**	**0.736**

Righting levers

Heeling angle	Draft	Trim	Displacement	KN sin(ø)	VCG sin(ø)	GG' sin(ø)	TCG cos(ø)	GZ	Area
(Degr.)	*(m)*	*(m)*	*(tonnes)*	*(m)*	*(m)*	*(m)*	*(m)*	*(m)*	*(mrad)*
0.0° (CL)	0.738	-0.396	35.378	0.000	0.000	0.000	0.000	0.000	0.000
2.0° (PS)	0.738	-0.396	35.378	0.134	0.053	0.001	0.000	0.080	0.001
5.0° (PS)	0.735	-0.393	35.378	0.335	0.133	0.002	0.000	0.201	0.009
10.0° (PS)	0.720	-0.388	35.378	0.657	0.265	0.003	0.000	0.389	0.035
15.0° (PS)	0.689	-0.380	35.378	0.948	0.395	0.004	0.000	0.549	0.076
20.0° (PS)	0.644	-0.379	35.378	1.210	0.521	0.005	0.000	0.684	0.130
25.0° (PS)	0.574	-0.396	35.378	1.422	0.644	0.005	0.000	0.772	0.194
30.0° (PS)	0.479	-0.447	35.378	1.570	0.762	0.006	0.000	0.802	0.263

Righting levers

Heeling angle	Draft	Trim	Displacement	KN sin(ø)	VCG sin(ø)	GG' sin(ø)	TCG cos(ø)	GZ	Area
(Degr.)	*(m)*	*(m)*	*(tonnes)*	*(m)*	*(m)*	*(m)*	*(m)*	*(m)*	*(mrad)*
35.0º (PS)	0.367	-0.538	35.378	1.662	0.874	0.006	0.000	0.782	0.332
40.0º (PS)	0.239	-0.650	35.378	1.710	0.980	0.006	0.000	0.724	0.398
45.0º (PS)	0.091	-0.781	35.377	1.725	1.078	0.006	0.000	0.641	0.458
50.0º (PS)	-0.086	-0.935	35.378	1.716	1.168	0.006	0.000	0.542	0.510
55.0º (PS)	-0.307	-1.112	35.378	1.688	1.249	0.006	0.000	0.433	0.552
60.0º (PS)	-0.595	-1.321	35.378	1.643	1.320	0.006	0.000	0.316	0.585



Critical points

Description	Type	X coordinate	Y coordinate	Z coordinate	Dist. to wl	Submersion angle
		(m)	*(m)*	*(m)*	*(m)*	*(Degr.)*
CASARIA	Downflooding	2.000	-1.500 (SB)	2.050	1.166	-50.2 (SB)

Evaluation of criteria

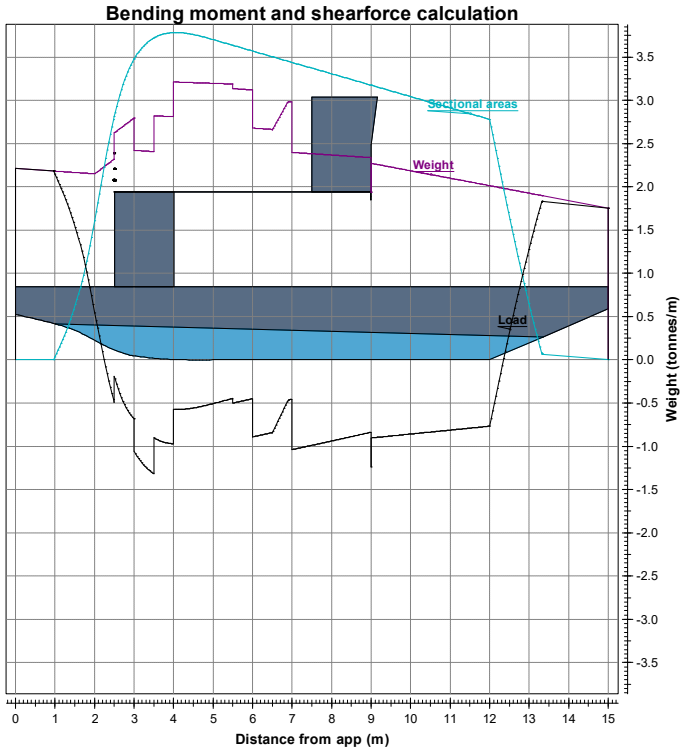
NORMAM 02 - CARGA

Carga NORMAM 02

Description	Attained value	Criterion	Required value	Complies
GMo	**2.306(m)**	**>=**	**0.350(m)**	**YES**
Alagamento	**50.2(Degr.)**	**>=**	**30.0(Degr.)**	**YES**
Ambiental				**YES**
Wind silhouette:	Silhouette 1			
Wind pressure	51.4(kg/m^2)			
Wind area	23.27(m^2)			

Evaluation of criteria

Steady wind lever	0.062(m)			
Wind gust lever	0.093(m)			
Ratio of areaA/areaB	0.004	< =	1.000	YES
Máximo GZ	**0.802(m)**	**> =**	**0.150(m)**	**YES**
Lower angle	0.0(Degr.)			
Upper angle	90.0(Degr.)			
Angulo de equilíbrio	**0.0(Degr.)**	**< =**	**15.0(Degr.)**	**YES**



Summary

Mean moulded draft	0.738(m)	Trim	-0.396(m)
Displacement	35.378(tonnes)	GM	2.306(m)
Minimum shearforce	-3.930(tonnes)	Distance from app	12.360(m)
Maximum shearforce	3.741(tonnes)	Distance from app	2.240(m)
Maximum sagging moment	0.000(t*m)	Distance from app	14.994(m)
Maximum hogging moment	15.730(t*m)	Distance from app	7.640(m)

Weightlist

Description	Weight	LCG	TCG	VCG	Aft	Forward
	(tonnes)	*(m)*	*(m)*	*(m)*	*(m)*	*(m)*
Lightship	29.735	7.212	0.000 (CL)	1.450	0.003	14.997
ODS BB	0.112	6.786	1.000 (PS)	0.601	6.500	7.000
ODS BE	0.112	6.786	-1.000 (SB)	0.601	6.500	7.000
AD BE	0.094	2.667	-1.995 (SB)	0.474	2.000	3.001
AD BB	0.094	2.667	1.995 (PS)	0.474	2.000	3.001
Esg. Sanitário	0.480	4.510	1.525 (PS)	0.229	3.500	5.500

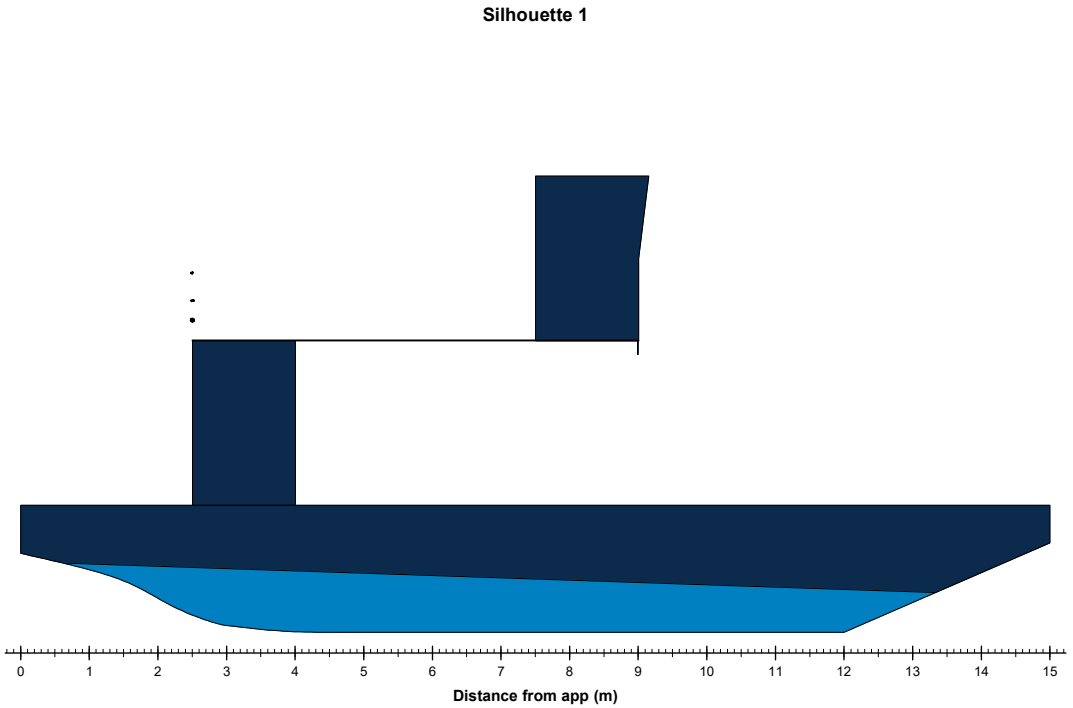
Weightlist

Description	Weight	LCG	TCG	VCG	Aft	Forward
	(tonnes)	*(m)*	*(m)*	*(m)*	*(m)*	*(m)*
Esg. Oleoso	0.480	4.510	-1.525 (SB)	0.229	3.500	5.500
Borra	0.221	5.750	0.000 (CL)	0.225	5.500	6.000
C. Agua	0.051	3.000	0.000 (CL)	4.297	2.500	3.500
Carga nos Paiós Laterias	1.000	6.500	0.000 (CL)	1.000	4.000	9.000
Carga no Paiol Frontal	1.000	11.000	0.000 (CL)	1.000	9.003	14.994
PASSAGEIROS NO CP	1.000	4.500	0.000 (CL)	2.850	2.500	6.500
PASSAGEIROS NO CS	1.000	6.500	0.000 (CL)	5.250	4.000	9.000

Bending moment and shearforce calculation

Distance from app	Weight	Buoyancy	Load	Shear force	Bending moment
(m)	*(tonnes/m)*	*(tonnes/m)*	*(tonnes/m)*	*(tonnes)*	*(t*m)*
0.003	2.212	0	2.212	0	0
1	2.181	0	2.181	2.19	1.134
2	2.151	1.598	0.553	3.687	4.246
3	2.746	3.467	-0.721	3.429	7.945
4	2.812	3.775	-0.963	2.337	10.839
5	3.196	3.693	-0.497	1.795	12.941
6	3.12	3.563	-0.443	1.327	14.543
7	2.982	3.433	-0.452	0.591	15.503
8	2.368	3.303	-0.935	-0.394	15.635
9	2.337	3.173	-0.836	-1.28	14.832
10	2.185	3.043	-0.858	-2.161	13.15
11	2.099	2.913	-0.814	-2.997	10.61
12	2.013	2.783	-0.77	-3.789	7.257
13	1.927	0.653	1.273	-3.503	3.482
14	1.84	0.04	1.8	-1.787	1.446
14.997	1.755	0	1.755	0	0

8.5 CARREGADO PASSAGEIROS + 100%



Hydrostatic particulars

List	0.0 (CL)(Degr.)	**GG'**	0.000(m)
Draft aft pp	1.049(m)	**VCG'**	1.566(m)
Mean moulded draft	0.780(m)	**Max VCG'**	3.020(m)
Draft forward pp	0.510(m)	**GM solid**	2.153(m)
Trim	-0.538(m)	**G'M liquid**	2.153(m)
KM	3.720(m)	**Immersion rate**	0.624(t/cm)
VCG	1.566(m)	**MCT**	0.514(t*m/cm)

Summary

Description	Weight	LCG	TCG	VCG	FSM
	(tonnes)	(m)	(m)	(m)	(t*m)
Miscellaneous	2.000	8.750	0.000	1.000	0.000
OD	2.189	6.754	0.000	1.181	0.000
ÁGUA DOCE	2.233	2.610	0.000	1.772	0.000
ESGOTOS	0.000	0.000	0.000	0.000	0.000
PASSAGEIROS ACOMODADOS	2.000	5.500	0.000	4.050	0.000
Lightship	**29.735**	**7.212**	**0.000 (CL)**	**1.450**	
Deadweight	**8.422**	**5.831**	**0.000 (CL)**	**1.976**	**0.000**
Displacement	**38.157**	**6.907**	**0.000 (CL)**	**1.566**	**0.000**

