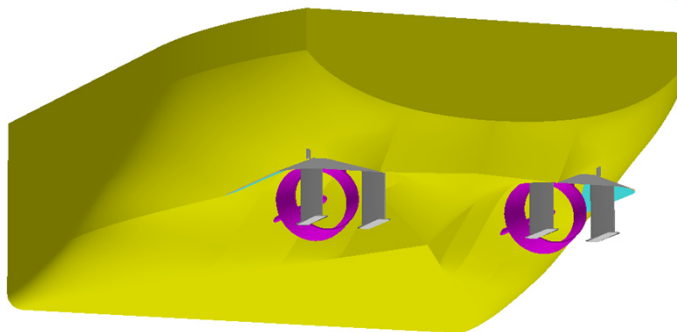
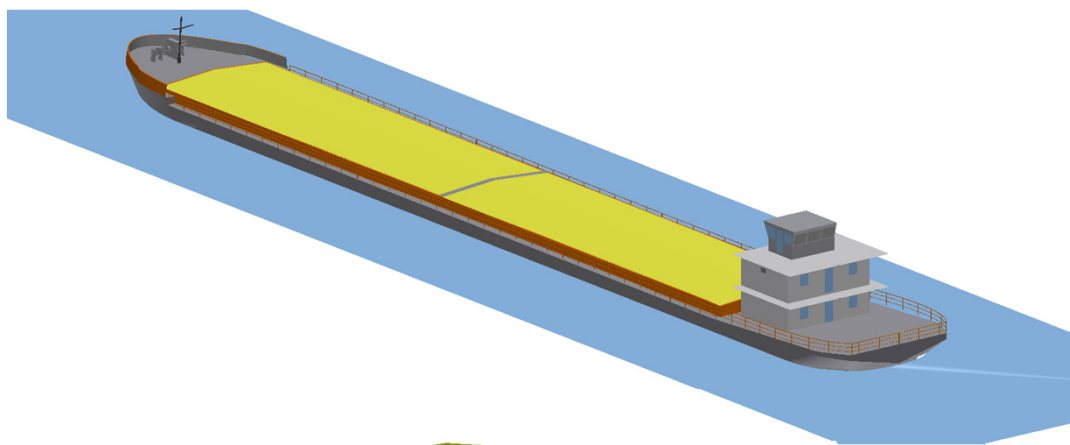
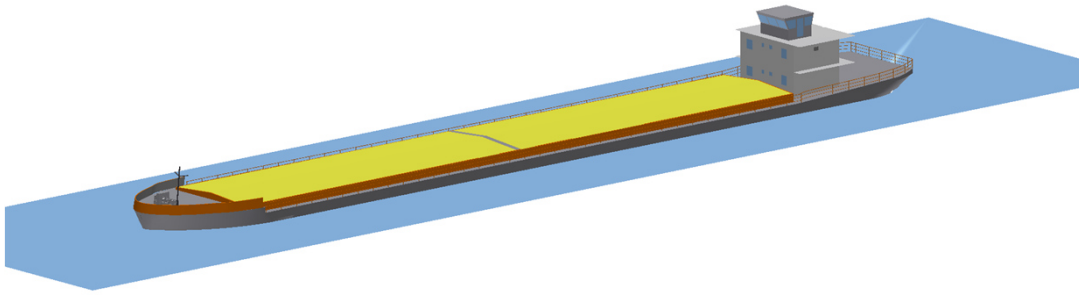


Bulk Carrier B1



Main dimensions

Cargo type		Dry Bulk
Hull type		B1
Length o.A.	L	110.00 m
Breadth moulded	B	12.00 m
Depth Main Deck	D	3.70 m
Draught max.	T	2.80 m
Lightweight estimate		827 t
Payload at Tmax		2526 t

Applicable regulations

- Vessel built according to Rules and Regulations for the Construction and Classification of Inland Waterways Ships by the Indian Register of Shipping, or to corresponding regulations of internationally approved classification society.
- Applicable rules of IWAI for navigation on NW-1, from Diamond Harbour (West Bengal) to Allahabad (Uttar Pradesh). Navigation zone "Zone 3" IRClass

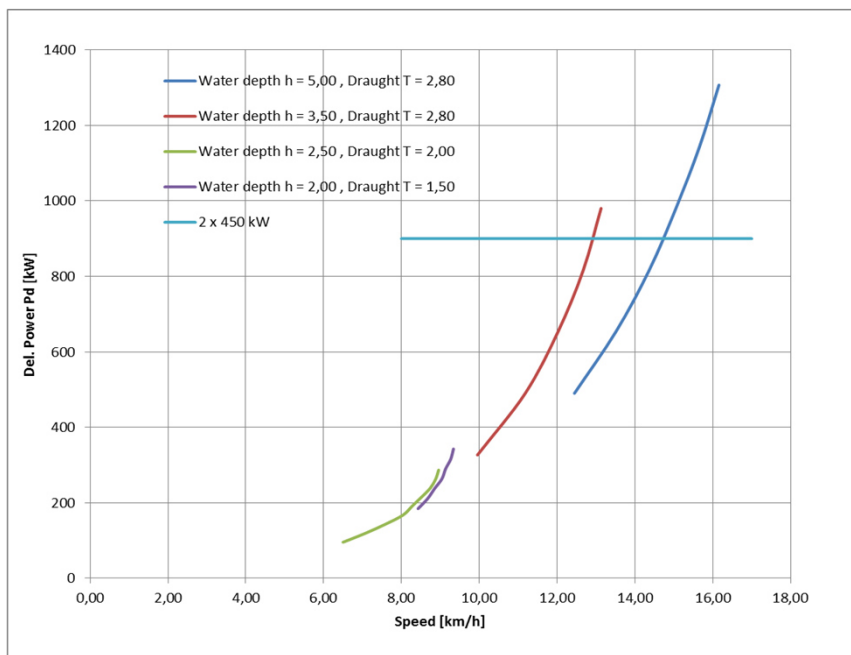
Powering

Number of Propellers (in nozzles)		2
Propeller diameter	D_p	1.45 m
Del. total power	P_d	900 kW
Rate of rev.	n [1/min]	390

Reversible gear box

Diesel marine engine 500 kW in rating A (heavy, uninterrupted duty)

Estimated speed and power



Cargo hold

	Lc	Bc	Hc	Volume
Dimensions:	98.4 m	10.1 m	3.9 m	3876.0 m ³

Divided in 2 parts

Sliding hatch cover, with light alloy profile cover

Provisions

Diesel Oil	30 t
Fresh Water	12 t
Lub Oil	1 t
Sludge	2 t
Black Water	8 t

Equipment

- Twin rudder blades with high efficiency profiles behind each propeller.
- Bow thruster with vertical propeller shaft, propeller diameter 0.80 m. Diesel engine drive, 150 kW.
- Two bow rudder flaps in dimension of b x h = 2.0 x 1.0 m
- Two bow anchors, each 1230 kg
- One stern anchor 615 kg

