Pilot vessel L16,5m-mod7

Razmik Baharyan

Report Time: 18 май 2015 г., 8:06:37

Model Name: C:\Users\Razmik\Documents\My Works,07092014\Orca3D v1.3 and 1.4-WIP\Pilot vessel\Pilot vessel L16,5m-mod7, half hull_1.3dm

Condition Summary

Load Condition Parameters

Condition	Weight / Sinkage	LCG / Trim	TCG / Heel	VCG (m)
Condition 1, IMO Resolution MSC.267/85/, Minimum design criteria applicable to all ships, roll back angle=12.8deg, W1	27,025 tonne-f	5,732 m	4,106 deg	1

Resulting Model Attitude and Hydrostatic Properties

Condition	Sinkage (m)	Trim(deg)	Heel(deg)	Ax(m^2)
Condition 1, IMO Resolution MSC.267/85/, Minimum design criteria applicable to all ships, roll back angle=12.8deg, W1	0,920	-0,039	4,106	2,80

Condition	Displacement Weight (tonne-f)	LCB(m)	TCB(m)	VCB(m)	Wet Area (m^2)
Condition 1, IMO Resolution MSC.267/85/, Minimum design criteria applicable to all ships, roll back angle=12.8deg, W1	27,025	5,731	-0,173	0,561	65,454

Condition	Awp(m^2)	LCF(m)	TCF(m)	VCF(m)
Condition 1, IMO Resolution MSC.267/85/, Minimum design criteria applicable to all ships, roll back angle=12.8deg, W1	45,400	6,003	-0,095	0,925

Condition	BMt(m)	BMl(m)	GMt(m)	GMl(m)
Condition 1, IMO Resolution MSC.267/85/, Minimum design criteria applicable to all ships, roll back angle=12.8deg, W1	2,090	20,244	1,650	19,804

Condition	Cb	Cp	Cwp	Cx	Cws	Cvp
Condition 1, IMO Resolution MSC.267/85/, Minimum design criteria applicable to all ships, roll back angle=12.8deg, W1	0,251	0,640	0,703	0,392	3,330	0,357

Notes

1. Locations such as the center of buoyancy and center of flotation are measured from the origin in the Rhinoceros world coordinate system.

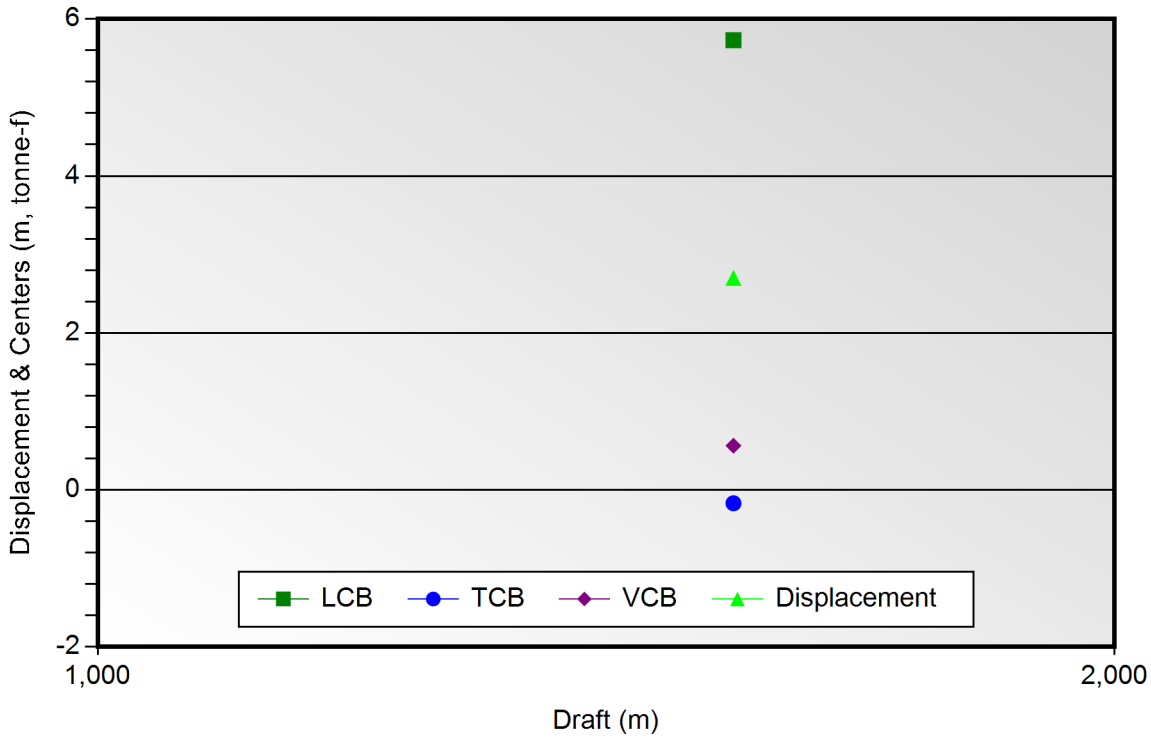
2. The orientation of the model for an Orca3D hydrostatics solution is defined in terms of “sinkage,” “trim,” and “heel.” The sinkage value represents the depth of the body origin (i.e. the Rhino world origin) below the resultant flotation plane, and is sometimes referred to as "origin depth." Heel and trim represent angular rotations about the Rhino longitudinal and transverse axes, respectively, and are taken in that order. For a more detailed description of these terms see the Orca3D documentation.

