

Design hydrostatics report

s/y Freya

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Comment	Digitisation process yacht hull J-80		
Filename	freya_0423.fbm		
Design length	13,600 (m)	Midship location	6,800 (m)
Length over all	13,607 (m)	Relative water density	1,0250
Design beam	3,550 (m)	Mean shell thickness	0,0050 (m)
Maximum beam	3,551 (m)	Appendage coefficient	1,0000
Design draft	1,775 (m)		

Volume properties		Waterplane properties	
Moulded volume	10,835 (m ³)	Length on waterline	9,487 (m)
Total displaced volume	11,000 (m ³)	Beam on waterline	3,031 (m)
Displacement	11,275 (tonnes)	Entrance angle	27,415 (Degr.)
Block coefficient	0,2155	Waterplane area	20,201 (m ²)
Prismatic coefficient	0,5142	Waterplane coefficient	0,7024
Vert. prismatic coefficient	0,3022	Waterplane center of floatation	6,256 (m)
Wetted surface area	34,549 (m ²)	Transverse moment of inertia	10,793 (m ⁴)
Longitudinal center of buoyancy	6,277 (m)	Longitudinal moment of inertia	97,318 (m ⁴)
Longitudinal center of buoyancy	-5,516 ‰		
Vertical center of buoyancy	1,320 (m)		
Total length of submerged body	9,487 (m)		
Total beam of submerged body	3,031 (m)		

Midship properties		Initial stability	
Midship section area	2,255 (m ²)	Transverse metacentric height	2,316 (m)
Midship coefficient	0,4190	Longitudinal metacentric height	10,302 (m)

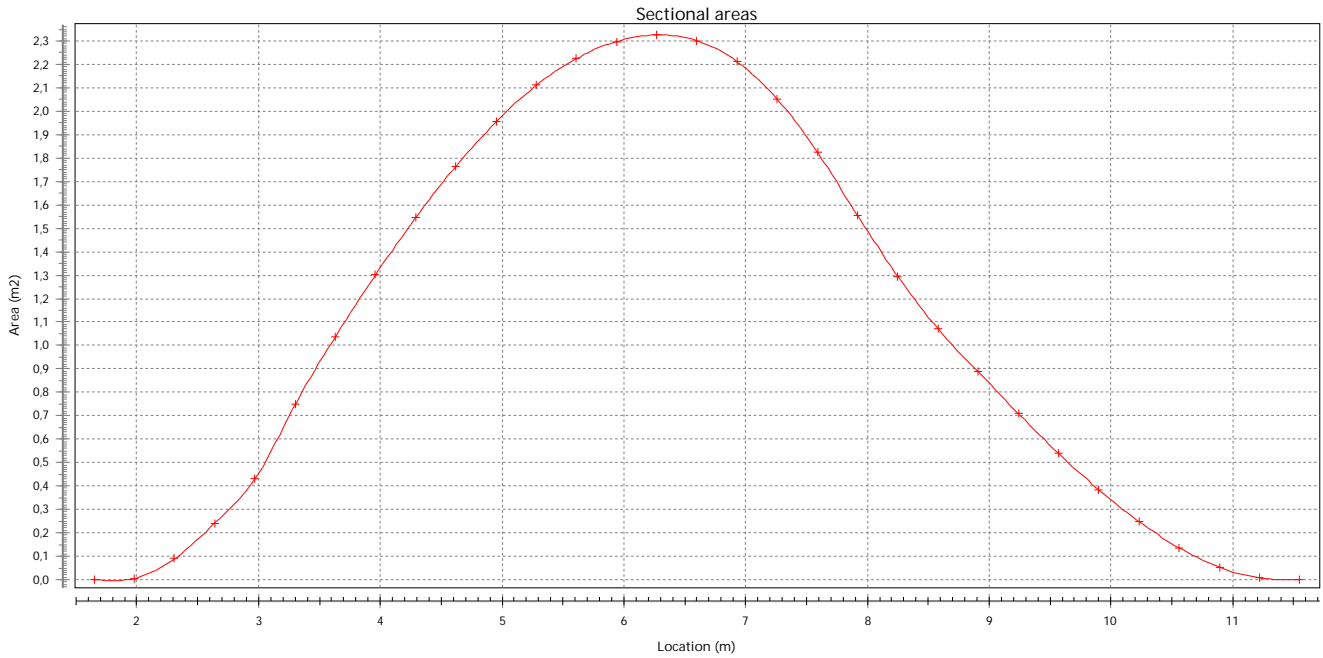
Lateral plane	
Lateral area	11,055 (m ²)
Longitudinal center of effort	6,075 (m)
Vertical center of effort	0,996 (m)

The following layer properties are calculated for both sides of the ship

Location	Area (m ²)	Thickness (m)	Weight (tonnes)	LCG (m)	TCG (m)	VCG (m)
watterline	19,196	0,005	0,768	6,599	0,000 (CL)	1,912
keel_side	11,120	0,005	0,445	5,387	0,000 (CL)	0,558
bottom	17,700	0,005	0,708	5,883	0,000 (CL)	1,407
transom	0,494	0,004	0,016	0,156	0,000 (CL)	2,903
bahdeck	6,779	0,004	0,217	6,954	0,000 (CL)	2,883
burta	14,856	0,004	0,475	7,032	0,000 (CL)	2,504
maindeck	17,014	0,004	0,544	7,652	0,000 (CL)	3,155
fordeck	3,827	0,004	0,122	11,615	0,000 (CL)	2,951
aftdeck	4,152	0,004	0,133	1,407	0,000 (CL)	2,860
kokpit	3,135	0,004	0,100	3,095	0,000 (CL)	2,520
nadb_side	1,518	0,004	0,049	4,829	0,000 (CL)	3,355
bow	0,077	0,000	0,000	13,418	0,000 (CL)	3,106
nadb_dach	3,212	0,000	0,000	4,789	0,000 (CL)	3,708
nadb_front	1,550	0,000	0,000	5,922	0,000 (CL)	3,437

Location	Area (m ²)	Thickness (m)	Weight (tonnes)	LCG (m)	TCG (m)	VCG (m)
keel_bottom	1,463	0,000	0,000	5,534	0,000 (CL)	0,000
keel_front	0,060	0,000	0,000	7,943	0,000 (CL)	0,318
Total	106,155		3,577	6,374	0,000 (CL)	2,082

Sectional areas									
Location (m)	Area (m ²)	Location (m)	Area (m ²)	Location (m)	Area (m ²)	Location (m)	Area (m ²)	Location (m)	Area (m ²)
1,650	0,000	3,960	1,302	6,270	2,326	8,580	1,071	10,890	0,053
1,980	0,006	4,290	1,544	6,600	2,301	8,910	0,887	11,220	0,007
2,310	0,089	4,620	1,766	6,930	2,211	9,240	0,708	11,550	0,000
2,640	0,241	4,950	1,955	7,260	2,051	9,570	0,539		
2,970	0,431	5,280	2,111	7,590	1,825	9,900	0,384		
3,300	0,747	5,610	2,224	7,920	1,554	10,230	0,248		
3,630	1,036	5,940	2,297	8,250	1,295	10,560	0,136		



NOTE 1: Draft (and all other vertical heights) is measured from base Z=0,000
 NOTE 2: All calculated coefficients based on actual dimensions of submerged body.