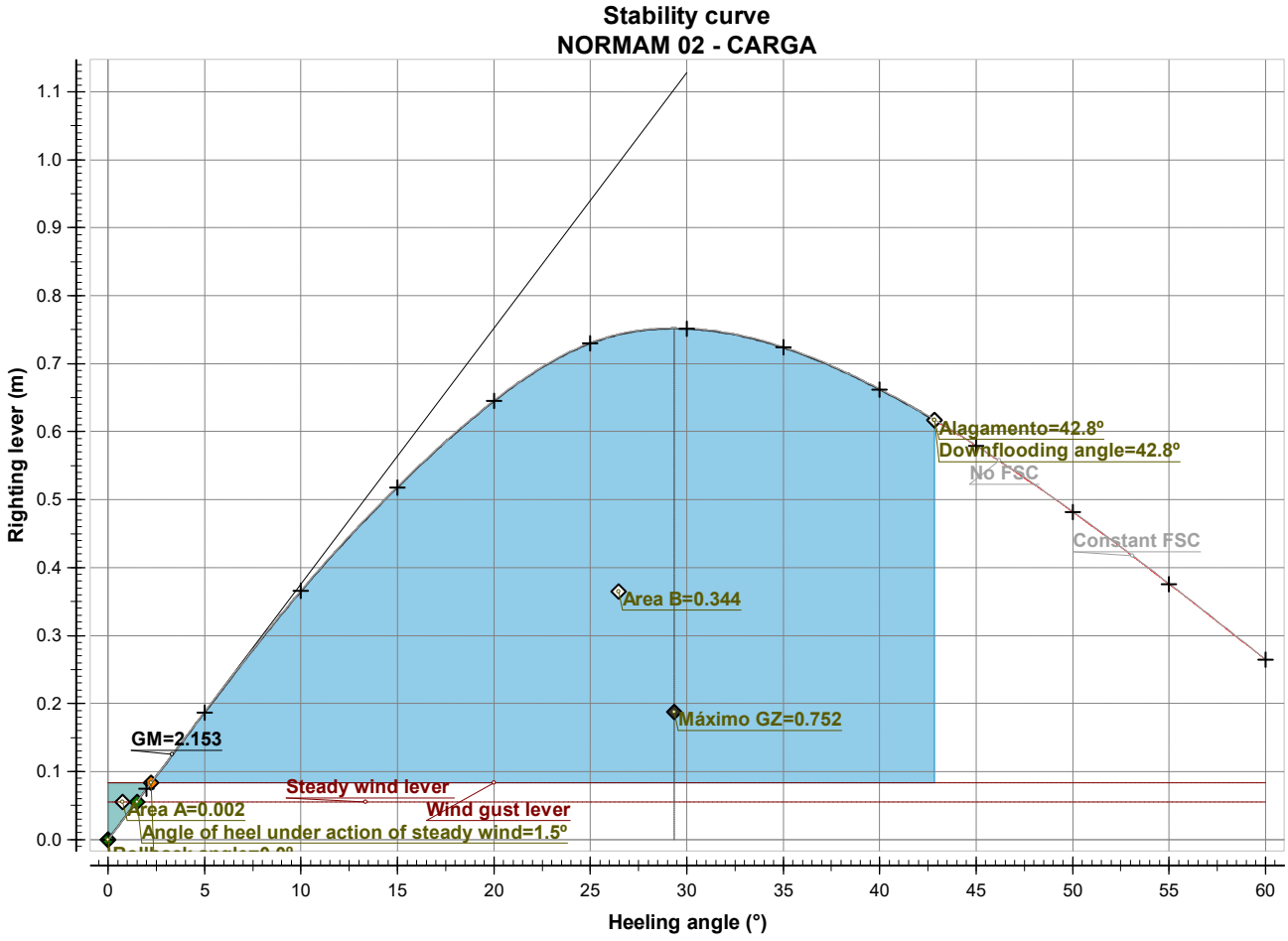
Description	Density	Fill%	Weight	LCG	TCG	VCG	FSM
	(t/m^3)		(tonnes)	(m)	(m)	(m)	(t*m)
Miscellaneous							
CML	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Tq No. 2 BE	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Tq No. 2 BB	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Pq. Vte	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Motor	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Carga nos Paiós Laterias			1.000	6.500	0.000 (CL)	1.000	0.000
Carga no Paiol Frontal			1.000	11.000	0.000 (CL)	1.000	0.000
Totals for Miscellaneous			**2.000**	**8.750**	**0.000 (CL)**	**1.000**	**0.000**
OD							
ODS BB	0.8700	98.0	1.095	6.754	1.000 (PS)	1.181	0.000
ODS BE	0.8700	98.0	1.095	6.754	-1.000 (SB)	1.181	0.000
Totals for OD			**2.189**	**6.754**	**0.000 (CL)**	**1.181**	**0.000**
ÁGUA DOCE							
AD BE	1.0000	100.0	0.917	2.526	-2.128 (SB)	1.169	0.000
AD BB	1.0000	100.0	0.917	2.526	2.128 (PS)	1.169	0.000
C. Agua	1.0000	100.0	0.400	3.000	0.000 (CL)	4.540	0.000
Totals for ÁGUA DOCE			**2.233**	**2.610**	**0.000 (CL)**	**1.772**	**0.000**
ESGOTOS							
Esg. Sanitário	1.0000	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Esg. Oleoso	1.0000	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Borra	1.0000	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Totals for ESGOTOS			**0.000**	**0.000**	**0.000 (CL)**	**0.000**	**0.000**
PASSAGEIROS ACOMODADOS							
PASSAGEIROS NO CP			1.000	4.500	0.000 (CL)	2.850	0.000
PASSAGEIROS NO CS			1.000	6.500	0.000 (CL)	5.250	0.000
Totals for PASSAGEIROS ACOMODADOS			**2.000**	**5.500**	**0.000 (CL)**	**4.050**	**0.000**
Lightship			**29.735**	**7.212**	**0.000 (CL)**	**1.450**	
Deadweight			**8.422**	**5.831**	**0.000 (CL)**	**1.976**	**0.000**
Displacement			**38.157**	**6.907**	**0.000 (CL)**	**1.566**	**0.000**

Righting levers

Heeling angle	Draft	Trim	Displacement	KN sin(ø)	VCG sin(ø)	GG' sin(ø)	TCG cos(ø)	GZ	Area
(Degr.)	(m)	(m)	(tonnes)	(m)	(m)	(m)	(m)	(m)	(mrad)
0.0º (CL)	0.780	-0.538	38.157	0.000	0.000	0.000	0.000	0.000	0.000
2.0º (PS)	0.779	-0.537	38.157	0.130	0.055	0.000	0.000	0.074	0.001
5.0º (PS)	0.776	-0.532	38.157	0.324	0.136	0.001	0.000	0.187	0.008

Righting levers

Heeling angle	Draft	Trim	Displacement	KN sin(ø)	VCG sin(ø)	GG' sin(ø)	TCG cos(ø)	GZ	Area
(Degr.)	(m)	(m)	(tonnes)	(m)	(m)	(m)	(m)	(m)	(mrad)
10.0º (PS)	0.762	-0.526	38.157	0.639	0.272	0.001	0.000	0.366	0.032
15.0º (PS)	0.734	-0.523	38.157	0.924	0.405	0.001	0.000	0.518	0.071
20.0º (PS)	0.691	-0.530	38.157	1.181	0.536	0.001	0.000	0.645	0.122
25.0º (PS)	0.629	-0.570	38.157	1.393	0.662	0.001	0.000	0.730	0.183
30.0º (PS)	0.546	-0.664	38.157	1.535	0.783	0.001	0.000	0.752	0.248
35.0º (PS)	0.448	-0.803	38.157	1.623	0.898	0.001	0.000	0.724	0.312
40.0º (PS)	0.337	-0.971	38.157	1.670	1.007	0.001	0.000	0.662	0.373
45.0º (PS)	0.206	-1.162	38.157	1.687	1.107	0.001	0.000	0.579	0.427
50.0º (PS)	0.047	-1.378	38.157	1.683	1.200	0.001	0.000	0.482	0.474
55.0º (PS)	-0.152	-1.628	38.157	1.660	1.283	0.001	0.000	0.376	0.511
60.0º (PS)	-0.412	-1.925	38.157	1.621	1.356	0.001	0.000	0.265	0.539



Critical points

Description	Type	X coordinate	Y coordinate	Z coordinate	Dist. to wl	Submersion angle
		(m)	(m)	(m)	(m)	(Degr.)
CASARIA	Downflooding	2.000	-1.500 (SB)	2.050	1.072	-42.8 (SB)

Evaluation of criteria

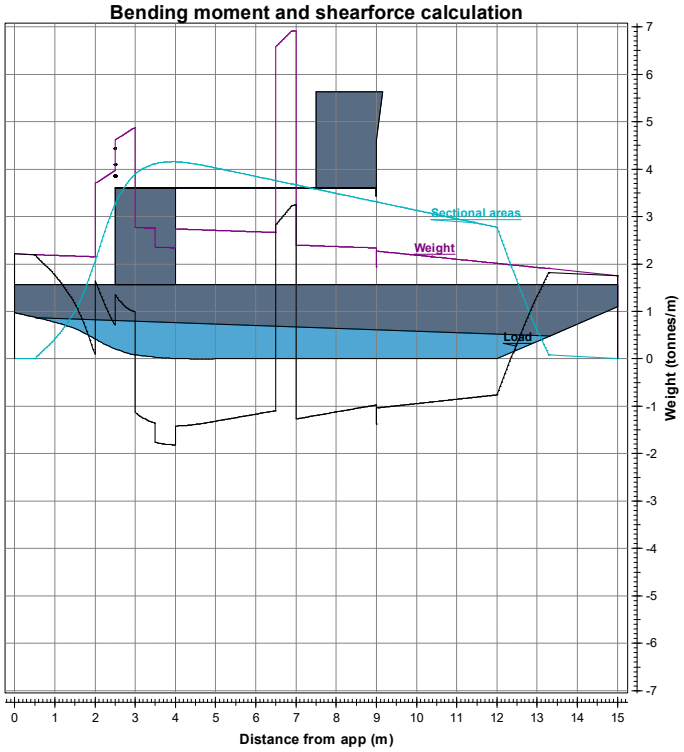
NORMAM 02 - CARGA

Carga NORMAM 02

Description	Attained value	Criterion	Required value	Complies
GMo	**2.153(m)**	**>=**	**0.350(m)**	**YES**

Evaluation of criteria

Alagamento	**42.8(Degr.)**	**>=**	**30.0(Degr.)**	**YES**
Ambiental				**YES**
Wind silhouette:	Silhouette 1			
Wind pressure	51.4(kg/m^2)			
Wind area	22.70(m^2)			
Steady wind lever	0.055(m)			
Wind gust lever	0.083(m)			
Ratio of areaA/areaB	0.005	<=	1.000	**YES**
Máximo GZ	**0.752(m)**	**>=**	**0.150(m)**	**YES**
Lower angle	0.0(Degr.)			
Upper angle	90.0(Degr.)			
Angulo de equilíbrio	**0.0(Degr.)**	**<=**	**15.0(Degr.)**	**YES**



Summary

Mean moulded draft	0.780(m)	Trim	-0.538(m)
Displacement	38.157(tonnes)	GM	2.153(m)
Minimum shearforce	-3.955(tonnes)	Distance from app	12.360(m)
Maximum shearforce	4.295(tonnes)	Distance from app	3.000(m)
Maximum sagging moment	0.000(t*m)	Distance from app	14.994(m)
Maximum hogging moment	15.166(t*m)	Distance from app	8.000(m)

Weightlist

Description	Weight	LCG	TCG	VCG	Aft	Forward
	(tonnes)	*(m)*	*(m)*	*(m)*	*(m)*	*(m)*
Lightship	29.735	7.212	0.000 (CL)	1.450	0.003	14.997
ODS BB	1.095	6.754	1.000 (PS)	1.181	6.500	7.000