3. Hull form coefficients are non-dimensionalized by the waterline length.

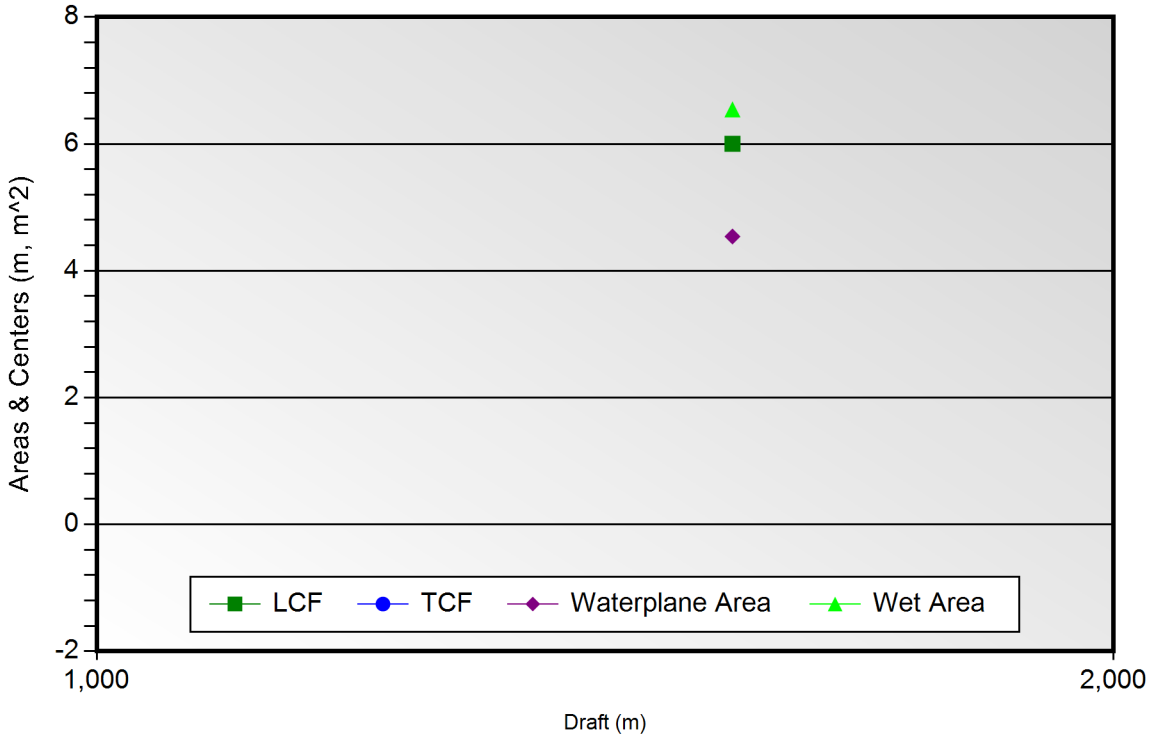
4. Calculation of Cp and Cx use Orca sections to determine Ax. If no Orca sections are defined, these values will be reported as zero.

