

C.1704 CANTIERE SIMAN

BATTELLO IDRO

ISTRUZIONI AL COMANDANTE



07/04/2016

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1. CARATTERISTICHE PRINCIPALI

LUNGHEZZA FUORI TUTTO	F.T. 23.90m
LUNGHEZZA AL GALLEGGIAMENTO	L.W.L.22.79m
LUNGHEZZA TRA LE PERPENDICOLARI	L.P.P. 22.79m
LARGHEZZA FUORI BOTAZZO	B. 5.0m
ALTEZZA DI COSTRUZIONE	D. 2,15m
IMMERSIONE DI PROGETTO	T. 1.15m
VELOCITA' DI PROGETTO	9.72Kn
MOTORE DI PROPULSIONE	2x200Kw
LIGHT SHIP	31.350
FULL LOAD	50.908t
PASSEGGERI	120
ENTE DI CLASSIFICA	R.I.Na.

NOTAZIONE DI CLASSE – 100A -1.1  INLAND WATERWAYS - TP

CANTIERE COSTRUTTORE	SIMAN
ANNO DI COSTRUZIONE	2015/2016

1.1. ISTRUZIONI GENERALI

Una copia del presente fascicolo, approvato dal Registro di Classe, deve essere sempre tenuto a bordo. Deve essere sempre completo, leggibile e conservato in un posto facilmente accessibile per un pronto utilizzo. Qualora dovesse essere perso o comunque risultasse inutilizzabile, il Comando di bordo deve immediatamente procurarsene una nuova copia approvata tramite il Cantiere costruttore od il Registro di Classe.

Le condizioni di carico illustrate nel presente fascicolo sono le condizioni tipiche di servizio.

Qualora la condizione di carico risultasse diversa da quelle esaminate, dovrà essere eseguito un calcolo per verificare che la condizione in esame sia rispondente ai criteri di stabilità richiesti.

1.2. PRECAUZIONI OPERATIVE

La rispondenza ai requisiti di stabilità non comporta la salvaguardia contro il ribaltamento dell'unità in qualunque condizione meteorologica e/o circostanza e non assolve il Comandante dalle proprie responsabilità.

Conseguentemente il Comandante dovrà esercitare sempre la massima prudenza ed abilità marinaresca avendo riguardo della stagione, delle previsioni meteorologiche e della zona di lago.

Tutte le porte ed aperture, attraverso le quali l'acqua potrebbe penetrare all'interno dello scafo, devono essere mantenute opportunamente chiuse in condizioni meteorologiche sfavorevoli e conseguentemente tutti i sistemi di chiusura devono essere mantenuti in perfette condizioni di efficienza.

Il numero delle casse a specchio libero deve essere tenuto al minimo possibile per ridurre gli effetti negativi sulla stabilità.

Gli sfoghi aria, per quanto possibile, devono essere tenuti chiusi in condizioni meteorologiche avverse.

La quantità di acqua presente in sentina deve essere mantenuta al minimo possibile.

1.3. USO DELLE CASSE E CORREZIONE PER SPECCHI LIBERI

In una cassa completamente piena il liquido non può muoversi e quindi il suo effetto sulla stabilità nave è identico a quello di un carico solido di eguale densità.

Qualora una quantità di liquido sia aspirata dalla cassa completamente piena, la situazione cambia e la stabilità nave è influenzata dall'effetto dello specchio libero del liquido. Questo effetto negativo sulla stabilità si riconduce ad un "decremento" dell'altezza metacentrica (GM) ovvero ad un incremento della quota virtuale del centro di gravità (VCG) e può essere calcolato come segue: incremento virtuale di VCG/perdita di GM = FSM / Δ .

2. SISTEMA DI RIFERIMENTO

Il sistema di riferimento adottato è il seguente:

- Asse X positivo verso prora
- Asse Y positivo verso destra nave
- Asse Z positivo verso l'alto

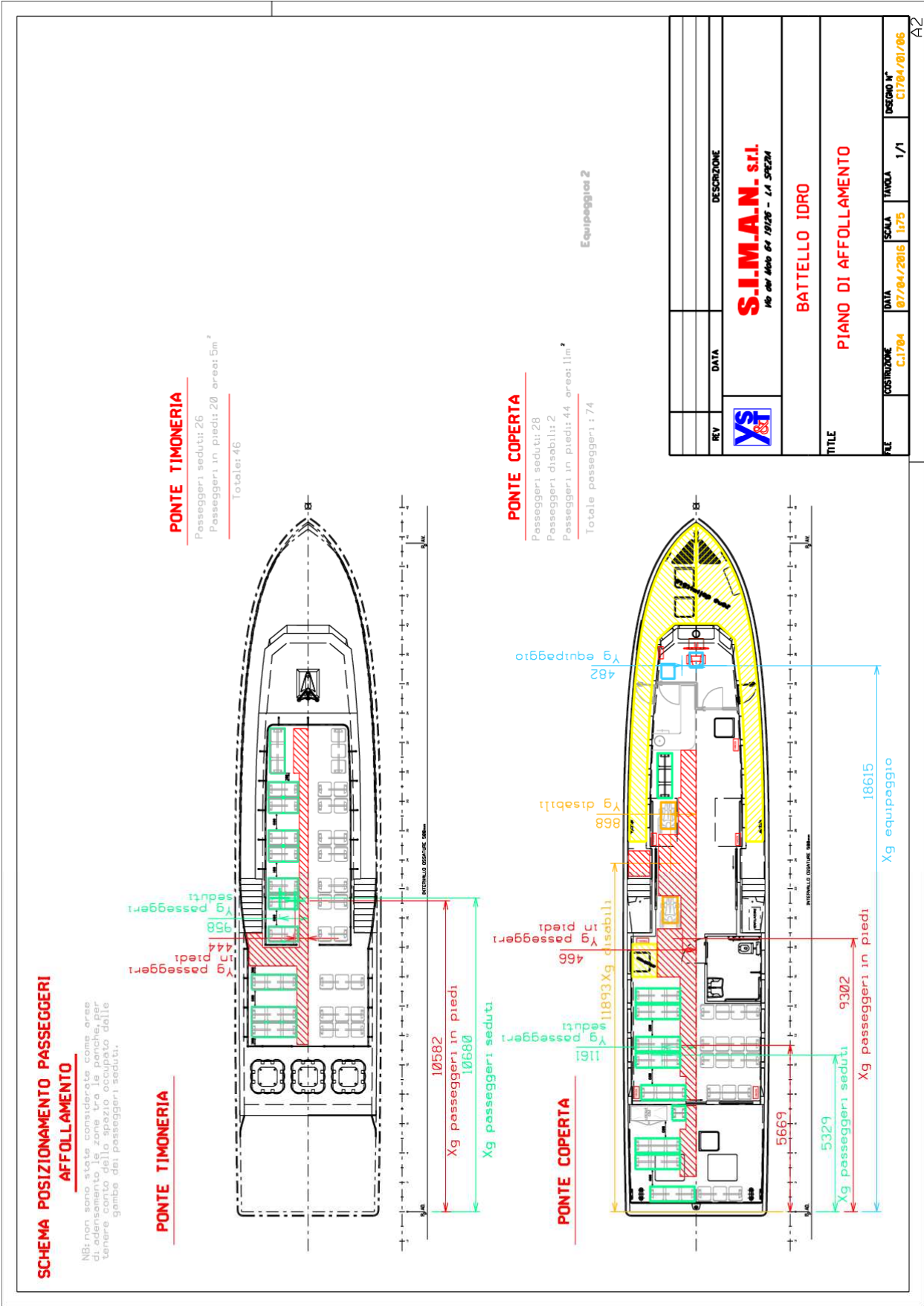
Per i calcoli si stabilirà il punto di riferimento per le coordinate longitudinali (X_g) è coincidente con l'estremità poppiera dello specchio di poppa, che coincide con l'ordinata 0.

