

Mini Transat Design #03, November 2019

Project : Mini Transat Racer #03
Designer : Delta Consultants-P.Visser
Filename : I:\freeships\minitransat#03\mtr03.fbm

Length over all : 6.500 m 7.300m including bowsprit
Beam over all : 2.745 m
Draft : 2.200 m
Midship location : 2.500 m
Water density : 1.025 t/m³
Appendage coefficient : 1.0000

Volume properties:

Displaced volume : 2.224 m³
Displacement : 2.280 tonnes
Total length of submerged body : 6.387 m
Total beam of submerged body : 2.322 m
Block coefficient : 0.0682
Prismatic coefficient : 0.5562
Vert. prismatic coefficient : 0.1021
Wetted surface area : 13.087 m²
Longitudinal center of buoyancy : 2.902 m
Longitudinal center of buoyancy : -6.329 %
Tranverse center of buoyancy : 0.000 m
Vertical center of buoyancy : 2.037 m

Midship properties:

Midship section area : 0.626 m²
Midship coefficient : 0.1226

Waterplane properties:

Length on waterline : 6.387 m
Beam on waterline : 2.322 m
Waterplane area : 9.903 m²
Waterplane coefficient : 0.6679
Waterplane center of floatation : 2.686 m
Y coordinate of DWL area CoG : 0.000 m
Half entrance angle of DWL : 17.275 degr

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Transverse moment of inertia	:	3.109 m ⁴
Longitudinal moment of inertia	:	21.000 m ⁴
Initial stability:		
Vertical of transverse metacenter	:	3.435 m
Tranverse metacentric radius	:	1.398 m
Longitudinal transverse metacenter	:	11.479 m
Longitudinal metacentric radius	:	9.442 m
Lateral plane:		
Lateral area	:	2.300 m ²
Longitudinal center of effort	:	3.554 m
Vertical center of effort	:	1.660 m
Hull characteristics above waterline:		
Lateral wind area	:	3.171 m ²
Z coordinate of wind area CoG above DWL	:	2.116 m
Distance from bow to wind area CoG	:	2.612 m

