Demoship 85m

Displacement Hull Resistance

Default Company

Report Time: 08 януари 2018 г., 13:14:11

Model Name: C:\Users\Razmik\Documents\My Works,07092014\Bentley MaxSurf\Modeler Advanced \Demoship 85m\Demoship85m-half hull.3dm

Prediction Parameter	Value
Method	Holtrop 1984 (mod)
SpeedCheck	OK
HullCheck	Check
DesignMarginPercent	0
DesignSpeed	16 kt
WaterType	Salt
WaterDensity	1025,9 kg/m3
WaterViscosity	1,1883E-06 m2/s
FormFactor	1,4404
CorrAllowance	0,00038332
Propulsive Efficiency	60 %

Vessel Data	Value
LengthWL	77,853 m
BeamWL	20,28 m
MaxMoldedDraft	11,133 m
DisplacementBare	10546 tonne-f
WettedSurface	2583 m^2
MaxSectionArea	195,31 m^2
WaterplaneArea	1362,4 m^2
LCBFwdTransom	38,475 m
BulbAreaAtFP	23,445 m^2
BulbCentroidBelowWL	5,997 m
TransomArea	45,98 m^2
HalfEntranceAngle	27,011 deg
SternTypeCoef	16,8

Parameter Check	Value	Minimum	Maximum	Type
FnMax	0,29789	0	0,31464	Computed
PrismaticCoef	0,68	0,55	0,85	Computed
LwlBwlRatio	3,8389	3,9	14,9	Computed
LambdaCoef	0,86	0	0,99	Computed
BwlDraftRatio	1,82	2,1	4	Computed

Speed (kt)	Fn	Cf (x 1000)	Cr (x 1000)	Rbare (N)	PEtotal (kW)	Rtotal (N)
5,000	0,093	1,934	4,101	56263,6	144,7	56263,6
5,500	0,102	1,909	4,050	67275,5	190,4	67275,5
6,000	0,112	1,886	4,000	79142,7	244,3	79142,7
6,500	0,121	1,866	3,950	91837,3	307,1	91837,3
7,000	0,130	1,847	3,901	105341,8	379,3	105341,8
7,500	0,140	1,829	3,853	119648,9	461,6	119648,9
8,000	0,149	1,814	3,808	134767,4	554,6	134767,4

8,500	0,158	1,799	3,768	150730,8	659,1	150730,8
9,000	0,168	1,785	3,733	167607,1	776,0	167607,1
9,500	0,177	1,772	3,707	185510,6	906,6	185510,6
10,000	0,186	1,760	3,692	204613,9	1052,6	204613,9
10,500	0,195	1,749	3,692	225163,2	1216,3	225163,2
11,000	0,205	1,738	3,712	247478,8	1400,5	247478,8
11,500	0,214	1,728	3,753	271941,8	1608,8	271941,8
12,000	0,223	1,718	3,823	299168,0	1846,9	299168,0
12,500	0,233	1,709	3,930	329950,6	2121,8	329950,6
13,000	0,242	1,700	4,068	364553,3	2438,1	364553,3
13,500	0,251	1,692	4,227	402757,1	2797,1	402757,1
14,000	0,261	1,684	4,415	445512,4	3208,7	445512,4
14,500	0,270	1,676	4,669	496055,3	3700,3	496055,3
15,000	0,279	1,669	5,032	558949,6	4313,2	558949,6
15,500	0,289	1,662	5,524	637653,4	5084,6	637653,4
16,000	0,298	1,655	6,111	731539,9	6021,4	731539,9
16,500	0,307	1,648	6,710	834487,5	7083,4	834487,5
17,000	0,317	1,642	7,226	937501,1	8199,0	937501,1
17,500	0,326	1,636	7,611	1034116,3	9309,9	1034116,3
18,000	0,335	1,630	7,880	1124012,2	10408,4	1124012,2
18,500	0,344	1,624	8,096	1212574,9	11540,3	1212574,9
19,000	0,354	1,619	8,333	1308301,5	12787,9	1308301,5
19,500	0,363	1,614	8,658	1420657,5	14251,6	1420657,5
20,000	0,372	1,608	9,125	1559268,5	16043,1	1559268,5