Accommodation

- Accommodation on two decks for crew of max. 12 persons

Weight calculation results for major components

Steel weight, longt. Framing	687 t
Accommodation	65 t
Machinery & outfitting	50 t
Hatch Cover	25 t
Sum	827 t

Electric load requirements

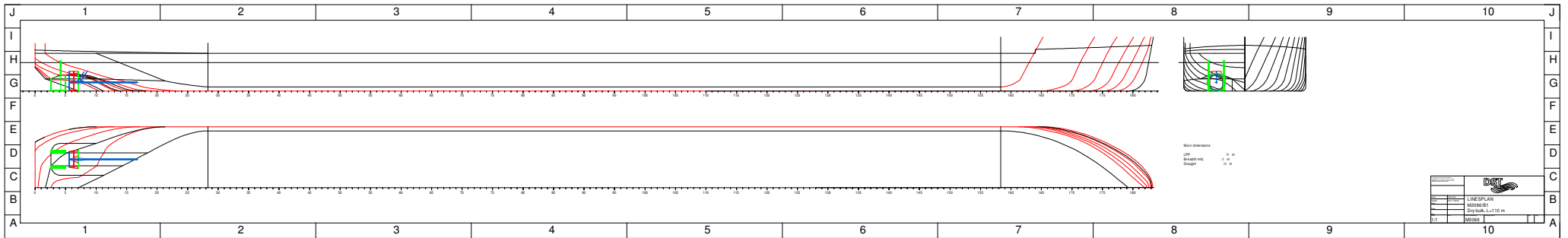
Diesel driven genset, 60 kW output

Three-phase AC supply to anchor winches

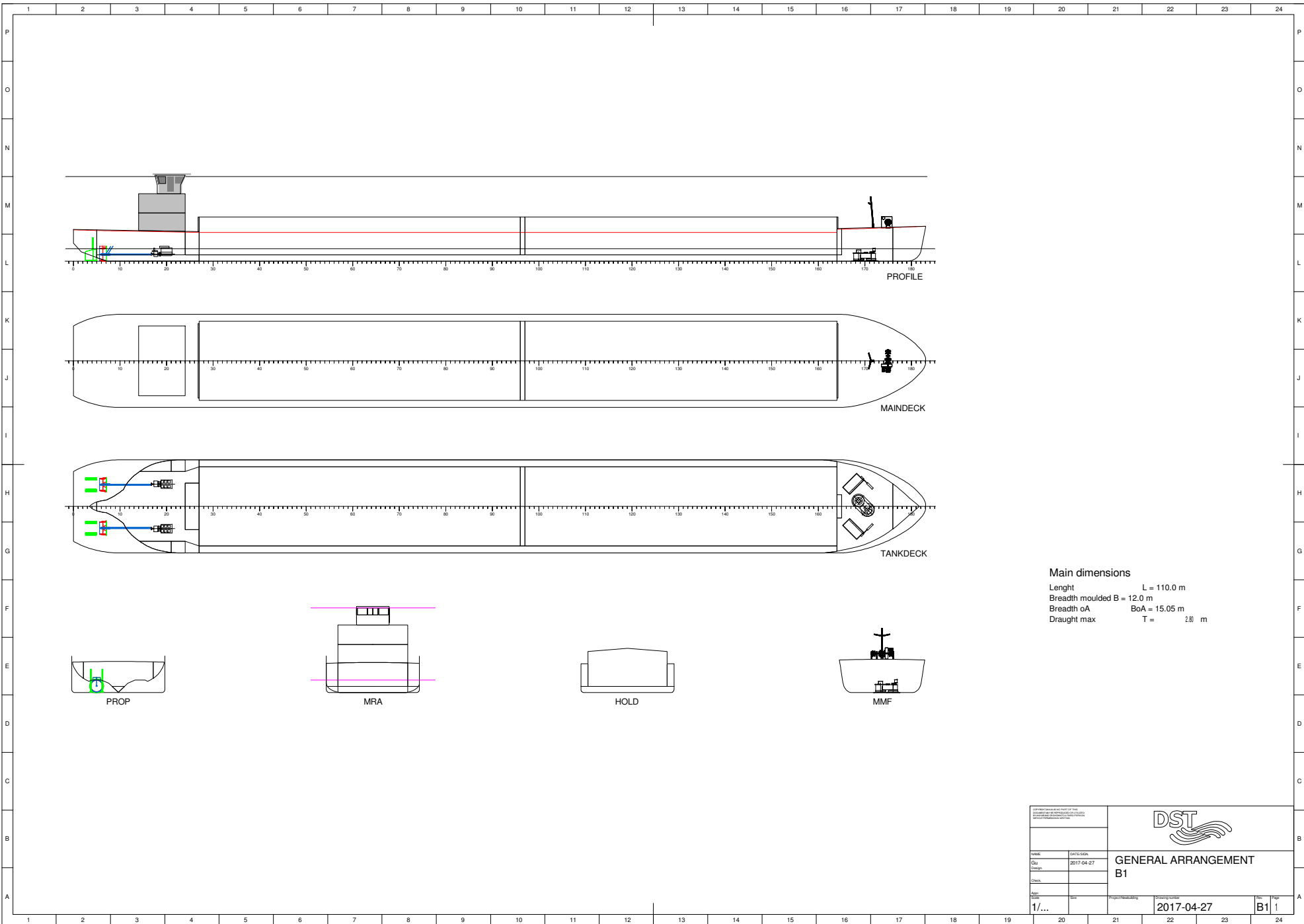
220 V supply to accomadation

220 V supply to AC accomodation

24 V emergency circuit




DST	
LINEA PLAN	
10/00/01	
Dip. 30/01, L. 1/10 m	
1/1	10



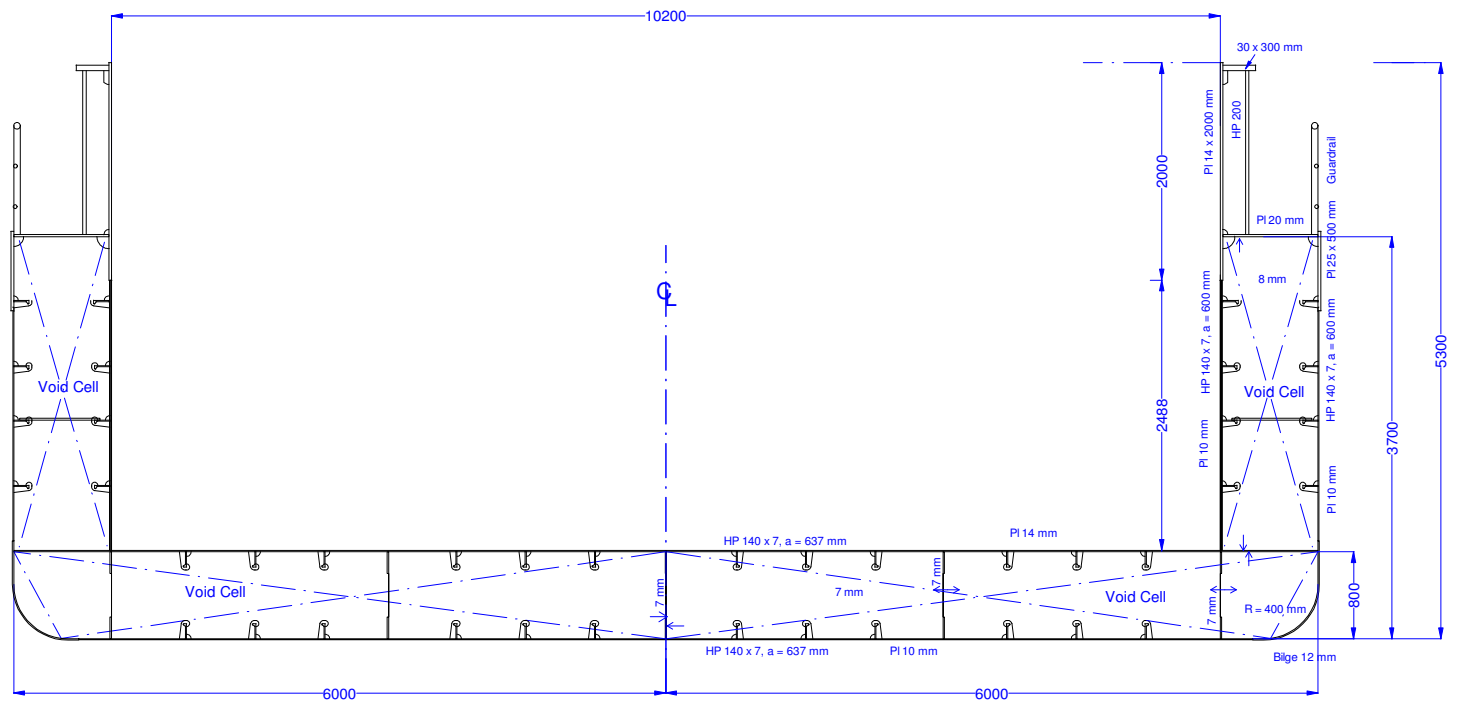
Main dimensions

Length L = 110.0 m
 Breadth moulded B = 12.0 m
 Breadth oA BoA = 15.05 m
 Draught max T = 2.8 m

<small>Confidential and not for sale without prior written consent of the responsible authority</small>			
Title: 04110-0000 Date: 2017-04-27 Comp: Check: App: No: 1/...	GENERAL ARRANGEMENT B1		Page: 1
		Project/Revision: 2017-04-27	Scale: B1


Bulk Carrier B1 - Main Frame and Scantling

Frame distance 1800 mm



Main Dimensions
 Lenght PP : 110.000 m
 Breadth moulded : 12.000 m Stiffeners:
 Draught design : 2.800 m HP 140 x 7 replaced by L 100 x 50 x 10
 Navigation Zone 3

Date 23.05.2017

	
NW-1 Main Section	