5. Any Condition Summary associated with a model being used with a heavy lifting or icing stability criteria calculation will have its Displacement, VCG and LCG changed to reflect the added weight. TCG will be unchanged, as the heeling force is controlled by the arm applied.

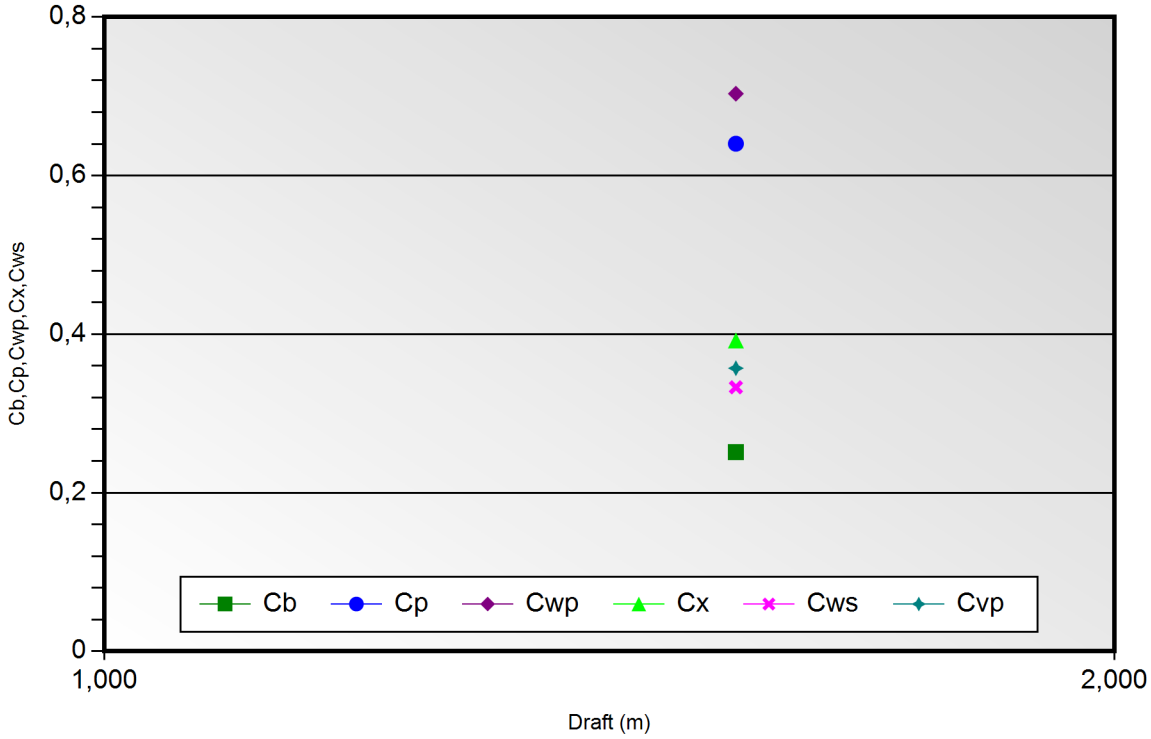
Volumetric Properties



Area Properties



Hull Form Coefficients



Object Type	Name	ID
polysurface	spray chine up	{1ed6252b-5bbc-4e2f-ad12-882fb3018b0e}
polysurface	spray chine down	{103dadff-938f-43db-8f32-7ca9044ea048}
polysurface	keel side	{e4ecd67c-db7e-4cd7-894e-9062f3778cfe}
polysurface	transom	{c720501f-6d01-48a1-91b5-86c8799fdcaa}
polysurface	transom raund	{dd69dc3a-29d1-4069-9266-12c79c0f7cf9}
polysurface	stem	{578d14a3-56e2-47c8-8530-671da0291401}
surface	spray chine down	{0c7ddf64-e922-4346-8392-92fdd0c4cc68}
surface	bottom	{5a8ad3c4-6674-40d1-8337-9e3322645e59}
polysurface	bottom	{0cb01924-5bec-4bc7-9ec7-e53021be77a2}
polysurface	side down	{31e3db5f-d806-4586-a991-f87bfbe6c32b}
polysurface	side up	{cefca4e2-f41e-43d6-a60c-2a0cfe174895}
polysurface	deck	{acd566da-b967-471f-aa54-de33ac0f4bb6}
polysurface	keel down	{ab97eca6-f1a7-4aa3-9e41-c8077fe21c50}

Condition Name=Condition 1, IMO Resolution MSC.267/85/, Minimum design criteria applicable to all ships, roll back angle=12.8deg, W1,Weight=27,03,LCG=5,73,Model Heel=-30,00

General Info

Analysis Type	Rollover	Up Direction = Positive_Z
