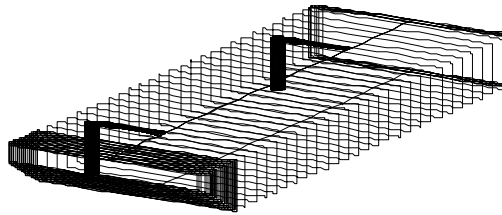


”PONTOON NP 285”

STABILITY BOOKLET

FOR A DECKLOAD UPTO 10 M IN HEIGHT



Specification : **Stability calculation according IMO A.749(18) chpt 4.7 pontoons**

Calculated for : Scheepswerf Neptunus BV
 Veerdam 1
 5308 JH AALST GLD
 The Netherlands

Scheepsbouwkundig Advies & Rekencentrum SARC BV
Eikenlaan 3
1406 PK Bussum
The Netherlands
Tel : 035 6915024
Fax : 035 6918303

April 19, 2005

INDEX

1. ABBREVIATIONS AND UNITS.....	3
2. GENERAL	4
GENERAL PARTICULARS	4
INPUT DATA HULLFORM	4
LIGHT SHIP WEIGHT	4
OPENINGS	4
STABILITY CRITERIA	4
GENERAL ARRANGEMENT	5
MAXIMUM ALLOWABLE VCG' TABLES.....	6
NOTES ON THE USE OF FREE SURFACE MOMENTS.....	7
EXAMPLE SHOWING THE USE OF MAX. VCG' TABLES.....	8
3. HYDROSTATIC PARTICULARS.....	10
4. CROSS CURVES.....	11
5. TABLES OF MAXIMUM VCG	16
Calculation valid for wind contour : Height of deckcargo of 5 m	16
Calculation valid for wind contour : Height of deckcargo of 10 m	19
6. CALCULATION OF WINDMOMENT	22
Height of deckcargo of 5 m	22
Height of deckcargo of 10 m	24
7. INPUT DATA HULLFORM	26
8. LIGHT WEIGHT CHECK.....	34

1. ABBREVIATIONS AND UNITS

Hydrostatic curves

Draft from base	- (m)
Waterplanearea	- (m ²)
Centre of floatation	- Centre of floatation of the waterline (m)
Mom. of inertia long.	- Moment of inertia longitudinal (m ⁴)
Mom. of inertia tran.	- Moment of inertia transverse (m ⁴)
Ton/cm immersion	- (Ton/cm)
Volume	- Volume displacement (m ³)
Volume & appendages	- Volume displacement with appendages (m ³)
Displacement	- Weight displacement (Ton)
Vert. center buoyancy	- Vertical center of buoyancy (m)
Long. center buoyancy	- Longitudinal center of buoyancy (m)
KM transverse	- Vertical distance between the transverse metacenter and the baseline (m)
KM longitudinal	- Vertical distance between the longitudinal metacenter and the baseline (m)
Mom change trim 1 cm	- Moment to change trim 1 cm (Tonm)
Wetted surface	- (m ²)

Crosscurves

Volume	- Volume displacement (m ³)
Displ.	- Weight displacement (Ton)
Draft	- The distance between the intersection centerline-heeling waterline and the baseline (m)
LCB	- Longitudinal center of buoyancy (m)
TCB	- Transverse center of buoyancy (m)
VCB	- Vertical center of buoyancy (m)
KN sin phi	- Righting lever when KG is 0 (m)

The App is situated at the aft end of the vessel

The Fpp is situated at the fore end of the vessel (30 meter from App)

The mean draft is measured at 15.00 m. forward of APP.

All vertical distances are related to the baseline.

All longitudinal distances are related to APP.

2. GENERAL DATA

GENERAL PARTICULARS

Name	NP285
Length	30.00 m
Breadth moulded	11.20 m
Depth	2.500 m
Maximum draught	1.950 m from baseline
	1.960 m from Bottom of Keel

INPUT DATA HULLFORM

The hullform is according the drawings of "Neptunus Shipyard".
The holes for the spuds are taking into account for the stability calculations.

LIGHT SHIP WEIGHT

Light ship weight, (see lightweight check chapter 8)

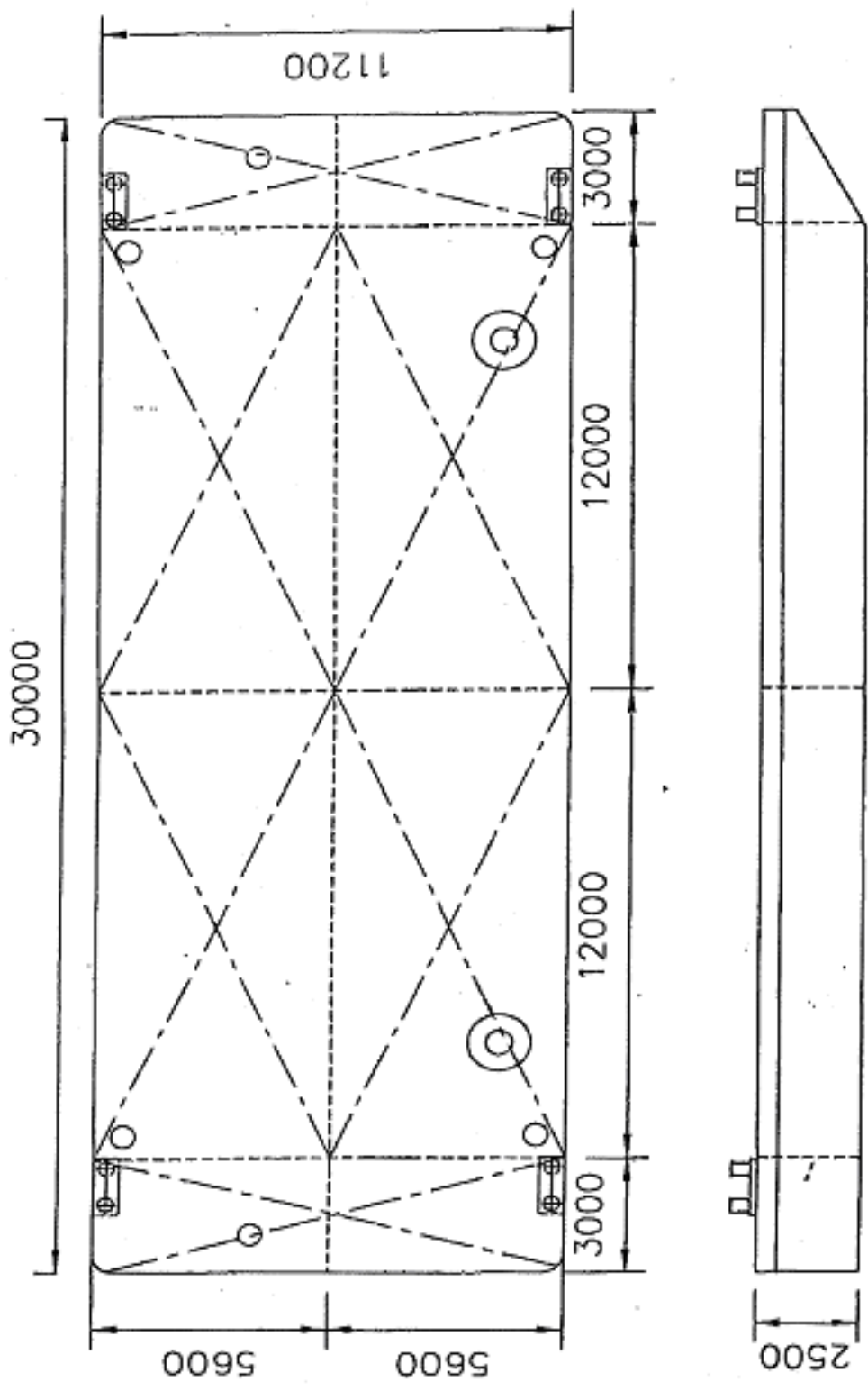
Weight	139.778 ton
LCG	14.882 m from App
VCG	2.500 m above baseline (default value for stability calculations)

OPENINGS

No non-watertight openings have been taken into account for the stability calculations.

STABILITY CRITERIA :

- The area under the righting lever curve up to the angle of maximum righting lever should not be less than 0.08 meter radians.
- The static angle of heel due to a uniformly distributed wind load of 0.54 kPa, should not exceed an angle corresponding to half the freeboard for the relevant loading condition, where the lever of wind heeling moment is measured from the centroid of the windage area to half draught.
- The minimum range of stability should be 20 degrees.



NEPTUNUS SHIPBUILDING bv
 Versdam 1 3203 AP Aalst (nl) Holland

G.A. PONTON 30X11.2X2.5

NO. 204-001

DATE: 1988-05-25-88

SCALE: 1:50

DRAWN BY: G.A.M.F.T.

APPROVED BY: G.A.M.F.T.

MAXIMUM ALLOWABLE VCG' TABLES

The stability requirements of the National Authorities and some International amendments have to be checked for every loading condition of the ship. Because of the time needed procedure, it is good practice to make use of values, based on these requirements, of maximum allowable V.C.G'. of the ship.

If for any sailing condition of the ship the GK-value (= V.C.G.) is not in excess of the max. allowable value related to its displacement, then it is allowed to say that the condition concerned fulfil all the requirements.

The tables of max. V.C.G. and the requirements are given in chapter 5. The tables of maximum V.C.G. are based on the wind heeling arm calculations of chapter 6. The calculations are made for the height of the cargo of 5 m and 10 m above deck above deck.