Date: 2015.11.30 Scale: 1/25 Sheet: G 1	1/25

PROJECT INFO

L x B = 110.00 x 12 m

LOADING CASES

Vessel Type: B1

Loading cases:

CASE	DISP t	LOAD t	BUNKER t	CARGO t	T m	TR m	GM m	GMCORR m
1-LIGHT.	862.00	35.00	30.00	0.00	0.749	-0.988	13.859	-0.067
2-CAS1	2085.41	1288.41	30.00	1253.41	1.755	2.201	5.228	-0.028
3-CAS2	2123.56	1326.56	30.00	1291.56	1.744	-3.157	5.609	-0.027
4-T280	3362.00	2565.00	30.00	2530.00	2.786	-0.002	3.445	-0.017
5-T130	1482.00	685.00	30.00	650.00	1.268	-0.003	8.067	-0.039

M2066/B1

LOADING CONDITION 1-LIGHTSHIP

LOADING COMPONENTS

Name		Max. weight	Mass	Center of gravity			Free s. moment
				cgx	cgy	cgz	

Diesel Oil, RHO=0.860							

DOA	Diesel oil a.	26.0	17.00	15.30	0.00	1.73	26.93
DOF	Diesel oil f.	4.9	3.00	98.70	0.00	1.79	0.00

Total of DO		30.9	20.00	27.81	0.00	1.74	26.93

Fresh Water, RHO=1.000							

FW	Side Tanks a.	14.9	10.00	13.50	0.00	1.75	31.20

Deadweight			35.0	21.46	0.00	2.64	58.1
Lightweight			797.0	47.12	0.00	2.20	
Displacement (rho=1.000)			832.0	46.04	0.00	2.22	58.1

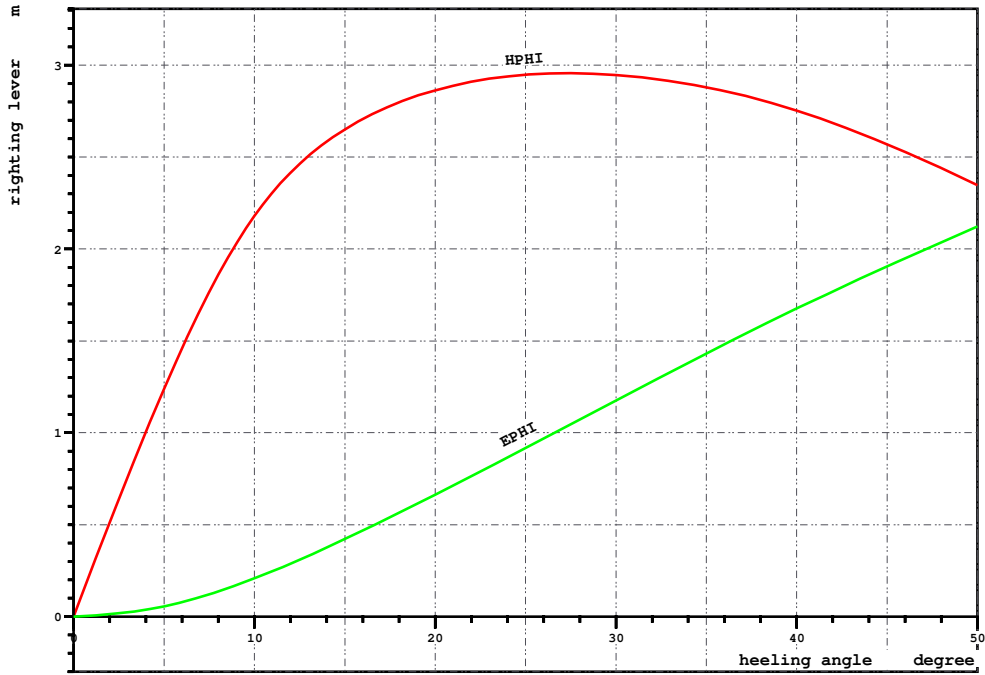
FLOATING POSITION

Draught moulded	0.724	m	KM	16.67	m
Trim	-0.978	m	KG	2.22	m
Heel, PS=+	0.0	deg			
TA	1.213	m	GM0	14.45	m
TF	0.234	m	GMCORR	-0.07	m
Trimming moment	-8538	tonm	GM	14.38	m