3. PIANO GENERALE

YS&T



3.2 PIANO DI AFFOLLAMENTO



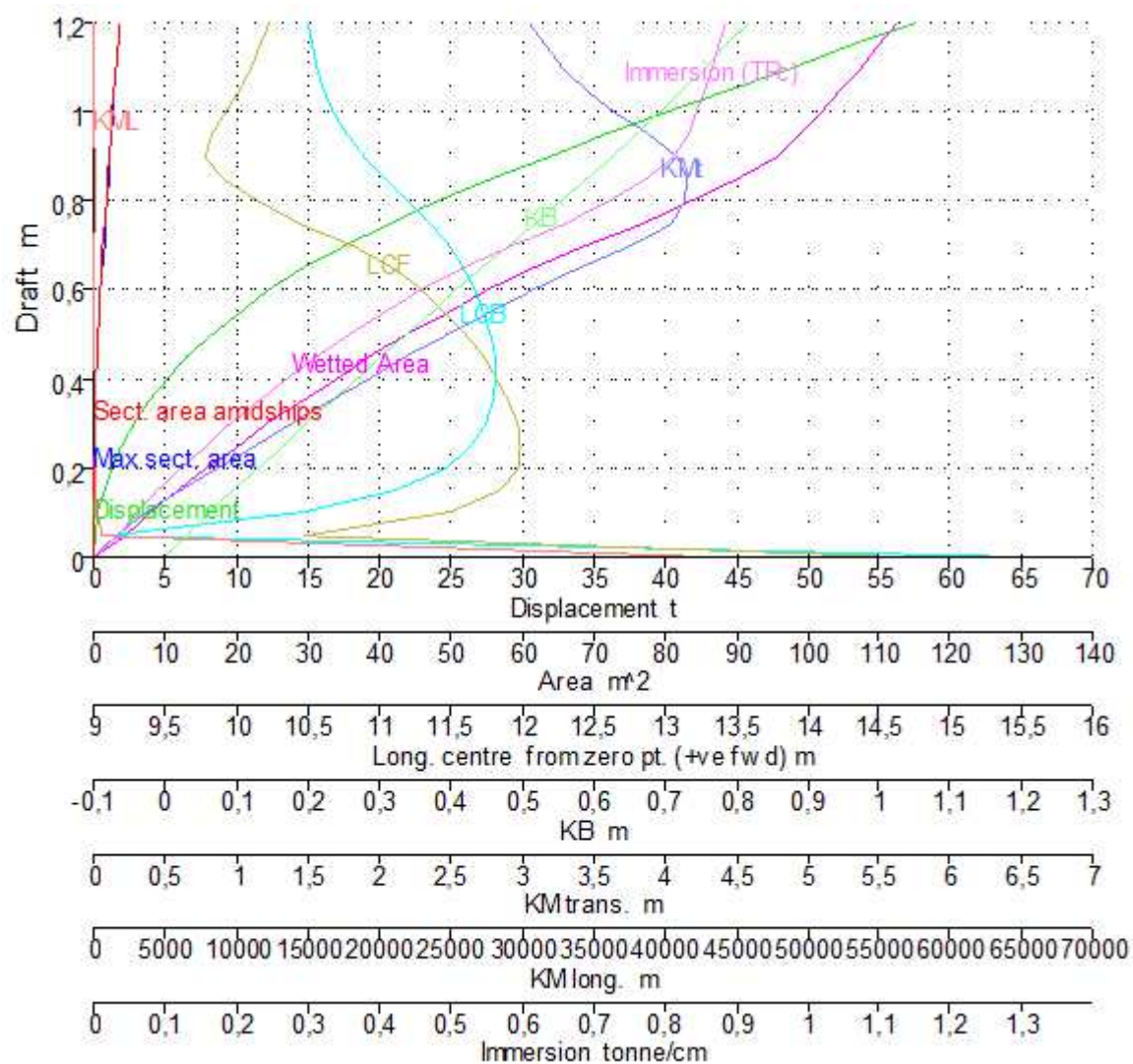
YS&T



5. CARENE DIRITTE

Draft Amidships m	Displacement t	Wetted Area m ²	LCB from zero pt. (+ve fwd) m	VCB m	LCF from zero pt. (+ve fwd) m	BMt m	BML m	KMt m	KML m	Immersion (TPc) tonne/cm
0,000	0,0000	0,002	15,681	0,000	14,757	0,001	44118,641	0,001	44118,641	0,000
0,050	0,1112	4,378	9,100	0,030	10,472	0,134	659,843	0,163	659,873	0,035
0,100	0,3523	8,001	10,474	0,062	11,491	0,312	308,497	0,374	308,560	0,062
0,150	0,7337	11,837	11,104	0,096	11,839	0,519	197,265	0,615	197,360	0,091
0,200	1,265	15,815	11,456	0,130	11,965	0,737	147,026	0,866	147,155	0,122
0,250	1,960	20,016	11,643	0,164	11,992	0,958	119,445	1,122	119,608	0,156
0,300	2,829	24,397	11,747	0,198	11,967	1,184	102,648	1,383	102,847	0,192
0,350	3,881	28,963	11,799	0,233	11,910	1,415	91,651	1,647	91,884	0,230
0,400	5,129	33,728	11,816	0,268	11,829	1,650	84,180	1,917	84,447	0,270
0,450	6,583	38,711	11,808	0,302	11,729	1,891	79,022	2,194	79,325	0,312
0,500	8,258	43,943	11,780	0,338	11,610	2,140	75,551	2,478	75,889	0,358
0,550	10,17	49,465	11,735	0,373	11,468	2,399	73,484	2,772	73,857	0,407
0,600	12,33	55,366	11,674	0,408	11,299	2,671	72,689	3,079	73,098	0,460
0,650	14,78	61,769	11,595	0,444	11,087	2,959	73,365	3,403	73,809	0,519
0,700	17,54	68,865	11,494	0,481	10,818	3,270	75,830	3,751	76,310	0,585
0,750	20,65	76,742	11,365	0,518	10,459	3,531	80,911	4,049	81,428	0,659
0,800	24,11	83,862	11,212	0,555	10,152	3,583	83,741	4,137	84,296	0,722
0,850	27,85	90,234	11,052	0,591	9,917	3,566	84,108	4,157	84,699	0,774
0,900	31,83	95,433	10,901	0,626	9,790	3,465	82,128	4,091	82,754	0,813
0,950	35,95	98,948	10,775	0,661	9,833	3,219	76,914	3,880	77,574	0,833
1,000	40,15	101,819	10,682	0,694	9,934	2,955	71,228	3,649	71,921	0,845
1,050	44,40	104,609	10,614	0,725	10,023	2,733	66,400	3,459	67,126	0,857
1,100	48,71	107,321	10,566	0,756	10,102	2,544	62,216	3,300	62,972	0,867
1,150	53,07	109,957	10,530	0,787	10,170	2,380	58,523	3,167	59,310	0,877
1,200	57,48	112,529	10,505	0,816	10,229	2,238	55,227	3,054	56,043	0,885

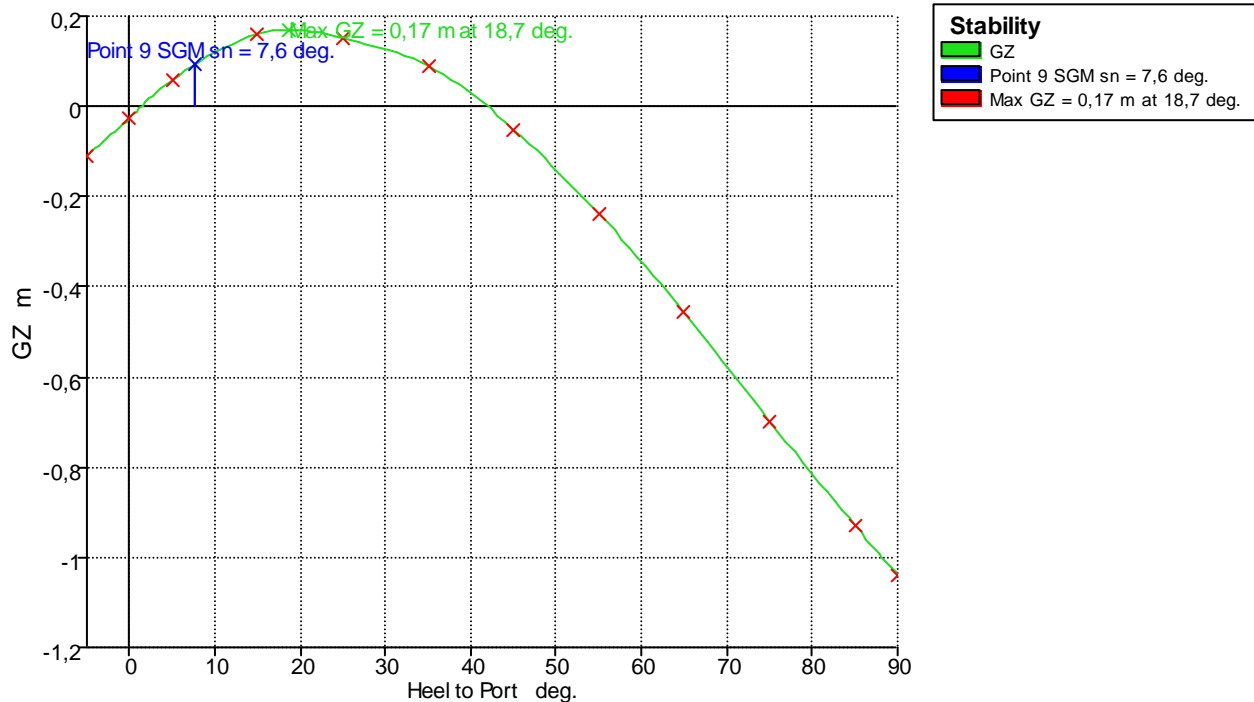
GRAFICO CARENE DIRITTE



6. STABILITA' ALLO STATO INTEGRO E ASSETTI

6.1 Alla fine del viaggio (10% dei consumabili)

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	31,350	31,350			10,230	-0,010	1,970	0,000	User Specified
Equipaggio	2	0,075	0,150			18,815	0,000	3,050	0,000	User Specified
Passeggeri Coperta seduti	49	0,075	3,675			5,691	-0,210	3,050	0,000	User Specified
Passeggeri Timoneria seduti	52	0,075	3,900			10,680	0,000	5,400	0,000	User Specified
Passeggeri Timoneria in piedi	17	0,075	1,275			10,397	0,000	5,400	0,000	User Specified
Passeggeri con carrozzina	2	0,090	0,180			13,590	0,000	3,050	0,000	User Specified
Vivande	40	0,015	0,600			16,716	-0,354	2,450	0,000	User Specified
Biciclette	13	0,013	0,169			4,885	1,097	2,650	0,000	User Specified
T1 Fresh W	10%	0,999	0,100	0,999	0,100	3,378	0,000	1,009	0,083	Maximum
T2 Grey W	98%	0,500	0,490	0,500	0,490	4,442	-0,250	1,449	0,010	Maximum
T3 Black W	98%	0,500	0,490	0,500	0,490	4,442	0,250	1,449	0,010	Maximum
T4 Oil	98%	0,194	0,191	0,216	0,212	9,550	1,300	1,268	0,010	Maximum
T5 Gasole sn	10%	4,330	0,433	5,080	0,508	12,500	-0,768	0,718	0,880	Maximum
T6 Gasolio dn	10%	4,330	0,433	5,080	0,508	12,500	0,768	0,718	0,880	Maximum
T7 Bilge	98%	0,246	0,241	0,267	0,262	15,500	-1,079	1,032	0,038	Maximum
Total Loadcase			43,676	12,641	2,569	9,930	-0,026	2,438	1,912	
FS correction								0,044		
VCG fluid								2,482		



Stability calculatio

Heel to Port deg	-5,0	0,0	5,0	15,0	25,0	35,0	45,0	55,0	65,0	75,0	85,0	90,0
GZ m	-0,110	-0,026	0,058	0,161	0,152	0,090	-0,050	-0,238	-0,457	-0,698	-0,930	-1,039
Area under GZ curve from zero heel m.deg	0,3416	-0,0202	0,0914	1,2595	2,9047	4,1604	4,4177	3,0020	-0,4526	-6,2248	-	-
Displacement t	43,68	43,68	43,68	43,68	43,68	43,68	43,68	43,68	43,68	43,68	43,68	43,68
Draft at FP m	0,894	0,901	0,894	0,848	0,763	0,616	0,388	0,055	-0,524	-1,864	-8,527	n/a
Draft at AP m	1,150	1,150	1,150	1,112	0,977	0,770	0,534	0,242	-0,222	-1,306	-6,569	n/a
WL Length m	22,506	22,513	22,506	22,433	22,297	22,023	21,498	21,594	22,022	22,332	22,559	22,659
Beam max extents on WL m	4,421	4,404	4,421	4,087	3,809	3,438	2,997	2,759	2,299	2,066	1,932	1,892
Wetted Area m^2	102,239	102,438	102,238	96,012	92,921	96,521	98,827	99,836	95,718	95,366	95,571	96,926
Waterpl. Area m^2	83,647	83,745	83,646	75,443	71,250	65,386	58,276	52,334	43,685	39,396	37,016	36,342
Prismatic coeff. (Cp)	0,660	0,659	0,660	0,677	0,697	0,720	0,753	0,761	0,760	0,765	0,771	0,774
Block coeff. (Cb)	0,386	0,388	0,386	0,442	0,488	0,474	0,505	0,510	0,577	0,634	0,647	0,631
LCB from zero pt. (+ve fwd) m	9,911	9,911	9,911	9,909	9,917	9,921	9,924	9,922	9,919	9,919	9,919	9,919
LCF from zero pt. (+ve fwd) m	9,742	9,774	9,742	10,046	10,309	10,794	11,043	11,021	11,075	11,016	10,980	10,963
Max deck inclination deg	5,0408	0,6264	5,0409	15,0134	25,0045	35,0013	45,0006	55,0004	65,0004	75,0003	85,0001	90,0000
Trim angle (+ve by stern) deg	0,6435	0,6264	0,6439	0,6641	0,5385	0,3872	0,3677	0,4715	0,7571	1,4022	4,9110	90,0000

