

Sea Tech

Project AY-15

Bare-hull Resistance and Effective Power calculation by program HydroComp NavCad 2005

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Analysis parameters			
Bare-hull	[Calc] CRTS	Appendage	[Off]
Friction line	ITTC	Wind	[Off]
Technique	Prediction	Seas	[Off]

Align to	[Off]	Channel	[Off]
Align by	[Off]	Misc: Margin	[Off]
Correlation allowance	0,0004	Water type	Standard Fresh
Roughness (mm)	[On] 0,2	Mass density	999,0100 [kg/m3]
3D form factor	[On] 1,2187	Kinematic viscosity	1,1390e-06 [m2/s]
Speed dependent correction	[On]		

Prediction results

Vel [kts]	Fn	Rn	Cf	[Cform]	[Cw]	Cr	Ct
5,00	0,214	3,33e+7	0,002459	0,000503	0,002278	0,002781	0,005640
7,00	0,299	4,67e+7	0,002334	0,000384	0,004098	0,004482	0,007215
9,00	0,385	6,00e+7	0,002246	0,000210	0,007318	0,007528	0,010174
10,00	0,427	6,67e+7	0,002211	0,000154	0,010350	0,010504	0,013115
11,00	0,470	7,34e+7	0,002180	0,000123	0,013220	0,013343	0,015923
12,00	0,513	8,00e+7	0,002152	0,000096	0,014201	0,014297	0,016849
13,00	0,556	8,67e+7	0,002127	0,000070	0,013685	0,013755	0,016282
14,00	0,598	9,34e+7	0,002104	0,000047	0,012636	0,012683	0,015187
15,00	0,641	1,00e+8	0,002083	0,000030	0,011470	0,011500	0,013983
16,00	0,684	1,07e+8	0,002064	0,000018	0,010541	0,010559	0,013023
Vel [kts]	Rw/W	Rr/W	Rbare/W	Rw [kN]	Rr [kN]	Rbare [kN]	PEbare [kW]
5,00	0,00187	0,00229	0,00464	0	1	1	3
7,00	0,00660	0,00722	0,01163	1	2	3	9
9,00	0,01949	0,02005	0,02710	4	4	6	28
10,00	0,03403	0,03454	0,04313	7	8	9	49
11,00	0,05260	0,05309	0,06335	12	12	14	79
12,00	0,06724	0,06770	0,07978	15	15	18	108

13,00	0,07605	0,07644	0,09048	17	17	20	133
14,00	0,08144	0,08174	0,09788	18	18	21	155
15,00	0,08486	0,08508	0,10346	19	19	23	175
16,00	0,08874	0,08889	0,10963	19	20	24	198

Vel [kts]	Rapp [kN]	Rwind [kN]	Rseas [kN]	Rchan [kN]	Rmisc [kN]	Rtotal [kN]	PEtotal [kW]
5,00	0	0	0	0	0	1	3
7,00	0	0	0	0	0	3	9
9,00	0	0	0	0	0	6	28
10,00	0	0	0	0	0	9	49
11,00	0	0	0	0	0	14	79
12,00	0	0	0	0	0	18	108
13,00	0	0	0	0	0	20	133
14,00	0	0	0	0	0	21	155
15,00	0	0	0	0	0	23	175
16,00	0	0	0	0	0	24	198

Hull data

General:		Ct-based:	
Length between PP	14,767 [m]	Max section area	2,226 [m2]
WL bow pt aft FP	0,000 [m]	Waterplane area	48,922 [m2]
Length on WL	14,767 [m]	Trim by stern	0,100 [m]

Max beam on WL	4,330 [m]	LCB aft of FP	8,153 [m]
Max molded draft	0,950 [m]	Bulb ext fwd FP	0,000 [m]
Displacement bare	22,38 [t]	Bulb area at FP	0,000 [m2]
Wetted surface	54,593 [m2]	Bulb ctr above BL	0,000 [m]
Chine type	Hard chine	Transom area	0,943 [m2]
		Transom beam	4,330 [m]
Parameters:		Transom draft	0,400 [m]
Lwl/B	3,4104	Half ent angle	23,200 [deg]
B/T	4,5579	Bow shape	Average flow [Normal]
Cb	0,3688	Stern shape	WL flow [U-shape]
Cws	3,0015		
		Cx	0,5411
		Cw	0,7651
		LCB/Lpp	0,5521
		At/Ax	0,4236
		Bt/Bx	1,0000
		Tt/T	0,4211