M2066/B1

Loading condition 1-Lightship,

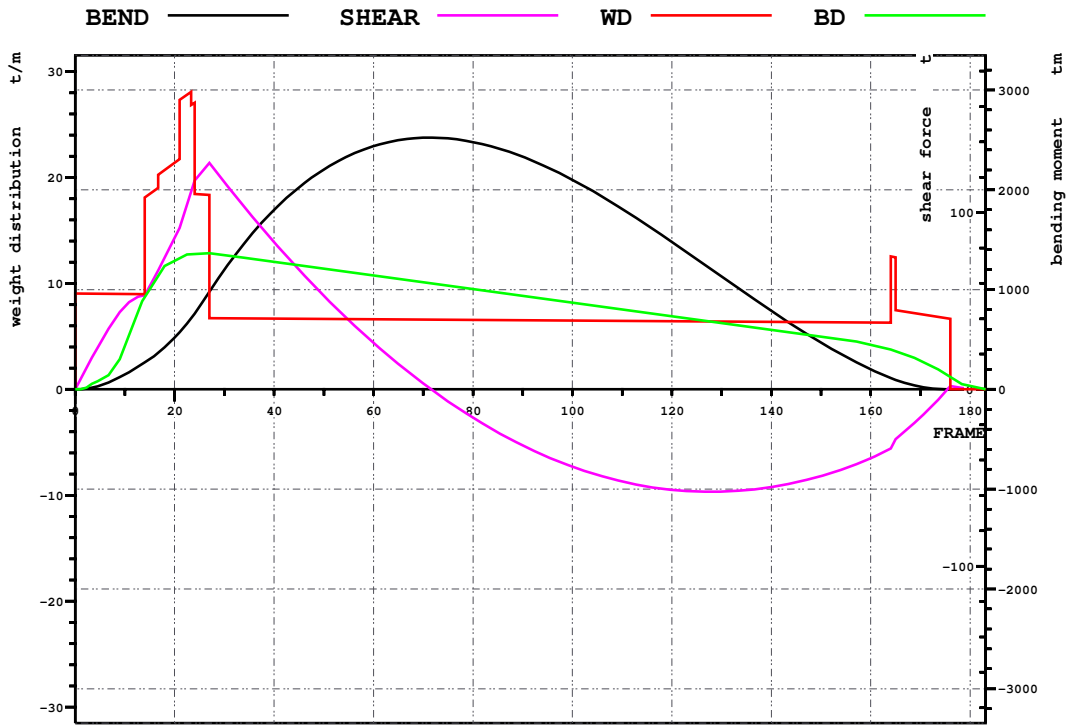


LOADING CONDITION 1-LIGHTSHIP

HEEL degree	MS m	HPFI m	EPHI mrad	FSMOM tm	DGZ m
0.0	0.000	0.00	0.000	0.0	0.000
5.0	-0.014	1.24	0.055	5.1	0.006
10.0	-0.316	2.18	0.208	10.3	0.012
15.0	-1.070	2.65	0.421	15.5	0.019
20.0	-2.055	2.86	0.663	19.6	0.024
30.0	-4.246	2.95	1.175	25.9	0.031
40.0	-6.501	2.75	1.676	27.9	0.034
50.0	-8.689	2.35	2.123	27.4	0.033

M2066/B1

Loading condition 1-Lightship,



LOADING CONDITION 1-LIGHTSHIP

			X	Frame
Shear force (min)	-58.0 t	(-)	77.035 m	128.39
Shear force (max)	128.2 t	(-)	16.200 m	27.00
Sagging moment	-0.9 tm	(-)	105.221 m	175.37
Hogging moment	2522.6 tm	(-)	43.057 m	71.76

M2066/B1

LOADING CONDITION 2-CAS1, Cargo hold 1 loaded

LOADING COMPONENTS

Name		Max. weight	Mass	Center of gravity cgx cgz			Free s. moment

Solid cargo, RHO=1.000							

LR1	cargo hold	1928.3	1253.41	78.30	0.00	2.33	0.00
Diesel Oil, RHO=0.860							

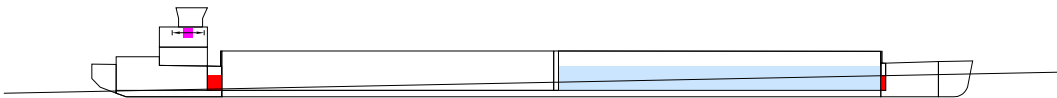
DOA	Diesel oil a.	26.0	17.00	15.30	0.00	1.73	26.93
DOF	Diesel oil f.	4.9	3.00	98.70	0.00	1.79	0.00

Total of DO		30.9	20.00	27.81	0.00	1.74	26.93
Fresh Water, RHO=1.000							

FW	Side Tanks a.	14.9	10.00	13.50	0.00	1.75	31.20
Deadweight			1288.4	76.76	0.00	2.34	58.1
Lightweight			797.0	47.12	0.00	2.20	
Displacement (rho=1.000)			2085.4	65.43	0.00	2.29	58.1