If the **height** of the cargo is:

- Less then 5 m above deck:
 - ==> Use the maximum tables for 5 m deck load (page 16)
- Higher then 5 m above deck but less then 10 m above deck:
 - ==> Use the maximum tables for 10 m deck load (page 19)

- If the height of the cargo above deck is above the 10 m:
 - ==> The maximum allowable VCG tables **may NOT be used !!**

NOTES ON THE USE OF FREE SURFACE MOMENTS

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

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

Loss in GM due to free surface effects :

$$\text{GG' (in metres)} = \frac{\text{Free surface moments [tonm]}}{\text{Displacement of the vessel [ton]}}$$

The free surface moment of a tank is the transverse moment of inertia [m⁴], multiplied by the specific weight of the liquid [ton/m³].

Note:

The "**free surface effects**" of a proportion of all freshwater and service tanks should be taken into account.

EXAMPLE SHOWING THE USE OF MAX. VCG' TABLES

The maximum VCG tables in chapter 5 can only be used for a deck cargo with a height above deck up to 10 m !!!

The stability requirements of the National Authorities and some International amendments have to be checked for every loading condition of the ship. Because of the time needed procedure, it is good practice to make use of values, based on these requirements, of maximum allowable KG' (V.C.G. of the ship, loaded and corrected for the effects of free surfaces).

If for any sailing condition of the ship the KG'-value is not in excess of the max. allowable value related to its displacement, then it is allowed to say that the condition concerned complies all the requirements.

The tables of max. V.C.G. and the requirements are given in chapter 5.

- Page 16 for a Deck load up to 5 m in height above deck
- Page 19 for a Deck load up to 10 m in height above deck

Example condition: - Ship with deck cargo:

- 150 ton deck cargo; Height of deck cargo is 4 m above deck

Total of weights and centres of gravity:

Item	Weight [ton]	VCG [m] baseline	Vmoment [tonm]
Weight pontoon	139.78	2.50	349.45
Deck cargo	150.00	4.50	675.00
Total	289.78	3.54	1024.45

Displacement = 289.78 ton

Vertical Centre of Gravity (GK) = 3.54 mtr.

Maximum Allowable VCG'

Draft is 0.92 m above Bottom of Keel

Wind silhouette: Ship with 5 m deck cargo

(Cargo is less than 5 m in height)

Maximum allowable VCG' trim 0 m at displ. 289.78 ton = 8.6 m (see page 16)

Actual VCG' < maximum allowable VCG'

Conclusion: *the loading condition fulfils the stability requirements*

3. HYDROSTATIC PARTICULARS

PONTOON NP285

11-7-2003 14:15

Trim = 0.000 m

Draught from US keel m	Displacement S.W. [t/m ³] 1.0000 ton	1.0250 ton	Immer- sion ton/cm	Moment change trim Tonm/cm	LCB from APP m	LCF from APP m	KM transv. m
0.300	88.28	90.49	3.15	6.42	13.585	13.722	36.500
0.320	94.43	96.79	3.15	6.45	13.594	13.731	34.144
0.340	100.59	103.10	3.16	6.48	13.602	13.777	32.138
0.360	106.76	109.43	3.16	6.50	13.612	13.775	30.350
0.380	112.94	115.76	3.17	6.53	13.621	13.781	28.716
0.400	119.12	122.10	3.18	6.55	13.630	13.823	27.312
0.420	125.31	128.45	3.18	6.58	13.640	13.828	26.006
0.440	131.51	134.80	3.18	6.61	13.649	13.837	24.818
0.460	137.72	141.17	3.19	6.63	13.658	13.870	23.778
0.480	143.94	147.54	3.19	6.66	13.667	13.881	22.780
0.500	150.16	153.92	3.20	6.69	13.676	13.911	21.885
0.520	156.40	160.31	3.20	6.71	13.686	13.922	21.078
0.540	162.64	166.71	3.20	6.74	13.695	13.931	20.290
0.560	168.89	173.11	3.21	6.77	13.704	13.977	19.599
0.580	175.15	179.53	3.21	6.79	13.713	13.976	18.947
0.600	181.41	185.95	3.21	6.82	13.723	13.982	18.318
0.620	187.69	192.38	3.22	6.84	13.732	14.022	17.768
0.640	193.97	198.82	3.22	6.87	13.741	14.029	17.227
0.660	200.26	205.27	3.23	6.90	13.750	14.040	16.719
0.680	206.56	211.73	3.23	6.92	13.760	14.069	16.269
0.700	212.87	218.19	3.23	6.95	13.769	14.081	15.812
0.720	219.18	224.66	3.24	6.98	13.778	14.115	15.398
0.740	225.51	231.15	3.24	7.01	13.788	14.123	15.017
0.760	231.84	237.64	3.25	7.04	13.797	14.132	14.628
0.780	238.18	244.13	3.26	7.06	13.806	14.178	14.288
0.800	244.53	250.64	3.26	7.09	13.815	14.176	13.957
0.820	250.88	257.15	3.26	7.12	13.825	14.182	13.628
0.840	257.25	263.68	3.27	7.14	13.834	14.222	13.342
0.860	263.62	270.21	3.27	7.17	13.843	14.230	13.050
0.880	270.00	276.75	3.27	7.20	13.852	14.244	12.772
0.900	276.39	283.30	3.28	7.23	13.862	14.270	12.526
0.920	282.79	289.86	3.28	7.26	13.871	14.282	12.266
0.940	289.19	296.42	3.29	7.29	13.880	14.318	12.032
0.960	295.61	303.00	3.29	7.31	13.890	14.324	11.812
0.980	302.03	309.58	3.29	7.34	13.899	14.332	11.584
1.000	308.46	316.17	3.30	7.37	13.908	14.377	11.386
1.020	314.90	322.77	3.30	7.40	13.918	14.377	11.188
1.040	321.34	329.38	3.30	7.43	13.927	14.381	10.988
1.060	327.80	335.99	3.31	7.45	13.936	14.422	10.817
1.080	334.26	342.62	3.31	7.48	13.946	14.431	10.635

HYDROSTATIC PARTICULARS
PONTOON NP285

11-07-2003 14:15

Trim = 0.000 m

Draught from US keel m	Displacement S.W. [t/m3]		Immer- sion ton/cm	Moment change trim Tonm/cm	LCB from APP m	LCF from APP m	KM transv. m
	1.0000 ton	1.0250 ton					
1.100	340.73	349.25	3.32	7.51	13.955	14.447	10.463
1.120	347.21	355.89	3.32	7.54	13.964	14.471	10.309
1.140	353.70	362.54	3.33	7.57	13.974	14.483	10.144
1.160	360.19	369.20	3.34	7.60	13.983	14.521	9.997
1.180	366.70	375.87	3.34	7.62	13.993	14.525	9.858
1.200	373.21	382.54	3.34	7.66	14.002	14.532	9.707
1.220	379.73	389.22	3.35	7.68	14.011	14.577	9.580
1.240	386.26	395.92	3.35	7.71	14.021	14.578	9.450
1.260	392.80	402.62	3.35	7.74	14.030	14.583	9.317
1.280	399.34	409.32	3.36	7.77	14.039	14.622	9.205
1.300	405.89	416.04	3.36	7.80	14.049	14.631	9.082
1.320	412.45	422.76	3.37	7.83	14.058	14.651	8.966
1.340	419.03	429.50	3.37	7.86	14.068	14.672	8.864
1.360	425.60	436.24	3.37	7.89	14.077	14.683	8.751
1.380	432.18	442.99	3.38	7.92	14.086	14.725	8.651
1.400	438.78	449.75	3.38	7.95	14.096	14.726	8.556
1.420	445.38	456.52	3.38	7.98	14.105	14.733	8.450
1.440	451.99	463.29	3.39	8.00	14.114	14.779	8.364
1.460	458.62	470.08	3.39	8.04	14.124	14.779	8.273
1.480	465.24	476.87	3.39	8.07	14.133	14.779	8.179
1.500	471.87	483.67	3.40	8.09	14.143	14.822	8.102
1.520	478.52	490.48	3.41	8.12	14.152	14.832	8.015
1.540	485.17	497.30	3.41	8.16	14.162	14.852	7.932
1.560	491.83	504.12	3.42	8.18	14.171	14.872	7.860
1.580	498.50	510.96	3.42	8.21	14.180	14.882	7.778
1.600	505.17	517.80	3.43	8.25	14.190	14.925	7.706
1.620	511.85	524.65	3.43	8.27	14.199	14.925	7.638
1.640	518.55	531.51	3.43	8.29	14.209	14.932	7.562
1.660	525.24	538.37	3.44	8.33	14.218	14.963	7.496
1.680	531.95	545.25	3.44	8.35	14.227	14.977	7.429
1.700	538.66	552.13	3.44	8.36	14.237	14.991	7.365
1.720	545.38	559.02	3.45	8.37	14.246	15.000	7.299
1.740	552.11	565.91	3.45	8.37	14.255	14.999	7.231
1.760	558.83	572.80	3.45	8.37	14.264	14.999	7.165
1.780	565.55	579.69	3.45	8.37	14.273	14.998	7.101
1.800	572.28	586.58	3.45	8.37	14.282	14.998	7.038
1.820	579.00	593.47	3.45	8.37	14.290	14.999	6.977
1.840	585.72	600.37	3.45	8.37	14.298	14.997	6.918
1.860	592.45	607.26	3.45	8.37	14.306	15.000	6.860
1.880	599.17	614.15	3.45	8.37	14.314	15.000	6.805