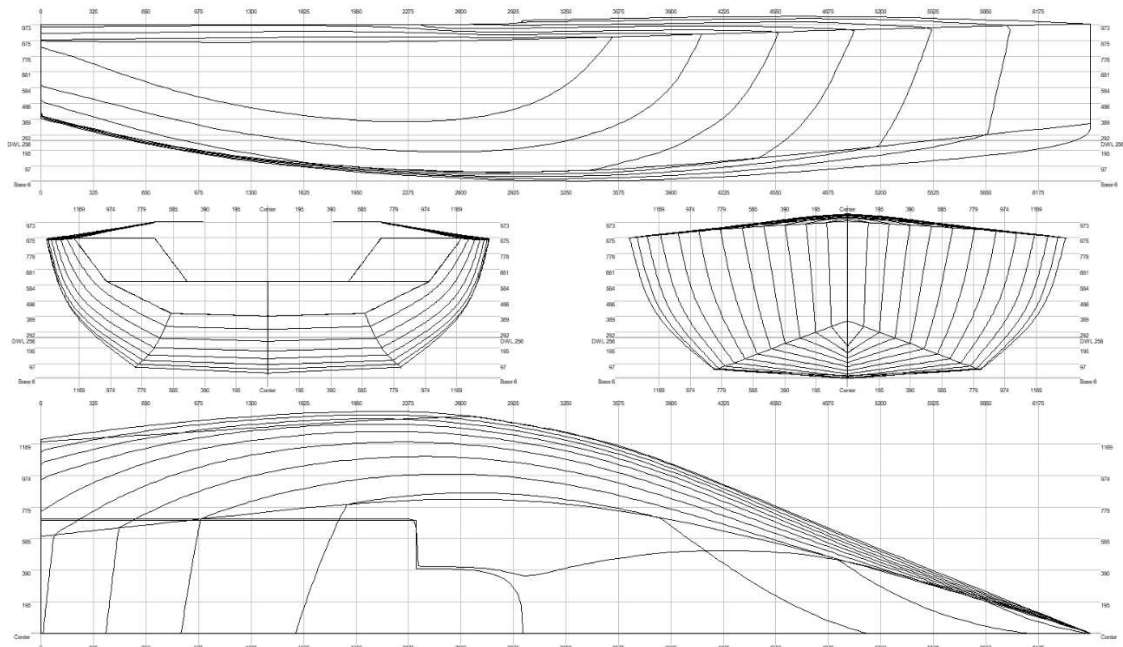
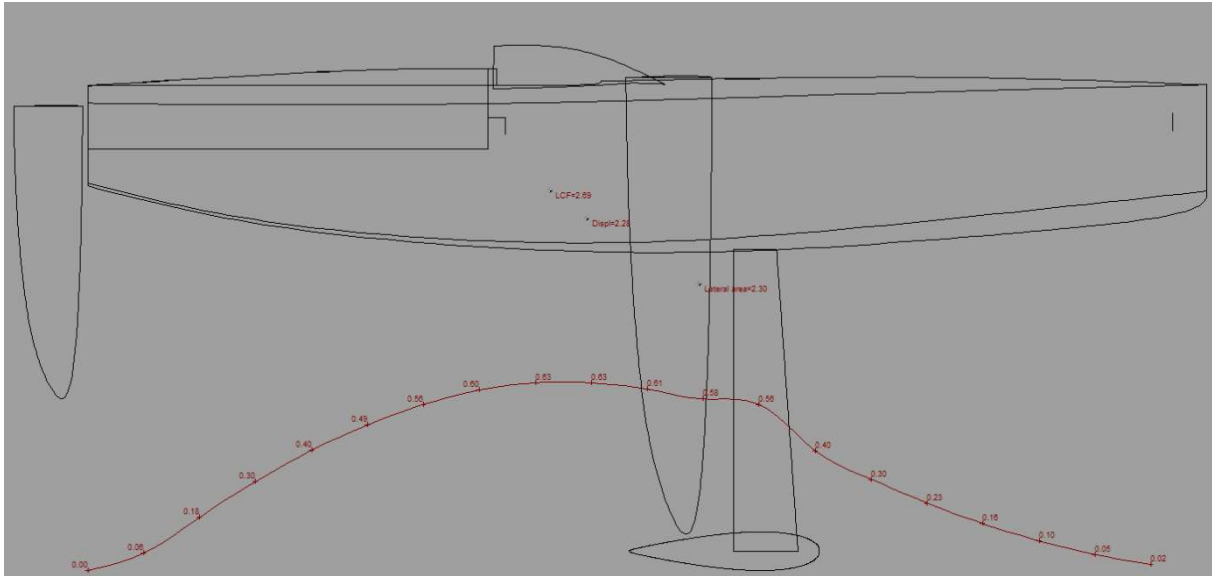
The following layer properties are calculated for both sides of the ship:

Layer	Area m ²	Thickness mm	Weight tonnes	COG X m	COG Y m	COG Z m
hull	20.229	30.000	0.303	2.861	0.000	2.197
deck	17.115	20.000	0.171	2.208	0.000	2.674
canopy	1.055	10.000	0.005	2.804	0.000	2.903
Trapezoidal keel NACA63	1.111		0.200	3.909	0.000	0.926
Round wing_NACA0020	0.659		1.000	3.758	0.000	0.112
Daggerboards	2.214		0.033	3.395	0.000	1.738
Rudders	1.195		0.018	-0.214	0.000	1.977
Rest			0.500			
Total	43.577		2.230	2.580	0.000	2.322