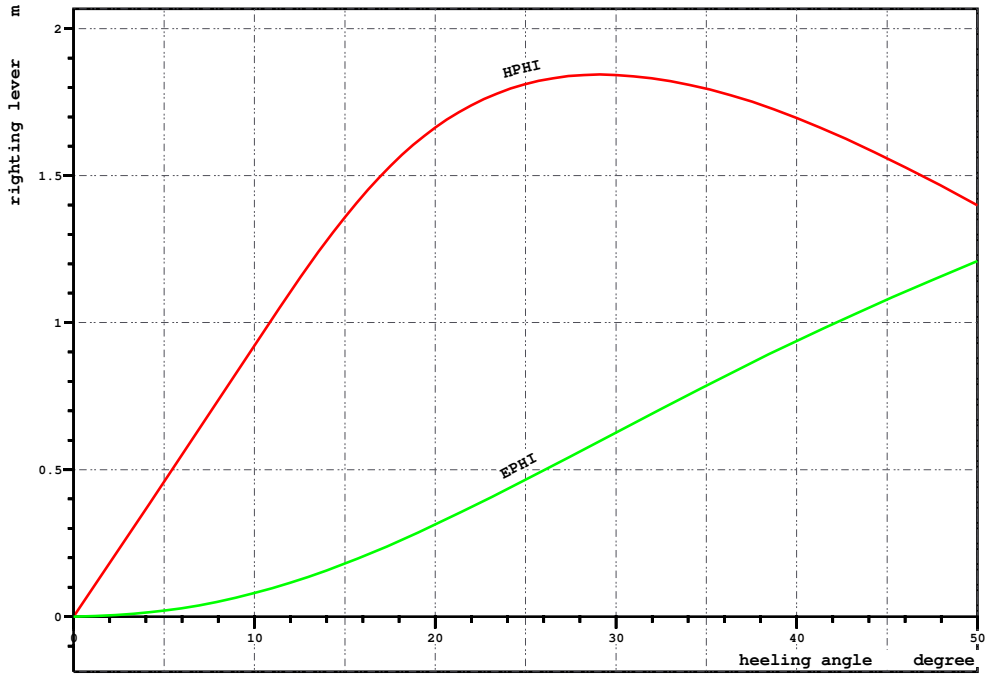
FLOATING POSITION

Draught moulded	1.755	m	KM	7.54	m
Trim	2.201	m	KG	2.29	m
Heel, PS=+	0.0	deg			
TA	0.654	m	GM0	5.26	m
TF	2.856	m	GMCORR	-0.03	m
Trimming moment	19534	tonm	GM	5.23	m



M2066/B1

Loading condition 2-cas1, Cargo hold 1 loaded

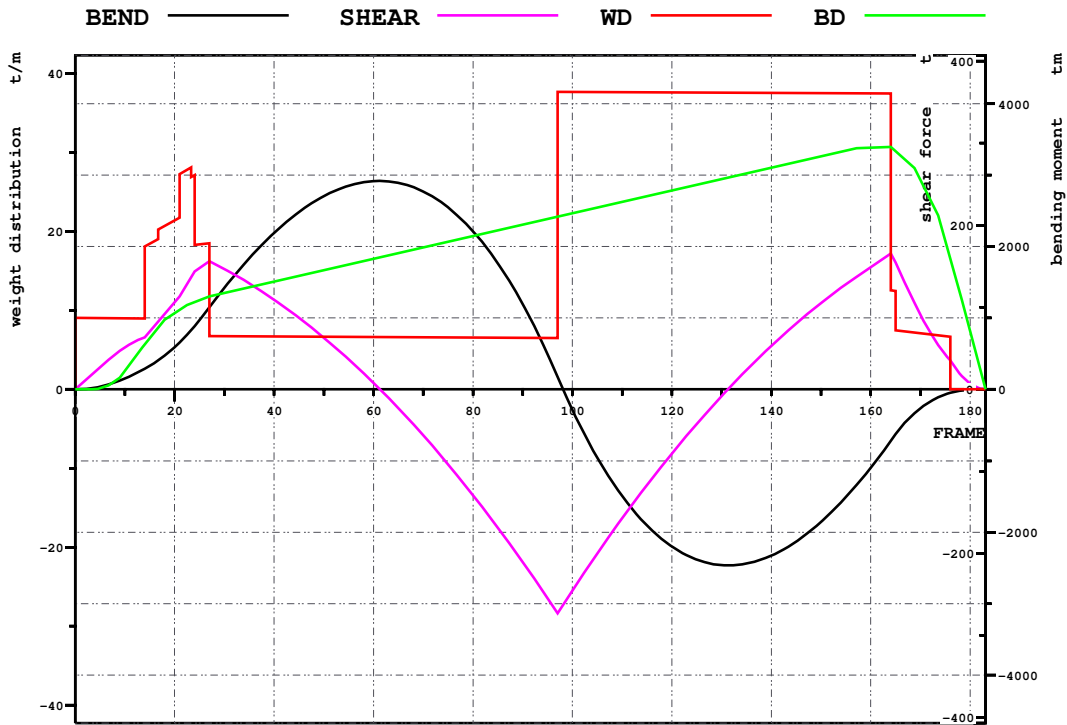


LOADING CONDITION 2-CAS1, Cargo hold 1 loaded

HEEL degree	MS m	HPHI m	E PHI mrad	FSMOM tm	DGZ m
0.0	0.000	0.00	0.000	0.0	0.000
5.0	0.002	0.46	0.020	5.1	0.002
10.0	0.015	0.92	0.080	10.3	0.005
15.0	0.006	1.36	0.180	15.5	0.007
20.0	-0.125	1.66	0.313	19.6	0.009
30.0	-0.773	1.84	0.626	25.9	0.012
40.0	-1.669	1.70	0.938	27.9	0.013
50.0	-2.614	1.40	1.209	27.4	0.013

M2066/B1

Loading condition 2-cas1, Cargo hold 1 loaded



LOADING CONDITION 2-CAS1, Cargo hold 1 loaded

			X	Frame
Shear force (min)	-272.8 t	(-)	58.200 m	97.00
Shear force (max)	165.5 t	(-)	98.400 m	164.00
Sagging moment	-2464.6 tm	(-)	79.398 m	132.33
Hogging moment	2920.4 tm	(-)	36.750 m	61.25

M2066/B1

LOADING CONDITION 3-CAS2, Cargo hold 2 loaded

LOADING COMPONENTS

Name		Max. weight	Mass	Center of gravity cgx cgz			Free s. moment

Solid cargo, RHO=1.000							

LR2	cargo hold	1987.0	1291.56	36.90	0.00	2.33	0.00
Diesel Oil, RHO=0.860							

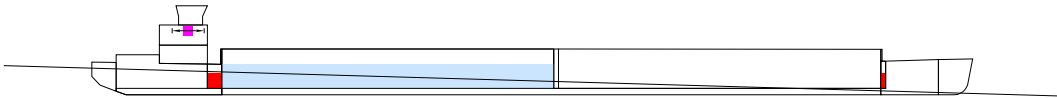
DOA	Diesel oil a.	26.0	17.00	15.30	0.00	1.73	26.93
DOF	Diesel oil f.	4.9	3.00	98.70	0.00	1.79	0.00

Total of DO		30.9	20.00	27.81	0.00	1.74	26.93
Fresh Water, RHO=1.000							

FW	Side Tanks a.	14.9	10.00	13.50	0.00	1.75	31.20
Deadweight			1326.6	36.49	0.00	2.34	58.1
Lightweight			797.0	47.12	0.00	2.20	
Displacement (rho=1.000)			2123.6	40.48	0.00	2.29	58.1

