SEATOR1980

Planing Hull Resistance

ROMV ShipDesign & Consulting®

Report Time: martes, 17 de enero de 2017, 15:20:15

Model Name: C:\Users\HP\Documents\My Consulting Services\FROMERO\GoldCoastCat ferry \ROMV928. SEATOR1980 Cat Ferry V2 160915.3dm

Prediction Parameter	Value
Method	Savitsky
SpeedCheck	Check
HullCheck	Check
DesignMarginPercent	20
DesignSpeed	25 kt
WaterType	Salt
WaterDensity	1025,9 kg/m3
WaterViscosity	1,1883E-06 m2/s
Propulsive Efficiency	60 %

Vessel Data	Value
MaxPlaningLength	19800 mm
MaxPlaningBeam	1817,6 mm
DisplacementBare	17128 kgf
LCGFwdTransom	9364,9 mm
VCGAboveBL	2127,6 mm
ShaftAngle	6,124 deg
LCEFwdTransom	389,51 mm
VCEAboveBL	95,528 mm

Parameter Check	Value	Minimum	Maximum	Type
LcgBchRatio	5,1522	0,6	3	Computed
FnBchMax	3,0462	1,43	13	Computed
DeadriseMidLen	20,498 deg	0	30	Computed
CLBmax	0,5897	0	0,5	Computed

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Speed (kt)	Fnv	Trim (deg)	Rbare (N)	Rtotal (N)	PEtotal (kW)	PPtotal (kW)
12,000	1,233	0,738	32528,6	39034,4	241,0	401,6
14,000	1,439	0,766	30056,4	36067,6	259,8	432,9
16,000	1,644	0,797	27400,9	32881,0	270,6	451,1
18,000	1,850	0,828	25090,2	30108,2	278,8	464,7
20,000	2,055	0,861	23331,8	27998,1	288,1	480,1
22,000	2,261	0,894	22171,7	26606,1	301,1	501,9
24,000	2,466	0,928	21567,5	25881,0	319,5	532,6
26,000	2,672	0,963	21456,0	25747,3	344,4	574,0
28,000	2,877	0,998	21757,4	26108,9	376,1	626,8
30,000	3,083	1,035	22393,9	26872,7	414,7	691,2
32,000	3,288	1,071	23297,8	27957,4	460,2	767,1
34,000	3,494	1,107	24409,6	29291,5	512,3	853,9

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Speed (kt)	FnBch	Eff Planing Beam (mm)	Eff Deadrise (deg)	Rbare/W	Porpoising	Prediction Check
12,000	1,469	1799,685	20,498	0,194	Check	Check=1,2,3,4
14,000	1,714	1799,674	20,498	0,179	Check	Check=1,2,3,4
16,000	1,959	1799,664	20,498	0,163	Check	Check=1,2,3,4
18,000	2,204	1799,654	20,498	0,149	Check	Check=1,3,4
20,000	2,449	1799,646	20,498	0,139	Check	Check=1,3,4
22,000	2,694	1799,641	20,498	0,132	Check	Check=1,3,4
24,000	2,939	1799,638	20,498	0,128	Check	Check=1,3,4
26,000	3,184	1799,638	20,498	0,128	Check	Check=1,3,4
28,000	3,429	1799,638	20,498	0,130	Check	Check=1,4
30,000	3,674	1799,639	20,498	0,133	Check	Check=1,4
32,000	3,919	1799,641	20,498	0,139	Check	Check=1,4
34,000	4,164	1799,645	20,498	0,145	Check	Check=1,4

Sensitivity Analysis	Index	To Reduce Drag
Eff planing beam	0,51617	Decrease
Eff deadrise	0,51184	Decrease
LCG fwd transom	0,47481	Increase
Shaft angle to BL	0,054156	Increase

Prediction Checks

1. A wetted keel length greater than the boat length indicates that the boat is running at small trim and the bow will be immersed. In this condition, the prismatic analysis of the Savitsky prediction will be unreliable and can significantly under-predict the actual drag. However, as this condition typically occurs at pre-planing speeds, the internal hump speed correction accounts for this in the prediction of drag. There is no correction for trim.

2. The Froude number based on chine beam (FnBch) is a good indicator of the development of the spray root and the magnitude of the planing lift coefficient. Results for speeds outside of the Savitsky data set (most often for low speeds below the range) may be unreliable.

3. The lift coefficient (CLb) is a ratio of displacement to the square of speed and chine beam, with a correction for deadrise. This coefficient is a measure of the weight loading for the given planing geometry. We caution against using this method for hulls that produce this data range error.

