

# Design for an I.O.R. One Ton flat out racer

Project : One Tonner  
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Created by : freeships.ex

Length over all : 10.470 m  
Beam over all : 3.525 m  
Draft : 2.200 m  
Midship location : 4.600 m  
Water density : 1.025 t/m<sup>3</sup>  
Appendage coefficient : 1.0000

## Volume properties:

Displaced volume : 7.988 m<sup>3</sup>  
Displacement : 8.187 tonnes  
Total length of submerged body : 9.710 m  
Total beam of submerged body : 3.183 m  
Block coefficient : 0.4776  
Prismatic coefficient : 0.6428  
Vert. prismatic coefficient : 0.6794  
Wetted surface area : 25.265 m<sup>2</sup>  
Longitudinal center of buoyancy : 6.084 m  
Longitudinal center of buoyancy : -4.719 %  
Transverse center of buoyancy : 0.000 m  
Vertical center of buoyancy : 0.327 m

## Midship properties:

Midship section area : 1.280 m<sup>2</sup>  
Midship coefficient : 0.7431

## Waterplane properties:

Length on waterline : 9.710 m  
Beam on waterline : 3.183 m  
Waterplane area : 21.726 m<sup>2</sup>  
Waterplane coefficient : 0.7029

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Waterplane center of floatation	:	5.767 m
Y coordinate of DWL area CoG	:	0.000 m
Half entrance angle of DWL	:	25.932 degr
Transverse moment of inertia	:	13.123 m <sup>4</sup>
Longitudinal moment of inertia	:	113.18 m <sup>4</sup>

## Initial stability:

Vertical of transverse metacenter	:	1.969 m
Tranverse metacentric radius	:	1.643 m
Longitudinal transverse metacenter	:	14.496 m
Longitudinal metacentric radius	:	14.169 m

## Lateral plane:

Lateral area	:	4.148 m <sup>2</sup>
Longitudinal center of effort	:	6.807 m
Vertical center of effort	:	0.307 m

## Hull characteristics above waterline:

Lateral wind area	:	10.907 m <sup>2</sup>
Z coordinate of wind area CoG above DWL	:	0.559 m
Distance from bow to wind area CoG	:	4.695 m