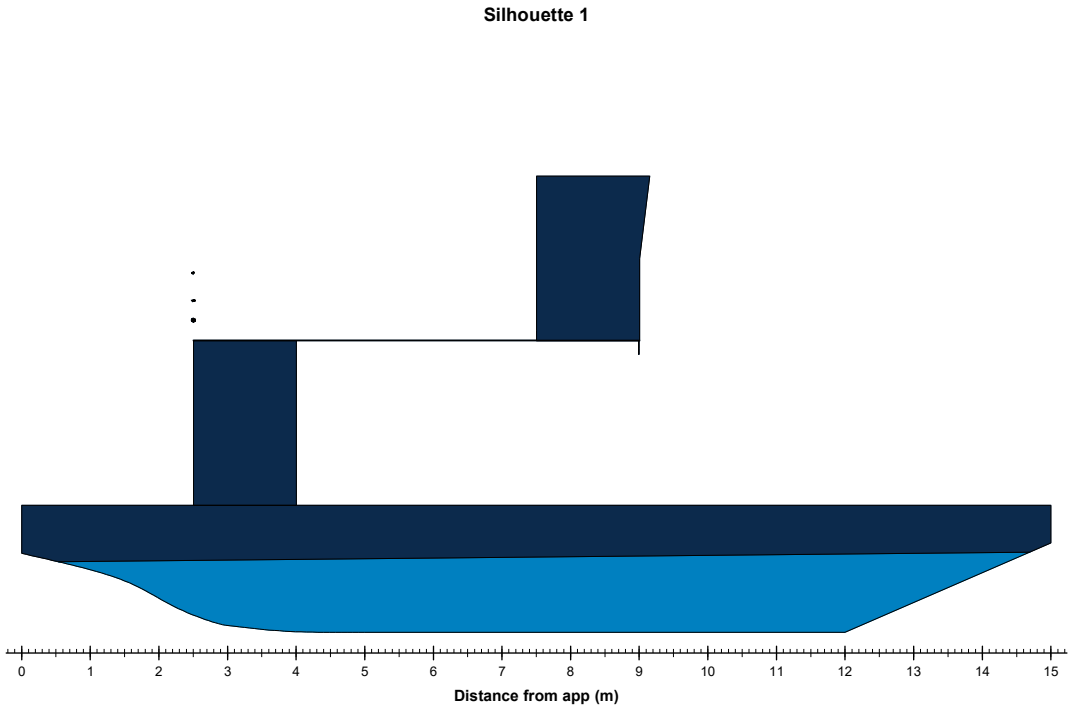
Weightlist

Description	Weight	LCG	TCG	VCG	Aft	Forward
	(tonnes)	*(m)*	*(m)*	*(m)*	*(m)*	*(m)*
ODS BE	1.095	6.754	-1.000 (SB)	1.181	6.500	7.000
AD BE	0.917	2.526	-2.128 (SB)	1.169	2.000	3.000
AD BB	0.917	2.526	2.128 (PS)	1.169	2.000	3.000
C. Agua	0.400	3.000	0.000 (CL)	4.540	2.500	3.500
Carga nos Paiós Laterias	1.000	6.500	0.000 (CL)	1.000	4.000	9.000
Carga no Paiol Frontal	1.000	11.000	0.000 (CL)	1.000	9.003	14.994
PASSAGEIROS NO CP	1.000	4.500	0.000 (CL)	2.850	2.500	6.500
PASSAGEIROS NO CS	1.000	6.500	0.000 (CL)	5.250	4.000	9.000

Bending moment and shearforce calculation

Distance from app	Weight	Buoyancy	Load	Shear force	Bending moment
(m)	*(tonnes/m)*	*(tonnes/m)*	*(tonnes/m)*	*(tonnes)*	*(t*m)*
0.003	2.212	0	2.212	0	0
1	2.181	0.347	1.835	2.121	1.146
2	2.151	1.975	0.176	3.272	4.039
3	4.485	3.822	0.663	4.288	7.961
4	2.34	4.092	-1.752	2.626	11.503
5	2.709	3.972	-1.262	1.307	13.523
6	2.679	3.804	-1.125	0.113	14.283
7	6.913	3.635	3.278	1.121	14.426
8	2.368	3.467	-1.099	-0.047	15.013
9	2.337	3.299	-0.962	-1.078	14.501
10	2.185	3.131	-0.946	-2.065	12.984
11	2.099	2.963	-0.864	-2.97	10.521
12	2.013	2.795	-0.782	-3.793	7.194
13	1.927	0.632	1.295	-3.501	3.435
14	1.84	0.047	1.793	-1.782	1.444
14.997	1.755	0	1.755	0	0

8.6 CARREGADO CARGA + 10%



Hydrostatic particulars

List	0.0 (CL)(Degr.)	**GG'**	0.013(m)
Draft aft pp	1.025(m)	**VCG'**	2.082(m)
Mean moulded draft	1.096(m)	**Max VCG'**	2.549(m)
Draft forward pp	1.167(m)	**GM solid**	0.936(m)
Trim	0.142(m)	**G'M liquid**	0.924(m)
KM	3.006(m)	**Immersion rate**	0.694(t/cm)
VCG	2.070(m)	**MCT**	0.687(t*m/cm)

Summary

Description	Weight	LCG	TCG	VCG	FSM
	(tonnes)	*(m)*	*(m)*	*(m)*	*(t*m)*
Miscellaneous	2.000	8.750	0.000	1.000	0.000
OD	0.223	6.786	0.000	0.601	0.580
CARGA	25.000	8.500	0.000	3.000	0.000
ÁGUA DOCE	0.239	2.739	0.000	1.295	0.059
ESGOTOS	1.180	4.742	0.000	0.228	0.097
Lightship	**29.735**	**7.212**	**0.000 (CL)**	**1.450**	
Deadweight	**28.643**	**8.301**	**0.000 (CL)**	**2.713**	**0.736**
Displacement	**58.378**	**7.746**	**0.000 (CL)**	**2.070**	**0.736**

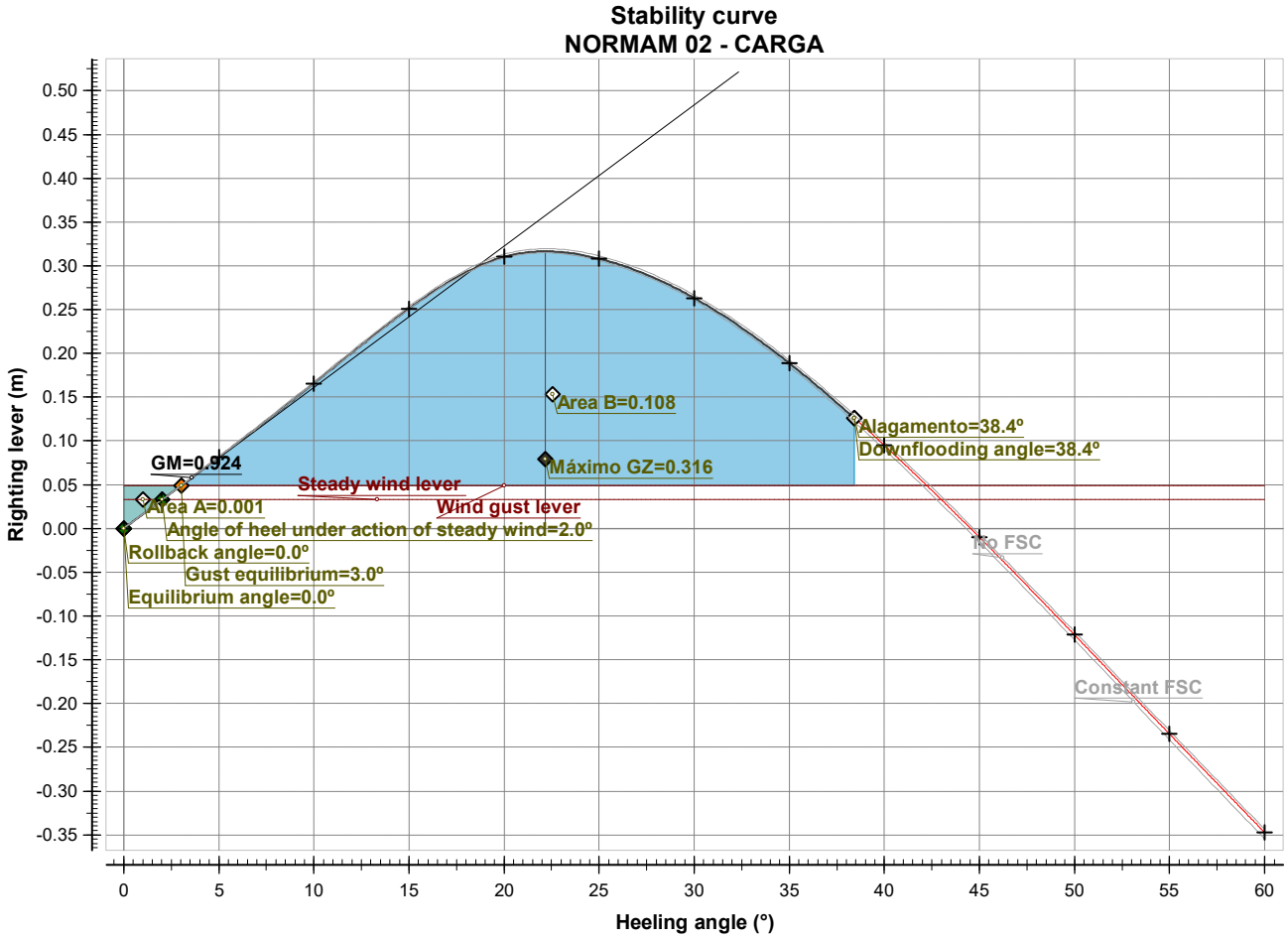
Description	Density	Fill%	Weight	LCG	TCG	VCG	FSM
	(t/m³)		*(tonnes)*	*(m)*	*(m)*	*(m)*	*(t*m)*
Miscellaneous							
CML	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Tq No. 2 BE	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Tq No. 2 BB	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Pq. Vte	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Motor	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Carga nos Paiós Laterias			1.000	6.500	0.000 (CL)	1.000	0.000
Carga no Paiol Frontal			1.000	11.000	0.000 (CL)	1.000	0.000
Totals for Miscellaneous			**2.000**	**8.750**	**0.000 (CL)**	**1.000**	**0.000**
OD							
ODS BB	0.8700	10.0	0.112	6.786	1.000 (PS)	0.601	0.290
ODS BE	0.8700	10.0	0.112	6.786	-1.000 (SB)	0.601	0.290
Totals for OD			**0.223**	**6.786**	**0.000 (CL)**	**0.601**	**0.580**
CARGA							
CARGA TOTAL			25.000	8.500	0.000 (CL)	3.000	0.000
ÁGUA DOCE							
AD BE	1.0000	10.3	0.094	2.667	-1.995 (SB)	0.474	0.016
AD BB	1.0000	10.3	0.094	2.667	1.995 (PS)	0.474	0.016
C. Agua	1.0000	12.9	0.051	3.000	0.000 (CL)	4.297	0.027
Totals for ÁGUA DOCE			**0.239**	**2.739**	**0.000 (CL)**	**1.295**	**0.059**
ESGOTOS							
Esg. Sanitário	1.0000	90.2	0.480	4.510	1.525 (PS)	0.229	0.028
Esg. Oleoso	1.0000	90.2	0.480	4.510	-1.525 (SB)	0.229	0.028
Borra	1.0000	90.0	0.221	5.750	0.000 (CL)	0.225	0.042
Totals for ESGOTOS			**1.180**	**4.742**	**0.000 (CL)**	**0.228**	**0.097**
Lightship			**29.735**	**7.212**	**0.000 (CL)**	**1.450**	
Deadweight			**28.643**	**8.301**	**0.000 (CL)**	**2.713**	**0.736**
Displacement			**58.378**	**7.746**	**0.000 (CL)**	**2.070**	**0.736**