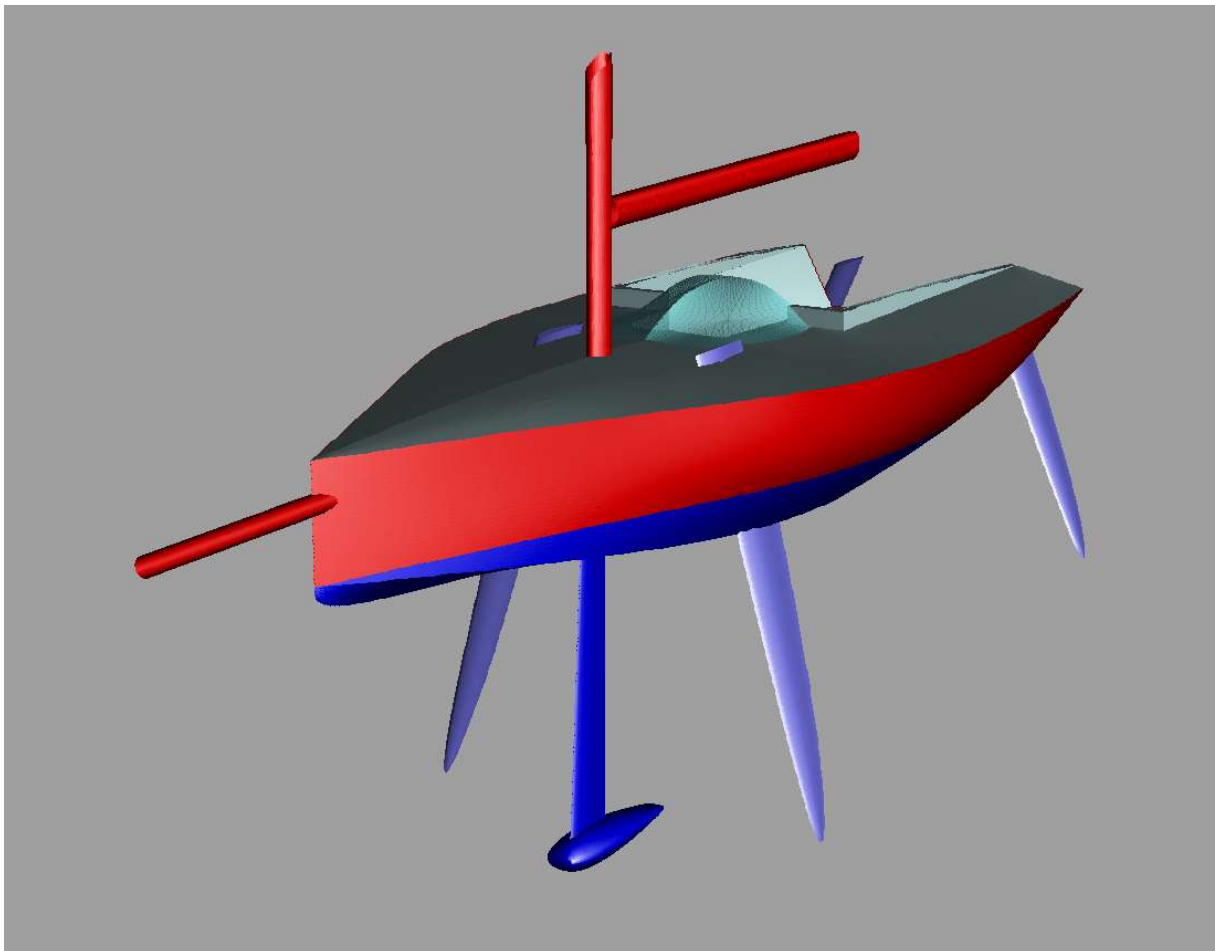
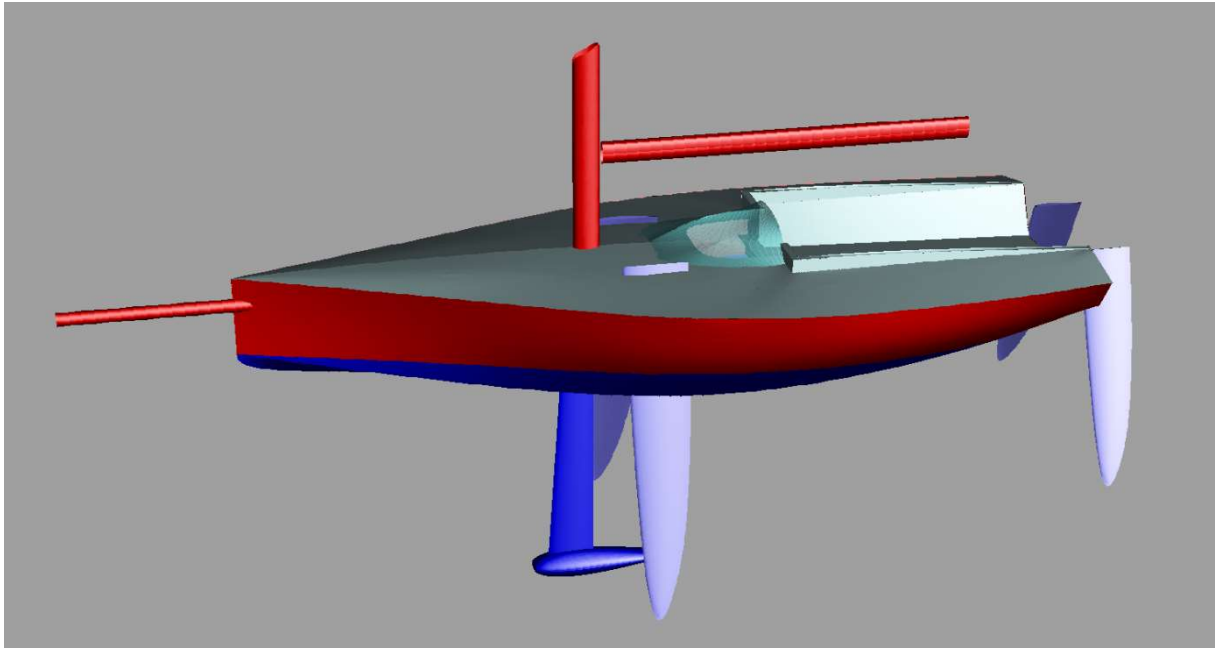
NOTE 1: Draft (and all other vertical heights) is measured above the lowest point of the hull! (Z= 0.000)