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

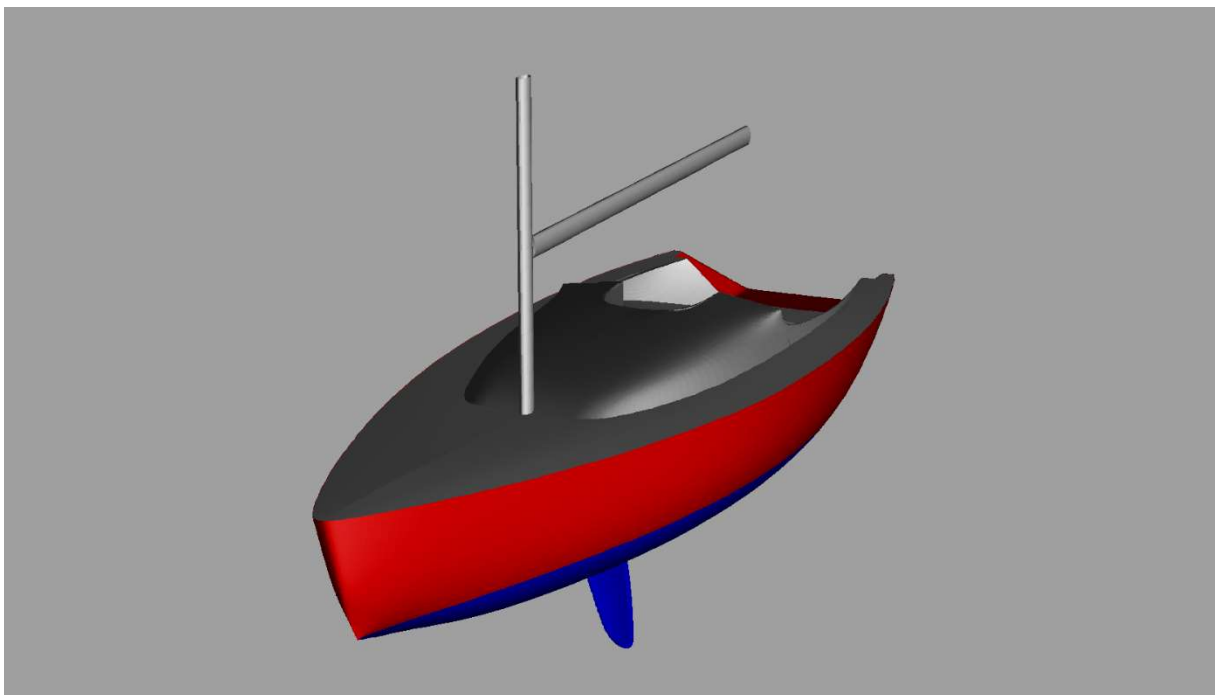
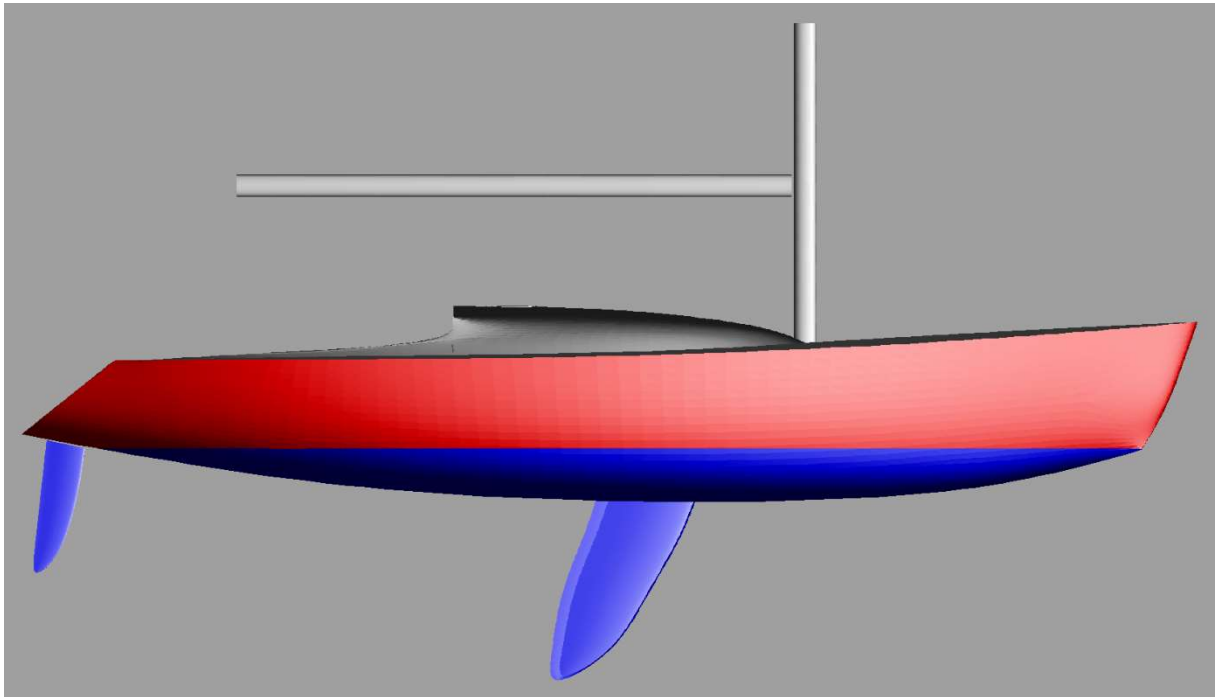
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Layer	Area	Thickness	Weight	COG X	COG Y	COG Z
	m <sup>2</sup>	mm	tonnes	m	m	m
Hull	48.486	30.000	1.900	6.012	0.000	0.575
Cabin	9.649	20.000	0.200	5.706	0.000	1.673
Deck	12.730	20.000	0.400	7.231	0.000	1.466
Keel	3.500	20.000	3.500	0.000	0.000	0.000
Rudder	1.500	20.000	0.010	0.000	0.000	0.000
Interiour, engine, rig. sails	0.000	0.000	1.500	0.000	0.000	0.000