Righting levers

Heeling angle	Draft	Trim	Displacement	KN sin(ø)	VCG sin(ø)	GG' sin(ø)	TCG cos(ø)	GZ	Area
(Degr.)	*(m)*	*(m)*	*(tonnes)*	*(m)*	*(m)*	*(m)*	*(m)*	*(m)*	*(mrad)*
0.0º (CL)	1.096	0.142	58.378	0.000	0.000	0.000	0.000	0.000	0.000
2.0º (PS)	1.096	0.142	58.378	0.105	0.072	0.000	0.000	0.032	0.001
5.0º (PS)	1.093	0.145	58.378	0.263	0.180	0.001	0.000	0.081	0.004
10.0º (PS)	1.083	0.153	58.378	0.527	0.359	0.002	0.000	0.166	0.014
15.0º (PS)	1.068	0.167	58.378	0.789	0.536	0.003	0.000	0.251	0.033

Righting levers

Heeling angle	Draft	Trim	Displacement	KN sin(ø)	VCG sin(ø)	GG' sin(ø)	TCG cos(ø)	GZ	Area
(Degr.)	*(m)*	*(m)*	*(tonnes)*	*(m)*	*(m)*	*(m)*	*(m)*	*(m)*	*(mrad)*
20.0º (PS)	1.046	0.200	58.378	1.021	0.708	0.003	0.000	0.310	0.057
25.0º (PS)	1.034	0.257	58.378	1.186	0.875	0.003	0.000	0.308	0.085
30.0º (PS)	1.034	0.324	58.378	1.302	1.035	0.003	0.000	0.263	0.110
35.0º (PS)	1.038	0.410	58.378	1.380	1.187	0.004	0.000	0.189	0.130
40.0º (PS)	1.040	0.526	58.378	1.429	1.330	0.004	0.000	0.095	0.142
45.0º (PS)	1.040	0.676	58.378	1.457	1.464	0.004	0.000	-0.010	0.146
50.0º (PS)	1.037	0.873	58.378	1.468	1.586	0.004	0.000	-0.121	0.146
55.0º (PS)	1.029	1.141	58.377	1.464	1.695	0.004	0.000	-0.235	0.146
60.0º (PS)	1.012	1.519	58.378	1.449	1.792	0.004	0.000	-0.347	0.146



Critical points

Description	Type	X coordinate	Y coordinate	Z coordinate	Dist. to wl	Submersion angle
		(m)	*(m)*	*(m)*	*(m)*	*(Degr.)*
CASARIA	Downflooding	2.000	-1.500 (SB)	2.050	1.006	-38.4 (SB)

Evaluation of criteria

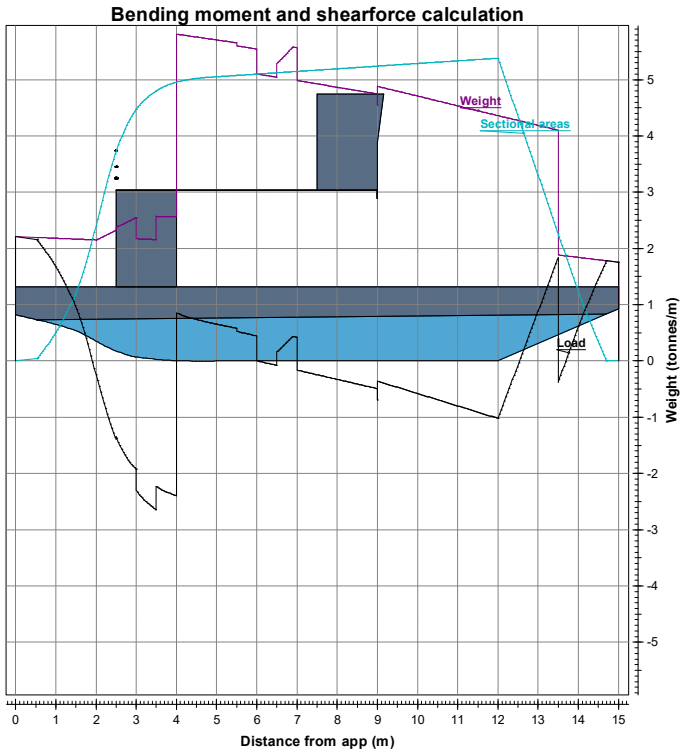
NORMAM 02 - CARGA

Carga NORMAM 02

Description	Attained value	Criterion	Required value	Complies
GMo	**0.924(m)**	**>=**	**0.350(m)**	**YES**
Alagamento	**38.4(Degr.)**	**>=**	**30.0(Degr.)**	**YES**
Ambiental				**YES**

Evaluation of criteria

Wind silhouette:	Silhouette 1			
Wind pressure	51.4(kg/m^2)			
Wind area	18.59(m^2)			
Steady wind lever	0.033(m)			
Wind gust lever	0.049(m)			
Ratio of areaA/areaB	0.012	< =	1.000	YES
Máximo GZ	**0.316(m)**	**> =**	**0.150(m)**	**YES**
Lower angle	0.0(Degr.)			
Upper angle	90.0(Degr.)			
Angulo de equilíbrio	**0.0(Degr.)**	**< =**	**15.0(Degr.)**	**YES**



Summary

Mean moulded draft	1.096(m)	Trim	0.142(m)
Displacement	58.378(tonnes)	GM	0.924(m)
Minimum shearforce	-2.322(tonnes)	Distance from app	12.520(m)
Maximum shearforce	2.935(tonnes)	Distance from app	1.920(m)
Maximum sagging moment	0.000(t*m)	Distance from app	0.000(m)
Maximum hogging moment	7.471(t*m)	Distance from app	8.960(m)

Weightlist

Description	Weight	LCG	TCG	VCG	Aft	Forward
	(tonnes)	*(m)*	*(m)*	*(m)*	*(m)*	*(m)*
Lightship	29.735	7.212	0.000 (CL)	1.450	0.003	14.997
ODS BB	0.112	6.786	1.000 (PS)	0.601	6.500	7.000
ODS BE	0.112	6.786	-1.000 (SB)	0.601	6.500	7.000

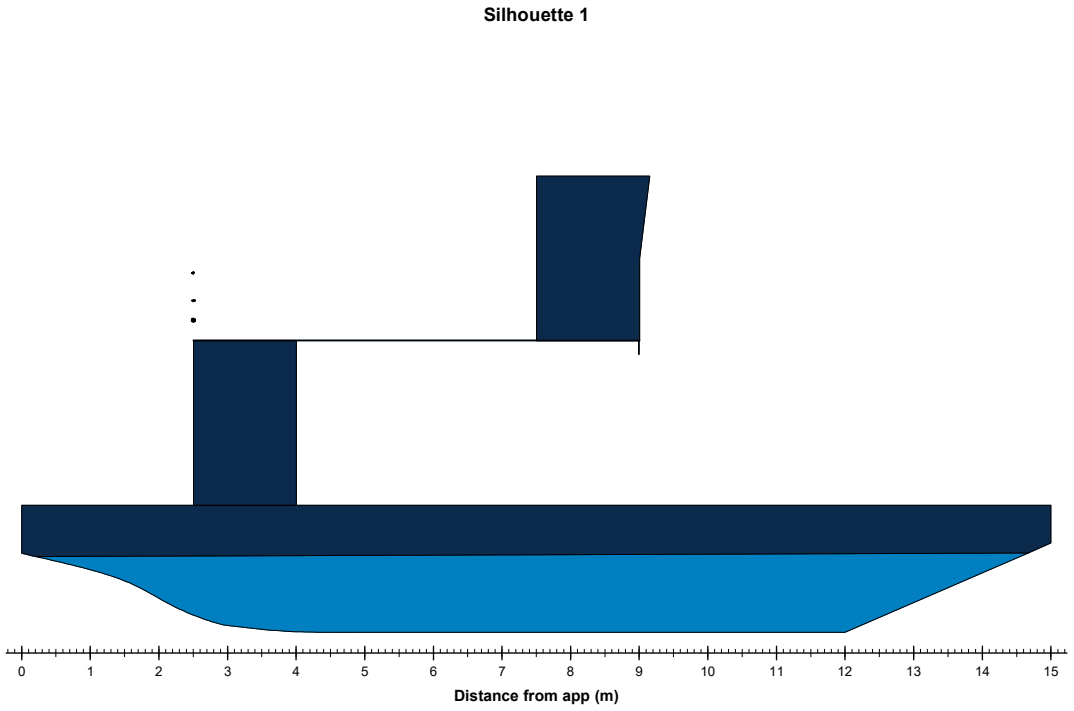
Weightlist

Description	Weight	LCG	TCG	VCG	Aft	Forward
	(tonnes)	*(m)*	*(m)*	*(m)*	*(m)*	*(m)*
AD BE	0.094	2.667	-1.995 (SB)	0.474	2.000	3.001
AD BB	0.094	2.667	1.995 (PS)	0.474	2.000	3.001
Esg. Sanitário	0.480	4.510	1.525 (PS)	0.229	3.500	5.500
Esg. Oleoso	0.480	4.510	-1.525 (SB)	0.229	3.500	5.500
Borra	0.221	5.750	0.000 (CL)	0.225	5.500	6.000
C. Agua	0.051	3.000	0.000 (CL)	4.297	2.500	3.500
Carga nos Paiós Laterias	1.000	6.500	0.000 (CL)	1.000	4.000	9.000
Carga no Paiol Frontal	1.000	11.000	0.000 (CL)	1.000	9.003	14.994
CARGA TOTAL	25.000	8.500	0.000 (CL)	3.000	4.000	13.500

Bending moment and shearforce calculation

Distance from app	Weight	Buoyancy	Load	Shear force	Bending moment
(m)	*(tonnes/m)*	*(tonnes/m)*	*(tonnes/m)*	*(tonnes)*	*(t*m)*
0.003	2.212	0	2.212	0	0
1	2.181	0.5	1.681	2.059	1.02
2	2.151	2.39	-0.239	2.937	3.629
3	2.496	4.461	-1.965	1.654	6.024
4	2.562	4.948	-2.386	-0.772	6.402
5	5.706	5.045	0.661	-0.023	5.974
6	5.542	5.094	0.448	0.533	6.203
7	5.566	5.142	0.424	0.681	6.714
8	4.865	5.19	-0.325	0.439	7.241
9	4.747	5.238	-0.491	0.031	7.444
10	4.707	5.287	-0.579	-0.439	7.211
11	4.534	5.335	-0.801	-1.129	6.4
12	4.36	5.383	-1.023	-2.041	4.787
13	4.186	3.301	0.885	-2.111	2.506
14	1.84	1.238	0.602	-1.37	0.835
14.997	1.755	0	1.755	0	0

8.7 CARREGADO CARGA + 100%



Hydrostatic particulars

List	0.0 (CL)(Degr.)	**GG'**	0.000(m)
Draft aft pp	1.120(m)	**VCG'**	2.071(m)
Mean moulded draft	1.136(m)	**Max VCG'**	2.494(m)
Draft forward pp	1.151(m)	**GM solid**	0.898(m)
Trim	0.031(m)	**G'M liquid**	0.898(m)
KM	2.969(m)	**Immersion rate**	0.710(t/cm)
VCG	2.071(m)	**MCT**	0.741(t*m/cm)

Summary

Description	Weight	LCG	TCG	VCG	FSM
	(tonnes)	*(m)*	*(m)*	*(m)*	*(t*m)*
Miscellaneous	2.000	8.750	0.000	1.000	0.000
OD	2.189	6.754	0.000	1.181	0.000
CARGA	25.000	8.500	0.000	3.000	0.000
ÁGUA DOCE	2.197	2.612	0.000	1.771	0.000
ESGOTOS	0.000	0.000	0.000	0.000	0.000
Lightship	**29.735**	**7.212**	**0.000 (CL)**	**1.450**	
Deadweight	**31.386**	**7.982**	**0.000 (CL)**	**2.660**	**0.000**
Displacement	**61.121**	**7.607**	**0.000 (CL)**	**2.071**	**0.000**

