

Design #01, September 2019, a light displacement IOR Quartertonner

Project : Quarter Tonner #01
Designer : Delta Consultants-P.Visser
Created by : Free!Ship
Filename : I:\freeships\quartertonner#01.fbm

Length over all : 7.500 m
Beam over all : 2.808 m
Draft : 1.700 m
Midship location : 3.000 m
Water density : 1.025 t/m³

Volume properties:

Displaced volume : 1.185 m³
Displacement : 1.215 tonnes
Total length of submerged body : 7.077 m
Total beam of submerged body : 2.234 m
Block coefficient : 0.0441
Prismatic coefficient : 0.5299
Vert. prismatic coefficient : 0.0712
Wetted surface area : 13.248 m²
Longitudinal centre of buoyancy : 3.529 m
Longitudinal centre of buoyancy : -0.125 %
Transverse centre of buoyancy : 0.000 m
Vertical centre of buoyancy : 1.596 m

Midship properties:

Midship section area : 0.316 m²
Midship coefficient : 0.0832

Waterplane properties:

Length on waterline : 7.077 m
Beam on waterline : 2.234 m
Waterplane area : 9.795 m²
Waterplane coefficient : 0.6195
Waterplane centre of floatation : 3.401 m

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Y coordinate of DWL area CoG	:	0.000 m
Half entrance angle of DWL	:	17.145 degree
Transverse moment of inertia	:	2.803 m ⁴
Longitudinal moment of inertia	:	21.574 m ⁴

Initial stability:

Vertical of transverse metacentre	:	3.961 m
Transverse metacentric radius	:	2.365 m
Longitudinal transverse metacentre	:	19.802 m
Longitudinal metacentric radius	:	18.206 m

Lateral plane:

Lateral area	:	2.358 m ²
Longitudinal centre of effort	:	3.109 m
Vertical centre of effort	:	1.194 m

Hull characteristics above waterline:

Lateral wind area	:	5.168 m ²
Z coordinate of wind area CoG above DWL	:	0.450 m
Distance from bow to wind area CoG	:	2.541 m

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

Weight	tonnes
Hull	0.315
Trapezoidal keel NACA63	0.513
Trapezoidal rudder NACA	0.004
Deck & superstructure	0.088
Rig, sails, engine, interior	0.300