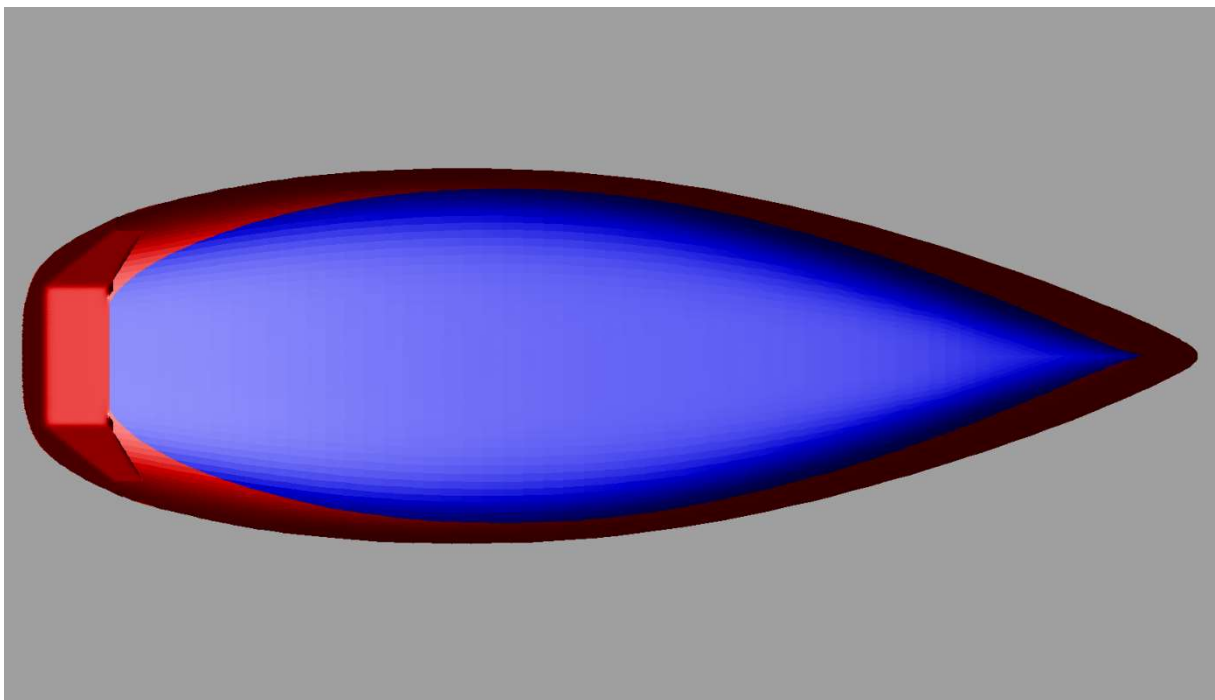
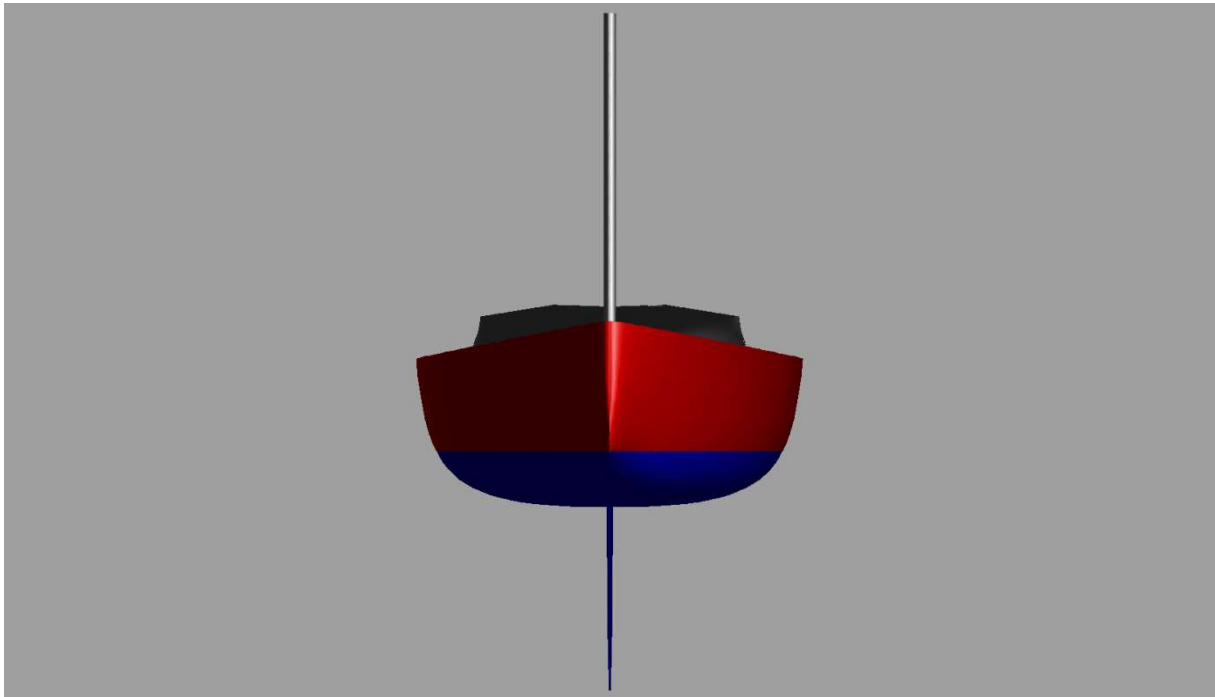
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Total	70.865	7.510				
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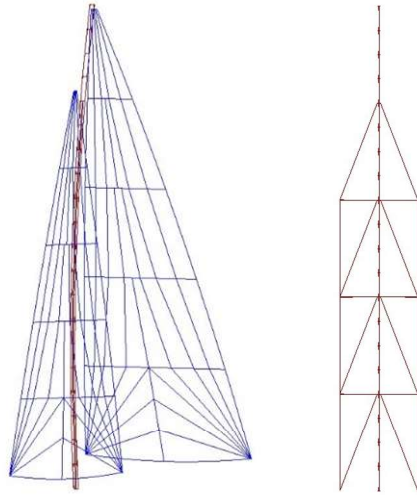
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High aspect 23.4m<sup>2</sup> Main 41m<sup>2</sup>

