Fishing boat

Planing Hull Resistance

Default Company

Report Time: 29 март 2016 г., 21:36:17

Model Name: C:\Users\Razmik\Documents\My Works,07092014\Orca3D v1.3 and 1.4-WIP\Fishing boat \Fishing boat-half hull.3dm

Prediction Parameter	Value
Method	Savitsky
SpeedCheck	OK
HullCheck	OK
DesignMarginPercent	10
DesignSpeed	30 kt
WaterType	Salt
WaterDensity	1025,9 kg/m3
WaterViscosity	1,1883E-06 m2/s
Propulsive Efficiency	50 %

Vessel Data	Value
MaxPlaningLength	15,803 m
MaxPlaningBeam	6,0516 m
DisplacementBare	37,62 tonne-f
LCGFwdTransom	7,3945 m
VCGAboveBL	2,8 m
ShaftAngle	7,5 deg
LCEFwdTransom	0,95951 m
VCEAboveBL	0,87996 m

Parameter Check	Value	Minimum	Maximum	Type
LcgBchRatio	1,2219	0,6	3	Computed
FnBchMax	2,0034	1,43	13	Computed
DeadriseMidLen	32,346 deg	0	30	Computed
CLBmax	0,079383	0	0,5	Computed

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Speed (kt)	Fnv	Trim (deg)	Rbare (N)	Rtotal (N)	PEtotal (kW)	PPtotal (kW)
12,000	1,082	2,891	34719,1	38191,1	235,8	471,5
13,000	1,172	3,067	39460,1	43406,1	290,3	580,6
14,000	1,262	3,266	43233,0	47556,3	342,5	685,0
15,000	1,352	3,489	46230,7	50853,7	392,4	784,8
16,000	1,442	3,734	48560,1	53416,1	439,7	879,3
17,000	1,532	3,990	50360,1	55396,1	484,5	968,9
18,000	1,622	4,237	51921,5	57113,7	528,9	1057,7
19,000	1,712	4,473	53153,4	58468,8	571,5	1143,0
20,000	1,803	4,678	54267,4	59694,2	614,2	1228,4
21,000	1,893	4,856	55124,0	60636,4	655,1	1310,2
22,000	1,983	4,977	56138,9	61752,8	698,9	1397,8
23,000	2,073	5,064	56958,7	62654,6	741,3	1482,7
24,000	2,163	5,106	57813,2	63594,5	785,2	1570,4
25,000	2,253	5,097	58930,1	64823,1	833,7	1667,4
26,000	2,343	5,064	59907,2	65898,0	881,4	1762,8
27,000	2,433	4,998	61017,9	67119,7	932,3	1864,6
28,000	2,524	4,908	62222,7	68445,0	985,9	1971,8
29,000	2,614	4,806	63226,6	69549,3	1037,6	2075,2
30,000	2,704	4,769	63047,3	69352,0	1070,3	2140,7
31,000	2,794	4,672	63846,6	70231,2	1120,0	2240,1
32,000	2,884	4,548	65063,4	71569,7	1178,2	2356,4
33,000	2,974	4,359	67487,3	74236,0	1260,3	2520,6
34,000	3,064	4,163	70070,4	77077,5	1348,2	2696,3
35,000	3,154	3,940	73154,8	80470,3	1448,9	2897,8

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Speed (kt)	FnBch	Eff Planing Beam (m)	Eff Deadrise (deg)	Rbare/W	Porpoising	Prediction Check
12,000	0,805	5,990	32,364	0,094	Check	Check=1,2,3
13,000	0,873	5,990	32,364	0,107	Check	Check=1,2
14,000	0,940	5,990	32,362	0,117	Check	Check=1,2
15,000	1,007	5,990	32,360	0,125	Check	Check=1,2
16,000	1,074	5,991	32,356	0,132	Check	Check=1,2
17,000	1,141	5,991	32,353	0,137	Check	Check=1,2
18,000	1,208	5,991	32,349	0,141	Check	Check=1,2
19,000	1,275	5,992	32,345	0,144	Check	Check=1,2
20,000	1,342	5,992	32,342	0,147	Check	Check=1,2
21,000	1,409	5,992	32,339	0,149	Check	Check=1,2
22,000	1,476	5,993	32,337	0,152	Check	Check=1,2
23,000	1,543	5,993	32,336	0,154	Check	Check=1,2
24,000	1,611	5,993	32,336	0,157	Check	Check=1,2
25,000	1,678	5,993	32,337	0,160	Check	Check=1,2
26,000	1,745	5,993	32,338	0,162	Check	Check=1,2
27,000	1,812	5,992	32,340	0,165	Check	Check=1,2
28,000	1,879	5,992	32,342	0,169	Check	Check=1,2
29,000	1,946	5,992	32,345	0,171	Check	Check=1,2
30,000	2,013	5,992	32,346	0,171	Check	Check=1,2
31,000	2,081	5,992	32,348	0,173	Check	Check=1,2
32,000	2,148	5,991	32,351	0,176	Check	Check=1,2
33,000	2,215	5,991	32,356	0,183	Check	Check=1,2
34,000	2,282	5,990	32,362	0,190	Check	Check=1,2
35,000	2,349	5,990	32,368	0,198	Check	Check=1,2

Sensitivity Analysis	Index	To Reduce Drag
Eff planing beam	0,26998	Decrease
Eff deadrise	0,28745	Decrease
LCG fwd transom	0,44982	Decrease
Shaft angle to BL	0,065794	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.