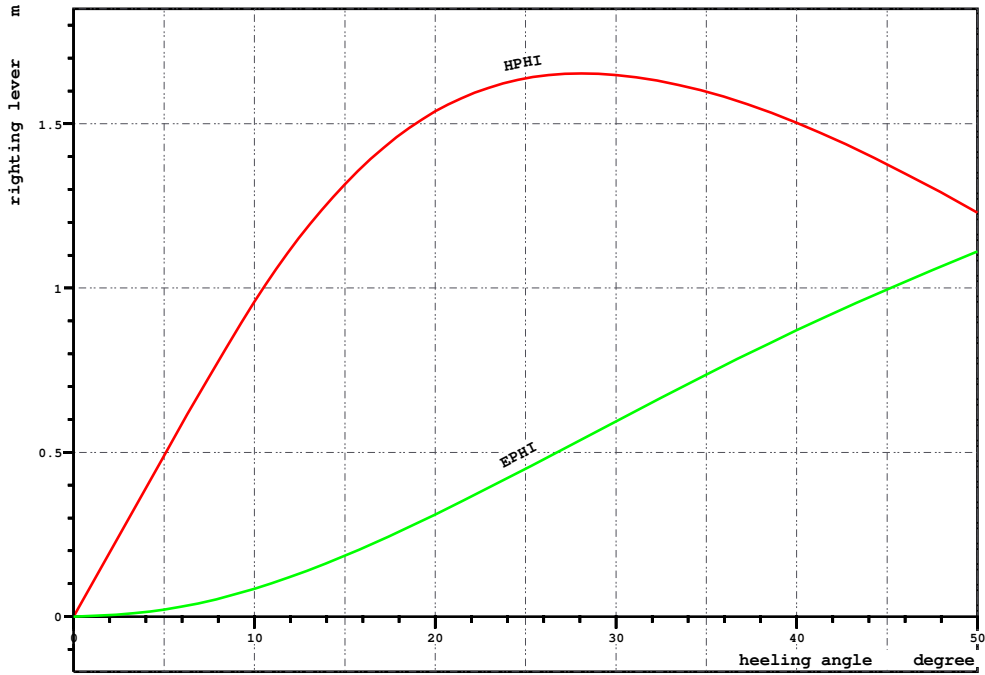
FLOATING POSITION

Draught moulded	1.744	m	KM	7.92	m
Trim	-3.157	m	KG	2.29	m
Heel, PS=+	0.0	deg			
TA	3.323	m	GM0	5.64	m
TF	0.165	m	GMCORR	-0.03	m
Trimming moment	-31921	tonm	GM	5.61	m



M2066/B1

Loading condition 3-cas2, Cargo hold 2 loaded

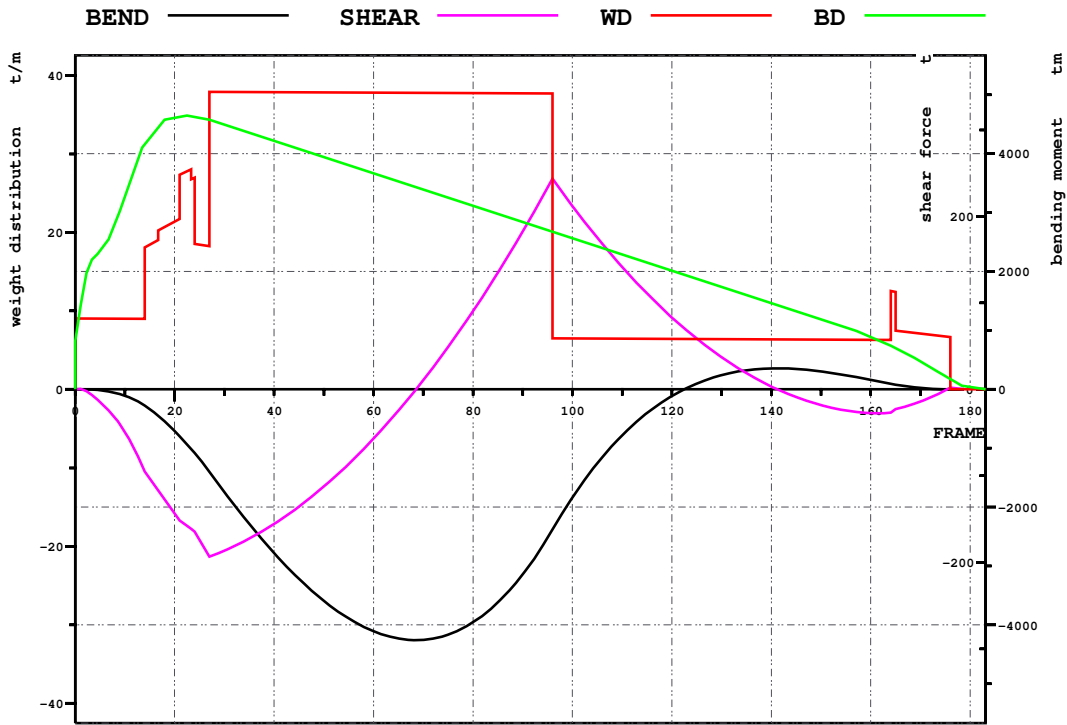


LOADING CONDITION 3-CAS2, Cargo hold 2 loaded

HEEL degree	MS m	HPHI m	E PHI mrad	FSMOM tm	DGZ m
0.0	0.000	0.00	0.000	0.0	0.000
5.0	0.001	0.49	0.021	5.1	0.002
10.0	-0.016	0.96	0.085	10.3	0.005
15.0	-0.136	1.32	0.185	15.5	0.007
20.0	-0.381	1.54	0.311	19.6	0.009
30.0	-1.158	1.65	0.594	25.9	0.012
40.0	-2.107	1.50	0.872	27.9	0.013
50.0	-3.075	1.23	1.111	27.4	0.013

M2066/B1

Loading condition 3-cas2, Cargo hold 2 loaded



LOADING CONDITION 3-CAS2, Cargo hold 2 loaded

			X	Frame
Shear force (min)	-193.6 t	(-)	16.200 m	27.00
Shear force (max)	243.7 t	(-)	57.600 m	96.00
Sagging moment	-4256.4 tm	(-)	40.860 m	68.10
Hogging moment	357.4 tm	(-)	85.255 m	142.09

M2066/B1

LOADING CONDITION 4-T280, Full load

LOADING COMPONENTS

Name		Max. weight	Mass	Center of gravity cgx cgz			Free s. moment

Solid cargo, RHO=1.000							
LR1	cargo hold	1928.3	1277.04	78.30	0.00	2.36	0.00
LR2	cargo hold	1987.0	1252.96	36.90	0.00	2.28	0.00

Total of CAS		3915.3	2530.00	57.80	0.00	2.32	0.00

Diesel Oil, RHO=0.860							
DOA	Diesel oil a.	26.0	17.00	15.30	0.00	1.73	26.93
DOF	Diesel oil f.	4.9	3.00	98.70	0.00	1.79	0.00

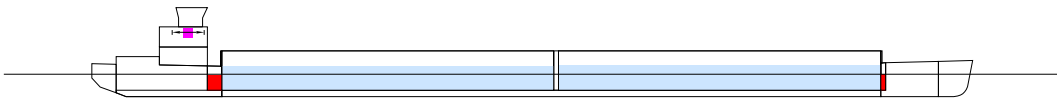
Total of DO		30.9	20.00	27.81	0.00	1.74	26.93