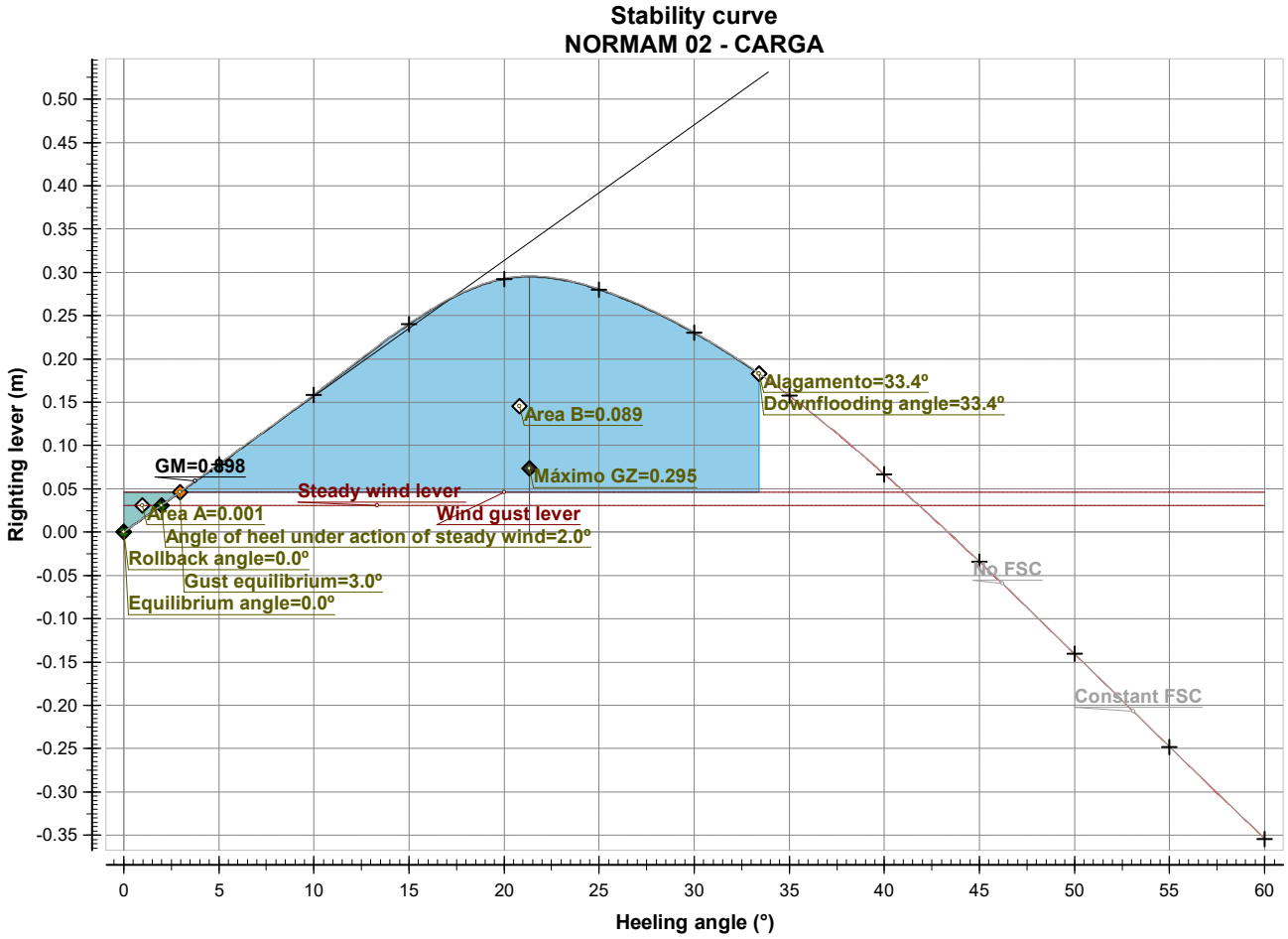
Description	Density	Fill%	Weight	LCG	TCG	VCG	FSM
	(t/m³)		*(tonnes)*	*(m)*	*(m)*	*(m)*	*(t*m)*
Miscellaneous							
CML	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Tq No. 2 BE	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Tq No. 2 BB	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Pq. Vte	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Motor	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Carga nos Paiós Laterias			1.000	6.500	0.000 (CL)	1.000	0.000
Carga no Paiol Frontal			1.000	11.000	0.000 (CL)	1.000	0.000
Totals for Miscellaneous			**2.000**	**8.750**	**0.000 (CL)**	**1.000**	**0.000**
OD							
ODS BB	0.8700	98.0	1.095	6.754	1.000 (PS)	1.181	0.000
ODS BE	0.8700	98.0	1.095	6.754	-1.000 (SB)	1.181	0.000
Totals for OD			**2.189**	**6.754**	**0.000 (CL)**	**1.181**	**0.000**
CARGA							
CARGA TOTAL			25.000	8.500	0.000 (CL)	3.000	0.000
ÁGUA DOCE							
AD BE	1.0000	98.0	0.899	2.526	-2.128 (SB)	1.155	0.000
AD BB	1.0000	98.0	0.899	2.526	2.128 (PS)	1.155	0.000
C. Agua	1.0000	100.0	0.400	3.000	0.000 (CL)	4.540	0.000
Totals for ÁGUA DOCE			**2.197**	**2.612**	**0.000 (CL)**	**1.771**	**0.000**
ESGOTOS							
Esg. Sanitário	1.0000	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Esg. Oleoso	1.0000	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Borra	1.0000	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Totals for ESGOTOS			**0.000**	**0.000**	**0.000 (CL)**	**0.000**	**0.000**
Lightship			**29.735**	**7.212**	**0.000 (CL)**	**1.450**	
Deadweight			**31.386**	**7.982**	**0.000 (CL)**	**2.660**	**0.000**
Displacement			**61.121**	**7.607**	**0.000 (CL)**	**2.071**	**0.000**

Righting levers

Heeling angle	Draft	Trim	Displacement	KN sin(ø)	VCG sin(ø)	GG' sin(ø)	TCG cos(ø)	GZ	Area
(Degr.)	*(m)*	*(m)*	*(tonnes)*	*(m)*	*(m)*	*(m)*	*(m)*	*(m)*	*(mrad)*
0.0º (CL)	1.136	0.031	61.120	0.000	0.000	0.000	0.000	0.000	0.000
2.0º (PS)	1.135	0.031	61.120	0.104	0.072	0.000	0.000	0.031	0.001
5.0º (PS)	1.132	0.033	61.120	0.259	0.181	0.001	0.000	0.078	0.003
10.0º (PS)	1.124	0.038	61.121	0.519	0.360	0.001	0.000	0.158	0.014
15.0º (PS)	1.110	0.045	61.121	0.777	0.536	0.001	0.000	0.240	0.031

Righting levers

Heeling angle	Draft	Trim	Displacement	KN sin(ø)	VCG sin(ø)	GG' sin(ø)	TCG cos(ø)	GZ	Area
(Degr.)	(m)	(m)	(tonnes)	(m)	(m)	(m)	(m)	(m)	(mrad)
20.0º (PS)	1.093	0.060	61.121	1.002	0.708	0.001	0.000	0.292	0.055
25.0º (PS)	1.090	0.081	61.121	1.156	0.875	0.001	0.000	0.280	0.080
30.0º (PS)	1.100	0.107	61.121	1.266	1.036	0.001	0.000	0.230	0.103
35.0º (PS)	1.116	0.152	61.121	1.346	1.188	0.001	0.000	0.157	0.120
40.0º (PS)	1.131	0.220	61.121	1.399	1.331	0.001	0.000	0.067	0.130
45.0º (PS)	1.146	0.318	61.121	1.431	1.465	0.001	0.000	-0.034	0.132
50.0º (PS)	1.159	0.459	61.121	1.447	1.587	0.001	0.000	-0.141	0.132
55.0º (PS)	1.171	0.663	61.121	1.449	1.697	0.001	0.000	-0.248	0.132
60.0º (PS)	1.178	0.975	61.121	1.440	1.794	0.001	0.000	-0.354	0.132



Critical points

Description	Type	X coordinate	Y coordinate	Z coordinate	Dist. to wl	Submersion angle
		(m)	(m)	(m)	(m)	(Degr.)
CASARIA	Downflooding	2.000	-1.500 (SB)	2.050	0.926	-33.4 (SB)

Evaluation of criteria

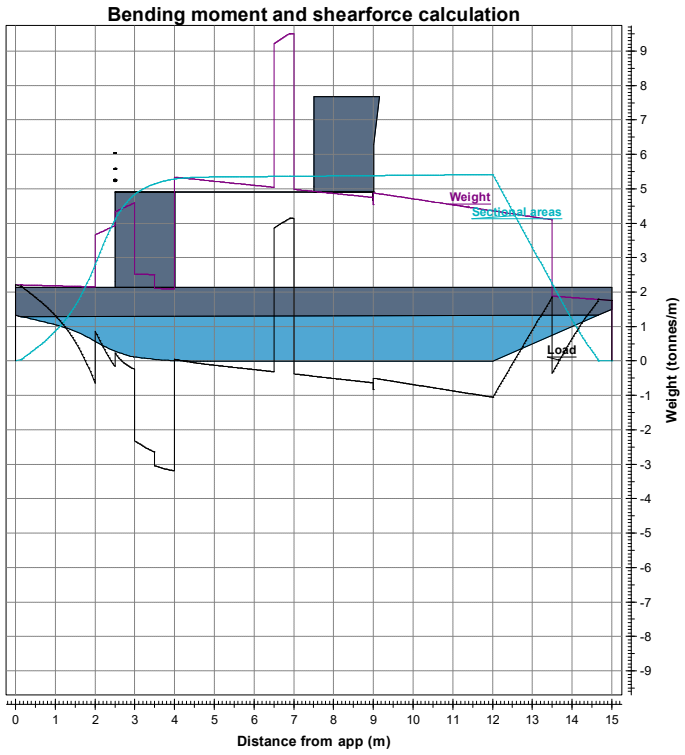
NORMAM 02 - CARGA

Carga NORMAM 02

Description	Attained value	Criterion	Required value	Complies
GMo	**0.898(m)**	**>=**	**0.350(m)**	**YES**
Alagamento	**33.4(Degr.)**	**>=**	**30.0(Degr.)**	**YES**
Ambiental				**YES**

Evaluation of criteria

Wind silhouette:	Silhouette 1			
Wind pressure	51.4(kg/m^2)			
Wind area	18.02(m^2)			
Steady wind lever	0.031(m)			
Wind gust lever	0.046(m)			
Ratio of areaA/areaB	0.013	<=	1.000	YES
Máximo GZ	**0.295(m)**	**>=**	**0.150(m)**	**YES**
Lower angle	0.0(Degr.)			
Upper angle	90.0(Degr.)			
Angulo de equilíbrio	**0.0(Degr.)**	**<=**	**15.0(Degr.)**	**YES**



Summary

Mean moulded draft	1.136(m)	Trim	0.031(m)
Displacement	61.121(tonnes)	GM	0.898(m)
Minimum shearforce	-2.376(tonnes)	Distance from app	12.560(m)
Maximum shearforce	2.482(tonnes)	Distance from app	2.680(m)
Maximum sagging moment	0.000(t*m)	Distance from app	0.000(m)
Maximum hogging moment	7.227(t*m)	Distance from app	9.440(m)

Weightlist

Description	Weight	LCG	TCG	VCG	Aft	Forward
	(tonnes)	*(m)*	*(m)*	*(m)*	*(m)*	*(m)*
Lightship	29.735	7.212	0.000 (CL)	1.450	0.003	14.997
ODS BB	1.095	6.754	1.000 (PS)	1.181	6.500	7.000
ODS BE	1.095	6.754	-1.000 (SB)	1.181	6.500	7.000