Key point	Type	Immersion angle deg	Emergence angle deg
Margin Line (immersion pos = 1,063 m)		26,5	n/a
Deck Edge (immersion pos = 2,481 m)		28,9	n/a
Point 1 stern sn	Downflooding point	52,9	0
Point 1 stern dn	Downflooding point	Not immersed in positive range	0
Point 2 stern sn	Downflooding point	55	0
Point 2 stern dn	Downflooding point	Not immersed in positive range	0
Point 5 sn	Downflooding point	Not immersed in positive range	0
Point 6 sn	Downflooding point	Not immersed in positive range	0
Point 8 prese aria sn	Downflooding point	65,7	0
Point 8 prese aria dn	Downflooding point	Not immersed in positive range	0
Point 7 bow sn	Downflooding point	Not immersed in positive range	0
Point 7 bow dn	Downflooding point	Not immersed in positive range	0
Point 9 SGM sn	Downflooding point	7,6	0
Point 9 SGM dn	Downflooding point	Not immersed in positive range	0

Code	Criteria	Value	Units	Actual	Status	Margin %
Heeling arm criteria (stand alone)	Angle of equilibrium -Turn heeling arm	10,0	deg	4,7	Pass	+53,06

Equilibrium calculation

Draft Amidships m	1,025
Displacement t	43,68
Heel deg	-1,6
Draft at FP m	0,900
Draft at AP m	1,150
Draft at LCF m	1,043
Trim (+ve by stern) m	0,250
WL Length m	22,513
Beam max extents on WL m	4,406
Wetted Area m ²	102,420
Waterpl. Area m ²	83,739
Prismatic coeff. (Cp)	0,659
Block coeff. (Cb)	0,387
Max Sect. area coeff. (Cm)	0,641
Waterpl. area coeff. (Cwp)	0,844
LCB from zero pt. (+ve fwd) m	9,911
LCF from zero pt. (+ve fwd) m	9,771
KB m	0,725
KG fluid m	2,482
BMt m	2,721
BML m	63,217
GMt corrected m	0,964
GML m	61,459
KMt m	3,445
KML m	63,913
Immersion (TPc) tonne/cm	0,837
MTc tonne.m	1,178
RM at 1deg = GMt.Disp.sin(1) tonne.m	0,735
Max deck inclination deg	1,7323
Trim angle (+ve by stern) deg	0,6280

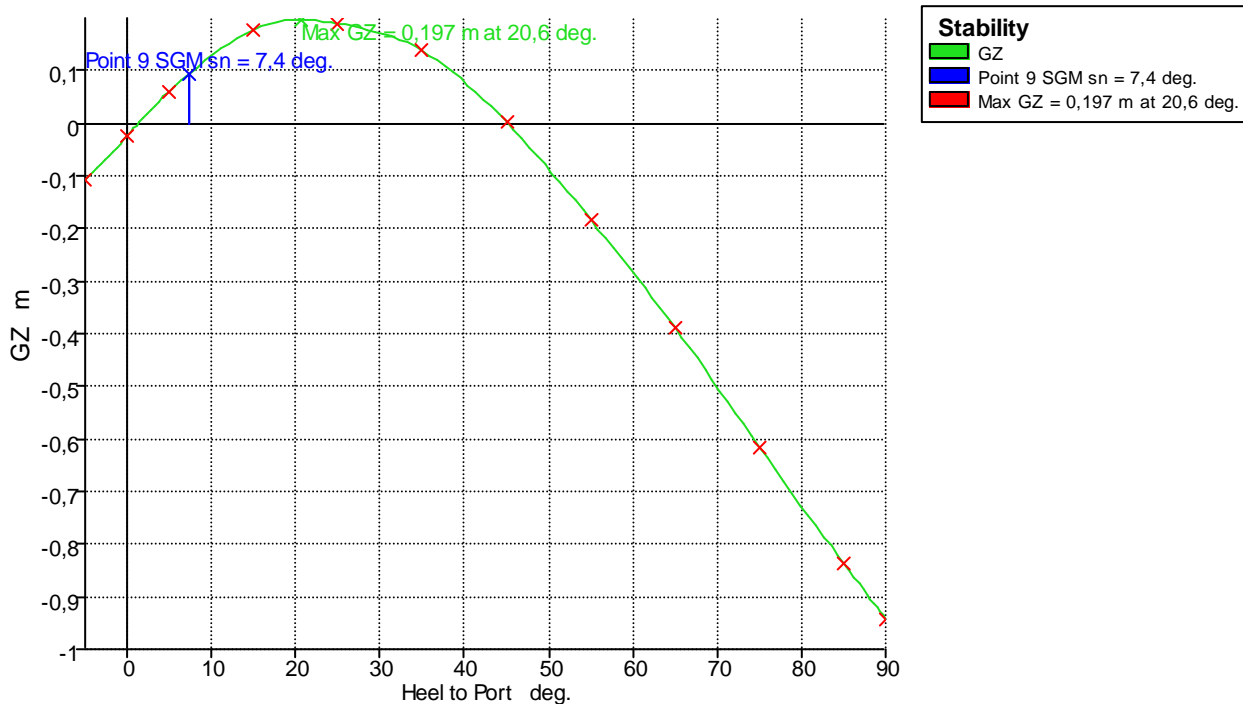
Key point	Type	Freeboard m
Margin Line (freeboard pos = 0 m)		0,866
Deck Edge (freeboard pos = 0 m)		0,942
Point 1 stern sn	Downflooding point	1,043
Point 1 stern dn	Downflooding point	1,125
Point 2 stern sn	Downflooding point	1,057
Point 2 stern dn	Downflooding point	1,136
Point 5 sn	Downflooding point	1,423
Point 6 sn	Downflooding point	1,437
Point 8 prese aria sn	Downflooding point	1,979
Point 8 prese aria dn	Downflooding point	2,067
Point 7 bow sn	Downflooding point	1,439
Point 7 bow dn	Downflooding point	1,486
Point 9 SGM sn	Downflooding point	0,222
Point 9 SGM dn	Downflooding point	0,345

Code	Criteria	Value	Units	Actual	Status	Margin %
Criteria at equilibrium	Value of heel, trim or deck slope at equilibrium	-10,0	deg	-1,6	Pass	+116,15
Criteria at equilibrium	Min. freeboard at equilibrium	0,200	m	0,942	Pass	+371,00
Criteria at equilibrium	Value of GMt or GML at equilibrium	0,350	m	0,964	Pass	+175,43

6.2 Durante il viaggio (50% dei consumabili)

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	31,350	31,350			10,230	-0,010	1,970	0,000	User Specified
Equipaggio	2	0,075	0,150			18,815	0,000	3,050	0,000	User Specified
Passeggeri Coperta seduti	49	0,075	3,675			5,691	-0,210	3,050	0,000	User Specified
Passeggeri Timoneria seduti	52	0,075	3,900			10,680	0,000	5,400	0,000	User Specified
Passeggeri Timoneria in piedi	17	0,075	1,275			10,397	0,000	5,400	0,000	User Specified
Passeggeri con carrozzina	2	0,090	0,180			13,590	0,000	3,050	0,000	User Specified
Vivande	40	0,015	0,600			16,716	-0,354	2,450	0,000	User Specified
Biciclette	13	0,013	0,169			4,885	1,097	2,650	0,000	User Specified
T1 Fresh W	50%	0,999	0,500	0,999	0,500	3,378	0,000	1,209	0,083	Maximum
T2 Grey W	50%	0,500	0,250	0,500	0,250	4,442	-0,250	1,209	0,010	Maximum
T3 Black W	50%	0,500	0,250	0,500	0,250	4,442	0,250	1,209	0,010	Maximum
T4 Oil	50%	0,194	0,097	0,216	0,108	9,550	1,300	1,124	0,010	Maximum
T5 Gasole sn	50%	4,330	2,165	5,080	2,540	12,500	-1,030	0,965	0,880	Maximum
T6 Gasolio dn	50%	4,330	2,165	5,080	2,540	12,500	1,030	0,965	0,880	Maximum
T7 Bilge	50%	0,246	0,123	0,267	0,133	15,500	-1,023	0,893	0,038	Maximum
Total Loadcase			46,848	12,641	6,321	10,108	-0,024	2,336	1,912	
FS correction								0,041		
VCG fluid								2,377		

Stability calculatio



Heel to Port deg	-5,0	0,0	5,0	15,0	25,0	35,0	45,0	55,0	65,0	75,0	85,0	90,0
GZ m	-0,108	-0,024	0,060	0,178	0,189	0,138	0,002	-0,183	-0,388	-0,615	-0,837	-0,941
Area under GZ curve from zero heel m.deg	0,3309	-0,0186	0,0985	1,3574	3,2778	4,9669	5,7271	4,8439	2,0086	-3,0002	-	-
											10,2682	14,7165
Displacement t	46,85	46,85	46,85	46,85	46,85	46,85	46,85	46,85	46,85	46,85	46,85	46,85
Draft at FP m	0,973	0,979	0,973	0,932	0,851	0,711	0,503	0,212	-0,274	-1,404	-7,067	n/a
Draft at AP m	1,156	1,157	1,157	1,122	0,993	0,796	0,575	0,298	-0,131	-1,144	-6,061	n/a
WL Length m	22,591	22,597	22,591	22,547	22,435	22,207	21,767	21,806	22,239	22,522	22,730	22,827
Beam max extents on WL m	4,433	4,416	4,433	4,164	3,873	3,408	2,968	2,711	2,372	2,097	1,960	1,920
Wetted Area m^2	104,879	105,040	104,879	99,060	95,855	100,147	103,219	104,509	100,550	100,000	99,911	99,340
Waterpl. Area m^2	85,121	85,142	85,120	77,562	73,161	65,790	58,008	52,491	45,177	40,554	38,021	37,300
Prismatic coeff. (Cp)	0,669	0,668	0,669	0,684	0,703	0,726	0,755	0,766	0,762	0,767	0,773	0,776
Block coeff. (Cb)	0,407	0,410	0,407	0,457	0,492	0,491	0,521	0,530	0,569	0,634	0,651	0,637
LCB from zero pt. (+ve fwd) m	10,095	10,095	10,094	10,095	10,097	10,103	10,105	10,104	10,102	10,102	10,102	10,101
LCF from zero pt. (+ve fwd) m	9,884	9,913	9,884	10,154	10,415	10,914	11,146	11,146	11,258	11,182	11,131	11,107
Max deck inclination deg	5,0210	0,4475	5,0211	15,0069	25,0020	35,0004	45,0001	55,0001	65,0001	75,0001	85,0000	90,0000
Trim angle (+ve by stern) deg	0,4616	0,4475	0,4619	0,4764	0,3562	0,2159	0,1818	0,2158	0,3606	0,6533	2,5263	90,0000