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

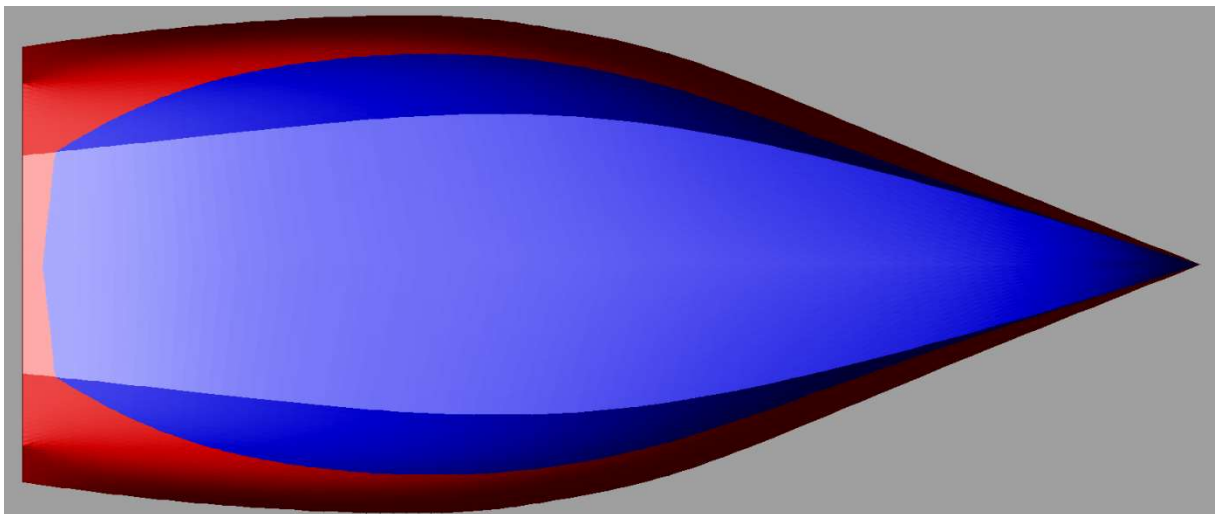
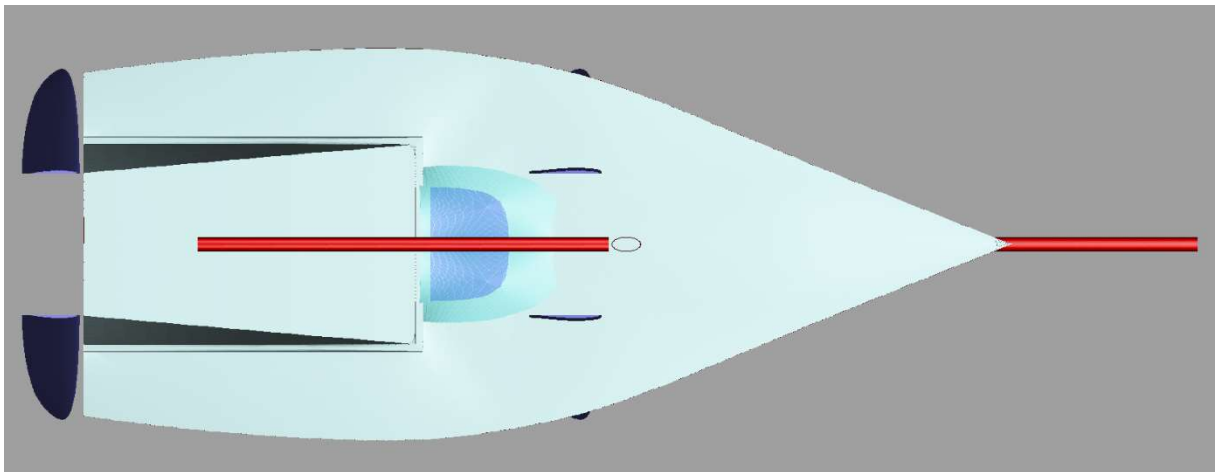
