

## October 2019, Design for a Racer in the I.O.R. Miniton Class

Project : I.O.R. Racer in the Miniton Class  
Designer : Delta Consultants-P.Visser  
Filename : I:\freeships\minitonner#01\mton01.fbm

Length over all : 6.800 m  
Beam over all : 2.658 m  
Draft : 1.480 m  
Midship location : 2.500 m  
Water density : 1.025 t/m<sup>3</sup>  
Appendage coefficient : 1.0000

### Volume properties:

Displaced volume : 1.429 m<sup>3</sup>  
Displacement : 1.465 tonnes  
Total length of submerged body : 6.247 m  
Total beam of submerged body : 2.130 m  
Block coefficient : 0.0726  
Prismatic coefficient : 0.5730  
Vert. prismatic coefficient : 0.1155  
Wetted surface area : 10.756 m<sup>2</sup>  
Longitudinal center of buoyancy : 3.250 m  
Longitudinal center of buoyancy : 0.682 %  
Transverse center of buoyancy : 0.000 m  
Vertical center of buoyancy : 1.369 m

### Midship properties:

Midship section area : 0.399 m<sup>2</sup>  
Midship coefficient : 0.1267

### Waterplane properties:

Length on waterline : 6.120 m  
Beam on waterline : 2.130 m  
Waterplane area : 8.358 m<sup>2</sup>  
Waterplane coefficient : 0.6282

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Waterplane center of floatation	:	3.101 m
Y coordinate of DWL area CoG	:	0.000 m
Half entrance angle of DWL	:	20.691 degr
Transverse moment of inertia	:	2.239 m <sup>4</sup>
Longitudinal moment of inertia	:	14.099 m <sup>4</sup>

### Initial stability:

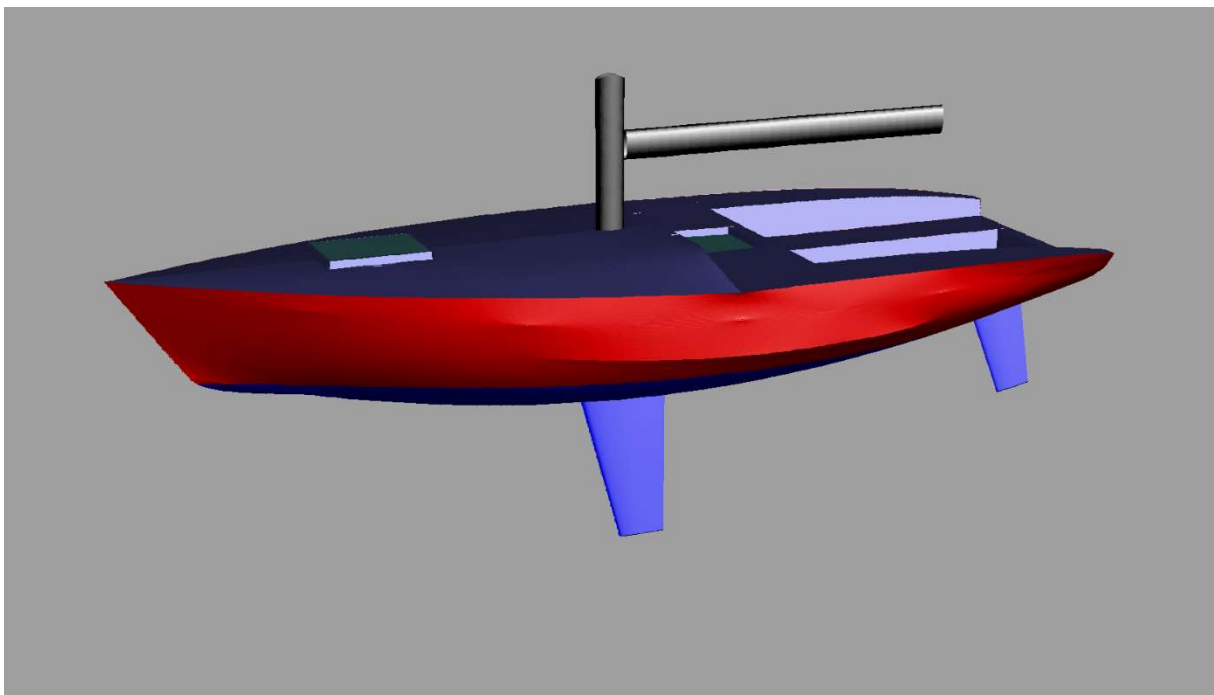
Vertical of transverse metacenter	:	2.936 m
Tranverse metacentric radius	:	1.566 m
Longitudinal transverse metacenter	:	11.234 m
Longitudinal metacentric radius	:	9.865 m

### Lateral plane:

Lateral area	:	1.898 m <sup>2</sup>
Longitudinal center of effort	:	3.024 m
Vertical center of effort	:	1.131 m

### Hull characteristics above waterline:

Lateral wind area	:	4.247 m <sup>2</sup>
Z coordinate of wind area CoG above DWL	:	0.332 m
Distance from bow to wind area CoG	:	2.497 m



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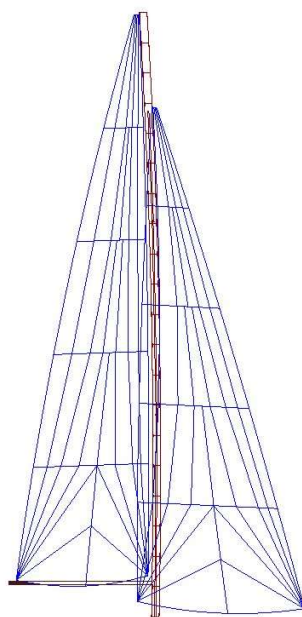
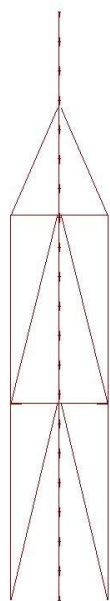
The following layer properties are calculated for both sides of the ship:

Layer	Area	Thickness	Weight	COG X	COG Y	COG Z
	m <sup>2</sup>	mm	tonnes	m	m	m
Hull	20.096	25.000	0.377	3.087	0.000	1.565
Deck			0.150			
-----						
Trapezoidal						
keel NACA63	1.224	0.000	0.700	3.261	0.000	0.672
Trapez rudder	0.580	0.000	0.005	0.277	0.000	1.157
Rig, Interior, Spars, Sails, Engin		0.000	0.200			
-----+						
Total	21.900		1.432	2.890	0.000	1.762

NOTE 1: Draft (and all other vertical heights) is measured above the lowest point of the hull! (Z= 0.000)

NOTE 2: All calculated coefficients based on actual dimensions of submerged body.

Note 3: The bulb characteristics is calcs right, if F.P. is through point of intersection forward line with DWL.



High aspect 16m<sup>2</sup> Main 15m<sup>2</sup>

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