HYDROSTATIC PARTICULARS
PONTOON NP285

11-07-2003 14:15

Trim = 0.000 m

Draught from US keel m	Displacement S.W. [t/m3]		Immer- sion ton/cm	Moment change trim Tonm/cm	LCB from APP m	LCF from APP m	KM transv. m
	1.0000 ton	1.0250 ton					
1.900	605.89	621.04	3.45	8.37	14.321	14.999	6.750
1.920	612.61	627.93	3.45	8.37	14.329	15.000	6.697
1.940	619.34	634.82	3.45	8.37	14.336	15.000	6.645
1.960	626.06	641.71	3.45	8.37	14.343	15.001	6.594
1.980	632.78	648.60	3.45	8.37	14.350	15.000	6.545
2.000	639.51	655.49	3.45	8.37	14.357	14.998	6.497
2.020	646.23	662.38	3.45	8.37	14.364	14.999	6.450
2.040	652.95	669.28	3.45	8.37	14.370	14.999	6.405
2.060	659.67	676.17	3.45	8.37	14.377	15.001	6.360
2.080	666.40	683.06	3.45	8.37	14.383	15.000	6.317
2.100	673.12	689.95	3.45	8.37	14.389	14.999	6.275
2.120	679.84	696.84	3.45	8.37	14.395	14.999	6.233
2.140	686.57	703.73	3.45	8.37	14.401	15.000	6.193
2.160	693.29	710.62	3.45	8.37	14.407	15.000	6.154
2.180	700.01	717.51	3.45	8.37	14.413	14.998	6.115
2.200	706.74	724.40	3.45	8.37	14.418	15.000	6.078
2.220	713.46	731.29	3.45	8.37	14.424	14.999	6.041
2.240	720.18	738.19	3.45	8.37	14.429	15.000	6.006
2.260	726.90	745.08	3.45	8.37	14.434	14.999	5.971
2.280	733.63	751.97	3.45	8.37	14.440	14.998	5.937
2.300	740.35	758.86	3.45	8.37	14.445	15.000	5.904
2.320	747.07	765.75	3.45	8.37	14.450	15.000	5.871
2.340	753.80	772.64	3.45	8.37	14.454	14.999	5.840
2.360	760.52	779.53	3.45	8.37	14.459	14.999	5.809
2.380	767.24	786.42	3.45	8.37	14.464	14.997	5.778
2.400	773.96	793.31	3.45	8.37	14.469	14.998	5.749

4. CROSS CURVES

PONTOON NP285

11-07-2003 14:16 Initial trim = 0.000 m.
 The trim is modified to meet constant LCB
 In the table below the KN sin phi values are printed (m).

Displ. ton	Angle of inclination in degrees											
	0.00	2.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	50.00	60.00
60.00	-0.009	1.895	3.270	3.952	4.224	4.342	4.373	4.341	4.259	4.135	3.784	3.323
65.00	-0.009	1.752	3.176	3.889	4.176	4.305	4.345	4.321	4.246	4.130	3.792	3.335
70.00	-0.008	1.628	3.087	3.829	4.130	4.270	4.318	4.301	4.234	4.124	3.800	3.343
75.00	-0.008	1.521	3.000	3.770	4.086	4.235	4.291	4.282	4.222	4.118	3.806	3.348
80.00	-0.008	1.428	2.917	3.714	4.043	4.202	4.266	4.264	4.210	4.113	3.811	3.350
85.00	-0.008	1.345	2.836	3.659	4.001	4.170	4.242	4.246	4.198	4.107	3.813	3.350
90.00	-0.008	1.272	2.758	3.606	3.961	4.139	4.218	4.229	4.187	4.102	3.813	3.348
95.00	-0.008	1.206	2.681	3.555	3.922	4.109	4.195	4.212	4.176	4.097	3.810	3.345
100.00	-0.008	1.147	2.607	3.505	3.884	4.079	4.172	4.196	4.166	4.092	3.806	3.340
105.00	-0.008	1.094	2.535	3.456	3.847	4.050	4.150	4.180	4.156	4.087	3.800	3.333
110.00	-0.008	1.046	2.464	3.408	3.811	4.023	4.129	4.165	4.146	4.080	3.792	3.326
115.00	-0.008	1.001	2.395	3.362	3.776	3.995	4.108	4.149	4.136	4.073	3.783	3.317
120.00	-0.008	0.961	2.328	3.316	3.742	3.969	4.088	4.135	4.126	4.065	3.773	3.308
125.00	-0.008	0.924	2.262	3.272	3.708	3.943	4.068	4.120	4.116	4.055	3.762	3.298
130.00	-0.008	0.889	2.197	3.228	3.675	3.917	4.048	4.106	4.106	4.044	3.750	3.288
135.00	-0.008	0.857	2.134	3.186	3.643	3.892	4.029	4.092	4.095	4.032	3.737	3.277
140.00	-0.008	0.828	2.072	3.144	3.611	3.867	4.011	4.078	4.084	4.019	3.724	3.265
145.00	-0.008	0.800	2.011	3.103	3.580	3.843	3.992	4.065	4.071	4.005	3.710	3.253
150.00	-0.008	0.775	1.951	3.063	3.550	3.820	3.974	4.052	4.057	3.990	3.695	3.241
155.00	-0.008	0.751	1.893	3.023	3.520	3.796	3.956	4.038	4.043	3.975	3.680	3.228
160.00	-0.008	0.728	1.837	2.984	3.490	3.774	3.939	4.024	4.028	3.958	3.664	3.216
165.00	-0.008	0.707	1.784	2.946	3.461	3.751	3.922	4.010	4.012	3.942	3.649	3.202
170.00	-0.008	0.688	1.734	2.908	3.433	3.729	3.905	3.995	3.995	3.924	3.632	3.189
175.00	-0.008	0.669	1.688	2.871	3.405	3.707	3.888	3.979	3.977	3.906	3.616	3.176
180.00	-0.008	0.651	1.644	2.834	3.377	3.686	3.872	3.962	3.959	3.888	3.599	3.162
185.00	-0.008	0.635	1.602	2.798	3.350	3.665	3.855	3.945	3.941	3.869	3.582	3.148
190.00	-0.008	0.619	1.563	2.763	3.323	3.644	3.839	3.928	3.922	3.850	3.564	3.134
195.00	-0.008	0.604	1.525	2.728	3.297	3.623	3.822	3.909	3.902	3.831	3.547	3.120
200.00	-0.008	0.590	1.490	2.693	3.270	3.603	3.805	3.890	3.882	3.811	3.529	3.106
205.00	-0.008	0.576	1.456	2.659	3.245	3.583	3.788	3.871	3.862	3.791	3.511	3.092
210.00	-0.008	0.564	1.424	2.626	3.219	3.563	3.771	3.851	3.842	3.770	3.493	3.077
215.00	-0.008	0.551	1.393	2.592	3.194	3.544	3.752	3.831	3.821	3.750	3.475	3.063
220.00	-0.008	0.540	1.364	2.560	3.169	3.524	3.734	3.810	3.799	3.729	3.457	3.048
225.00	-0.008	0.529	1.336	2.527	3.145	3.505	3.714	3.789	3.778	3.708	3.438	3.034
230.00	-0.008	0.518	1.310	2.495	3.120	3.486	3.695	3.767	3.756	3.687	3.420	3.019
235.00	-0.008	0.508	1.284	2.464	3.096	3.468	3.674	3.745	3.734	3.665	3.401	3.004
240.00	-0.008	0.498	1.260	2.432	3.073	3.449	3.654	3.723	3.712	3.644	3.382	2.989
245.00	-0.008	0.489	1.237	2.401	3.049	3.430	3.633	3.701	3.689	3.622	3.363	2.974
250.00	-0.008	0.480	1.214	2.371	3.026	3.412	3.611	3.678	3.667	3.600	3.344	2.959
255.00	-0.008	0.471	1.193	2.340	3.003	3.393	3.590	3.655	3.644	3.578	3.325	2.944
260.00	-0.008	0.463	1.172	2.310	2.980	3.374	3.567	3.632	3.621	3.556	3.306	2.929
265.00	-0.008	0.455	1.153	2.281	2.958	3.354	3.545	3.609	3.598	3.534	3.287	2.914
270.00	-0.008	0.448	1.133	2.251	2.935	3.334	3.522	3.585	3.575	3.512	3.268	2.898
275.00	-0.008	0.440	1.115	2.222	2.913	3.314	3.499	3.561	3.551	3.489	3.248	2.883
280.00	-0.008	0.433	1.097	2.193	2.892	3.293	3.476	3.538	3.528	3.467	3.229	2.868
285.00	-0.008	0.427	1.080	2.165	2.870	3.272	3.452	3.514	3.504	3.444	3.209	2.852
290.00	-0.008	0.420	1.064	2.136	2.848	3.251	3.429	3.489	3.480	3.421	3.189	2.837
295.00	-0.008	0.414	1.048	2.108	2.827	3.229	3.405	3.465	3.456	3.398	3.170	2.821
300.00	-0.008	0.408	1.033	2.080	2.806	3.207	3.381	3.440	3.432	3.375	3.150	2.806
305.00	-0.008	0.402	1.018	2.053	2.785	3.185	3.356	3.416	3.408	3.352	3.130	2.790
310.00	-0.008	0.396	1.004	2.026	2.764	3.162	3.332	3.391	3.384	3.329	3.110	2.774
315.00	-0.008	0.390	0.990	1.999	2.744	3.139	3.307	3.366	3.360	3.306	3.090	2.759
320.00	-0.008	0.385	0.977	1.972	2.723	3.116	3.282	3.341	3.335	3.283	3.070	2.743
325.00	-0.008	0.380	0.964	1.946	2.703	3.093	3.257	3.316	3.311	3.259	3.050	2.727
330.00	-0.008	0.375	0.951	1.921	2.683	3.069	3.232	3.291	3.286	3.236	3.030	2.712
335.00	-0.008	0.370	0.939	1.896	2.663	3.045	3.207	3.265	3.262	3.213	3.010	2.696
340.00	-0.008	0.366	0.928	1.873	2.642	3.021	3.181	3.240	3.237	3.189	2.990	2.680
345.00	-0.008	0.361	0.916	1.850	2.622	2.996	3.155	3.214	3.212	3.166	2.970	2.664
350.00	-0.008	0.357	0.905	1.827	2.602	2.972	3.130	3.189	3.187	3.142	2.950	2.648
355.00	-0.008	0.352	0.895	1.806	2.581	2.947	3.104	3.163	3.162	3.118	2.930	2.633

CROSS CURVES
PONTOON NP285

11-07-2003 14:16 Initial trim = 0.000 m.
The trim is modified to meet constant LCB
In the table below the KN sin phi values are printed (m).