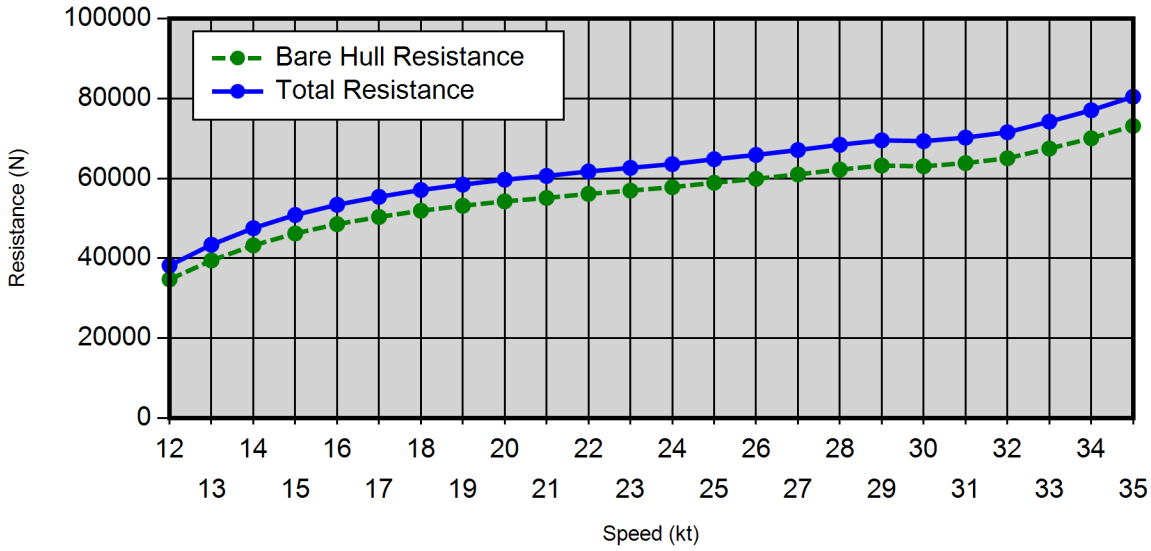
4. The original testing of the models used in the Savitsky analysis were limited to a given range of trim values. Predicted trim values that are beyond the range of the original data set may be unreliable.

Notes

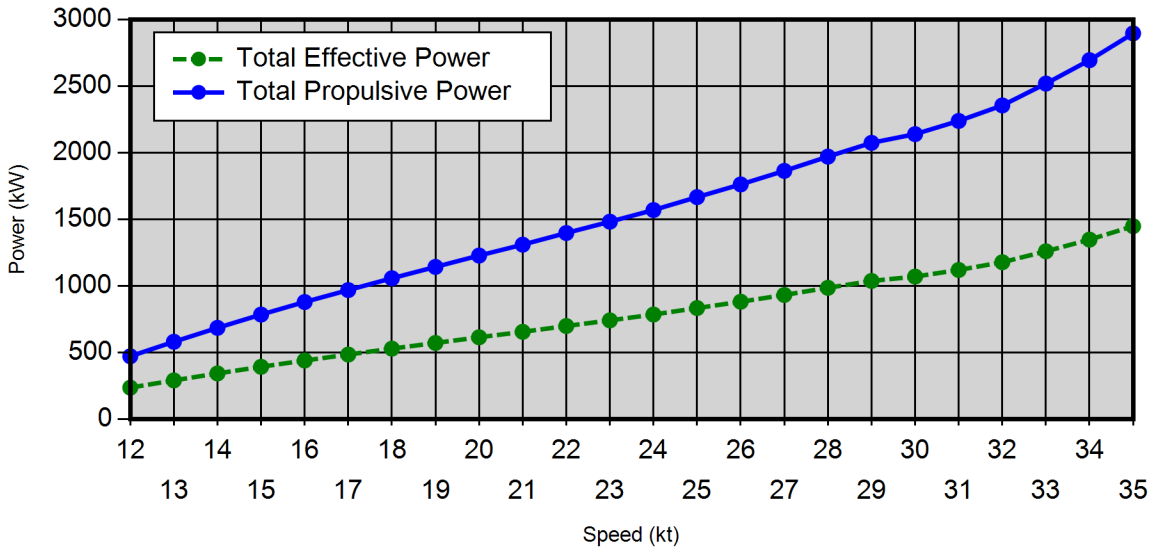
A Sensitivity index with a higher value has a greater influence on drag. Sensitivity values greater than 1.0 are considered significant.

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)