Key point	Type	Immersion angle deg	Emergence angle deg
Margin Line (immersion pos = 3,307 m)		25,8	n/a
Deck Edge (immersion pos = 4,134 m)		28	n/a
Point 1 stern sn	Downflooding point	51,5	0
Point 1 stern dn	Downflooding point	Not immersed in positive range	0
Point 2 stern sn	Downflooding point	53,4	0
Point 2 stern dn	Downflooding point	Not immersed in positive range	0
Point 5 sn	Downflooding point	Not immersed in positive range	0
Point 6 sn	Downflooding point	Not immersed in positive range	0
Point 8 prese aria sn	Downflooding point	63,7	0
Point 8 prese aria dn	Downflooding point	Not immersed in positive range	0
Point 7 bow sn	Downflooding point	84,7	0
Point 7 bow dn	Downflooding point	Not immersed in positive range	0
Point 9 SGM sn	Downflooding point	7,4	0
Point 9 SGM dn	Downflooding point	Not immersed in positive range	0

Code	Criteria	Value	Units	Actual	Status	Margin %
Heeling arm criteria (stand alone)	Angle of equilibrium - turn heeling arm	10,0	deg	4,6	Pass	+54,33

Equilibrium calculation

Draft Amidships m	1,067
Displacement t	46,85
Heel deg	-1,4
Draft at FP m	0,978
Draft at AP m	1,156
Draft at LCF m	1,079
Trim (+ve by stern) m	0,178
WL Length m	22,597
Beam max extents on WL m	4,417
Wetted Area m ²	105,029
Waterpl. Area m ²	85,143
Prismatic coeff. (Cp)	0,668
Block coeff. (Cb)	0,409
Max Sect. area coeff. (Cm)	0,652
Waterpl. area coeff. (Cwp)	0,853
LCB from zero pt. (+ve fwd) m	10,095
LCF from zero pt. (+ve fwd) m	9,911
KB m	0,746
KG fluid m	2,377
BMt m	2,595
BML m	61,454
GMt corrected m	0,964
GML m	59,823
KMt m	3,340
KML m	62,181
Immersion (TPc) tonne/cm	0,851
MTc tonne.m	1,230
RM at 1deg = GMt.Disp.sin(1) tonne.m	0,788
Max deck inclination deg	1,4490
Trim angle (+ve by stern) deg	0,4485

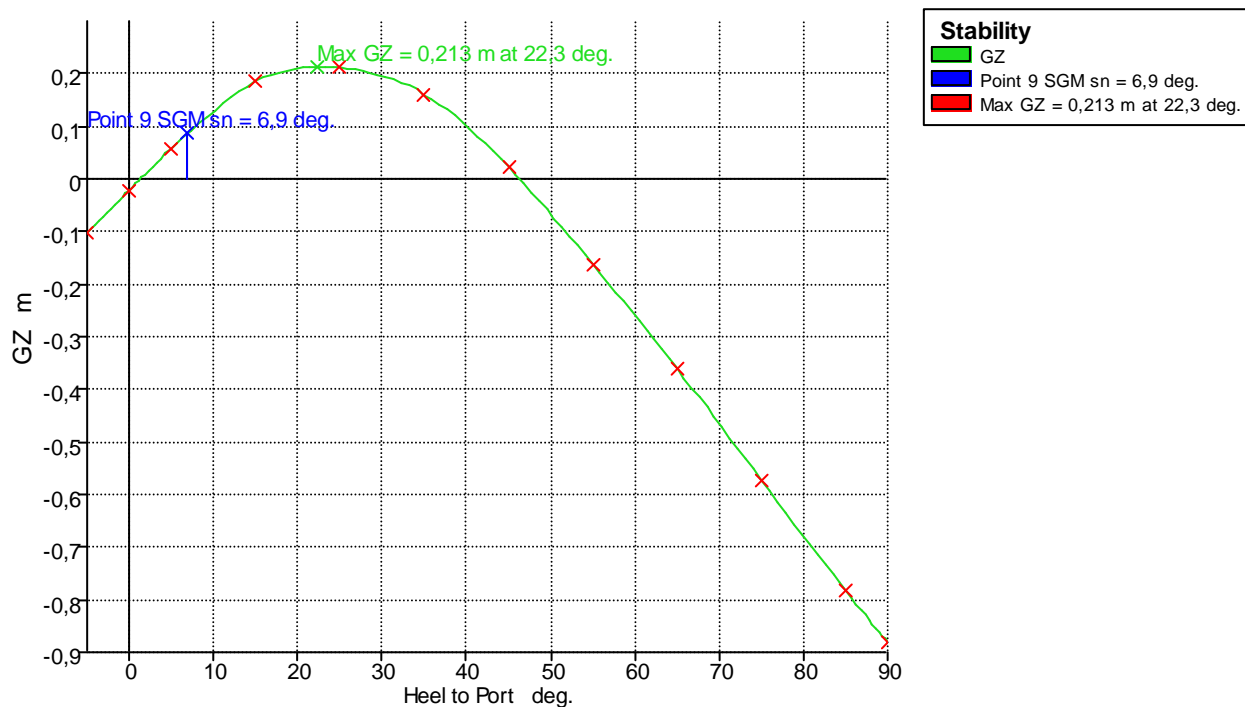
Key point	Type	Freeboard m
Margin Line (freeboard pos = 0 m)		0,869
Deck Edge (freeboard pos = 0 m)		0,945
Point 1 stern sn	Downflooding point	1,041
Point 1 stern dn	Downflooding point	1,111
Point 2 stern sn	Downflooding point	1,051
Point 2 stern dn	Downflooding point	1,119
Point 5 sn	Downflooding point	1,355
Point 6 sn	Downflooding point	1,366
Point 8 prese aria sn	Downflooding point	1,943
Point 8 prese aria dn	Downflooding point	2,019
Point 7 bow sn	Downflooding point	1,366
Point 7 bow dn	Downflooding point	1,406
Point 9 SGM sn	Downflooding point	0,223
Point 9 SGM dn	Downflooding point	0,328

Code	Criteria	Value	Units	Actual	Status	Margin %
Criteria at equilibrium	Value of heel, trim or deck slope at equilibrium	-10,0	deg	-1,4	Pass	+113,78
Criteria at equilibrium	Min. freeboard at equilibrium	0,200	m	0,945	Pass	+372,50
Criteria at equilibrium	Value of GMt or GML at equilibrium	0,350	m	0,964	Pass	+175,43

6.3 All'inizio del viaggio (100% dei consumabili)

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	31,350	31,350			10,230	-0,010	1,970	0,000	User Specified
Equipaggio	2	0,075	0,150			18,815	0,000	3,050	0,000	User Specified
Passeggeri Coperta seduti	49	0,075	3,675			5,691	-0,210	3,050	0,000	User Specified
Passeggeri Timoneria seduti	52	0,075	3,900			10,680	0,000	5,400	0,000	User Specified
Passeggeri Timoneria in piedi	17	0,075	1,275			10,397	0,000	5,400	0,000	User Specified
Passeggeri con carrozzina	2	0,090	0,180			13,590	0,000	3,050	0,000	User Specified
Vivande	40	0,015	0,600			16,716	-0,354	2,450	0,000	User Specified
Biciclette	13	0,013	0,169			4,885	1,097	2,650	0,000	User Specified
T1 Fresh W	98%	0,999	0,979	0,999	0,979	3,378	0,000	1,449	0,083	Maximum
T2 Grey W	10%	0,500	0,050	0,500	0,050	4,442	-0,250	1,009	0,010	Maximum
T3 Black W	10%	0,500	0,050	0,500	0,050	4,442	0,250	1,009	0,010	Maximum
T4 Oil	10%	0,194	0,019	0,216	0,022	9,550	1,300	1,004	0,010	Maximum
T5 Gasole sn	98%	4,330	4,243	5,080	4,978	12,500	-1,091	1,199	0,880	Maximum
T6 Gasolio dn	98%	4,330	4,243	5,080	4,978	12,500	1,091	1,199	0,880	Maximum
T7 Bilge	10%	0,246	0,025	0,267	0,027	15,500	-0,844	0,734	0,038	Maximum
Total Loadcase			50,908	12,641	11,083	10,274	-0,022	2,270	1,912	
FS correction								0,038		
VCG fluid								2,308		

Stability calculatio



Heel to Port deg	-5,0	0,0	5,0	15,0	25,0	35,0	45,0	55,0	65,0	75,0	85,0	90,0
GZ m	-0,101	-0,022	0,058	0,184	0,211	0,161	0,023	-0,162	-0,360	-0,572	-0,782	-0,881
Area under GZ curve from zero heel m.deg	0,3090	-0,0171	0,0937	1,3607	3,4220	5,3466	6,3311	5,6523	3,0516	-1,6032	-8,3798	-12,5413
Displacement t	50,91	50,91	50,91	50,91	50,91	50,91	50,90	50,91	50,91	50,91	50,91	50,91
Draft at FP m	1,061	1,066	1,061	1,026	0,950	0,818	0,635	0,392	-0,005	-0,907	-5,469	n/a
Draft at AP m	1,172	1,173	1,172	1,142	1,020	0,842	0,643	0,391	0,012	-0,879	-5,234	n/a
WL Length m	22,687	22,692	22,687	22,649	22,565	22,377	22,055	22,041	22,434	22,707	22,907	22,994
Beam max extents on WL m	4,448	4,431	4,448	4,261	3,953	3,371	2,922	2,643	2,373	2,134	1,996	1,955
Wetted Area m^2	107,941	108,064	107,937	102,765	99,405	104,617	108,609	110,361	107,835	105,477	105,279	104,663
Waterpl. Area m^2	86,665	86,614	86,664	80,136	75,422	65,963	57,348	52,190	48,352	41,966	39,246	38,495
Prismatic coeff. (Cp)	0,678	0,677	0,678	0,692	0,710	0,732	0,757	0,771	0,766	0,769	0,775	0,778
Block coeff. (Cb)	0,432	0,434	0,432	0,473	0,497	0,511	0,541	0,557	0,582	0,634	0,652	0,639
LCB from zero pt. (+ve fwd) m	10,267	10,267	10,267	10,267	10,270	10,274	10,275	10,275	10,274	10,274	10,273	10,273
LCF from zero pt. (+ve fwd) m	10,027	10,054	10,027	10,253	10,515	11,028	11,245	11,240	11,302	11,365	11,294	11,271
Max deck inclination deg	5,0077	0,2680	5,0077	15,0026	25,0005	35,0000	45,0000	55,0000	65,0000	75,0000	85,0000	90,0000
Trim angle (+ve by stern) deg	0,2788	0,2680	0,2790	0,2923	0,1761	0,0616	0,0211	-0,0034	0,0416	0,0680	0,5909	90,0000

Key point	Type	Immersion angle deg	Emergence angle deg
Margin Line (immersion pos = 5,079 m)		24,6	n/a
Deck Edge (immersion pos = 5,67 m)		26,7	n/a
Point 1 stern sn	Downflooding point	49,2	0
Point 1 stern dn	Downflooding point	Not immersed in positive range	0
Point 2 stern sn	Downflooding point	50,9	0
Point 2 stern dn	Downflooding point	Not immersed in positive range	0
Point 5 sn	Downflooding point	86,9	0
Point 6 sn	Downflooding point	86,9	0
Point 8 prese aria sn	Downflooding point	61,4	0
Point 8 prese aria dn	Downflooding point	Not immersed in positive range	0
Point 7 bow sn	Downflooding point	77,5	0
Point 7 bow dn	Downflooding point	Not immersed in positive range	0
Point 9 SGM sn	Downflooding point	6,9	0
Point 9 SGM dn	Downflooding point	Not immersed in positive range	0