Displ. ton	Angle of inclination in degrees											
	0.00	2.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	50.00	60.00
360.00	-0.008	0.348	0.884	1.785	2.560	2.922	3.078	3.137	3.137	3.094	2.909	2.617
365.00	-0.008	0.344	0.874	1.764	2.538	2.897	3.052	3.111	3.112	3.071	2.889	2.601
370.00	-0.008	0.340	0.864	1.744	2.517	2.872	3.026	3.085	3.087	3.047	2.869	2.585
375.00	-0.008	0.336	0.855	1.725	2.495	2.846	2.999	3.059	3.062	3.023	2.848	2.569
380.00	-0.008	0.333	0.846	1.706	2.473	2.821	2.973	3.033	3.037	2.999	2.828	2.553
385.00	-0.008	0.329	0.837	1.688	2.450	2.795	2.947	3.007	3.011	2.975	2.808	2.537
390.00	-0.008	0.326	0.828	1.670	2.428	2.769	2.920	2.981	2.986	2.951	2.787	2.521
395.00	-0.008	0.322	0.819	1.653	2.405	2.743	2.893	2.954	2.961	2.927	2.767	2.505
400.00	-0.008	0.319	0.811	1.636	2.381	2.717	2.867	2.928	2.935	2.903	2.746	2.489
405.00	-0.008	0.316	0.803	1.620	2.358	2.691	2.840	2.901	2.910	2.879	2.726	2.473
410.00	-0.008	0.313	0.795	1.604	2.334	2.665	2.813	2.875	2.884	2.855	2.705	2.457
415.00	-0.008	0.310	0.787	1.588	2.311	2.638	2.786	2.848	2.858	2.830	2.685	2.441
420.00	-0.008	0.307	0.780	1.573	2.287	2.612	2.759	2.822	2.833	2.806	2.664	2.425
425.00	-0.008	0.304	0.773	1.558	2.262	2.585	2.732	2.795	2.807	2.782	2.644	2.408
430.00	-0.008	0.301	0.766	1.544	2.238	2.558	2.704	2.768	2.781	2.758	2.623	2.392
435.00	-0.008	0.298	0.759	1.530	2.213	2.531	2.677	2.741	2.756	2.733	2.602	2.376
440.00	-0.008	0.295	0.752	1.516	2.189	2.504	2.650	2.715	2.730	2.709	2.582	2.360
445.00	-0.008	0.293	0.745	1.502	2.164	2.477	2.622	2.688	2.704	2.685	2.561	2.344
450.00	-0.008	0.290	0.739	1.489	2.138	2.450	2.595	2.661	2.678	2.660	2.540	2.328
455.00	-0.008	0.288	0.732	1.476	2.113	2.423	2.567	2.634	2.652	2.636	2.520	2.312
460.00	-0.008	0.285	0.726	1.464	2.088	2.395	2.540	2.607	2.626	2.611	2.499	2.295
465.00	-0.008	0.283	0.720	1.452	2.062	2.368	2.512	2.580	2.601	2.587	2.478	2.279
470.00	-0.008	0.281	0.714	1.440	2.037	2.340	2.484	2.553	2.575	2.562	2.457	2.263
475.00	-0.008	0.278	0.709	1.428	2.011	2.313	2.456	2.525	2.549	2.538	2.437	2.247
480.00	-0.008	0.276	0.703	1.417	1.986	2.285	2.429	2.498	2.523	2.513	2.416	2.231
485.00	-0.008	0.274	0.697	1.405	1.960	2.257	2.401	2.471	2.496	2.489	2.395	2.214
490.00	-0.008	0.272	0.692	1.394	1.935	2.229	2.373	2.444	2.470	2.464	2.374	2.198
495.00	-0.008	0.270	0.687	1.384	1.909	2.201	2.345	2.416	2.444	2.440	2.353	2.182
500.00	-0.008	0.268	0.682	1.373	1.884	2.173	2.317	2.389	2.418	2.415	2.333	2.166
505.00	-0.008	0.266	0.676	1.362	1.859	2.145	2.289	2.362	2.392	2.390	2.312	2.149
510.00	-0.008	0.264	0.672	1.350	1.834	2.117	2.261	2.334	2.366	2.366	2.291	2.133
515.00	-0.008	0.262	0.667	1.339	1.810	2.089	2.232	2.307	2.340	2.341	2.270	2.117
520.00	-0.008	0.260	0.662	1.327	1.785	2.061	2.204	2.280	2.313	2.316	2.249	2.100
525.00	-0.008	0.258	0.657	1.315	1.761	2.033	2.176	2.252	2.287	2.292	2.228	2.084
530.00	-0.008	0.256	0.653	1.303	1.737	2.004	2.148	2.225	2.261	2.267	2.207	2.068
535.00	-0.008	0.255	0.648	1.291	1.713	1.976	2.119	2.197	2.234	2.242	2.186	2.051
540.00	-0.008	0.253	0.644	1.279	1.689	1.947	2.091	2.170	2.208	2.217	2.166	2.035
545.00	-0.008	0.251	0.639	1.266	1.665	1.919	2.063	2.142	2.182	2.193	2.145	2.019
550.00	-0.008	0.249	0.635	1.254	1.641	1.890	2.034	2.114	2.155	2.168	2.124	2.002
555.00	-0.008	0.248	0.631	1.241	1.618	1.861	2.006	2.087	2.129	2.143	2.103	1.986
560.00	-0.008	0.246	0.627	1.227	1.594	1.833	1.977	2.059	2.103	2.118	2.082	1.970
565.00	-0.008	0.244	0.623	1.214	1.571	1.804	1.949	2.031	2.076	2.093	2.061	1.953
570.00	-0.008	0.243	0.619	1.201	1.548	1.775	1.920	2.004	2.050	2.068	2.040	1.937
575.00	-0.008	0.241	0.615	1.187	1.524	1.747	1.891	1.976	2.023	2.044	2.019	1.921
580.00	-0.008	0.240	0.611	1.173	1.501	1.718	1.863	1.948	1.997	2.019	1.998	1.904
585.00	-0.008	0.238	0.607	1.159	1.478	1.690	1.834	1.920	1.970	1.994	1.977	1.888
590.00	-0.008	0.237	0.603	1.145	1.455	1.662	1.805	1.893	1.944	1.969	1.956	1.871
595.00	-0.008	0.235	0.600	1.131	1.432	1.634	1.777	1.865	1.917	1.944	1.935	1.855
600.00	-0.008	0.234	0.596	1.116	1.409	1.607	1.748	1.837	1.891	1.919	1.914	1.839
605.00	-0.008	0.232	0.593	1.102	1.387	1.579	1.719	1.809	1.864	1.894	1.892	1.822
610.00	-0.008	0.231	0.589	1.087	1.364	1.552	1.690	1.781	1.838	1.869	1.871	1.806
615.00	-0.008	0.229	0.586	1.072	1.341	1.525	1.661	1.753	1.811	1.844	1.850	1.789
620.00	-0.008	0.228	0.582	1.057	1.318	1.498	1.633	1.725	1.784	1.819	1.829	1.773
625.00	-0.008	0.227	0.579	1.042	1.296	1.471	1.604	1.697	1.758	1.794	1.808	1.756
630.00	-0.008	0.225	0.576	1.026	1.273	1.445	1.575	1.669	1.731	1.769	1.787	1.740
635.00	-0.008	0.224	0.573	1.011	1.251	1.418	1.546	1.641	1.704	1.744	1.766	1.723
640.00	-0.008	0.223	0.569	0.995	1.228	1.392	1.518	1.613	1.678	1.719	1.745	1.707
645.00	-0.008	0.221	0.566	0.979	1.206	1.366	1.490	1.585	1.651	1.694	1.724	1.690
650.00	-0.008	0.220	0.563	0.963	1.183	1.340	1.462	1.557	1.624	1.668	1.702	1.674
655.00	-0.008	0.219	0.560	0.946	1.161	1.314	1.434	1.529	1.598	1.643	1.681	1.657

CROSS CURVES
PONTOON NP285

11-07-2003 14:16 Initial trim = 0.000 m.
The trim is modified to meet constant LCB
In the table below the KN sin phi values are printed (m).