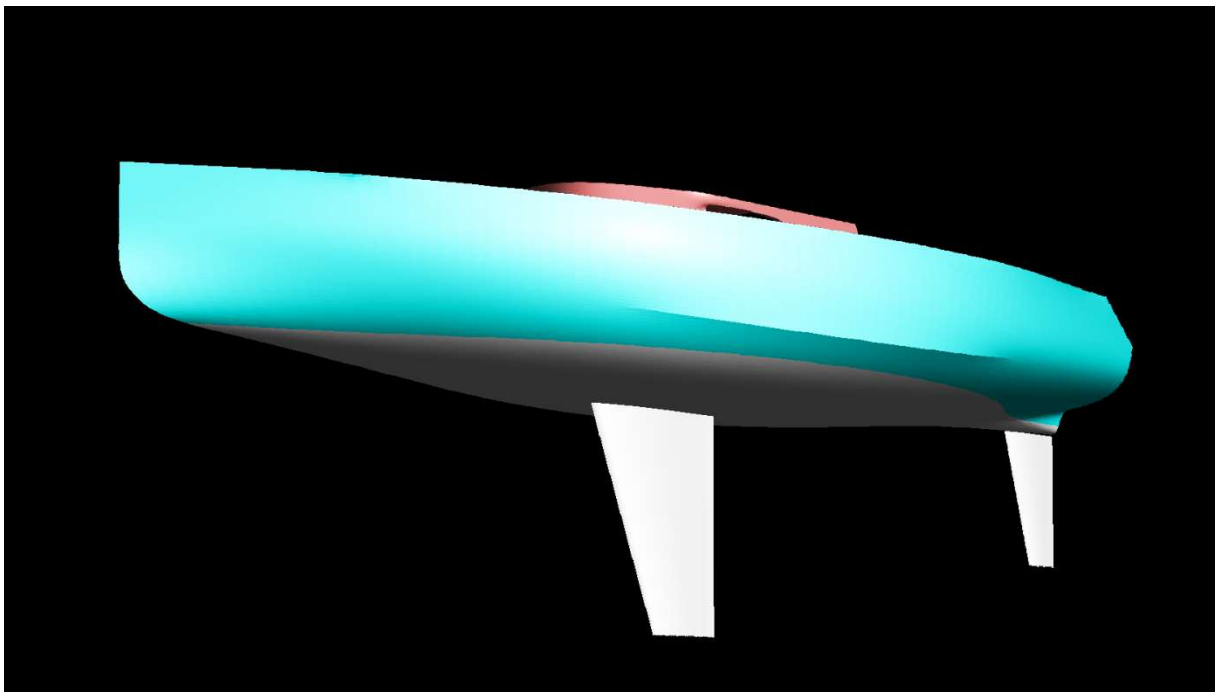
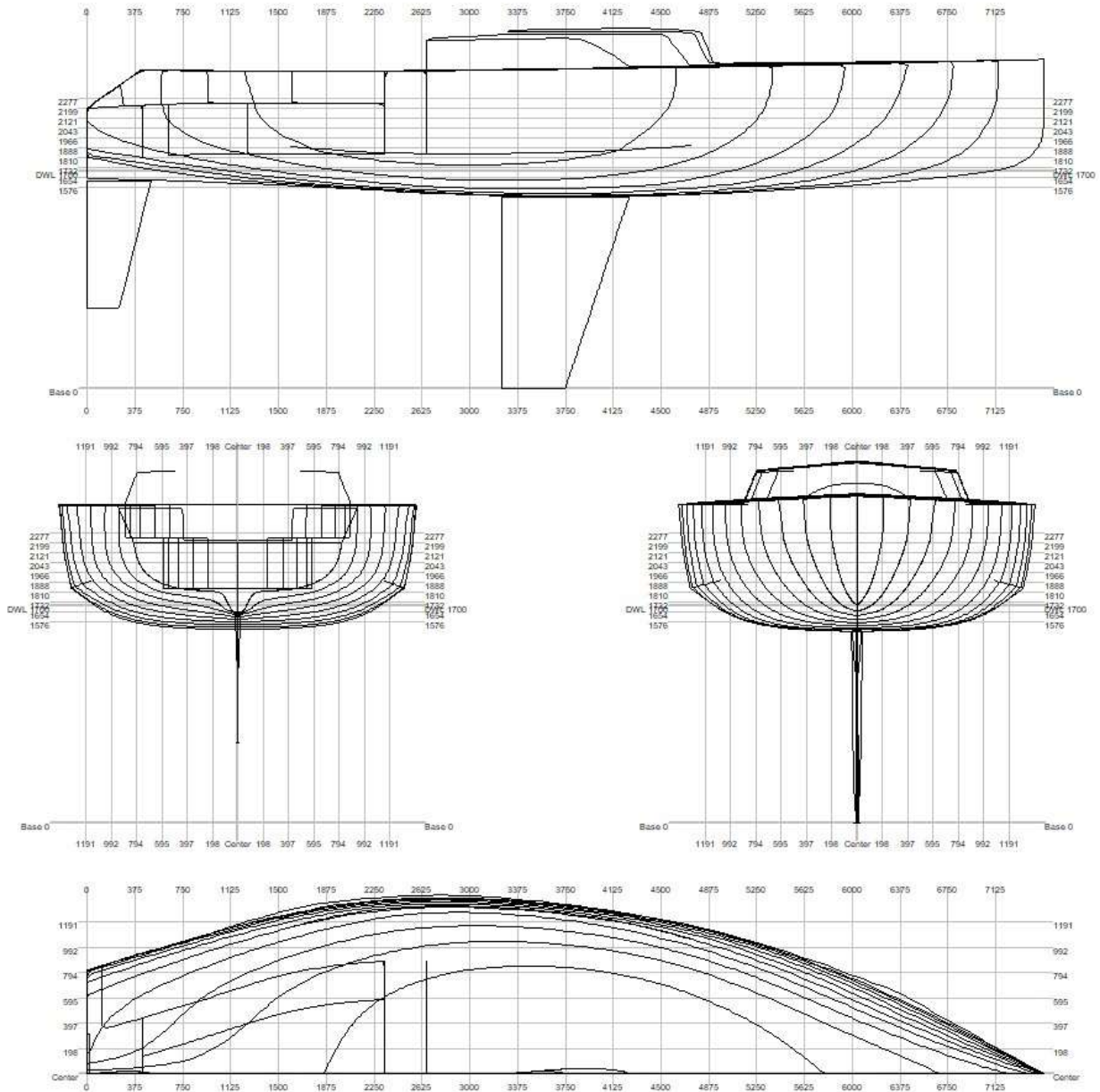
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Total	1.220
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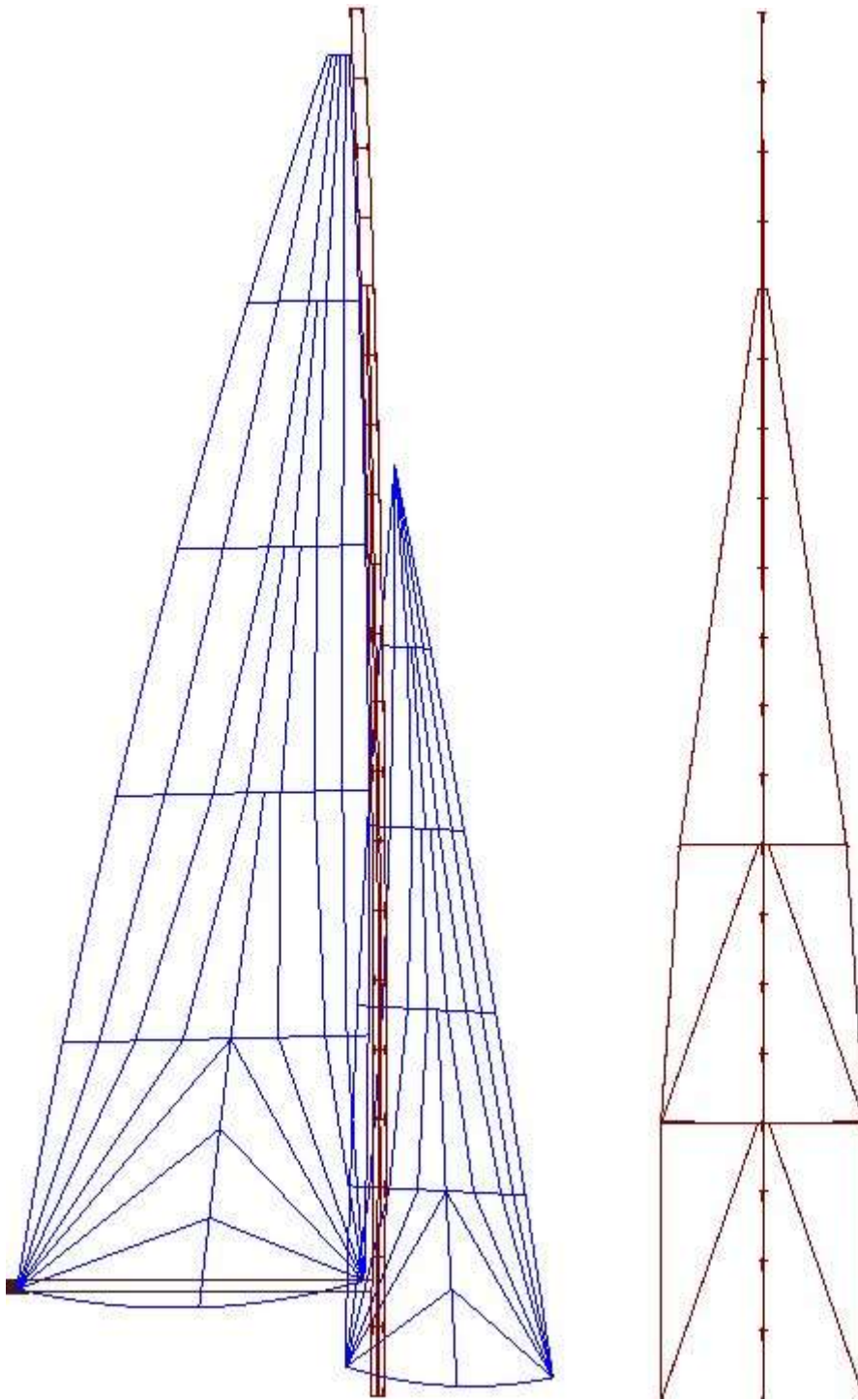
NOTE 1: Draft (and all other vertical heights) is measured above the lowest point of the hull! (Z= 0.000)

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

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High aspect 12.6m² Main 31.5m²

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