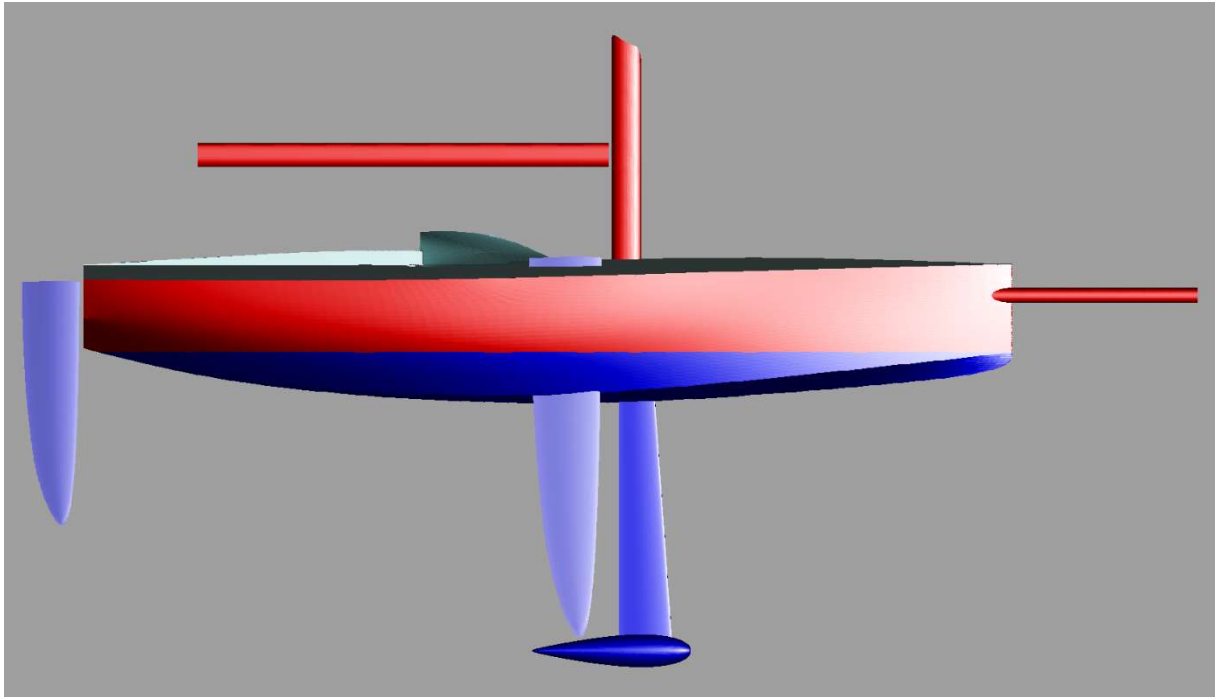
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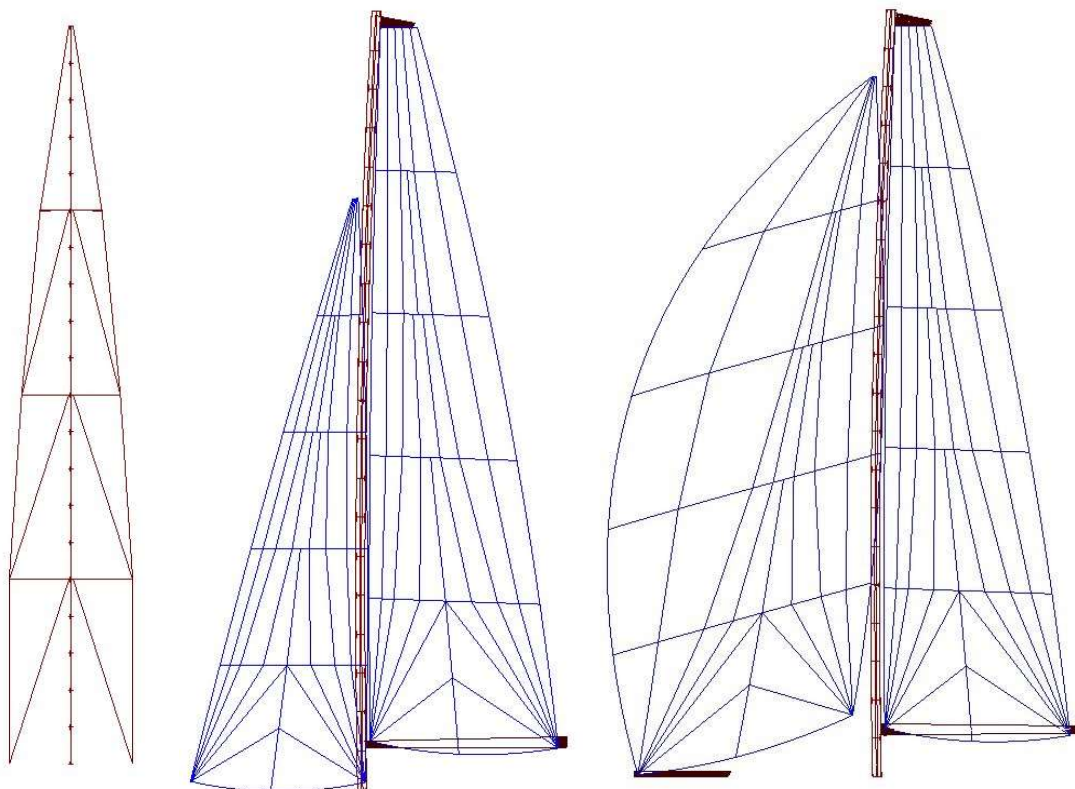