Code	Criteria	Value	Units	Actual	Status	Margin %
Heeling arm criteria (stand alone)	Angle of equilibrium - turn heeling arm	10,0	deg	4,7	Pass	+52,80

Equilibrium calculation

Draft Amidships m	1,119
Displacement t	50,91
Heel deg	-1,4
Draft at FP m	1,066
Draft at AP m	1,172
Draft at LCF m	1,125
Trim (+ve by stern) m	0,107
WL Length m	22,692
Beam max extents on WL m	4,432
Wetted Area m ²	108,055
Waterpl. Area m ²	86,618
Prismatic coeff. (Cp)	0,677
Block coeff. (Cb)	0,433
Max Sect. area coeff. (Cm)	0,664
Waterpl. area coeff. (Cwp)	0,861
LCB from zero pt. (+ve fwd) m	10,267
LCF from zero pt. (+ve fwd) m	10,052
KB m	0,773
KG fluid m	2,308
BMt m	2,447
BML m	59,035
GMt corrected m	0,912
GML m	57,500
KMt m	3,220
KML m	59,791
Immersion (TPc) tonne/cm	0,866
MTc tonne.m	1,285
RM at 1deg = GMt.Disp.sin(1) tonne.m	0,810
Max deck inclination deg	1,3783
Trim angle (+ve by stern) deg	0,2687

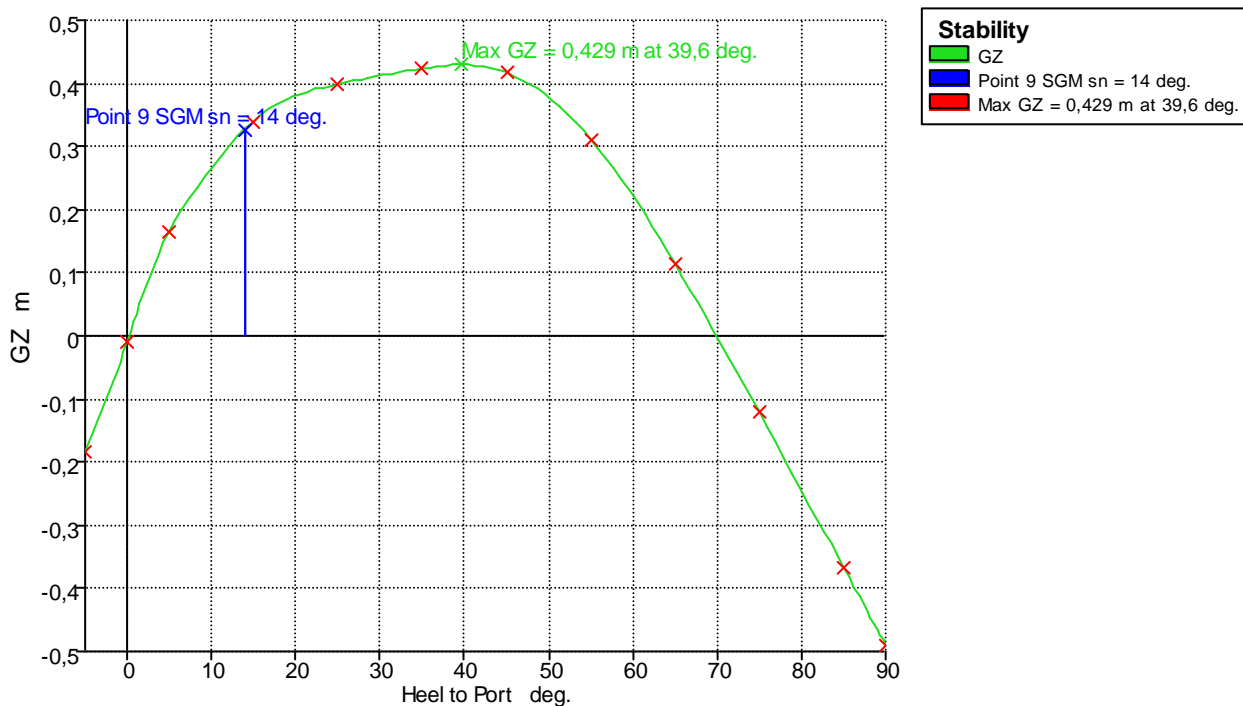
Key point	Type	Freeboard m
Margin Line (freeboard pos = 0 m)		0,854
Deck Edge (freeboard pos = 0 m)		0,93
Point 1 stern sn	Downflooding point	1,025
Point 1 stern dn	Downflooding point	1,093
Point 2 stern sn	Downflooding point	1,031
Point 2 stern dn	Downflooding point	1,097
Point 5 sn	Downflooding point	1,274
Point 6 sn	Downflooding point	1,282
Point 8 prese aria sn	Downflooding point	1,893
Point 8 prese aria dn	Downflooding point	1,967
Point 7 bow sn	Downflooding point	1,281
Point 7 bow dn	Downflooding point	1,321
Point 9 SGM sn	Downflooding point	0,207
Point 9 SGM dn	Downflooding point	0,311

Code	Criteria	Value	Units	Actual	Status	Margin %
Criteria at equilibrium	Value of heel, trim or deck slope at equilibrium	-10,0	deg	-1,4	Pass	+113,52
Criteria at equilibrium	Min. freeboard at equilibrium	0,200	m	0,930	Pass	+365,00
Criteria at equilibrium	Value of GMt or GML at equilibrium	0,350	m	0,912	Pass	+160,57

6.4 Nave scarica ed asciutta

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	31,350	31,350			10,230	-0,010	1,970	0,000	User Specified
T1 Fresh W	0%	0,999	0,000	0,999	0,000	3,378	0,000	0,959	0,000	Maximum
T2 Grey W	0%	0,500	0,000	0,500	0,000	4,442	-0,250	0,959	0,000	Maximum
T3 Black W	0%	0,500	0,000	0,500	0,000	4,442	0,250	0,959	0,000	Maximum
T4 Oil	0%	0,194	0,000	0,216	0,000	9,550	1,300	0,974	0,000	Maximum
T5 Gasole sn	0%	4,330	0,000	5,080	0,000	12,500	-0,625	0,606	0,000	Maximum
T6 Gasolio dn	0%	4,330	0,000	5,080	0,000	12,500	0,625	0,606	0,000	Maximum
T7 Bilge	0%	0,246	0,000	0,267	0,000	15,500	-0,752	0,656	0,000	Maximum
Total Loadcase			31,350	12,641	0,000	10,230	-0,010	1,970	0,000	
FS correction								0,000		
VCG fluid								1,970		

Stability calculatio



Heel to Port deg	-5,0	0,0	5,0	15,0	25,0	35,0	45,0	55,0	65,0	75,0	85,0	90,0
GZ m	-0,184	-0,010	0,165	0,340	0,399	0,424	0,417	0,312	0,114	-0,121	-0,368	-0,490
Area under GZ	0,4991	0,0079	0,4250	3,0522	6,8211	10,9426	15,2050	18,9419	21,1247	21,1086	18,6676	16,5218
Displacement t	31,35	31,35	31,35	31,35	31,35	31,35	31,35	31,35	31,35	31,35	31,35	31,35
Draft at FP m	0,776	0,781	0,776	0,737	0,655	0,513	0,280	-0,079	-0,761	-2,331	-10,073	n/a
Draft at AP m	0,970	0,976	0,970	0,877	0,698	0,428	0,061	-0,464	-1,341	-3,291	-12,759	n/a
WL Length m	22,316	22,325	22,316	22,253	22,102	21,773	21,239	21,356	21,760	22,089	22,334	22,444
Beam max extents on WL m	4,314	4,354	4,314	3,742	3,491	3,418	3,075	2,647	2,240	1,932	1,806	1,769
Wetted Area m^2	90,825	94,031	90,824	83,973	81,536	80,572	83,226	79,827	80,287	80,267	80,500	80,005
Waterpl. Area m^2	76,106	80,021	76,106	66,909	63,607	63,775	58,493	48,043	40,618	36,489	34,348	33,764
Prismatic coeff. (Cp)	0,620	0,615	0,620	0,644	0,667	0,690	0,723	0,740	0,745	0,752	0,761	0,765
Block coeff. (Cb)	0,339	0,334	0,339	0,438	0,468	0,413	0,429	0,471	0,543	0,640	0,658	0,638
LCB from zero pt. (+ve fwd) m	10,219	10,219	10,219	10,222	10,228	10,236	10,243	10,247	10,247	10,248	10,247	10,246
LCF from zero pt. (+ve fwd) m	9,711	9,488	9,711	10,154	10,410	10,583	10,901	11,092	10,958	10,883	10,862	10,856
Max deck inclination deg	5,0236	0,4899	5,0236	15,0038	25,0002	35,0004	45,0013	55,0019	65,0015	75,0009	85,0003	90,0000
Trim angle (+ stern) deg	0,4887	0,4899	0,4887	0,3520	0,1070	-0,2119	-0,5512	-0,9664	-1,4596	-2,4139	-6,7230	90,0000

Key point	Type	Immersion angle deg	Emergence angle deg
Margin Line (immersion pos = 10,749 m)		34,1	n/a
Deck Edge (immersion pos = 10,749 m)		36,2	n/a
Point 1 stern sn	Downflooding point	76,5	0
Point 1 stern dn	Downflooding point	Not immersed in positive range	0
Point 2 stern sn	Downflooding point	78,7	0
Point 2 stern dn	Downflooding point	Not immersed in positive range	0
Point 5 sn	Downflooding point	Not immersed in positive range	0
Point 6 sn	Downflooding point	Not immersed in positive range	0
Point 8 prese aria sn	Downflooding point	75,1	0
Point 8 prese aria dn	Downflooding point	Not immersed in positive range	0
Point 7 bow sn	Downflooding point	Not immersed in positive range	0
Point 7 bow dn	Downflooding point	Not immersed in positive range	0
Point 9 SGM sn	Downflooding point	14	0
Point 9 SGM dn	Downflooding point	Not immersed in positive range	0

Code	Criteria	Value	Units	Actual	Status	Margin %
Heeling arm criteria (stand alone)	Angle of equilibrium – turn heeling arm	10,0	deg	1,6	Pass	+84,38

Equilibrium calculation

Draft Amidships m	0,879
Displacement t	31,35
Heel deg	-0,3
Draft at FP m	0,782
Draft at AP m	0,976
Draft at LCF m	0,895
Trim (+ve by stern) m	0,195
WL Length m	22,326
Beam max extents on WL m	4,354
Wetted Area m ²	94,032
Waterpl. Area m ²	80,021
Prismatic coeff. (Cp)	0,615
Block coeff. (Cb)	0,334
Max Sect. area coeff. (Cm)	0,588
Waterpl. area coeff. (Cwp)	0,823
LCB from zero pt. (+ve fwd) m	10,219
LCF from zero pt. (+ve fwd) m	9,488
KB m	0,625
KG fluid m	1,970
BMt m	3,500
BML m	79,839
GMt corrected m	2,155
GML m	78,495
KMt m	4,125
KML m	80,461
Immersion (TPc) tonne/cm	0,800
MTc tonne.m	1,080
RM at 1deg = GMt.Disp.sin(1) tonne.m	1,179
Max deck inclination deg	0,5594
Trim angle (+ve by stern) deg	0,4895