		Fwd Direction = Positive_X

Surface Meshing Parameters

Density	1	Minimum edge length	0,0001 m
Maximum angle	0	Maximum edge length	0 m
Maximum aspect ratio	0	Max distance, edge to surf.	0 m
Minimum initial grid quads	0	Jagged seams	False
Refine mesh	True	Simple planes	True

Load Condition Parameters

Weight	27,025	tonne-f
LCG	5,732	m
Model Heel	-30,000	deg
VCG	1	m
Fluid Type	Seawater	
Fluid Density	1025,900	kg/m^3
Mirror Geometry	True	

Resultant Model Attitude

Heel Angle	-30,000 deg	Sinkage	0,534 m
Trim Angle	-0,241 deg		

Overall Dimensions

Length Overall, LOA	16,540 m	Loa / Boa	3,299
Beam Overall, Boa	5,014 m	Boa / D	1,452
Depth Overall, D	3,453 m		

Pilot vessel L16,5m-mod7

Razmik Baharyan
Report Time: 18 май 2015 г., 8:06:37
Model Name: C:\Users\Razmik\Documents\My Works,07092014\Orca3D v1.3 and 1.4-WIP\Pilot vessel\Pilot vessel L16,5m-mod7, half hull_1.3dm

Waterline Dimensions

Waterline Length, Lwl	14,338	m	Lwl / Bwl		3,887
Waterline Beam, Bwl	3,689	m	Bwl / T		3,174
Navigational Draft, T	1,162	m	D / T		2,971

Volumetric Values

Displacement Weight	27,025	tonne-f	Displ-Length Ratio			255,540
Volume	26,343	m^3				
LCB	5,728	m	FB/Lwl	0,614	AB/Lwl	0,386
TCB	0,976	m	TCB / Bwl			0,265
VCB	0,702	m				
Wetted Surface Area	60,314	m^2				
Moment To Trim	0,392	tonne-m/cm				

Waterplane Values

Waterplane Area, Awp	42,866	m^2				
LCF	6,424	m	FF/Lwl	0,565	AF/Lwl	0,435
TCF	0,820	m	TCF / Lwl			0,057
Weight To Immerse	0,440	tonne-f/cm				