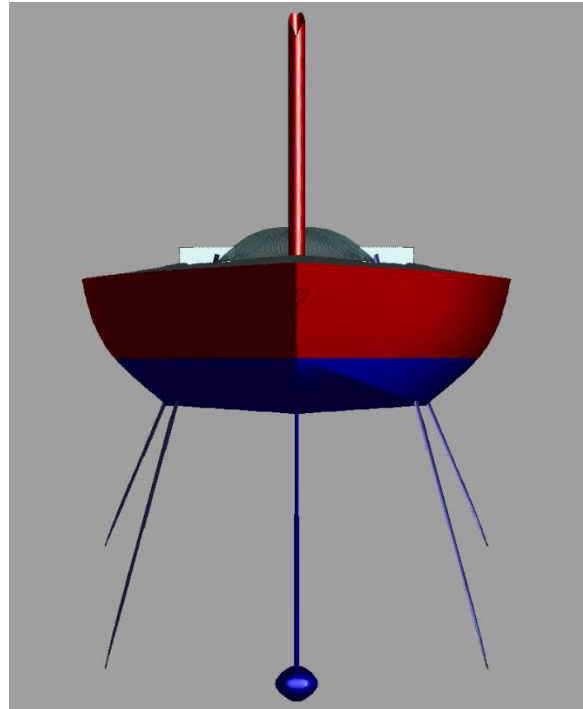
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Main 22m² High Aspect 12m² Code Zero 34m²