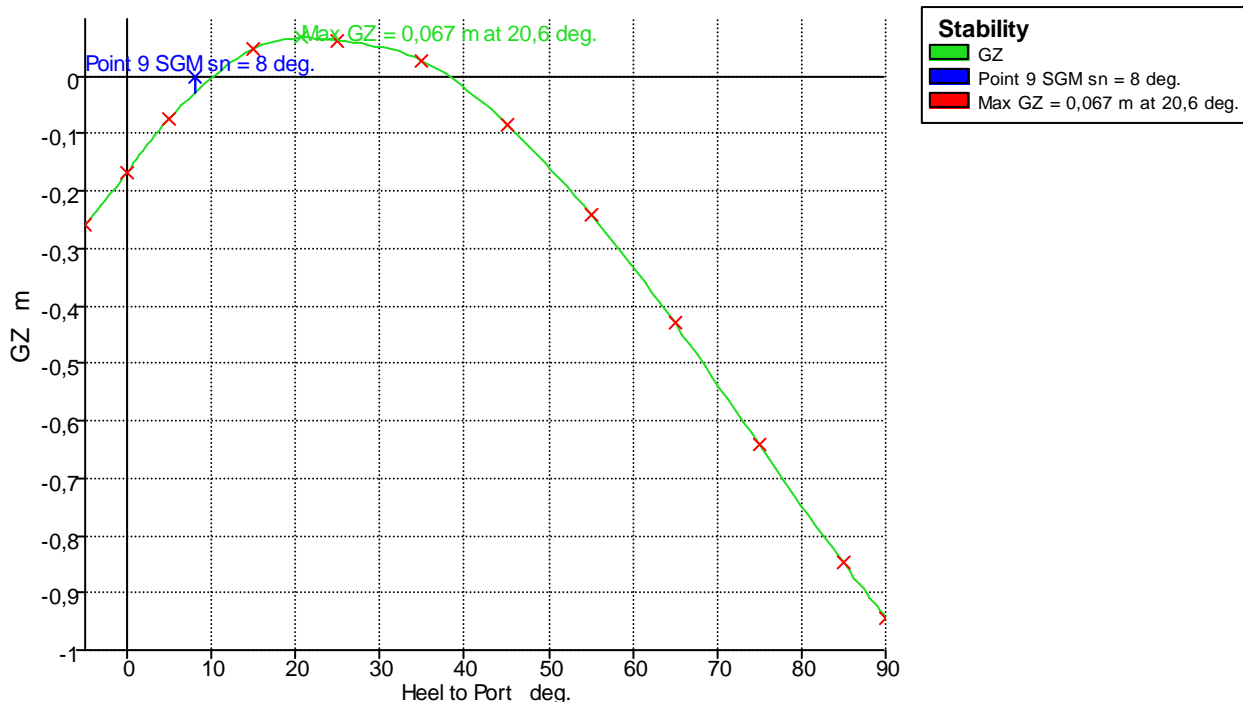
Key point	Type	Freeboard m
Margin Line (freeboard pos = 0 m)		1,093
Deck Edge (freeboard pos = 0 m)		1,169
Point 1 stern sn	Downflooding point	1,25
Point 1 stern dn	Downflooding point	1,264
Point 2 stern sn	Downflooding point	1,26
Point 2 stern dn	Downflooding point	1,273
Point 5 sn	Downflooding point	1,563
Point 6 sn	Downflooding point	1,574
Point 8 prese aria sn	Downflooding point	2,162
Point 8 prese aria dn	Downflooding point	2,177
Point 7 bow sn	Downflooding point	1,579
Point 7 bow dn	Downflooding point	1,587
Point 9 SGM sn	Downflooding point	0,446
Point 9 SGM dn	Downflooding point	0,467

Code	Criteria	Value	Units	Actual	Status	Margin %
Criteria at equilibrium	Value of heel, trim or deck slope at equilibrium	-10,0	deg	-0,3	Pass	+102,71
Criteria at equilibrium	Min. freeboard at equilibrium	0,200	m	1,169	Pass	+484,50
Criteria at equilibrium	Value of GMt or GML at equilibrium	0,350	m	2,155	Pass	+515,71

6.5 Alla fine del viaggio (10% dei consumabili) - AFFOLLAMENTO -

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	31,350	31,350			10,230	-0,010	1,970	0,000	User Specified
Equipaggio	2	0,075	0,150			18,615	-0,482	3,050	0,000	User Specified
Passeggeri Coperta seduti	28	0,075	2,100			5,329	-1,161	3,050	0,000	User Specified
Passeggeri Coperta in piedi	44	0,075	3,300			9,302	-0,466	3,050	0,000	User Specified
Passeggeri Timoneria seduti	26	0,075	1,950			10,680	-0,958	5,400	0,000	User Specified
Passeggeri Timoneria in piedi	20	0,075	1,500			10,582	-0,444	5,400	0,000	User Specified
Passeggeri con carrozzina	2	0,090	0,180			11,893	-0,868	3,050	0,000	User Specified
Vivande	40	0,015	0,600			16,716	-0,354	2,450	0,000	User Specified
Biciclette	0	0,013	0,000			4,886	1,097	2,650	0,000	User Specified
T1 Fresh W	10%	0,999	0,100	0,999	0,100	3,378	0,000	1,009	0,083	Maximum
T2 Grey W	98%	0,500	0,490	0,500	0,490	4,442	-0,250	1,449	0,010	Maximum
T3 Black W	98%	0,500	0,490	0,500	0,490	4,442	0,250	1,449	0,010	Maximum
T4 Oil	98%	0,194	0,191	0,216	0,212	9,550	1,300	1,268	0,010	Maximum
T5 Gasole sn	10%	4,330	0,433	5,080	0,508	12,500	-0,768	0,718	0,880	Maximum
T6 Gasolio dn	10%	4,330	0,433	5,080	0,508	12,500	0,768	0,718	0,880	Maximum
T7 Bilge	98%	0,246	0,241	0,267	0,262	15,500	-1,079	1,032	0,038	Maximum
Total Loadcase			43,507	12,641	2,569	10,006	-0,167	2,344	1,912	
FS correction								0,044		
VCG fluid								2,388		

Stability calculatio



Heel to Port deg	-5,0	0,0	5,0	15,0	25,0	35,0	45,0	55,0	65,0	75,0	85,0	90,0
GZ m	-0,260	-0,167	-0,073	0,048	0,062	0,028	-0,083	-0,241	-0,431	-0,642	-0,848	-0,944
Area under GZ curve from zero heel m.deg	1,0712	-0,1305	-0,5917	-0,6465	-0,0176	0,4748	0,2561	-1,3333	-4,6645	-	-	-
										10,0244	17,4848	21,9680
Displacement t	43,51	43,51	43,51	43,51	43,51	43,51	43,51	43,51	43,51	43,51	43,51	43,51
Draft at FP m	0,908	0,914	0,908	0,864	0,781	0,636	0,413	0,089	-0,466	-1,761	-8,207	n/a
Draft at AP m	1,136	1,136	1,136	1,095	0,958	0,746	0,503	0,199	-0,295	-1,435	-6,969	n/a
WL Length m	22,521	22,528	22,521	22,458	22,323	22,065	21,538	21,636	22,070	22,373	22,602	22,696
Beam max extents on WL m	4,420	4,403	4,420	4,081	3,804	3,437	2,995	2,753	2,296	2,064	1,929	1,890
Wetted Area m^2	102,330	102,529	102,328	95,924	92,864	96,425	98,676	99,560	95,973	95,502	97,306	96,758
Waterpl. Area m^2	83,804	83,899	83,802	75,367	71,227	65,607	58,470	52,472	43,811	39,481	37,070	36,409
Prismatic coeff. (Cp)	0,660	0,658	0,660	0,677	0,697	0,720	0,753	0,761	0,760	0,766	0,772	0,775
Block coeff. (Cb)	0,388	0,391	0,388	0,446	0,487	0,473	0,505	0,510	0,578	0,636	0,652	0,637
LCB from zero pt. (+ve fwd) m	9,990	9,990	9,989	9,990	9,996	10,001	10,003	10,001	10,000	10,000	9,999	9,999
LCF from zero pt. (+ve fwd) m	9,765	9,798	9,765	10,089	10,349	10,811	11,060	11,051	11,119	11,054	11,013	11,000
Max deck inclination deg	5,0324	0,5562	5,0324	15,0102	25,0031	35,0006	45,0002	55,0002	65,0001	75,0001	85,0001	90,0000
Trim angle (+ve by stern) deg	0,5729	0,5562	0,5733	0,5807	0,4460	0,2749	0,2249	0,2772	0,4278	0,8190	3,1090	90,0000

Key point	Type	Immersion angle deg	Emergence angle deg
Margin Line (immersion pos = 2,481 m)		27,1	n/a
Deck Edge (immersion pos = 3,307 m)		29,4	n/a
Point 1 stern sn	Downflooding point	54	0
Point 1 stern dn	Downflooding point	Not immersed in positive range	0
Point 2 stern sn	Downflooding point	56	0
Point 2 stern dn	Downflooding point	Not immersed in positive range	0
Point 5 sn	Downflooding point	Not immersed in positive range	0
Point 6 sn	Downflooding point	Not immersed in positive range	0
Point 8 prese aria sn	Downflooding point	65,8	0
Point 8 prese aria dn	Downflooding point	Not immersed in positive range	0
Point 7 bow sn	Downflooding point	Not immersed in positive range	0
Point 7 bow dn	Downflooding point	Not immersed in positive range	0
Point 9 SGM sn	Downflooding point	8	0
Point 9 SGM dn	Downflooding point	Not immersed in positive range	0