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Speed (kt)	Fv	Rbare (N)	PEtotal (kW)	PPtotal (kW)	Prediction Check
5,000	0,176	56263,6	144,7	241,2	OK
5,500	0,194	67275,5	190,4	317,3	OK
6,000	0,211	79142,7	244,3	407,1	OK
6,500	0,229	91837,3	307,1	511,8	OK
7,000	0,247	105341,8	379,3	632,2	OK
7,500	0,264	119648,9	461,6	769,4	OK
8,000	0,282	134767,4	554,6	924,4	OK
8,500	0,299	150730,8	659,1	1098,5	OK
9,000	0,317	167607,1	776,0	1293,4	OK
9,500	0,335	185510,6	906,6	1511,1	OK
10,000	0,352	204613,9	1052,6	1754,4	OK
10,500	0,370	225163,2	1216,3	2027,1	OK
11,000	0,388	247478,8	1400,5	2334,1	OK
11,500	0,405	271941,8	1608,8	2681,4	OK
12,000	0,423	299168,0	1846,9	3078,1	OK
12,500	0,440	329950,6	2121,8	3536,3	OK
13,000	0,458	364553,3	2438,1	4063,4	OK
13,500	0,476	402757,1	2797,1	4661,9	OK
14,000	0,493	445512,4	3208,7	5347,8	OK
14,500	0,511	496055,3	3700,3	6167,2	OK
15,000	0,528	558949,6	4313,2	7188,7	OK
15,500	0,546	637653,4	5084,6	8474,3	OK
16,000	0,564	731539,9	6021,4	10035,6	OK
16,500	0,581	834487,5	7083,4	11805,7	OK
17,000	0,599	937501,1	8199,0	13664,9	Check=2
17,500	0,617	1034116,3	9309,9	15516,5	Check=2
18,000	0,634	1124012,2	10408,4	17347,3	Check=2
18,500	0,652	1212574,9	11540,3	19233,9	Check=2

19,000	0,669	1308301,5	12787,9	21313,2	Check=2
19,500	0,687	1420657,5	14251,6	23752,6	Check=2
20,000	0,705	1559268,5	16043,1	26738,6	Check=2

Sensitivity Analysis	Index	To Reduce Drag
Max section area	1,2512	Increase
Waterplane area	0,55958	Decrease
Immersed transom area	1,2896	Decrease
LCB forward of transom	0,25592	Decrease

Prediction Checks

1. The Holtrop prediction method has a defined upper limit of 0.80 for the length-based Froude number (Fn). Extrapolating speed beyond this value is not recommended.

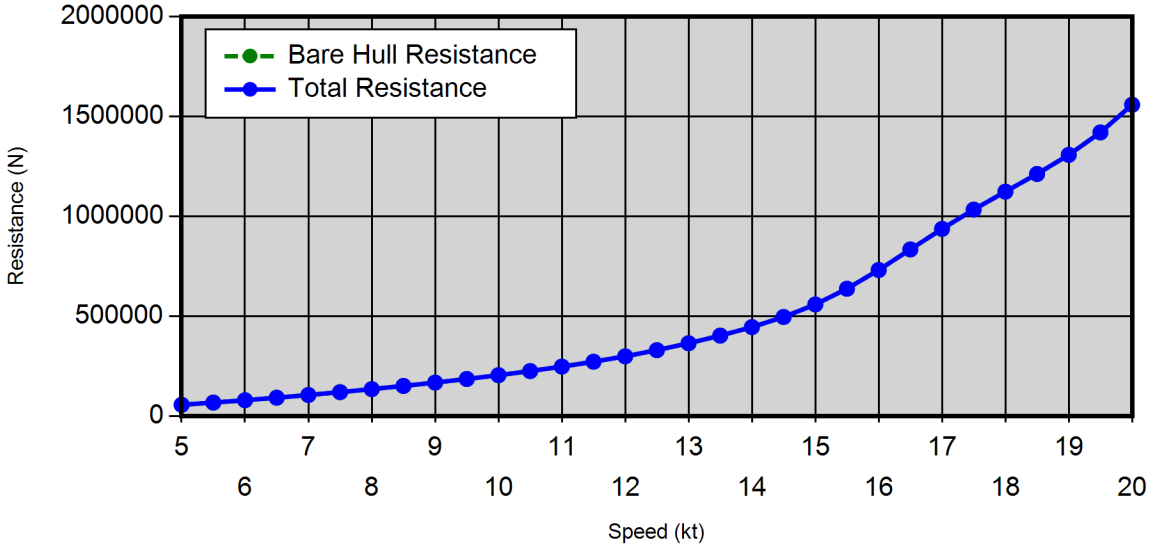
2. The Holtrop prediction method contains a calculation parameter (Lambda) that is used to estimate the humps and hollows in the drag curve. Anecdotal experience and testing by HydroComp have identified combinations of parameters that can produce significant errors with the Holtrop method. The relationship between Lambda and length-based Froude number (Fn) has proven to be one such indicator of potential errors. The prediction results may be unreliable for speeds that exceed this Lambda-Fn relationship.

3. The Holtrop prediction method is based on a variety of hull forms, including collections of transom-stern round-bilge hulls. As part of a broader evaluation of prediction methods for high-speed round-bilge hulls, HydroComp has identified a combination of parameters pertaining to the effect of stern geometry that is an indicator of potential errors. The prediction results may be unreliable for speeds that exceed this indicator.