Fresh Water, RHO=1.000							
FW	Side Tanks a.	14.9	10.00	13.50	0.00	1.75	31.20

Deadweight			2565.0	57.30	0.00	2.33	58.1
Lightweight			797.0	47.12	0.00	2.20	
Displacement (rho=1.000)			3362.0	54.89	0.00	2.30	58.1

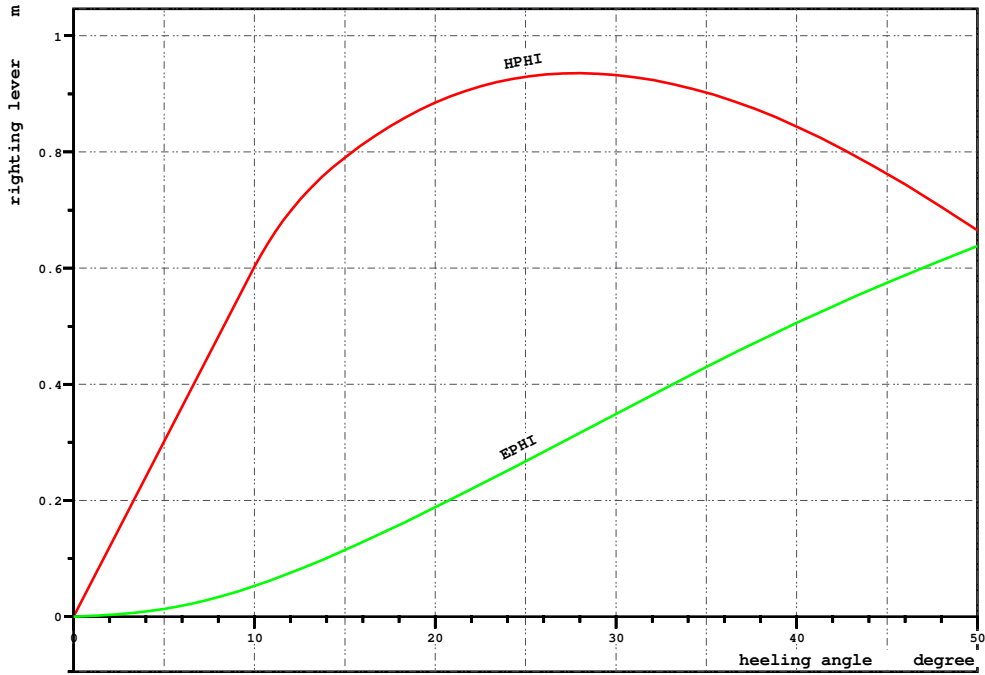
FLOATING POSITION

Draught moulded	2.786	m	KM	5.76	m
Trim	-0.002	m	KG	2.30	m
Heel, PS=+	0.0	deg			
TA	2.787	m	GM0	3.46	m
TF	2.785	m	GMCORR	-0.02	m
Trimming moment	-23	tonm	GM	3.45	m



M2066/B1

Loading condition 4-t280, Full load

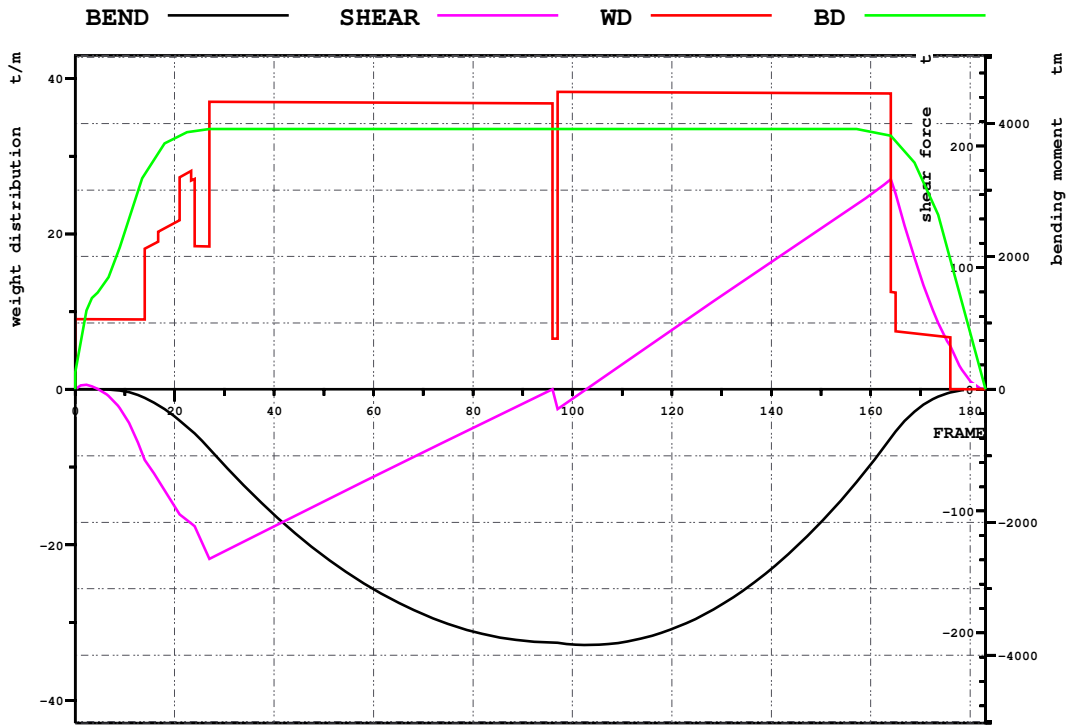


LOADING CONDITION 4-T280, Full load

HEEL degree	MS m	HPHI m	EPhi mrad	FSMOM tm	DGZ m
0.0	0.000	0.00	0.000	0.0	0.000
5.0	0.001	0.30	0.013	5.1	0.002
10.0	0.004	0.60	0.053	10.3	0.003
15.0	-0.101	0.79	0.115	15.5	0.005
20.0	-0.294	0.88	0.188	19.6	0.006
30.0	-0.791	0.93	0.349	25.9	0.008
40.0	-1.374	0.84	0.506	27.9	0.008
50.0	-1.979	0.67	0.638	27.4	0.008

M2066/B1

Loading condition 4-t280, Full load



LOADING CONDITION 4-T280, Full load

			X	Frame
Shear force (min)	-139.5 t	(-)	16.200 m	27.00
Shear force (max)	172.7 t	(-)	98.400 m	164.00
Sagging moment	-3847.4 tm	(-)	61.410 m	102.35
Hogging moment	2.8 tm	(-)	2.700 m	4.50

M2066/B1

LOADING CONDITION 5-T130, Min. load

LOADING COMPONENTS

Name		Max. weight	Mass	Center of gravity cgx cgz			Free s. moment

Solid cargo, RHO=1.000							
LR1	cargo hold	1928.3	497.31	78.30	0.00	1.41	0.00
LR2	cargo hold	1987.0	152.69	36.90	0.00	0.98	0.00