Displ. ton	Angle of inclination in degrees											
	0.00	2.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	50.00	60.00
660.00	-0.008	0.218	0.557	0.930	1.138	1.288	1.406	1.501	1.571	1.618	1.660	1.641
665.00	-0.008	0.217	0.554	0.913	1.116	1.263	1.379	1.473	1.544	1.593	1.639	1.624
670.00	-0.008	0.215	0.551	0.896	1.093	1.237	1.352	1.445	1.517	1.568	1.618	1.608
675.00	-0.008	0.214	0.547	0.879	1.071	1.212	1.325	1.417	1.490	1.543	1.597	1.591
680.00	-0.008	0.213	0.542	0.862	1.048	1.187	1.298	1.390	1.464	1.518	1.575	1.575
685.00	-0.008	0.212	0.537	0.844	1.026	1.161	1.271	1.362	1.437	1.493	1.554	1.558
690.00	-0.008	0.211	0.531	0.827	1.003	1.136	1.245	1.335	1.410	1.467	1.533	1.542
695.00	-0.008	0.210	0.525	0.809	0.981	1.111	1.218	1.308	1.383	1.442	1.512	1.525
700.00	-0.008	0.209	0.518	0.791	0.958	1.086	1.192	1.282	1.357	1.417	1.490	1.509

5. TABLES OF MAXIMUM VCG'

11-07-2003 14:35 Initial trim = 0.000 m
Calculation for inclination to SB. Draft is from Bottom Of Keel.
The trim is modified to meet constant LCB.
Calculation valid for wind contour : Height of deckcargo of 5 m

Draft	Displ.	Req 1	Req 2	Req 3	Max. VCG
0.300	90.49	12.092	16.550	16.045	12.092
0.320	96.79	11.981	16.519	15.392	11.981
0.340	103.10	11.874	16.471	14.797	11.874
0.360	109.43	11.770	16.412	14.269	11.770
0.380	115.76	11.669	16.341	13.809	11.669
0.400	122.10	11.571	16.260	13.407	11.571
0.420	128.45	11.476	16.169	13.050	11.476
0.440	134.80	11.382	16.069	12.742	11.382
0.460	141.17	11.291	15.959	12.482	11.291
0.480	147.54	11.202	15.840	12.267	11.202
0.500	153.92	11.115	15.712	12.088	11.115
0.520	160.31	11.029	15.572	11.927	11.029
0.540	166.71	10.946	15.423	11.760	10.946
0.560	173.11	10.863	15.265	11.590	10.863
0.580	179.53	10.783	15.097	11.408	10.783
0.600	185.95	10.703	14.910	11.218	10.703
0.620	192.38	10.625	14.724	11.016	10.625
0.640	198.82	10.548	14.531	10.801	10.548
0.660	205.27	10.473	14.332	10.593	10.473
0.680	211.73	10.398	14.138	10.378	10.378
0.700	218.19	10.325	13.927	10.171	10.171
0.720	224.66	10.252	13.711	9.976	9.976
0.740	231.15	10.181	13.492	9.791	9.791
0.760	237.64	10.110	13.269	9.615	9.615
0.780	244.13	10.039	13.045	9.450	9.450
0.800	250.64	9.968	12.816	9.296	9.296
0.820	257.15	9.896	12.589	9.153	9.153
0.840	263.68	9.822	12.360	9.021	9.021
0.860	270.21	9.746	12.132	8.900	8.900
0.880	276.75	9.669	11.903	8.791	8.791
0.900	283.30	9.589	11.675	8.691	8.691
0.920	289.86	9.507	11.448	8.602	8.602
0.940	296.42	9.424	11.224	8.521	8.521
0.960	303.00	9.338	11.001	8.445	8.445
0.980	309.58	9.251	10.781	8.372	8.372
1.000	316.17	9.163	10.565	8.298	8.298
1.020	322.77	9.072	10.355	8.221	8.221
1.040	329.38	8.981	10.152	8.135	8.135
1.060	335.99	8.888	9.958	8.042	8.042
1.080	342.62	8.794	9.772	7.941	7.941
1.100	349.25	8.699	9.595	7.834	7.834

TABLES OF MAXIMUM VCG
PONTOON NP285

11-07-2003 14:35 Initial trim = 0.000 m
 Calculation for inclination to SB. Draft is from Bottom Of Keel.
 The trim is modified to meet constant LCB.
 Calculation valid for wind contour : Height of deckcargo of 5 m

Draft	Displ.	Req 1	Req 2	Req 3	Max. VCG
1.120	355.89	8.603	9.425	7.723	7.723
1.140	362.54	8.506	9.262	7.608	7.608
1.160	369.20	8.408	9.107	7.491	7.491
1.180	375.87	8.309	8.958	7.373	7.373
1.200	382.54	8.209	8.816	7.254	7.254
1.220	389.22	8.109	8.680	7.135	7.135
1.240	395.92	8.007	8.549	7.017	7.017
1.260	402.62	7.905	8.423	6.899	6.899
1.280	409.32	7.801	8.302	6.781	6.781
1.300	416.04	7.697	8.185	6.664	6.664
1.320	422.76	7.593	8.072	6.548	6.548
1.340	429.50	7.487	7.962	6.431	6.431
1.360	436.24	7.381	7.856	6.315	6.315
1.380	442.99	7.275	7.752	6.199	6.199
1.400	449.75	7.167	7.651	6.082	6.082
1.420	456.52	7.059	7.552	5.964	5.964
1.440	463.29	6.951	7.455	5.844	5.844
1.460	470.08	6.842	7.360	5.721	5.721
1.480	476.87	6.732	7.266	5.596	5.596
1.500	483.67	6.621	7.174	5.467	5.467
1.520	490.48	6.510	7.082	5.334	5.334
1.540	497.30	6.399	6.991	5.196	5.196
1.560	504.12	6.287	6.902	5.056	5.056
1.580	510.96	6.175	6.814	4.909	4.909
1.600	517.80	6.062	6.729	4.764	4.764
1.620	524.65	5.949	6.645	4.619	4.619
1.640	531.51	5.835	6.563	4.475	4.475
1.660	538.37	5.721	6.483	4.333	4.333
1.680	545.25	5.606	6.405	4.194	4.194
1.700	552.13	5.491	6.329	4.057	4.057
1.720	559.02	5.375	6.255	3.924	3.924
1.740	565.91	5.260	6.182	3.794	3.794
1.760	572.80	5.145	6.111	3.667	3.667
1.780	579.69	5.031	6.040	3.544	3.544
1.800	586.58	4.915	5.971	3.424	3.424
1.820	593.47	4.803	5.903	3.306	3.306
1.840	600.37	4.691	5.835	3.192	3.192
1.860	607.26	4.581	5.766	3.079	3.079
1.880	614.15	4.471	5.698	2.970	2.970
1.900	621.04	4.363	5.628	2.863	2.863
1.920	627.93	4.256	5.558	2.763	2.763

TABLES OF MAXIMUM VCG
PONTOON NP285

11-07-2003 14:35 Initial trim = 0.000 m
 Calculation for inclination to SB. Draft is from Bottom Of Keel.
 The trim is modified to meet constant LCB.
 Calculation valid for wind contour : Height of deckcargo of 5 m

Draft	Displ.	Req 1	Req 2	Req 3	Max. VCG
1.940	634.82	4.149	5.486	2.663	2.663
1.960	641.71	4.043	5.411	2.566	2.566
1.980	648.60	3.938	5.334	2.472	2.472
2.000	655.49	3.834	5.252	2.383	2.383
2.020	662.38	3.731	5.167	2.298	2.298
2.040	669.28	3.628	5.074	2.216	2.216
2.060	676.17	3.526	4.973	2.137	2.137
2.080	683.06	3.424	4.865	2.059	2.059
2.100	689.95	3.323	4.753	1.984	1.984
2.120	696.84	3.222	4.638	1.912	1.912
2.140	703.73	3.122	4.522	1.841	1.841
2.160	710.62	3.022	4.407	1.773	1.773
2.180	717.51	2.922	4.294	1.706	1.706
2.200	724.40	2.823	4.185	1.640	1.640
2.220	731.29	2.724	4.080	1.573	1.573
2.240	738.19	2.625	3.982	1.506	1.506
2.260	745.08	2.526	3.891	1.441	1.441
2.280	751.97	2.427	3.805	1.381	1.381
2.300	758.86	2.328	3.721	1.329	1.329
2.320	765.75	2.229	3.630	1.286	1.286
2.340	772.64	2.130	3.429	1.254	1.254
2.360	779.53	2.031	3.052	1.229	1.229
2.380	786.42	1.931	2.448	1.208	1.208
2.400	793.31	1.831	1.530	1.192	1.192

1 Range of the GZ-curve (degrees)	20.000
2 Freeboard with windpressure more than freeboard divided by	2.000
3 Area under GZ curve up to the angle of maximum GZ (mrad)	0.080

TABLES OF MAXIMUM VCG
PONTOON NP285

11-07-2003 14:35 Initial trim = 0.000 m
 Calculation for inclination to SB. Draft is from Bottom Of Keel.
 The trim is modified to meet constant LCB.
 Calculation valid for wind contour : Height of deckcargo of 10 m