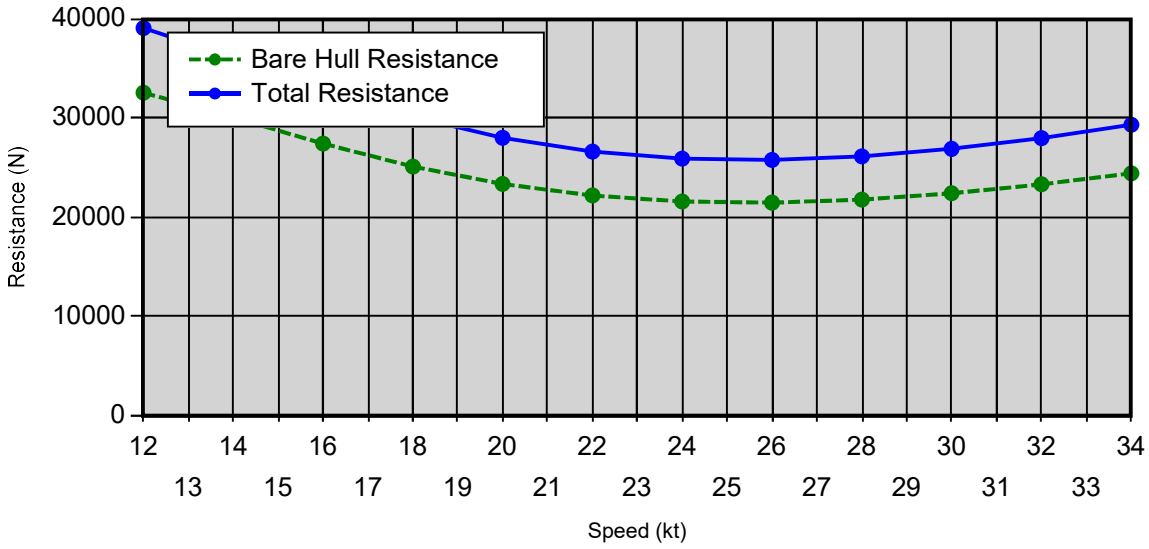
4. The original testing of the models used in the Savitsky analysis were limited to a given range of trim values. Predicted trim values that are beyond the range of the original data set may be unreliable.

Notes

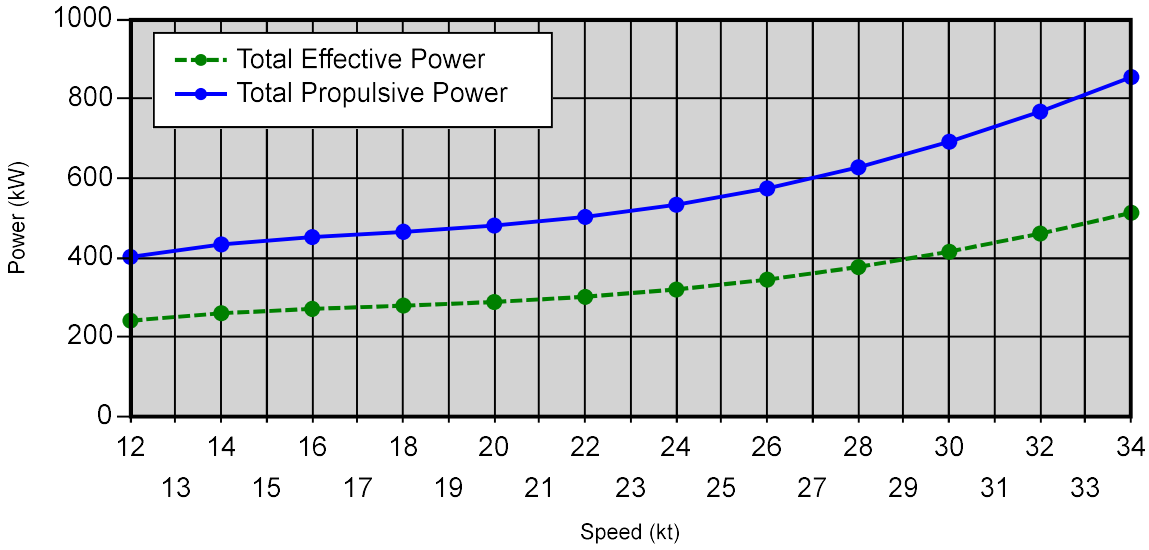
A Sensitivity index with a higher value has a greater influence on drag. Sensitivity values greater than 1.0 are considered significant.

PPtotal represents the total propulsive power. Its precise definition depends on how the user specified the propulsive efficiency. If the user input the quasi-propulsive efficiency, then PPtotal is the total delivered power. If the user specified overall propulsive efficiency then PPtotal is the brake power.

Orca3D Planing Analysis (Resistance)



Orca3D Planing Analysis (Power)



Orca3D Planing Analysis (Trim Angle)