Total of CAS		3915.3	650.00	68.57	0.00	1.31	0.00

Diesel Oil, RHO=0.860							
DOA	Diesel oil a.	26.0	17.00	15.30	0.00	1.73	26.93
DOF	Diesel oil f.	4.9	3.00	98.70	0.00	1.79	0.00

Total of DO		30.9	20.00	27.81	0.00	1.74	26.93

Fresh Water, RHO=1.000							
FW	Side Tanks a.	14.9	10.00	13.50	0.00	1.75	31.20

Deadweight			685.0	66.17	0.00	1.37	58.1
Lightweight			797.0	47.12	0.00	2.20	
Displacement (rho=1.000)			1482.0	55.93	0.00	1.82	58.1

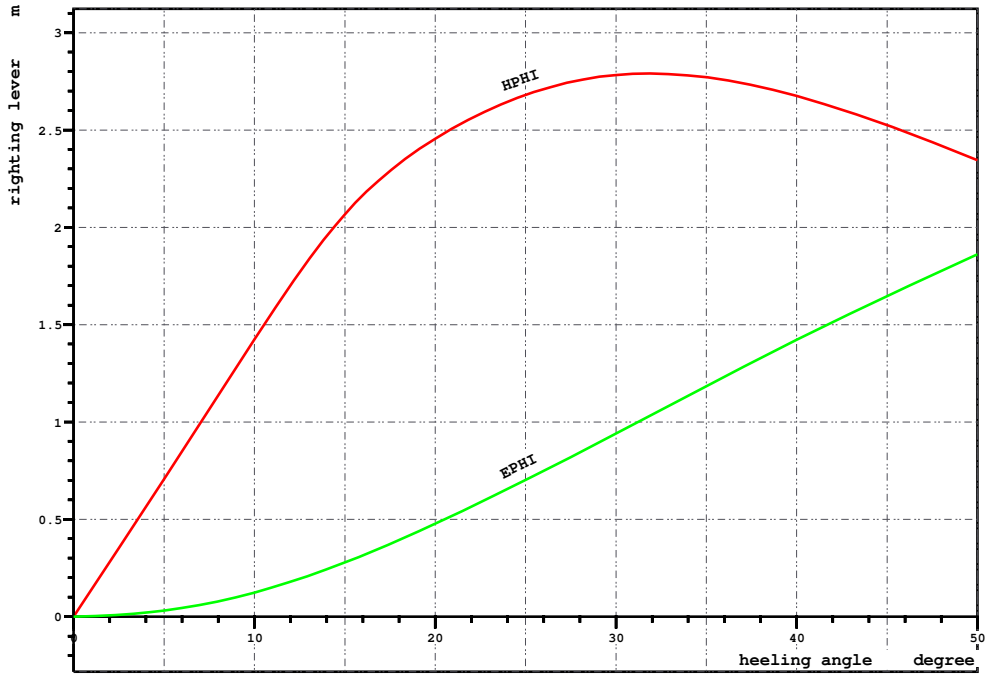
FLOATING POSITION

Draught moulded	1.268	m	KM	9.93	m
Trim	-0.003	m	KG	1.82	m
Heel, PS=+	0.0	deg			
TA	1.269	m	GM0	8.11	m
TF	1.267	m	GMCORR	-0.04	m
Trimming moment	-23	tonm	GM	8.07	m



M2066/B1

Loading condition 5-t130, Min. load

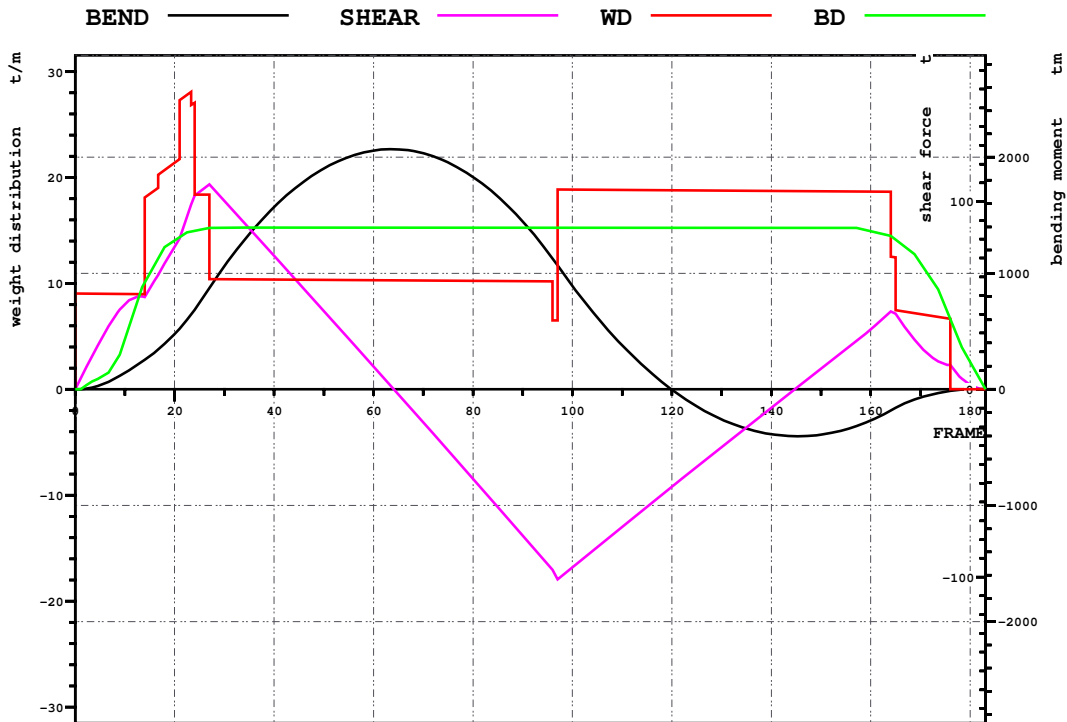


LOADING CONDITION 5-T130, Min. load

HEEL degree	MS m	HPHI m	EPhi mrad	FSMOM tm	DGZ m
0.0	0.000	0.00	0.000	0.0	0.000
5.0	0.004	0.71	0.031	5.1	0.003
10.0	0.023	1.42	0.124	10.3	0.007
15.0	-0.021	2.07	0.277	15.5	0.010
20.0	-0.304	2.46	0.476	19.6	0.013
30.0	-1.253	2.78	0.941	25.9	0.017
40.0	-2.517	2.67	1.422	27.9	0.019
50.0	-3.846	2.35	1.861	27.4	0.018

M2066/B1

Loading condition 5-t130, Min. load



LOADING CONDITION 5-T130, Min. load

			X	Frame
Shear force (min)	-101.3 t	(-)	58.200 m	97.00
Shear force (max)	109.2 t	(-)	16.200 m	27.00
Sagging moment	-403.5 tm	(-)	87.168 m	145.28
Hogging moment	2068.7 tm	(-)	37.998 m	63.33