Sectional Parameters

Ax	2,531	m^2	
Ax Location	5,675	m	Ax Location / Lwl	0,618

Hull Form Coefficients

Cb	0,429	Cx	0,590
Cp	0,726	Cwp	0,811
Cvp	0,529	Cws	3,103

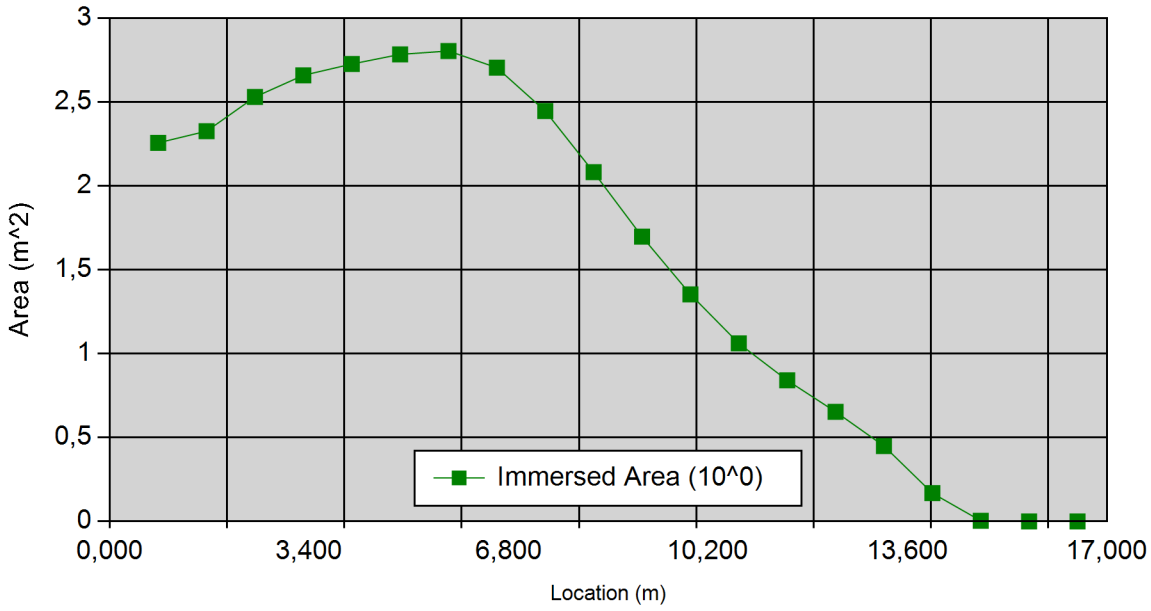
Static Stability Parameters

I(transverse)	41,093	m^4	I(longitudinal)	547,894	m^4
BMt	1,560	m	BMl	20,798	m
GMt	None Available	m	GMl	None Available	m
Mt	1,170	m	Ml	20,408	m