Draft	Displ.	Req 1	Req 2	Req 3	Max. VCG
0.300	90.49	12.092	11.911	16.045	11.911
0.320	96.79	11.981	12.146	15.392	11.981
0.340	103.10	11.874	12.334	14.797	11.874
0.360	109.43	11.770	12.483	14.269	11.770
0.380	115.76	11.669	12.598	13.809	11.669
0.400	122.10	11.571	12.682	13.407	11.571
0.420	128.45	11.476	12.740	13.050	11.476
0.440	134.80	11.382	12.774	12.742	11.382
0.460	141.17	11.291	12.787	12.482	11.291
0.480	147.54	11.202	12.779	12.267	11.202
0.500	153.92	11.115	12.752	12.088	11.115
0.520	160.31	11.029	12.706	11.927	11.029
0.540	166.71	10.946	12.643	11.760	10.946
0.560	173.11	10.863	12.563	11.590	10.863
0.580	179.53	10.783	12.468	11.408	10.783
0.600	185.95	10.703	12.349	11.218	10.703
0.620	192.38	10.625	12.226	11.016	10.625
0.640	198.82	10.548	12.091	10.801	10.548
0.660	205.27	10.473	11.946	10.593	10.473
0.680	211.73	10.398	11.803	10.378	10.378
0.700	218.19	10.325	11.639	10.171	10.171
0.720	224.66	10.252	11.467	9.976	9.976
0.740	231.15	10.181	11.289	9.791	9.791
0.760	237.64	10.110	11.106	9.615	9.615
0.780	244.13	10.039	10.917	9.450	9.450
0.800	250.64	9.968	10.722	9.296	9.296
0.820	257.15	9.896	10.526	9.153	9.153
0.840	263.68	9.822	10.328	9.021	9.021
0.860	270.21	9.746	10.127	8.900	8.900
0.880	276.75	9.669	9.924	8.791	8.791
0.900	283.30	9.589	9.720	8.691	8.691
0.920	289.86	9.507	9.517	8.602	8.602
0.940	296.42	9.424	9.313	8.521	8.521
0.960	303.00	9.338	9.110	8.445	8.445
0.980	309.58	9.251	8.909	8.372	8.372
1.000	316.17	9.163	8.710	8.298	8.298
1.020	322.77	9.072	8.516	8.221	8.221
1.040	329.38	8.981	8.328	8.135	8.135
1.060	335.99	8.888	8.147	8.042	8.042
1.080	342.62	8.794	7.974	7.941	7.941
1.100	349.25	8.699	7.808	7.834	7.808

TABLES OF MAXIMUM VCG
PONTOON NP285

11-07-2003 14:35 Initial trim = 0.000 m
 Calculation for inclination to SB. Draft is from Bottom Of Keel.
 The trim is modified to meet constant LCB.
 Calculation valid for wind contour : Height of deckcargo of 10 m

Draft	Displ.	Req 1	Req 2	Req 3	Max. VCG
1.120	355.89	8.603	7.648	7.723	7.648
1.140	362.54	8.506	7.495	7.608	7.495
1.160	369.20	8.408	7.348	7.491	7.348
1.180	375.87	8.309	7.207	7.373	7.207
1.200	382.54	8.209	7.072	7.254	7.072
1.220	389.22	8.109	6.941	7.135	6.941
1.240	395.92	8.007	6.815	7.017	6.815
1.260	402.62	7.905	6.693	6.899	6.693
1.280	409.32	7.801	6.574	6.781	6.574
1.300	416.04	7.697	6.459	6.664	6.459
1.320	422.76	7.593	6.347	6.548	6.347
1.340	429.50	7.487	6.238	6.431	6.238
1.360	436.24	7.381	6.131	6.315	6.131
1.380	442.99	7.275	6.026	6.199	6.026
1.400	449.75	7.167	5.922	6.082	5.922
1.420	456.52	7.059	5.820	5.964	5.820
1.440	463.29	6.951	5.719	5.844	5.719
1.460	470.08	6.842	5.618	5.721	5.618
1.480	476.87	6.732	5.518	5.596	5.518
1.500	483.67	6.621	5.418	5.467	5.418
1.520	490.48	6.510	5.319	5.334	5.319
1.540	497.30	6.399	5.218	5.196	5.196
1.560	504.12	6.287	5.118	5.056	5.056
1.580	510.96	6.175	5.019	4.909	4.909
1.600	517.80	6.062	4.920	4.764	4.764
1.620	524.65	5.949	4.822	4.619	4.619
1.640	531.51	5.835	4.725	4.475	4.475
1.660	538.37	5.721	4.628	4.333	4.333
1.680	545.25	5.606	4.532	4.194	4.194
1.700	552.13	5.491	4.436	4.057	4.057
1.720	559.02	5.375	4.340	3.924	3.924
1.740	565.91	5.260	4.244	3.794	3.794
1.760	572.80	5.145	4.147	3.667	3.667
1.780	579.69	5.031	4.050	3.544	3.544
1.800	586.58	4.915	3.951	3.424	3.424
1.820	593.47	4.803	3.851	3.306	3.306
1.840	600.37	4.691	3.748	3.192	3.192
1.860	607.26	4.581	3.643	3.079	3.079
1.880	614.15	4.471	3.534	2.970	2.970
1.900	621.04	4.363	3.421	2.863	2.863
1.920	627.93	4.256	3.304	2.763	2.763

TABLES OF MAXIMUM VCG
PONTOON NP285

11-07-2003 14:35 Initial trim = 0.000 m
 Calculation for inclination to SB. Draft is from Bottom Of Keel.
 The trim is modified to meet constant LCB.
 Calculation valid for wind contour : Height of deckcargo of 10 m

Draft	Displ.	Req 1	Req 2	Req 3	Max. VCG
1.940	634.82	4.149	3.181	2.663	2.663
1.960	641.71	4.043	3.051	2.566	2.566
1.980	648.60	3.938	2.913	2.472	2.472
2.000	655.49	3.834	2.766	2.383	2.383
2.020	662.38	3.731	2.609	2.298	2.298
2.040	669.28	3.628	2.438	2.216	2.216
2.060	676.17	3.526	2.251	2.137	2.137
2.080	683.06	3.424	2.049	2.059	2.049
2.100	689.95	3.323	1.833	1.984	1.833
2.120	696.84	3.222	1.602	1.912	1.602
2.140	703.73	3.122	1.357	1.841	1.357
2.160	710.62	3.022	1.098	1.773	1.098
2.180	717.51	2.922	0.822	1.706	0.822
2.200	724.40	2.823	0.529	1.640	0.529
2.220	731.29	2.724	0.213	1.573	0.213
2.240	738.19	2.625	-0.128	1.506	-0.128
2.260	745.08	2.526	-0.501	1.441	-0.501
2.280	751.97	2.427	-0.920	1.381	-0.920
2.300	758.86	2.328	-1.401	1.329	-1.401
2.320	765.75	2.229	-1.974	1.286	-1.974
2.340	772.64	2.130	-2.770	1.254	-2.770
2.360	779.53	2.031	-3.903	1.229	-3.903
2.380	786.42	1.931	-5.498	1.208	-5.498
2.400	793.31	1.831	-7.768	1.192	-7.768

1 Range of the GZ-curve (degrees)	20.000
2 Freeboard with windpressure more than freeboard divided by	2.000
3 Area under GZ curve up to the angle of maximum GZ (mrad)	0.080

6. CALCULATION OF WINDMOMENTS

SILHOUET Height of deckcargo of 5 m

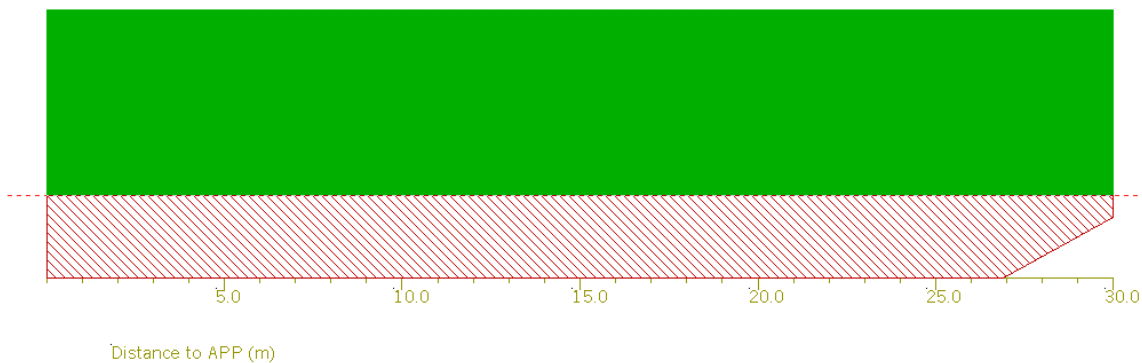
Draft m	Displacement kg	Moment kgm	Lever m	Area m ²
0.150	46586	45405	0.975	218.31
0.200	62218	45098	0.725	216.95
0.250	77903	44791	0.575	215.58
0.300	93640	44483	0.475	214.21
0.350	109430	44175	0.404	212.84
0.400	125272	43867	0.350	211.46
0.450	141166	43559	0.309	210.08
0.500	157111	43250	0.275	208.69
0.550	173108	42940	0.248	207.29
0.600	189161	42631	0.225	205.90
0.650	205267	42321	0.206	204.49
0.700	221425	42011	0.190	203.09
0.750	237635	41700	0.175	201.68
0.800	253897	41389	0.163	200.26
0.850	270212	41078	0.152	198.84
0.900	286579	40766	0.142	197.42
0.950	302998	40454	0.134	195.99
1.000	319470	40142	0.126	194.55
1.050	335993	39830	0.119	193.11
1.100	352568	39517	0.112	191.67
1.150	369196	39204	0.106	190.22
1.200	385880	38890	0.101	188.77
1.250	402615	38577	0.096	187.32
1.300	419403	38263	0.091	185.85
1.350	436243	37948	0.087	184.39
1.400	453135	37634	0.083	182.92
1.450	470081	37319	0.079	181.44
1.500	487076	37004	0.076	179.96
1.550	504124	36688	0.073	178.48
1.600	521224	36372	0.070	176.99
1.650	538373	36056	0.067	175.50
1.700	555574	35740	0.064	174.00
1.750	572802	35424	0.062	172.50
1.800	590029	35108	0.060	171.00
1.850	607257	34793	0.057	169.50
1.900	624484	34478	0.055	168.00
1.950	641712	34164	0.053	166.50
2.000	658939	33851	0.051	165.00
2.050	676167	33537	0.050	163.50
2.100	693394	33225	0.048	162.00
2.150	710622	32912	0.046	160.50

CALCULATION OF WINDMOMENT
PONTOON NP285

SILHOUET Height of deckcargo of 5 m

Draft m	Displacement kg	Moment kgm	Lever m	Area m ²
2.200	727849	32600	0.045	159.00
2.250	745077	32288	0.043	157.50
2.300	762304	31976	0.042	156.00
2.350	779532	31665	0.041	154.50
2.400	796760	31354	0.039	153.00
2.450	813987	31043	0.038	151.50
Pressure	55.00	kg/m ²		

Moment is calculated relative to the center of projected area under water.