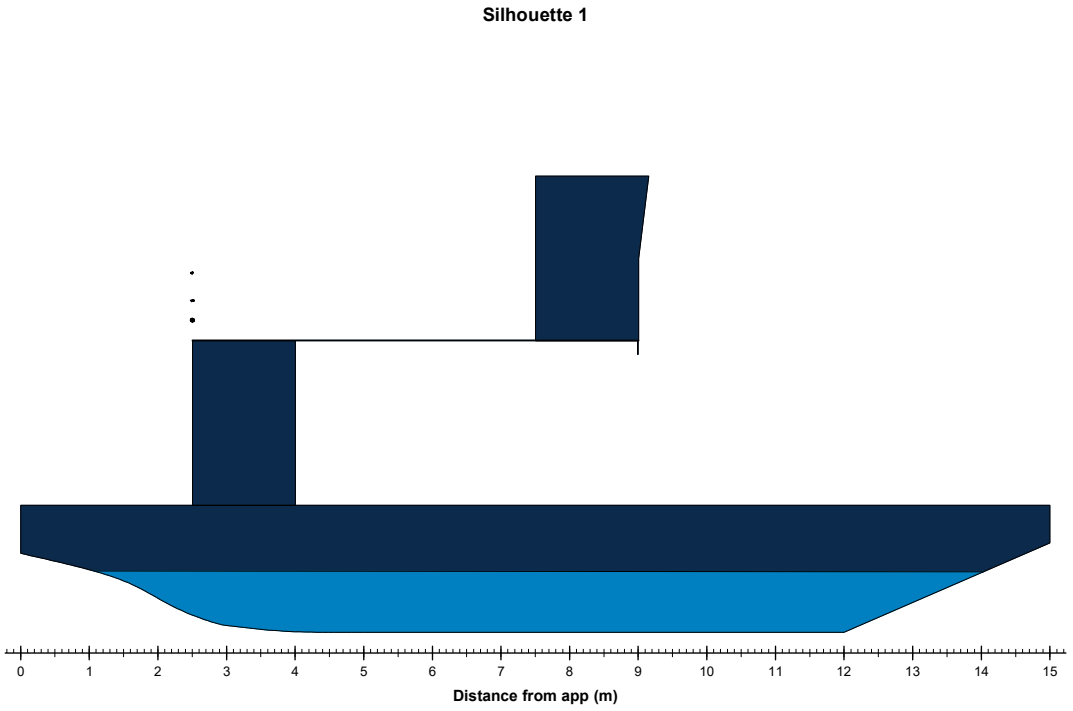
Weightlist

Description	Weight	LCG	TCG	VCG	Aft	Forward
	(tonnes)	*(m)*	*(m)*	*(m)*	*(m)*	*(m)*
AD BE	0.899	2.526	-2.128 (SB)	1.155	2.000	3.000
AD BB	0.899	2.526	2.128 (PS)	1.155	2.000	3.000
C. Agua	0.400	3.000	0.000 (CL)	4.540	2.500	3.500
Carga nos Paiós Laterias	1.000	6.500	0.000 (CL)	1.000	4.000	9.000
Carga no Paiol Frontal	1.000	11.000	0.000 (CL)	1.000	9.003	14.994
CARGA TOTAL	25.000	8.500	0.000 (CL)	3.000	4.000	13.500

Bending moment and shearforce calculation

Distance from app	Weight	Buoyancy	Load	Shear force	Bending moment
(m)	*(tonnes/m)*	*(tonnes/m)*	*(tonnes/m)*	*(tonnes)*	*(t*m)*
0.003	2.212	0	2.212	0	0
1	2.181	0.801	1.38	1.874	0.991
2	2.151	2.729	-0.578	2.429	3.287
3	4.198	4.77	-0.571	2.431	5.83
4	2.09	5.228	-3.138	-0.523	6.807
5	5.219	5.294	-0.075	-0.518	6.285
6	5.101	5.313	-0.212	-0.662	5.69
7	9.498	5.331	4.167	1.248	5.423
8	4.865	5.349	-0.484	0.832	6.458
9	4.747	5.367	-0.62	0.28	7.009
10	4.707	5.386	-0.678	-0.304	6.997
11	4.534	5.404	-0.87	-1.078	6.306
12	4.36	5.422	-1.062	-2.044	4.745
13	4.186	3.31	0.877	-2.136	2.478
14	1.84	1.218	0.623	-1.389	0.812
14.997	1.755	0	1.755	0	0

8.8 CARREGADO PASSAGEIROS + CARGA + 10%



Hydrostatic particulars

List	0.0 (CL)(Degr.)	**GG'**	0.017(m)
Draft aft pp	0.895(m)	**VCG'**	1.844(m)
Mean moulded draft	0.887(m)	**Max VCG'**	2.856(m)
Draft forward pp	0.878(m)	**GM solid**	1.556(m)
Trim	-0.018(m)	**G'M liquid**	1.540(m)
KM	3.383(m)	**Immersion rate**	0.636(t/cm)
VCG	1.827(m)	**MCT**	0.534(t*m/cm)

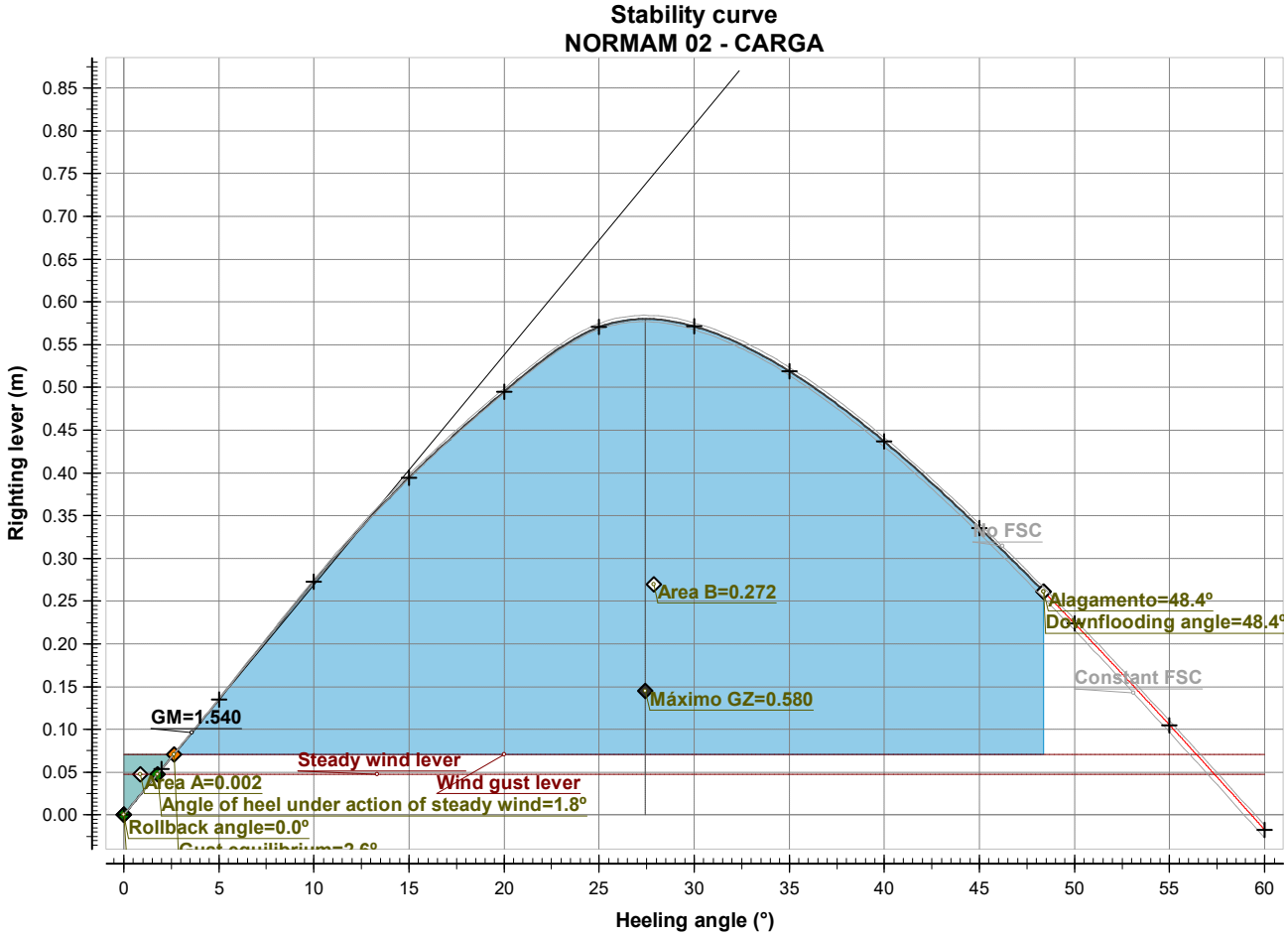
Summary

Description	Weight	LCG	TCG	VCG	FSM
	(tonnes)	*(m)*	*(m)*	*(m)*	*(t*m)*
Miscellaneous	2.000	8.750	0.000	1.000	0.000
OD	0.223	6.786	0.000	0.601	0.580
CARGA	10.000	9.000	0.000	3.000	0.000
ÁGUA DOCE	0.239	2.739	0.000	1.295	0.059
ESGOTOS	1.180	4.742	0.000	0.228	0.097
PASSAGEIROS ACOMODADOS	1.000	6.500	0.000	5.250	0.000
Lightship	**29.735**	**7.212**	**0.000 (CL)**	**1.450**	
Deadweight	**14.643**	**8.316**	**0.000 (CL)**	**2.593**	**0.736**
Displacement	**44.378**	**7.576**	**0.000 (CL)**	**1.827**	**0.736**

Description	Density	Fill%	Weight	LCG	TCG	VCG	FSM
	(t/m³)		*(tonnes)*	*(m)*	*(m)*	*(m)*	*(t*m)*
Miscellaneous							
CML	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Tq No. 2 BE	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Tq No. 2 BB	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Pq. Vte	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Motor	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Carga nos Paiós Laterias			1.000	6.500	0.000 (CL)	1.000	0.000
Carga no Paiol Frontal			1.000	11.000	0.000 (CL)	1.000	0.000
Totals for Miscellaneous			**2.000**	**8.750**	**0.000 (CL)**	**1.000**	**0.000**
OD							
ODS BB	0.8700	10.0	0.112	6.786	1.000 (PS)	0.601	0.290
ODS BE	0.8700	10.0	0.112	6.786	-1.000 (SB)	0.601	0.290
Totals for OD			**0.223**	**6.786**	**0.000 (CL)**	**0.601**	**0.580**
CARGA							
CARGA PARCIAL			10.000	9.000	0.000 (CL)	3.000	0.000
ÁGUA DOCE							
AD BE	1.0000	10.3	0.094	2.667	-1.995 (SB)	0.474	0.016
AD BB	1.0000	10.3	0.094	2.667	1.995 (PS)	0.474	0.016
C. Agua	1.0000	12.9	0.051	3.000	0.000 (CL)	4.297	0.027
Totals for ÁGUA DOCE			**0.239**	**2.739**	**0.000 (CL)**	**1.295**	**0.059**
ESGOTOS							
Esg. Sanitário	1.0000	90.2	0.480	4.510	1.525 (PS)	0.229	0.028
Esg. Oleoso	1.0000	90.2	0.480	4.510	-1.525 (SB)	0.229	0.028
Borra	1.0000	90.0	0.221	5.750	0.000 (CL)	0.225	0.042
Totals for ESGOTOS			**1.180**	**4.742**	**0.000 (CL)**	**0.228**	**0.097**
PASSAGEIROS ACOMODADOS							
PASSAGEIROS NO CS			1.000	6.500	0.000 (CL)	5.250	0.000
Lightship			**29.735**	**7.212**	**0.000 (CL)**	**1.450**	
Deadweight			**14.643**	**8.316**	**0.000 (CL)**	**2.593**	**0.736**
Displacement			**44.378**	**7.576**	**0.000 (CL)**	**1.827**	**0.736**

Righting levers

Heeling angle	Draft	Trim	Displacement	KN sin(ø)	VCG sin(ø)	GG' sin(ø)	TCG cos(ø)	GZ	Area
(Degr.)	*(m)*	*(m)*	*(tonnes)*	*(m)*	*(m)*	*(m)*	*(m)*	*(m)*	*(mrad)*
0.0º (CL)	0.887	-0.018	44.378	0.000	0.000	0.000	0.000	0.000	0.000
2.0º (PS)	0.886	-0.017	44.378	0.118	0.064	0.001	0.000	0.054	0.001
5.0º (PS)	0.883	-0.016	44.378	0.296	0.159	0.001	0.000	0.135	0.006
10.0º (PS)	0.873	-0.009	44.378	0.593	0.317	0.003	0.000	0.273	0.024
15.0º (PS)	0.849	0.000	44.378	0.871	0.473	0.003	0.000	0.394	0.053
20.0º (PS)	0.810	0.007	44.378	1.124	0.625	0.004	0.000	0.495	0.092
25.0º (PS)	0.757	0.014	44.378	1.347	0.772	0.004	0.000	0.571	0.139
30.0º (PS)	0.696	0.024	44.378	1.489	0.914	0.004	0.000	0.571	0.189
35.0º (PS)	0.629	0.036	44.378	1.572	1.048	0.005	0.000	0.519	0.237
40.0º (PS)	0.553	0.049	44.378	1.616	1.174	0.005	0.000	0.437	0.279
45.0º (PS)	0.465	0.068	44.378	1.632	1.292	0.005	0.000	0.336	0.313
50.0º (PS)	0.358	0.101	44.378	1.628	1.400	0.005	0.000	0.224	0.337
55.0º (PS)	0.223	0.159	44.378	1.607	1.497	0.005	0.000	0.105	0.351
60.0º (PS)	0.045	0.255	44.378	1.570	1.582	0.005	0.000	-0.017	0.355