Equilibrium calculation

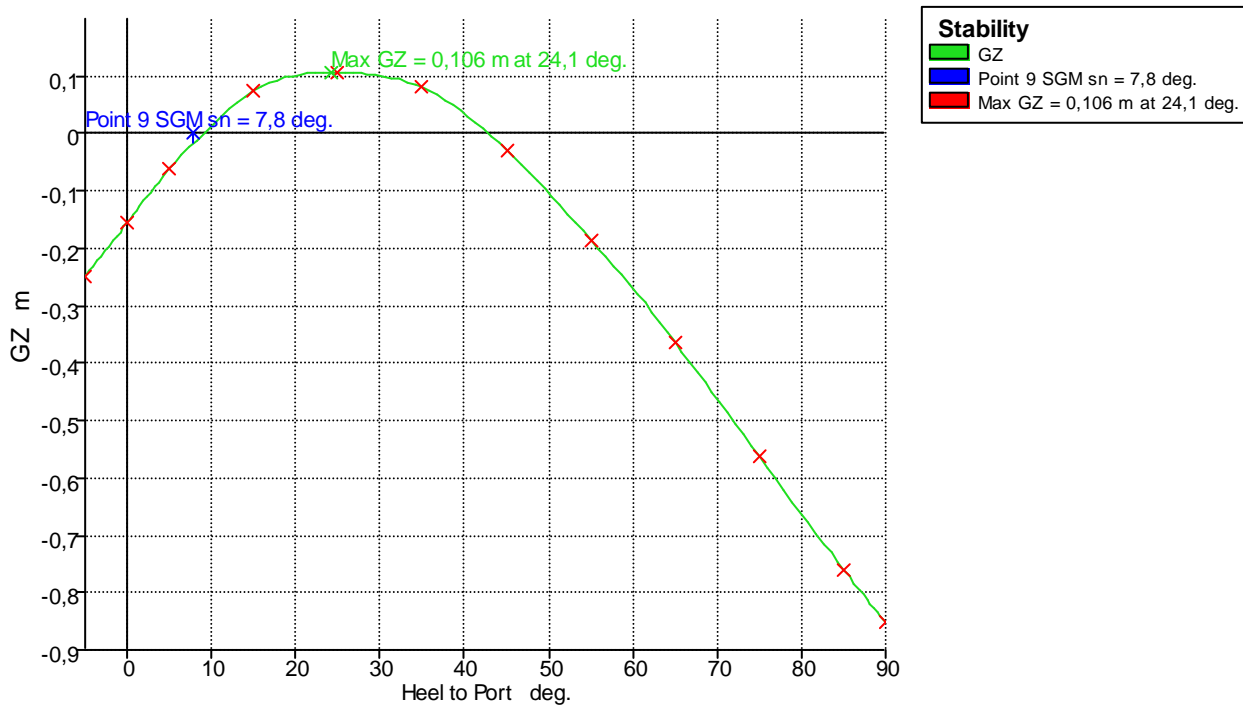
Draft Amidships m	1,012
Displacement t	43,51
Heel deg	-9,4
Draft at FP m	0,893
Draft at AP m	1,131
Draft at LCF m	1,027
Trim (+ve by stern) m	0,238
WL Length m	22,504
Beam max extents on WL m	4,369
Wetted Area m ²	99,574
Waterpl. Area m ²	80,362
Prismatic coeff. (Cp)	0,665
Block coeff. (Cb)	0,397
Max Sect. area coeff. (Cm)	0,655
Waterpl. area coeff. (Cwp)	0,817
LCB from zero pt. (+ve fwd) m	9,989
LCF from zero pt. (+ve fwd) m	9,893
KB m	0,757
KG fluid m	2,388
BMt m	2,399
BML m	60,671
GMt corrected m	0,746
GML m	59,018
KMt m	3,124
KML m	60,615
Immersion (TPc) tonne/cm	0,804
MTc tonne.m	1,127
RM at 1deg = GMt.Disp.sin(1) tonne.m	0,566
Max deck inclination deg	9,3928
Trim angle (+ve by stern) deg	0,5984

Key point	Type	Freeboard m
Margin Line (freeboard pos = 0 m)		0,568
Deck Edge (freeboard pos = 0 m)		0,643
Point 1 stern sn	Downflooding point	0,852
Point 1 stern dn	Downflooding point	1,324
Point 2 stern sn	Downflooding point	0,872
Point 2 stern dn	Downflooding point	1,328
Point 5 sn	Downflooding point	1,325
Point 6 sn	Downflooding point	1,339
Point 8 prese aria sn	Downflooding point	1,754
Point 8 prese aria dn	Downflooding point	2,265
Point 7 bow sn	Downflooding point	1,316
Point 7 bow dn	Downflooding point	1,586
Point 9 SGM sn	Downflooding point	-0,058
Point 9 SGM dn	Downflooding point	0,655

Code	Criteria	Value	Units	Actual	Status	Margin %
Criteria at equilibrium	Value of heel, trim or deck slope at equilibrium	-10,0	deg	-9,4	Pass	+193,74
Criteria at equilibrium	Min. freeboard at equilibrium	0,200	m	0,643	Pass	+221,50
Criteria at equilibrium	Value of GMt or GML at equilibrium	0,350	m	0,746	Pass	+113,14

6.6 A metà del viaggio (50% dei consumabili) - AFFOLLAMENTO -

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m^3	Total Volume m^3	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	31,350	31,350			10,230	-0,010	1,970	0,000	User Specified
Equipaggio	2	0,075	0,150			18,615	-0,482	3,050	0,000	User Specified
Passeggeri Coperta seduti	28	0,075	2,100			5,329	-1,161	3,050	0,000	User Specified
Passeggeri Coperta in piedi	44	0,075	3,300			9,302	-0,466	3,050	0,000	User Specified
Passeggeri Timoneria seduti	26	0,075	1,950			10,680	-0,958	5,400	0,000	User Specified
Passeggeri Timoneria in piedi	20	0,075	1,500			10,582	-0,444	5,400	0,000	User Specified
Passeggeri con carrozzina	2	0,090	0,180			11,893	-0,868	3,050	0,000	User Specified
Vivande	40	0,015	0,600			16,716	-0,354	2,450	0,000	User Specified
Biciclette	0	0,013	0,000			4,886	1,097	2,650	0,000	User Specified
T1 Fresh W	50%	0,999	0,500	0,999	0,500	3,378	0,000	1,209	0,083	Maximum
T2 Grey W	50%	0,500	0,250	0,500	0,250	4,442	-0,250	1,209	0,010	Maximum
T3 Black W	50%	0,500	0,250	0,500	0,250	4,442	0,250	1,209	0,010	Maximum
T4 Oil	50%	0,194	0,097	0,216	0,108	9,550	1,300	1,124	0,010	Maximum
T5 Gasole sn	50%	4,330	2,165	5,080	2,540	12,500	-1,030	0,965	0,880	Maximum
T6 Gasolio dn	50%	4,330	2,165	5,080	2,540	12,500	1,030	0,965	0,880	Maximum
T7 Bilge	50%	0,246	0,123	0,267	0,133	15,500	-1,023	0,893	0,038	Maximum
Total Loadcase			46,679	12,641	6,321	10,178	-0,156	2,248	1,912	
FS correction								0,041		
VCG fluid								2,289		



Heel to Port deg	-5,0	0,0	5,0	15,0	25,0	35,0	45,0	55,0	65,0	75,0	85,0	90,0
GZ m	-0,248	-0,156	-0,062	0,074	0,106	0,080	-0,029	-0,185	-0,363	-0,563	-0,760	-0,852
Area under GZ curve from zero heel m.deg	1,0107	-0,1214	-0,5384	-0,4186	0,5570	1,5385	1,8590	0,8156	-1,9032	-6,5250	-	-
											13,1463	17,1796
Displacement t	46,68	46,68	46,68	46,68	46,68	46,68	46,68	46,68	46,68	46,68	46,68	46,68
Draft at FP m	0,986	0,992	0,986	0,947	0,868	0,730	0,527	0,245	-0,220	-1,308	-6,766	n/a
Draft at AP m	1,143	1,143	1,143	1,105	0,974	0,773	0,544	0,256	-0,201	-1,269	-6,449	n/a
WL Length m	22,605	22,611	22,605	22,562	22,461	22,236	21,816	21,847	22,277	22,562	22,763	22,859
Beam max extents on WL m	4,432	4,415	4,432	4,158	3,868	3,407	2,967	2,706	2,329	2,094	1,957	1,917
Wetted Area m^2	104,948	105,110	104,948	98,959	95,777	100,050	103,093	104,248	100,547	99,842	99,770	101,126
Waterpl. Area m^2	85,256	85,276	85,255	77,475	73,117	65,983	58,184	52,595	45,258	40,636	38,085	37,363
Prismatic coeff. (Cp)	0,668	0,667	0,668	0,684	0,703	0,726	0,755	0,765	0,762	0,767	0,773	0,776
Block coeff. (Cb)	0,410	0,412	0,410	0,461	0,491	0,490	0,520	0,530	0,579	0,635	0,655	0,640
LCB from zero pt. (+ve fwd) m	10,168	10,168	10,168	10,168	10,171	10,177	10,179	10,178	10,176	10,177	10,177	10,176
LCF from zero pt. (+ve fwd) m	9,904	9,934	9,904	10,192	10,451	10,931	11,153	11,165	11,310	11,218	11,164	11,142
Max deck inclination deg	5,0153	0,3801	5,0153	15,0048	25,0011	35,0001	45,0000	55,0000	65,0000	75,0000	85,0000	90,0000
Trim angle (+ve by stern) deg	0,3938	0,3801	0,3941	0,3984	0,2674	0,1072	0,0422	0,0272	0,0494	0,0977	0,7973	90,0000

Key point	Type	Immersion angle deg	Emergence angle deg
Margin Line (immersion pos = 4,134 m)		26,2	n/a
Deck Edge (immersion pos = 5,079 m)		28,4	n/a
Point 1 stern sn	Downflooding point	52,5	0
Point 1 stern dn	Downflooding point	Not immersed in positive range	0
Point 2 stern sn	Downflooding point	54,4	0
Point 2 stern dn	Downflooding point	Not immersed in positive range	0
Point 5 sn	Downflooding point	Not immersed in positive range	0
Point 6 sn	Downflooding point	Not immersed in positive range	0
Point 8 prese aria sn	Downflooding point	63,8	0
Point 8 prese aria dn	Downflooding point	Not immersed in positive range	0
Point 7 bow sn	Downflooding point	83,4	0
Point 7 bow dn	Downflooding point	Not immersed in positive range	0
Point 9 SGM sn	Downflooding point	7,8	0
Point 9 SGM dn	Downflooding point	Not immersed in positive range	0