CALCULATION OF WINDMOMENT
PONTOON NP285

SILHOUET Height of deckcargo of 10 m

Draft m	Displacement kg	Moment kgm	Lever m	Area m ²
0.200	62218	126772	2.038	366.95
0.250	77903	126257	1.621	365.58
0.300	93640	125742	1.343	364.21
0.350	109430	125226	1.144	362.84
0.400	125272	124710	0.996	361.46
0.450	141166	124193	0.880	360.08
0.500	157111	123676	0.787	358.69
0.550	173108	123158	0.711	357.29
0.600	189161	122639	0.648	355.90
0.650	205267	122120	0.595	354.49
0.700	221425	121601	0.549	353.09
0.750	237635	121081	0.510	351.68
0.800	253897	120560	0.475	350.26
0.850	270212	120039	0.444	348.84
0.900	286579	119517	0.417	347.42
0.950	302998	118995	0.393	345.99
1.000	319470	118472	0.371	344.55
1.050	335993	117949	0.351	343.11
1.100	352568	117425	0.333	341.67
1.150	369196	116901	0.317	340.22
1.200	385880	116376	0.302	338.77
1.250	402615	115851	0.288	337.32
1.300	419403	115325	0.275	335.85
1.350	436243	114798	0.263	334.39
1.400	453135	114272	0.252	332.92
1.450	470081	113744	0.242	331.44
1.500	487076	113216	0.232	329.96
1.550	504124	112688	0.224	328.48
1.600	521224	112159	0.215	326.99
1.650	538373	111630	0.207	325.50
1.700	555574	111100	0.200	324.00
1.750	572802	110570	0.193	322.50
1.800	590029	110042	0.187	321.00
1.850	607257	109514	0.180	319.50
1.900	624484	108988	0.175	318.00
1.950	641712	108462	0.169	316.50
2.000	658939	107936	0.164	315.00
2.050	676167	107412	0.159	313.50
2.100	693394	106888	0.154	312.00
2.150	710622	106365	0.150	310.50
2.200	727849	105842	0.145	309.00

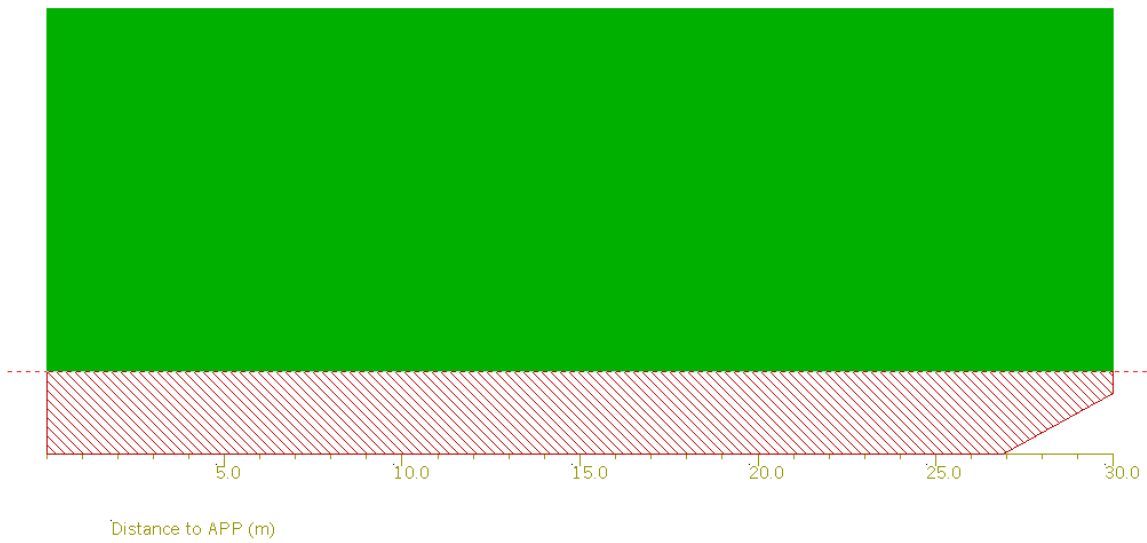
11-07-2003 14:41

CALCULATION OF WINDMOMENT
PONTOON NP285

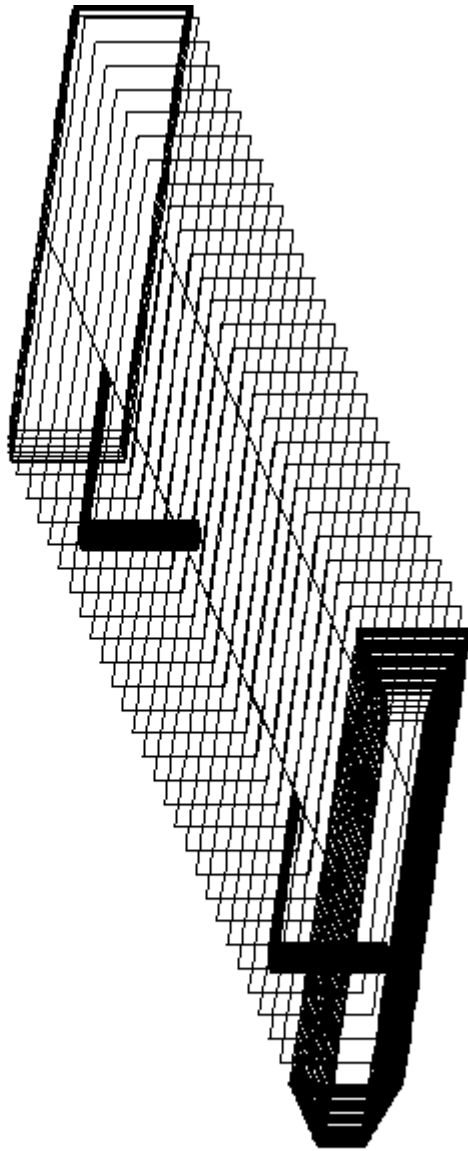
SILHOUET Height of deckcargo of 10 m

Draft m	Displacement kg	Moment kgm	Lever m	Area m ²
2.250	745077	105320	0.141	307.50
2.300	762304	104798	0.137	306.00
2.350	779532	104276	0.134	304.50
2.400	796760	103755	0.130	303.00
2.450	813987	103235	0.127	301.50
Pressure	55.00	kg/m ²		

Moment is calculated relative to the center of projected area under water.



7. INPUTDATA HULLFORM



1. 21 12

LIST OF INPUT ORDINATES

PONTOON NP285 11-7-2003 14:43:46

Ordinate	0.000					
Breadth	Height	Breadth	Height	Breadth	Height	
0.000	0.000	5.100 K	0.000	5.100 K	2.500	
0.000	2.500					
Ordinate	0.035					
Breadth	Height	Breadth	Height	Breadth	Height	
0.000	0.000	5.284 K	0.000	5.284 K	2.500	
0.000	2.500					
Ordinate	0.100					
Breadth	Height	Breadth	Height	Breadth	Height	
0.000	0.000	5.400 K	0.000	5.400 K	2.500	
0.000	2.500					
Ordinate	0.200					
Breadth	Height	Breadth	Height	Breadth	Height	
0.000	0.000	5.500 K	0.000	5.500 K	2.500	
0.000	2.500					
Ordinate	0.300					
Breadth	Height	Breadth	Height	Breadth	Height	
0.000	0.000	5.558 K	0.000	5.558 K	2.500	
0.000	2.500					
Ordinate	0.400					
Breadth	Height	Breadth	Height	Breadth	Height	
0.000	0.000	5.590 K	0.000	5.590 K	2.500	
0.000	2.500					
Ordinate	0.500					
Breadth	Height	Breadth	Height	Breadth	Height	
0.000	0.000	5.600 K	0.000	5.600 K	2.500	
0.000	2.500					
Ordinate	0.500					
Breadth	Height	Breadth	Height	Breadth	Height	
0.000	0.000	5.600 K	0.000	5.600 K	2.500	
0.000	2.500					
Ordinate	1.000					
Breadth	Height	Breadth	Height	Breadth	Height	
0.000	0.000	5.600 K	0.000	5.600 K	2.500	
0.000	2.500					
Ordinate	2.000					
Breadth	Height	Breadth	Height	Breadth	Height	
0.000	0.000	5.600 K	0.000	5.600 K	2.500	
0.000	2.500					
Ordinate	3.000					
Breadth	Height	Breadth	Height	Breadth	Height	
0.000	0.000	5.600 K	0.000	5.600 K	2.500	
0.000	2.500					