Points Of Interest

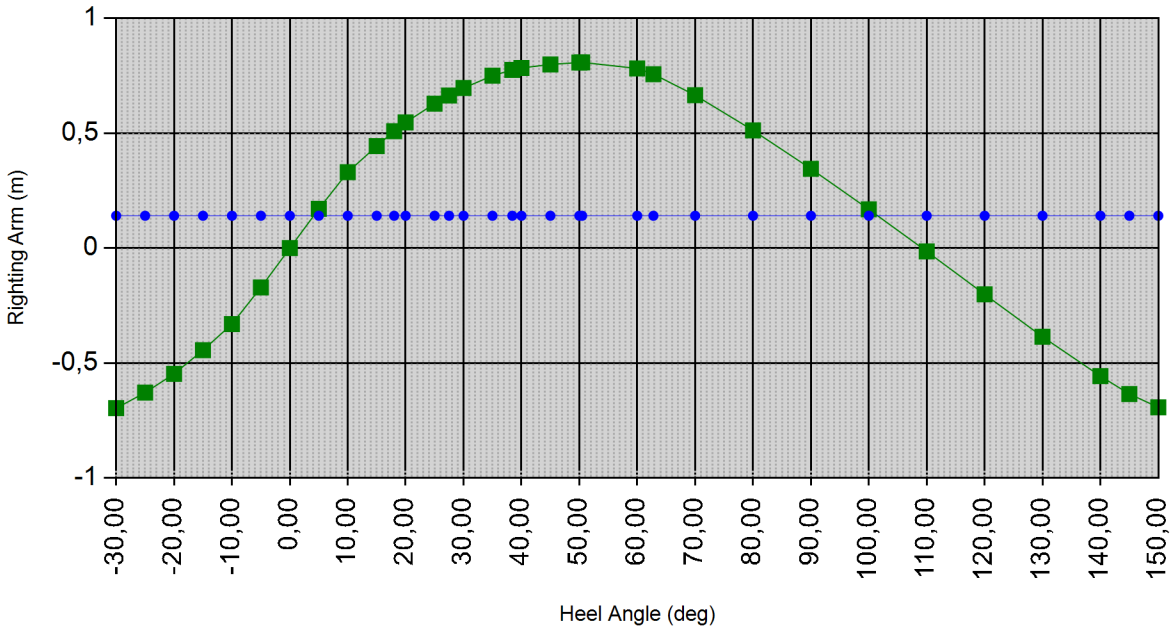
Name	Long'l (m)	Transv (m)	Vert (m)	Dist Abv WL (m)
CP-PS	2,000	1,550	2,570	1,756
CP-SB	2,000	-1,550	2,570	1,534

Station Data



Location (m)	Immersed Area (m^2)	Immersed Girth (m)
0,825	2,257	4,442
1,650	2,326	4,542
2,475	2,530	5,357
3,300	2,659	5,939
4,125	2,727	5,933
4,950	2,784	5,932
5,775	2,805	5,914
6,600	2,705	5,780
7,425	2,446	5,514
8,250	2,082	5,142
9,075	1,698	4,502
9,900	1,353	4,003
10,725	1,061	3,305
11,550	0,841	2,890
12,375	0,653	2,575
13,200	0,449	2,306
14,025	0,168	1,539
14,850	0,004	0,174
15,675	0,000	0,000
16,500	0,000	0,000

Stability Curve



Heel(deg)	Trim(deg)	Righting Arm (m)	Heeling Arm - (m)	Point Name and Distance Above WL (m)	
-30,000	-0,241	-0,696	0,141	CP-PS	0.925
				CP-SB	2.475
-25,000	-0,246	-0,629	0,141	CP-PS	1.034
				CP-SB	2.344
-20,000	-0,221	-0,547	0,141	CP-PS	1.147
				CP-SB	2.207
-15,000	-0,166	-0,444	0,141	CP-PS	1.264
				CP-SB	2.067
-10,000	-0,195	-0,330	0,141	CP-PS	1.373
				CP-SB	1.911
-5,000	-0,057	-0,171	0,141	CP-PS	1.509
				CP-SB	1.779

Heel(deg)	Trim(deg)	Righting Arm (m)	Heeling Arm - (m)	Point Name and Distance Above WL (m)	
0,000	0,000	0,000	0,141	CP-PS	1.647
				CP-SB	1.647
5,000	-0,057	0,171	0,141	CP-PS	1.779
				CP-SB	1.509
10,000	-0,195	0,330	0,141	CP-PS	1.911
				CP-SB	1.373
15,000	-0,166	0,444	0,141	CP-PS	2.067
				CP-SB	1.264
18,014	-0,203	0,509	0,141	CP-PS	2.151
				CP-SB	1.193
20,000	-0,221	0,547	0,141	CP-PS	2.207
				CP-SB	1.147
25,000	-0,246	0,629	0,141	CP-PS	2.344
				CP-SB	1.034
27,500	-0,246	0,664	0,141	CP-PS	2.411
				CP-SB	0.979
30,000	-0,241	0,696	0,141	CP-PS	2.475
				CP-SB	0.925
35,000	-0,221	0,750	0,141	CP-PS	2.596
				CP-SB	0.818
38,425	-0,227	0,776	0,141	CP-PS	2.666
				CP-SB	0.739
40,000	-0,235	0,784	0,141	CP-PS	2.694
				CP-SB	0.702
45,000	-0,287	0,799	0,141	CP-PS	2.768
				CP-SB	0.576