Critical points

Description	Type	X coordinate	Y coordinate	Z coordinate	Dist. to wl	Submersion angle
		(m)	*(m)*	*(m)*	*(m)*	*(Degr.)*
CASARIA	Downflooding	2.000	-1.500 (SB)	2.050	1.157	-48.4 (SB)

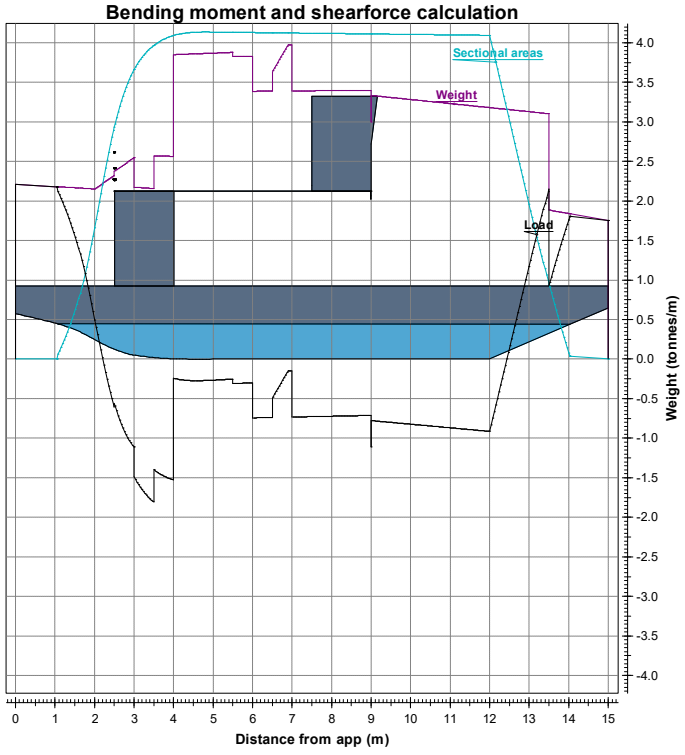
Evaluation of criteria

NORMAM 02 - CARGA

Evaluation of criteria

Carga NORMAM 02

Description	Attained value	Criterion	Required value	Complies
GMo	**1.540(m)**	**>=**	**0.350(m)**	**YES**
Alagamento	**48.4(Degr.)**	**>=**	**30.0(Degr.)**	**YES**
Ambiental				**YES**
Wind silhouette:	Silhouette 1			
Wind pressure	51.4(kg/m^2)			
Wind area	21.44(m^2)			
Steady wind lever	0.047(m)			
Wind gust lever	0.071(m)			
Ratio of areaA/areaB	0.006	<=	1.000	YES
Máximo GZ	**0.580(m)**	**>=**	**0.150(m)**	**YES**
Lower angle	0.0(Degr.)			
Upper angle	90.0(Degr.)			
Angulo de equilíbrio	**0.0(Degr.)**	**<=**	**15.0(Degr.)**	**YES**



Summary

Mean moulded draft	0.887(m)	Trim	-0.018(m)
Displacement	44.378(tonnes)	GM	1.540(m)
Minimum shearforce	-3.617(tonnes)	Distance from app	12.440(m)
Maximum shearforce	3.736(tonnes)	Distance from app	2.200(m)
Maximum sagging moment	0.000(t*m)	Distance from app	0.000(m)
Maximum hogging moment	13.835(t*m)	Distance from app	7.760(m)

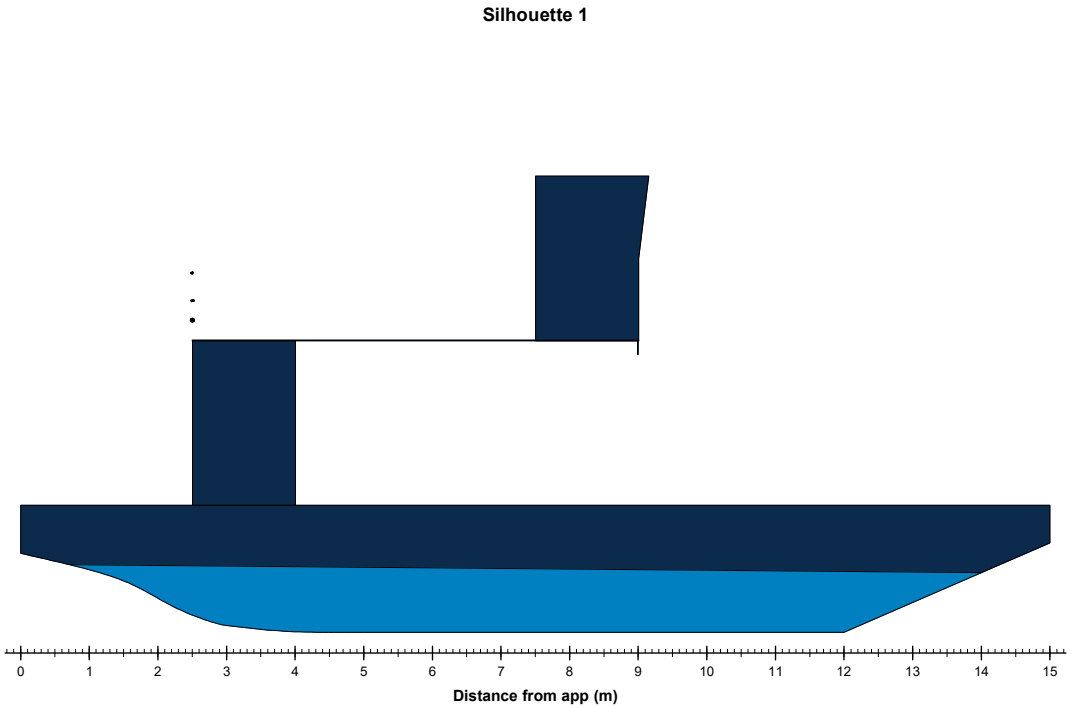
Weightlist

Description	Weight	LCG	TCG	VCG	Aft	Forward
	(tonnes)	*(m)*	*(m)*	*(m)*	*(m)*	*(m)*
Lightship	29.735	7.212	0.000 (CL)	1.450	0.003	14.997
ODS BB	0.112	6.786	1.000 (PS)	0.601	6.500	7.000
ODS BE	0.112	6.786	-1.000 (SB)	0.601	6.500	7.000
AD BE	0.094	2.667	-1.995 (SB)	0.474	2.000	3.001
AD BB	0.094	2.667	1.995 (PS)	0.474	2.000	3.001
Esg. Sanitário	0.480	4.510	1.525 (PS)	0.229	3.500	5.500
Esg. Oleoso	0.480	4.510	-1.525 (SB)	0.229	3.500	5.500
Borra	0.221	5.750	0.000 (CL)	0.225	5.500	6.000
C. Agua	0.051	3.000	0.000 (CL)	4.297	2.500	3.500
Carga nos Paiós Laterias	1.000	6.500	0.000 (CL)	1.000	4.000	9.000
Carga no Paiol Frontal	1.000	11.000	0.000 (CL)	1.000	9.003	14.994
CARGA PARCIAL	10.000	9.000	0.000 (CL)	3.000	4.000	13.500
PASSAGEIROS NO CS	1.000	6.500	0.000 (CL)	5.250	4.000	9.000

Bending moment and shearforce calculation

Distance from app	Weight	Buoyancy	Load	Shear force	Bending moment
(m)	*(tonnes/m)*	*(tonnes/m)*	*(tonnes/m)*	*(tonnes)*	*(t*m)*
0.003	2.212	0	2.212	0	0
1	2.181	0	2.181	2.189	1.157
2	2.151	1.646	0.504	3.695	4.166
3	2.496	3.647	-1.152	3.197	7.749
4	2.562	4.082	-1.52	1.61	10.127
5	3.868	4.126	-0.258	1.352	11.607
6	3.826	4.122	-0.296	1.077	12.823
7	3.973	4.117	-0.145	0.568	13.578
8	3.394	4.113	-0.719	-0.155	13.781
9	3.399	4.109	-0.71	-0.869	13.265
10	3.282	4.104	-0.823	-1.669	11.995
11	3.23	4.1	-0.87	-2.516	9.903
12	3.179	4.096	-0.916	-3.409	6.941
13	3.128	1.963	1.165	-3.284	3.418
14	1.84	0.083	1.758	-1.773	0.887
14.997	1.755	0	1.755	0	0

8.9 CARREGADO PASSAGEIROS + CARGA + 100%



Hydrostatic particulars

List	0.0 (CL)(Degr.)	**GG'**	0.000(m)
Draft aft pp	1.010(m)	**VCG'**	1.843(m)
Mean moulded draft	0.929(m)	**Max VCG'**	2.793(m)
Draft forward pp	0.849(m)	**GM solid**	1.455(m)
Trim	-0.161(m)	**G'M liquid**	1.455(m)
KM	3.298(m)	**Immersion rate**	0.652(t/cm)
VCG	1.843(m)	**MCT**	0.578(t*m/cm)