LIST OF INPUT ORDINATES

PONTOON NP285 11-7-2003 14:43:46

Ordinate	4.000					
Breadth	Height	Breadth	Height	Breadth	Height	
0.000	0.000	5.600 K	0.000	5.600 K	2.500	
0.000	2.500					
Ordinate	5.000					
Breadth	Height	Breadth	Height	Breadth	Height	
0.000	0.000	5.600 K	0.000	5.600 K	2.500	
0.000	2.500					
Ordinate	6.000					
Breadth	Height	Breadth	Height	Breadth	Height	
0.000	0.000	5.600 K	0.000	5.600 K	2.500	
0.000	2.500					
Ordinate	7.000					
Breadth	Height	Breadth	Height	Breadth	Height	
0.000	0.000	5.600 K	0.000	5.600 K	2.500	
0.000	2.500					
Ordinate	8.000					
Breadth	Height	Breadth	Height	Breadth	Height	
0.000	0.000	5.600 K	0.000	5.600 K	2.500	
0.000	2.500					
Ordinate	9.000					
Breadth	Height	Breadth	Height	Breadth	Height	
0.000	0.000	5.600 K	0.000	5.600 K	2.500	
0.000	2.500					
Ordinate	10.000					
Breadth	Height	Breadth	Height	Breadth	Height	
0.000	0.000	5.600 K	0.000	5.600 K	2.500	
0.000	2.500					
Ordinate	11.000					
Breadth	Height	Breadth	Height	Breadth	Height	
0.000	0.000	5.600 K	0.000	5.600 K	2.500	
0.000	2.500					
Ordinate	12.000					
Breadth	Height	Breadth	Height	Breadth	Height	
0.000	0.000	5.600 K	0.000	5.600 K	2.500	
0.000	2.500					
Ordinate	13.000					
Breadth	Height	Breadth	Height	Breadth	Height	
0.000	0.000	5.600 K	0.000	5.600 K	2.500	
0.000	2.500					
Ordinate	14.000					
Breadth	Height	Breadth	Height	Breadth	Height	
0.000	0.000	5.600 K	0.000	5.600 K	2.500	
0.000	2.500					

LIST OF INPUT ORDINATES

PONTOON NP285 11-7-2003 14:43:47

Ordinate 15.000					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	0.000	5.600 K	0.000	5.600 K	2.500
0.000	2.500				
Ordinate 16.000					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	0.000	5.600 K	0.000	5.600 K	2.500
0.000	2.500				
Ordinate 17.000					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	0.000	5.600 K	0.000	5.600 K	2.500
0.000	2.500				
Ordinate 18.000					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	0.000	5.600 K	0.000	5.600 K	2.500
0.000	2.500				
Ordinate 19.000					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	0.000	5.600 K	0.000	5.600 K	2.500
0.000	2.500				
Ordinate 20.000					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	0.000	5.600 K	0.000	5.600 K	2.500
0.000	2.500				
Ordinate 21.000					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	0.000	5.600 K	0.000	5.600 K	2.500
0.000	2.500				
Ordinate 22.000					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	0.000	5.600 K	0.000	5.600 K	2.500
0.000	2.500				
Ordinate 23.000					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	0.000	5.600 K	0.000	5.600 K	2.500
0.000	2.500				
Ordinate 24.000					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	0.000	5.600 K	0.000	5.600 K	2.500
0.000	2.500				
Ordinate 25.000					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	0.000	5.600 K	0.000	5.600 K	2.500
0.000	2.500				

LIST OF INPUT ORDINATES

PONTOON NP285 11-7-2003 14:43:47

Ordinate 26.000					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	0.000	5.600 K	0.000	5.600 K	2.500
0.000	2.500				
Ordinate 26.900					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	0.000	5.600 K	0.000	5.600 K	2.500
0.000	2.500				
Ordinate 26.900					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	0.000	5.600 K	0.000	5.600 K	2.500
0.000	2.500				
Ordinate 27.000					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	0.055	5.600 K	0.055	5.600 K	2.500
0.000	2.500				
Ordinate 27.100					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	0.110	5.600 K	0.110	5.600 K	2.500
0.000	2.500				
Ordinate 27.200					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	0.165	5.600 K	0.165	5.600 K	2.500
0.000	2.500				
Ordinate 27.300					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	0.219	5.600 K	0.219	5.600 K	2.500
0.000	2.500				
Ordinate 27.400					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	0.274	5.600 K	0.274	5.600 K	2.500
0.000	2.500				
Ordinate 27.500					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	0.329	5.600 K	0.329	5.600 K	2.500
0.000	2.500				
Ordinate 27.600					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	0.384	5.600 K	0.384	5.600 K	2.500
0.000	2.500				
Ordinate 27.700					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	0.439	5.600 K	0.439	5.600 K	2.500
0.000	2.500				

LIST OF INPUT ORDINATES

PONTOON NP285 11-7-2003 14:43:47

Ordinate 27.800					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	0.494	5.600 K	0.494	5.600 K	2.500
0.000	2.500				
Ordinate 27.900					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	0.548	5.600 K	0.548	5.600 K	2.500
0.000	2.500				
Ordinate 28.000					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	0.603	5.600 K	0.603	5.600 K	2.500
0.000	2.500				
Ordinate 28.100					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	0.658	5.600 K	0.658	5.600 K	2.500
0.000	2.500				
Ordinate 28.200					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	0.713	5.600 K	0.713	5.600 K	2.500
0.000	2.500				
Ordinate 28.300					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	0.768	5.600 K	0.768	5.600 K	2.500
0.000	2.500				
Ordinate 28.400					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	0.823	5.600 K	0.823	5.600 K	2.500
0.000	2.500				
Ordinate 28.500					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	0.877	5.600 K	0.877	5.600 K	2.500
0.000	2.500				
Ordinate 28.600					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	0.932	5.600 K	0.932	5.600 K	2.500
0.000	2.500				
Ordinate 28.700					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	0.987	5.600 K	0.987	5.600 K	2.500
0.000	2.500				
Ordinate 28.800					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	1.042	5.600 K	1.042	5.600 K	2.500
0.000	2.500				

LIST OF INPUT ORDINATES

PONTOON NP285 11-7-2003 14:43:48

Ordinate 28.900					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	1.097	5.600 K	1.097	5.600 K	2.500
0.000	2.500				
Ordinate 29.000					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	1.152	5.600 K	1.152	5.600 K	2.500
0.000	2.500				
Ordinate 29.100					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	1.206	5.600 K	1.206	5.600 K	2.500
0.000	2.500				
Ordinate 29.200					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	1.261	5.600 K	1.261	5.600 K	2.500
0.000	2.500				
Ordinate 29.300					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	1.316	5.600 K	1.316	5.600 K	2.500
0.000	2.500				
Ordinate 29.400					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	1.371	5.600 K	1.371	5.600 K	2.500
0.000	2.500				
Ordinate 29.500					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	1.426	5.600 K	1.426	5.600 K	2.500
0.000	2.500				
Ordinate 29.500					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	1.426	5.600 K	1.426	5.600 K	2.500
0.000	2.500				
Ordinate 29.600					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	1.481	5.590 K	1.481	5.590 K	2.500
0.000	2.500				
Ordinate 29.700					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	1.535	5.558 K	1.536	5.558 K	2.500
0.000	2.500				
Ordinate 29.800					
Breadth	Height	Breadth	Height	Breadth	Height
0.000	1.590	5.500 K	1.591	5.500 K	2.500
0.000	2.500				

LIST OF INPUT ORDINATES

PONTOON NP285 11-7-2003 14:43:48

Ordinate 29.900

Breadth	Height	Breadth	Height	Breadth	Height
0.000	1.645	5.400 K	1.646	5.400 K	2.500
0.000	2.500				

Ordinate 29.960

Breadth	Height	Breadth	Height	Breadth	Height
0.000	1.678	5.296 K	1.679	5.296 K	2.500
0.000	2.500				

Ordinate 30.000

Breadth	Height	Breadth	Height	Breadth	Height
0.000	1.700	5.100 K	1.700	5.100 K	2.500
0.000	2.500				

Remark : The character K with a coordinate indicates a knuckle.

8. LIGHTWEIGHT CHECK

19-04-2005 9:15

LIGHT WEIGHT CHECK PONTOON NP285

General

- Ship's name : PONTOON NP285
- Type of ship : PONTOON
- Date of test : 13/4/2005
- Location : Neptunus Shipyard, Aalst
- Persons present : 2, Among whom
Dhr. de Wit
Dhr. M. de Kok, Neptunus

Test conditions

- Windforce :
- Watercondition : rustig
- Current :
- Depth of the water : Sufficient
- Density of the water : 1.0000 ton/m³
- Situation of the ship :

DRAFT AND DISPLACEMENT DURING TEST

Nr.	Distance App m	Depth m	Freeboard SB m	Freeboard PS m	Draft SB m	Draft PS m	Draft mean m
1	3.000	2.510	2.118	2.174	0.392	0.336	0.364
2	27.000	2.510	1.924	1.961	0.586	0.549	0.567

Calculated drafts, with the least square method (linear):

Lpp : 30.000 m
Draft App : 0.339 m
Draft at 1/2 Lpp : 0.466 m
Draft Fpp : 0.593 m
Trim : 0.254 m (by the bow)

Calculated Volume and centres of gravity

Volume & appendages : 139.778 m³
Displacement (1.000 ton/m³) : 139.778 ton
KM transverse : 23.617 m
Longitudinal centre of buoyancy : 14.882 m
Longitudinal centre of gravity : 14.882 m

Data are based on the actual drafts and trim during test

List of items to be added/removed

Item	Weight ton	LCG m
Ship during test	139.778	14.882
New lightship	139.778	14.882