Equilibrium calculation

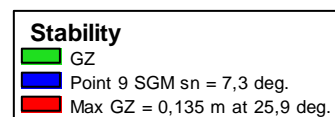
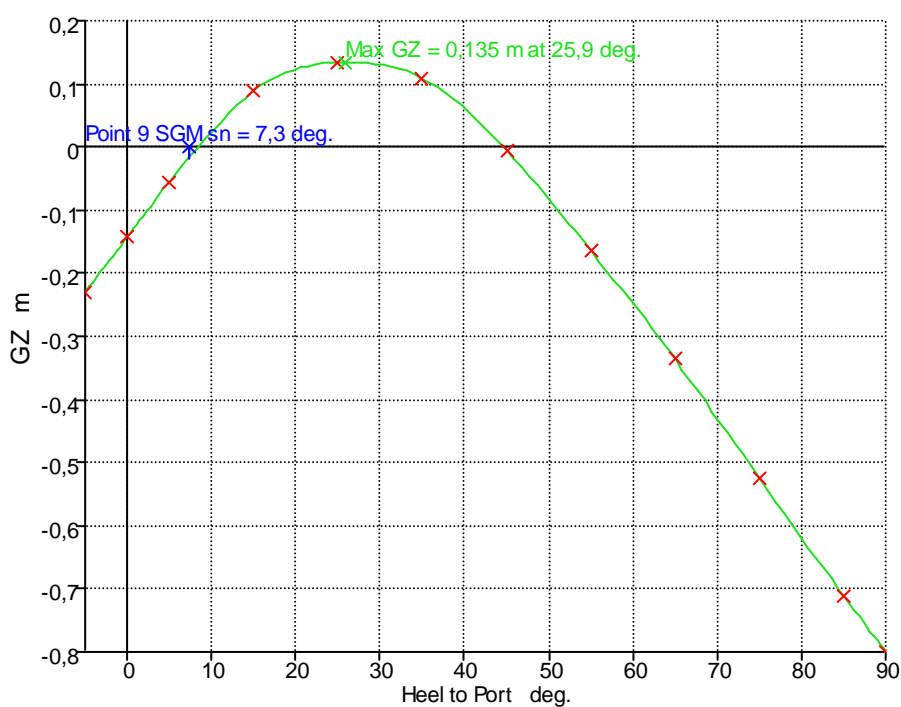
Draft Amidships m	1,058
Displacement t	46,68
Heel deg	-8,6
Draft at FP m	0,976
Draft at AP m	1,141
Draft at LCF m	1,068
Trim (+ve by stern) m	0,165
WL Length m	22,594
Beam max extents on WL m	4,465
Wetted Area m ²	103,425
Waterpl. Area m ²	83,556
Prismatic coeff. (Cp)	0,671
Block coeff. (Cb)	0,410
Max Sect. area coeff. (Cm)	0,652
Waterpl. area coeff. (Cwp)	0,828
LCB from zero pt. (+ve fwd) m	10,168
LCF from zero pt. (+ve fwd) m	9,972
KB m	0,772
KG fluid m	2,289
BMt m	2,470
BML m	59,816
GMt corrected m	0,936
GML m	58,281
KMt m	3,215
KML m	59,921
Immersion (TPc) tonne/cm	0,836
MTc tonne.m	1,194
RM at 1deg = GMt.Disp.sin(1) tonne.m	0,762
Max deck inclination deg	8,5660
Trim angle (+ve by stern) deg	0,4144

Key point	Type	Freeboard m
Margin Line (freeboard pos = 0 m)		0,592
Deck Edge (freeboard pos = 0 m)		0,667
Point 1 stern sn	Downflooding point	0,864
Point 1 stern dn	Downflooding point	1,296
Point 2 stern sn	Downflooding point	0,88
Point 2 stern dn	Downflooding point	1,296
Point 5 sn	Downflooding point	1,263
Point 6 sn	Downflooding point	1,273
Point 8 prese aria sn	Downflooding point	1,735
Point 8 prese aria dn	Downflooding point	2,202
Point 7 bow sn	Downflooding point	1,251
Point 7 bow dn	Downflooding point	1,497
Point 9 SGM sn	Downflooding point	-0,037
Point 9 SGM dn	Downflooding point	0,614

Code	Criteria	Value	Units	Actual	Status	Margin %
Criteria at equilibrium	Value of heel, trim or deck slope at equilibrium	-10,0	deg	-8,6	Pass	+185,56
Criteria at equilibrium	Min. freeboard at equilibrium	0,200	m	0,667	Pass	+233,50
Criteria at equilibrium	Value of GMt or GML at equilibrium	0,350	m	0,936	Pass	+167,43

6.7 All'inizio del viaggio (100% dei consumabili) - AFFOLLAMENTO -

Item Name	Quantity	Unit Mass tonne	Total Mass tonne	Unit Volume m ³	Total Volume m ³	Long. Arm m	Trans. Arm m	Vert. Arm m	Total FSM tonne.m	FSM Type
Lightship	1	31,350	31,350			10,230	-0,010	1,970	0,000	User Specified
Equipaggio	2	0,075	0,150			18,615	-0,482	3,050	0,000	User Specified
Passeggeri Coperta seduti	28	0,075	2,100			5,329	-1,161	3,050	0,000	User Specified
Passeggeri Coperta in piedi	44	0,075	3,300			9,302	-0,466	3,050	0,000	User Specified
Passeggeri Timoneria seduti	26	0,075	1,950			10,680	-0,958	5,400	0,000	User Specified
Passeggeri Timoneria in piedi	20	0,075	1,500			10,582	-0,444	5,400	0,000	User Specified
Passeggeri con carrozzina	2	0,090	0,180			11,893	-0,868	3,050	0,000	User Specified
Vivande	40	0,015	0,600			16,716	-0,354	2,450	0,000	User Specified
Biciclette	0	0,013	0,000			4,886	1,097	2,650	0,000	User Specified
T1 Fresh W	98%	0,999	0,979	0,999	0,979	3,378	0,000	1,449	0,083	Maximum
T2 Grey W	10%	0,500	0,050	0,500	0,050	4,442	-0,250	1,009	0,010	Maximum
T3 Black W	10%	0,500	0,050	0,500	0,050	4,442	0,250	1,009	0,010	Maximum
T4 Oil	10%	0,194	0,019	0,216	0,022	9,550	1,300	1,004	0,010	Maximum
T5 Gasole sn	98%	4,330	4,243	5,080	4,978	12,500	-1,091	1,199	0,880	Maximum
T6 Gasolio dn	98%	4,330	4,243	5,080	4,978	12,500	1,091	1,199	0,880	Maximum
T7 Bilge	10%	0,246	0,025	0,267	0,027	15,500	-0,844	0,734	0,038	Maximum
Total Loadcase			50,739	12,641	11,083	10,340	-0,143	2,189	1,912	
FS correction								0,038		
VCG fluid								2,227		



Heel to Port deg	-5,0	0,0	5,0	15,0	25,0	35,0	45,0	55,0	65,0	75,0	85,0	90,0
GZ m	-0,230	-0,143	-0,055	0,088	0,134	0,109	-0,005	-0,164	-0,336	-0,524	-0,711	-0,799
Area under GZ curve from zero heel m.deg	0,9342	-0,1117	-0,4925	-0,2729	0,9213	2,1984	2,7816	1,9557	-0,5346	-4,8296	-	-
											11,0101	14,7888
Displacement t	50,74	50,74	50,74	50,74	50,74	50,74	50,74	50,74	50,74	50,74	50,74	50,74
Draft at FP m	1,074	1,078	1,074	1,040	0,966	0,836	0,659	0,424	0,043	-0,817	-5,188	n/a
Draft at AP m	1,158	1,159	1,159	1,126	1,002	0,818	0,612	0,349	-0,052	-0,999	-5,609	n/a
WL Length m	22,701	22,706	22,701	22,664	22,581	22,406	22,104	22,080	22,467	22,737	22,939	23,021
Beam max extents on WL m	4,447	4,430	4,447	4,256	3,948	3,371	2,922	2,568	2,399	2,132	1,993	1,952
Wetted Area m^2	107,989	108,110	107,984	102,657	99,323	104,490	108,266	109,969	107,526	105,355	105,151	104,522
Waterpl. Area m^2	86,780	86,722	86,775	80,042	75,375	66,111	57,534	52,290	48,153	42,067	39,328	38,557
Prismatic coeff. (Cp)	0,678	0,677	0,678	0,692	0,710	0,732	0,757	0,770	0,766	0,770	0,775	0,778
Block coeff. (Cb)	0,435	0,437	0,435	0,477	0,497	0,510	0,540	0,572	0,575	0,635	0,654	0,640
LCB from zero pt. (+ve fwd) m	10,337	10,335	10,335	10,335	10,338	10,342	10,343	10,343	10,342	10,343	10,342	10,342
LCF from zero pt. (+ve fwd) m	10,045	10,072	10,045	10,289	10,548	11,039	11,243	11,248	11,388	11,404	11,331	11,304
Max deck inclination deg	5,0044	0,2032	5,0045	15,0014	25,0001	35,0000	45,0001	55,0001	65,0000	75,0000	85,0000	90,0000
Trim angle (+ve by stern) deg	0,2117	0,2032	0,2138	0,2174	0,0915	-0,0447	-0,1174	-0,1878	-0,2383	-0,4577	-1,0589	-
												90,0000

Key point	Type	Immersion angle deg	Emergence angle deg
Margin Line (immersion pos = 6,733 m)		24,8	n/a
Deck Edge (immersion pos = 7,442 m)		27	n/a
Point 1 stern sn	Downflooding point	50,2	0
Point 1 stern dn	Downflooding point	Not immersed in positive range	0
Point 2 stern sn	Downflooding point	51,8	0
Point 2 stern dn	Downflooding point	Not immersed in positive range	0
Point 5 sn	Downflooding point	85,8	0
Point 6 sn	Downflooding point	85,7	0
Point 8 prese aria sn	Downflooding point	61,5	0
Point 8 prese aria dn	Downflooding point	Not immersed in positive range	0
Point 7 bow sn	Downflooding point	76,4	0
Point 7 bow dn	Downflooding point	Not immersed in positive range	0
Point 9 SGM sn	Downflooding point	7,3	0
Point 9 SGM dn	Downflooding point	Not immersed in positive range	0

Equilibrium calculation

Draft Amidships m	1,112
Displacement t	50,74
Heel deg	-8,2
Draft at FP m	1,066
Draft at AP m	1,157
Draft at LCF m	1,117
Trim (+ve by stern) m	0,091
WL Length m	22,693
Beam max extents on WL m	4,476
Wetted Area m ²	107,197
Waterpl. Area m ²	86,087
Prismatic coeff. (Cp)	0,680
Block coeff. (Cb)	0,434
Max Sect. area coeff. (Cm)	0,665
Waterpl. area coeff. (Cwp)	0,848
LCB from zero pt. (+ve fwd) m	10,337
LCF from zero pt. (+ve fwd) m	10,068
KB m	0,796
KG fluid m	2,227
BMt m	2,426
BML m	58,161
GMt corrected m	0,980
GML m	56,715
KMt m	3,197
KML m	58,361
Immersion (TPc) tonne/cm	0,861
MTc tonne.m	1,263
RM at 1deg = GMt.Disp.sin(1) tonne.m	0,868
Max deck inclination deg	8,2101
Trim angle (+ve by stern) deg	0,2283

Key point	Type	Freeboard m
Margin Line (freeboard pos = 0 m)		0,59
Deck Edge (freeboard pos = 0 m)		0,665
Point 1 stern sn	Downflooding point	0,856
Point 1 stern dn	Downflooding point	1,27
Point 2 stern sn	Downflooding point	0,868
Point 2 stern dn	Downflooding point	1,268
Point 5 sn	Downflooding point	1,185
Point 6 sn	Downflooding point	1,192
Point 8 prese aria sn	Downflooding point	1,694
Point 8 prese aria dn	Downflooding point	2,142
Point 7 bow sn	Downflooding point	1,17
Point 7 bow dn	Downflooding point	1,406
Point 9 SGM sn	Downflooding point	-0,041
Point 9 SGM dn	Downflooding point	0,584

Code	Criteria	Value	Units	Actual	Status	Margin %
Criteria at equilibrium	Value of heel, trim or deck slope at equilibrium	-10,0	deg	-8,2	Pass	+182,07
Criteria at equilibrium	Min. freeboard at equilibrium	0,200	m	0,665	Pass	+232,50
Criteria at equilibrium	Value of GMt or GML at equilibrium	0,350	m	0,980	Pass	+180,00

7. Report prova di stabilità