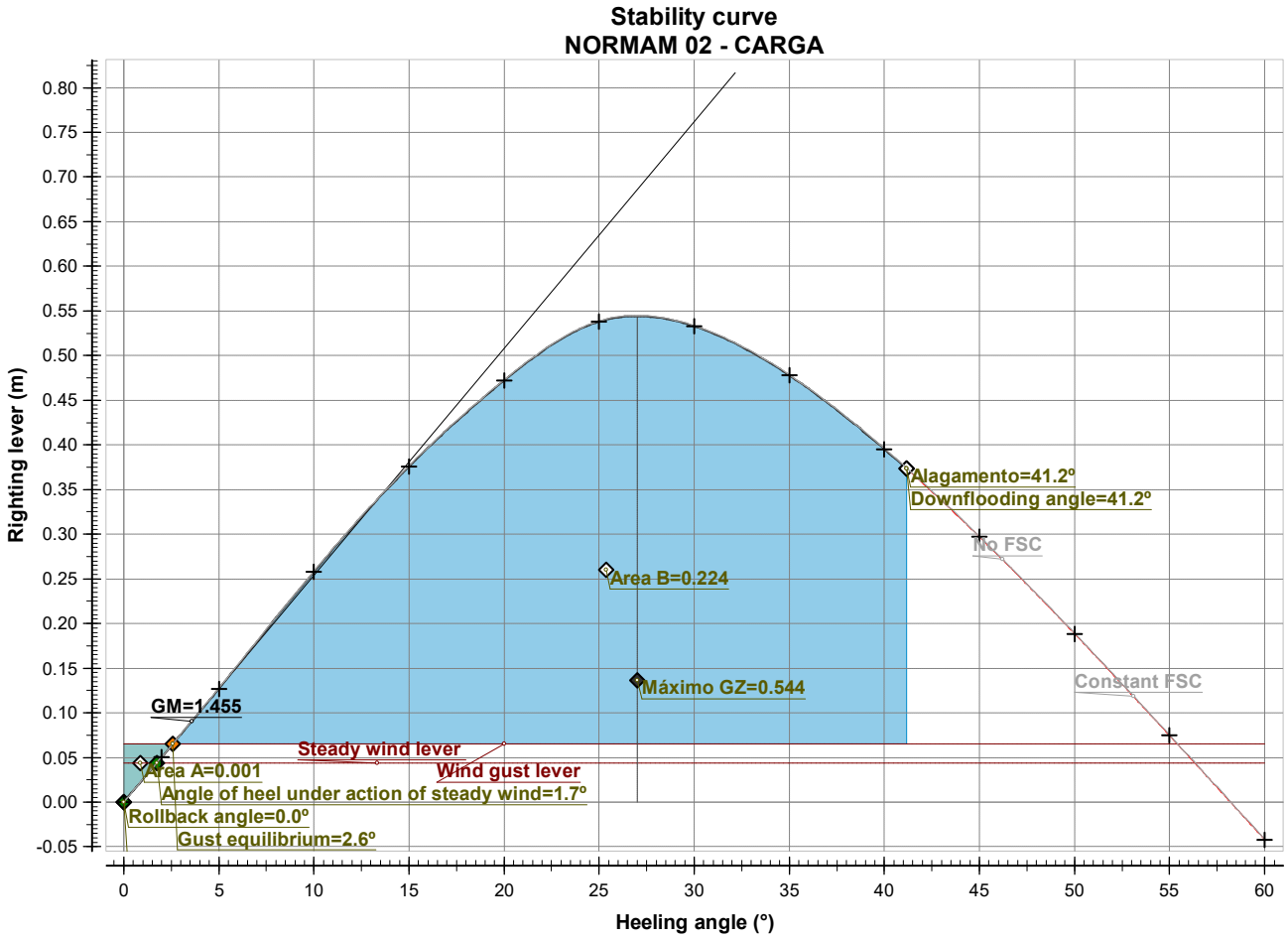
Summary

Description	Weight	LCG	TCG	VCG	FSM
	(tonnes)	*(m)*	*(m)*	*(m)*	*(t*m)*
Miscellaneous	2.000	8.750	0.000	1.000	0.000
OD	2.189	6.754	0.000	1.181	0.000
CARGA	10.000	9.000	0.000	3.000	0.000
ÁGUA DOCE	2.233	2.610	0.000	1.772	0.000
ESGOTOS	0.000	0.000	0.000	0.000	0.000
PASSAGEIROS ACOMODADOS	1.000	6.500	0.000	5.250	0.000
Lightship	**29.735**	**7.212**	**0.000 (CL)**	**1.450**	
Deadweight	**17.422**	**7.727**	**0.000 (CL)**	**2.514**	**0.000**
Displacement	**47.157**	**7.402**	**0.000 (CL)**	**1.843**	**0.000**

Description	Density	Fill%	Weight	LCG	TCG	VCG	FSM
	(t/m^3)		*(tonnes)*	*(m)*	*(m)*	*(m)*	*(t*m)*
Miscellaneous							
CML	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Tq No. 2 BE	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Tq No. 2 BB	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Pq. Vte	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Motor	1.0250	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Carga nos Paiós Laterias			1.000	6.500	0.000 (CL)	1.000	0.000
Carga no Paiol Frontal			1.000	11.000	0.000 (CL)	1.000	0.000
Totals for Miscellaneous			**2.000**	**8.750**	**0.000 (CL)**	**1.000**	**0.000**
OD							
ODS BB	0.8700	98.0	1.095	6.754	1.000 (PS)	1.181	0.000
ODS BE	0.8700	98.0	1.095	6.754	-1.000 (SB)	1.181	0.000
Totals for OD			**2.189**	**6.754**	**0.000 (CL)**	**1.181**	**0.000**
CARGA							
CARGA PARCIAL			10.000	9.000	0.000 (CL)	3.000	0.000
ÁGUA DOCE							
AD BE	1.0000	100.0	0.917	2.526	-2.128 (SB)	1.169	0.000
AD BB	1.0000	100.0	0.917	2.526	2.128 (PS)	1.169	0.000
C. Agua	1.0000	100.0	0.400	3.000	0.000 (CL)	4.540	0.000
Totals for ÁGUA DOCE			**2.233**	**2.610**	**0.000 (CL)**	**1.772**	**0.000**
ESGOTOS							
Esg. Sanitário	1.0000	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Esg. Oleoso	1.0000	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Borra	1.0000	0.0	0.000	0.000	0.000 (CL)	0.000	0.000
Totals for ESGOTOS			**0.000**	**0.000**	**0.000 (CL)**	**0.000**	**0.000**
PASSAGEIROS ACOMODADOS							
PASSAGEIROS NO CS			1.000	6.500	0.000 (CL)	5.250	0.000
Lightship			**29.735**	**7.212**	**0.000 (CL)**	**1.450**	
Deadweight			**17.422**	**7.727**	**0.000 (CL)**	**2.514**	**0.000**
Displacement			**47.157**	**7.402**	**0.000 (CL)**	**1.843**	**0.000**

Righting levers

Heeling angle	Draft	Trim	Displacement	KN sin(ø)	VCG sin(ø)	GG' sin(ø)	TCG cos(ø)	GZ	Area
(Degr.)	*(m)*	*(m)*	*(tonnes)*	*(m)*	*(m)*	*(m)*	*(m)*	*(m)*	*(mrad)*
0.0º (CL)	0.929	-0.161	47.157	0.000	0.000	0.000	0.000	0.000	0.000
2.0º (PS)	0.929	-0.160	47.157	0.115	0.064	0.000	0.000	0.050	0.001
5.0º (PS)	0.926	-0.156	47.157	0.288	0.161	0.001	0.000	0.127	0.006
10.0º (PS)	0.916	-0.146	47.157	0.579	0.320	0.001	0.000	0.258	0.022
15.0º (PS)	0.894	-0.139	47.157	0.853	0.477	0.001	0.000	0.376	0.050
20.0º (PS)	0.857	-0.140	47.157	1.103	0.630	0.001	0.000	0.472	0.087
25.0º (PS)	0.811	-0.158	47.157	1.318	0.779	0.001	0.000	0.538	0.132
30.0º (PS)	0.763	-0.194	47.157	1.455	0.921	0.001	0.000	0.533	0.179
35.0º (PS)	0.711	-0.234	47.157	1.536	1.057	0.001	0.000	0.478	0.223
40.0º (PS)	0.650	-0.276	47.157	1.581	1.185	0.001	0.000	0.395	0.262
45.0º (PS)	0.578	-0.312	47.157	1.601	1.303	0.001	0.000	0.297	0.292
50.0º (PS)	0.489	-0.341	47.157	1.601	1.412	0.001	0.000	0.189	0.313
55.0º (PS)	0.375	-0.355	47.157	1.585	1.510	0.001	0.000	0.074	0.325
60.0º (PS)	0.224	-0.342	47.157	1.555	1.596	0.001	0.000	-0.042	0.327



Critical points

Description	Type	X coordinate	Y coordinate	Z coordinate	Dist. to wl	Submersion angle
		(m)	*(m)*	*(m)*	*(m)*	*(Degr.)*
CASARIA	Downflooding	2.000	-1.500 (SB)	2.050	1.062	-41.2 (SB)

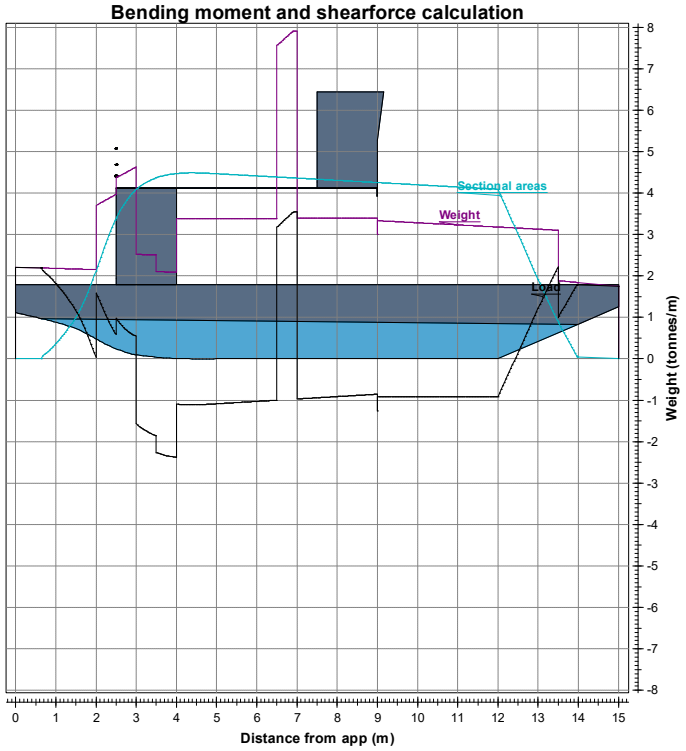
Evaluation of criteria

NORMAM 02 - CARGA

Evaluation of criteria

Carga NORMAM 02

Description	Attained value	Criterion	Required value	Complies
GMo	**1.455(m)**	**>=**	**0.350(m)**	**YES**
Alagamento	**41.2(Degr.)**	**>=**	**30.0(Degr.)**	**YES**
Ambiental				**YES**
Wind silhouette:	Silhouette 1			
Wind pressure	51.4(kg/m^2)			
Wind area	20.87(m^2)			
Steady wind lever	0.044(m)			
Wind gust lever	0.065(m)			
Ratio of areaA/areaB	0.007	<=	1.000	YES
Máximo GZ	**0.544(m)**	**>=**	**0.150(m)**	**YES**
Lower angle	0.0(Degr.)			
Upper angle	90.0(Degr.)			
Angulo de equilíbrio	**0.0(Degr.)**	**<=**	**15.0(Degr.)**	**YES**



Summary

Mean moulded draft	0.929(m)	Trim	-0.161(m)
Displacement	47.157(tonnes)	GM	1.455(m)
Minimum shearforce	-3.693(tonnes)	Distance from app	12.440(m)
Maximum shearforce	4.080(tonnes)	Distance from app	3.000(m)
Maximum sagging moment	0.000(t*m)	Distance from app	14.994(m)
Maximum hogging moment	13.478(t*m)	Distance from app	8.200(m)

Weightlist

Description	Weight	LCG	TCG	VCG	Aft	Forward
	(tonnes)	*(m)*	*(m)*	*(m)*	*(m)*	*(m)*
Lightship	29.735	7.212	0.000 (CL)	1.450	0.003	14.997
ODS BB	1.095	6.754	1.000 (PS)	1.181	6.500	7.000
ODS BE	1.095	6.754	-1.000 (SB)	1.181	6.500	7.000
AD BE	0.917	2.526	-2.128 (SB)	1.169	2.000	3.000
AD BB	0.917	2.526	2.128 (PS)	1.169	2.000	3.000
C. Agua	0.400	3.000	0.000 (CL)	4.540	2.500	3.500
Carga nos Paiós Laterias	1.000	6.500	0.000 (CL)	1.000	4.000	9.000
Carga no Paiol Frontal	1.000	11.000	0.000 (CL)	1.000	9.003	14.994
CARGA PARCIAL	10.000	9.000	0.000 (CL)	3.000	4.000	13.500
PASSAGEIROS NO CS	1.000	6.500	0.000 (CL)	5.250	4.000	9.000

Bending moment and shearforce calculation

Distance from app	Weight	Buoyancy	Load	Shear force	Bending moment
(m)	*(tonnes/m)*	*(tonnes/m)*	*(tonnes/m)*	*(tonnes)*	*(t*m)*
0.003	2.212	0	2.212	0	0
1	2.181	0.294	1.887	2.146	1.116
2	2.151	2.034	0.117	3.299	4.01
3	4.235	4.01	0.225	4.066	7.842
4	2.09	4.406	-2.316	1.902	10.886
5	3.381	4.411	-1.031	0.859	12.293
6	3.385	4.368	-0.983	-0.148	12.672
7	7.904	4.325	3.579	1.082	12.607
8	3.394	4.282	-0.888	0.171	13.256
9	3.399	4.239	-0.84	-0.693	13.018
10	3.282	4.196	-0.914	-1.604	11.897
11	3.23	4.152	-0.922	-2.522	9.861
12	3.179	4.109	-0.93	-3.448	6.904
13	3.128	1.937	1.19	-3.318	3.372
14	1.84	0.047	1.794	-1.769	0.861
14.997	1.755	0	1.755	0	0