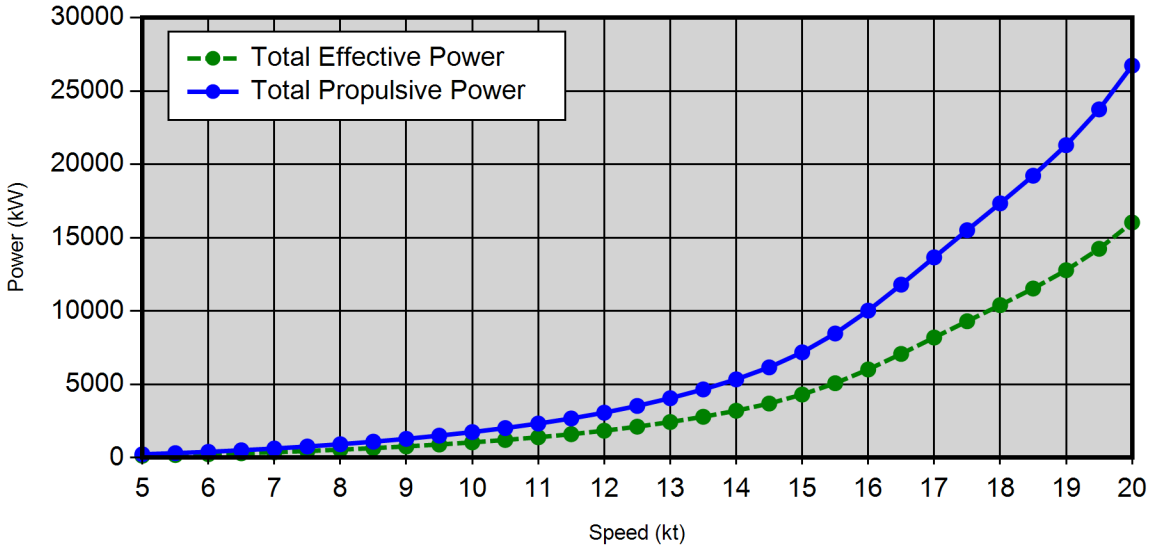
Notes

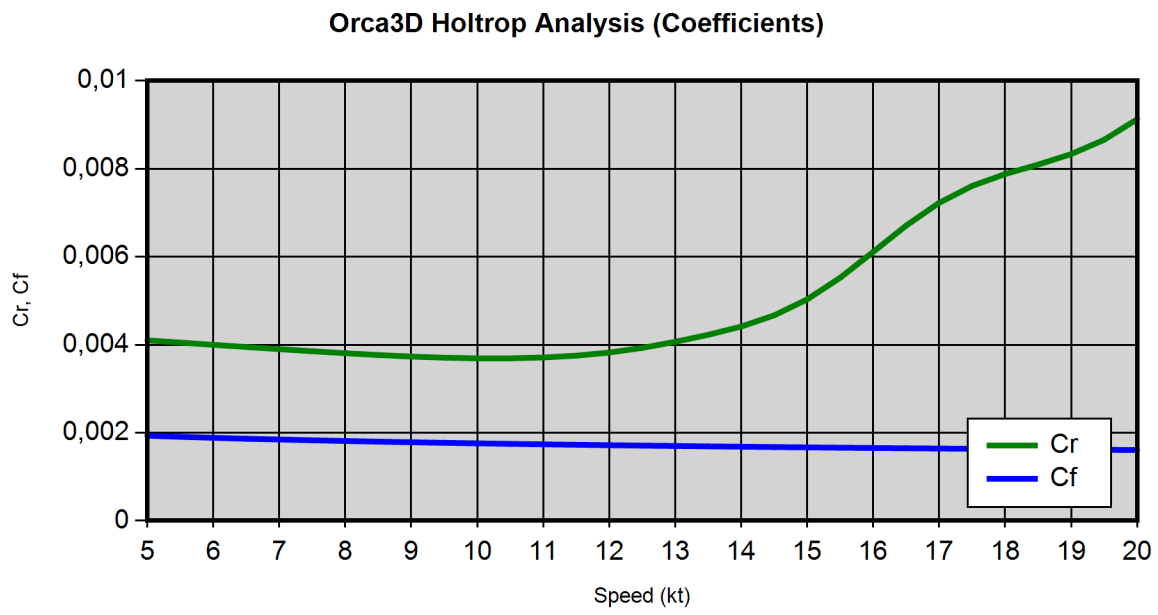
A Sensitivity index with a higher value has a greater influence on drag. Sensitivity values greater than 1.0 are considered significant.

Orca3D Holtrop Analysis (Resistance)



Orca3D Holtrop Analysis (Power)




Orca3D Holtrop Analysis (Coefficients)
0,01
0,008
0,006
0,004
0,002
0
Cr, Cf
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
Speed (kt)
Cr
Cf