Heel(deg)	Trim(deg)	Righting Arm (m)	Heeling Arm - (m)	Point Name and Distance Above WL (m)	
50,000	-0,433	0,808	0,141	CP-PS	2.808
				CP-SB	0.433
50,486	-0,453	0,808	0,141	CP-PS	2.810
				CP-SB	0.419
60,000	-1,173	0,782	0,141	CP-PS	2.781
				CP-SB	0.097
62,798	-1,444	0,757	0,141	CP-PS	2.756
				CP-SB	0.000
70,000	-2,073	0,665	0,141	CP-PS	2.672
				CP-SB	-0.239
80,000	-2,893	0,512	0,141	CP-PS	2.481
				CP-SB	-0.568
90,000	-3,661	0,345	0,141	CP-PS	2.207
				CP-SB	-0.887
100,000	-4,346	0,169	0,141	CP-PS	1.864
				CP-SB	-1.180
110,000	-4,925	-0,014	0,141	CP-PS	1.472
				CP-SB	-1.430
120,000	-5,378	-0,201	0,141	CP-PS	1.052
				CP-SB	-1.621
130,000	-5,707	-0,386	0,141	CP-PS	0.623
				CP-SB	-1.740
140,000	-5,866	-0,557	0,141	CP-PS	0.205
				CP-SB	-1.777
145,000	-5,811	-0,635	0,141	CP-PS	0.013
				CP-SB	-1.756

Pilot vessel L16,5m-mod7

Razmik Baharyan

Report Time: 18 май 2015 г., 8:06:37

Model Name: C:\Users\Razmik\Documents\My Works,07092014\Orca3D v1.3 and 1.4-WIP\Pilot vessel\Pilot vessel L16,5m-mod7, half hull_1.3dm

Heel(deg)	Trim(deg)	Righting Arm (m)	Heeling Arm - (m)	Point Name and Distance Above WL (m)	
150,000	-5,609	-0,692	0,141	CP-PS	-0.167
				CP-SB	-1.709

Stability Criteria - IMO Resolution MSC.267/85/, Minimum design criteria applicable to all ships, roll back angle=12.8deg, W1

Name	Angle 1	Angle 2	Required	Actual	Pass / Fail
GM At FreeEquil >= 0.15 meters	0		0,15	1,6508	Pass
GZ At 30 > 0.2 meters	30		0,2	0,6964	Pass
GZ At GZmax > 0.2 meters	50,4856		0,2	0,8082	Pass
Angle At GZmax >= 25 deg	50,4856		25	50,4856	Pass
Area Between 0 and 30 >= 3.15 meters-deg	0	30	3,15	12,3569	Pass
Area Between 0 and 40 >= 5.15 meters-deg	0	40	5,15	19,8143	Pass
Area Between 0 and Flood >= 5.15 meters-deg	0	62,798	5,15	37,8977	Pass
Area Between 30 and 40 >= 1.72 meters-deg	30	40	1,72	7,4573	Pass
Area Between 30 and Flood >= 1.72 meters-deg	30	62,798	1,72	25,5408	Pass
Angle At SteadyEquil <= 16 deg	4,1063		16	4,1063	Pass
Angle At SteadyEquil <= 0.8*DeckImm deg	4,1063		30,7397	4,1063	Pass
ResRatio Between SteadyEquil-12.8 deg and 50 >= 1	-8,6937	50	1	7,5379	Pass
ResRatio Between SteadyEquil-12.8 deg and Flood >= 1	-8,6937	62,798	1	10,5141	Pass