Parameters:	CRTS		
Fn(Lwl)	0,178...0,684	0,21	
Fn-high	0,178...0,684	0,68	
Cvol(Lwl)	4,85...11,27	5,24	
Bwl/T	2,2...5,2	4,56	
Cp(Lwl)	0,52...0,7	0,68	
le	2...20	23,2	Limit
Cx	0,64...1	0,54	Limit
At/Ax	0...0,4	0,42	Limit

Bt/Bwl	0...0,85	1,00	Limit
Tt/T	0...0,42	0,42	
Abulb/Ax	0...0,1	0,00	

Appendages

Wetted areas (ex. thruster):		[Drag coefficient]
Rudders	0,000 [m2]	[0,000]
Shaft brackets	0,000 [m2]	[0,000]
Skeg	0,000 [m2]	[0,000]
Strut bossing	0,000 [m2]	[0,000]
Hull bossing	0,000 [m2]	[0,000]
Exposed shafts	0,000 [m2]	[0,000]
Stablizer fins	0,000 [m2]	[0,000]
Dome	0,000 [m2]	[0,000]
Bilge keel	0,000 [m2]	[0,000]
Bow thruster diam	0,000 [m]	[0,000]

Environment data

Wind:		Seas:	
Wind speed	0,00 [kts]	Sig. wave height	0,000 [m]

Angle off bow	0,000 [deg]	Modal wave period	0 [sec]
Tran hull area	0,000 [m2]		
VCE above WL	0,000 [m2]	Channel:	
Tran superst area	0,000 [m2]	Channel width	0,000 [m]
VCE above WL	0,000 [m]	Channel depth	0,000 [m]
Total Longl area	0,000 [m2]	Side slope	0,000 [deg]
VCE above WL	0,000 [m]	Wetted hull girth	0,000 [m]
Wind speed	Free stream		
Arrangement	Passenger		

Symbols and values

F_n = Length Froude number

R_n = Reynolds number

C_f = Frictional resistance coefficient

$[C_{form}]$ = Viscous form resistance coefficient

$[C_w]$ = Wave-making resistance coefficient

C_r = Residuary resistance coefficient

C_t = Total bare-hull resistance coefficient

R_w/W = Wave-making resistance-weight merit ratio

R_r/W = Residuary resistance-weight merit ratio

R_{bare}/W = Bare-hull resistance-weight merit ratio

R_w = Wave-making resistance component

R_r = Residuary resistance component

R_{bare} = Bare-hull resistance

PE_{bare} = Bare-hull effective power

Rapp = Additional appendage resistance

Rwind = Additional wind resistance

Rseas = Additional sea-state resistance

Rchan = Additional channel resistance

Rmisc = Miscellaneous resistance

Rtotal = Total vessel resistance

PEtotal = Total effective power

* = Exceeds speed parameter

Analysis parameters

Bare-hull	[Calc] DeGroot HC	Appendage	[Off]
Friction line	ITTC	Wind	[Off]
Technique	Prediction	Seas	[Off]
Align to	[Off]	Channel	[Off]
Align by	[Off]	Misc: Margin	[Off]
Correlation allowance	0,0004	Water type	Standard Fresh
Roughness (mm)	[On] 0,2	Mass density	999,0100 [kg/m3]

3D form factor

[On] 1,2187

Kinematic viscosity

1,1390e-06 [m2/s]

Speed dependent correction

[On]

Prediction results

Vel [kts]	Fn	Rn	Cf	[Cform]	[Cw]	Cr	Ct
6,00	0,256	4,00e+7	0,002390	0,000450	0,003144	0,003594	0,006383
7,00	0,299	4,67e+7	0,002334	0,000384	0,004613	0,004997	0,007731
9,00	0,385	6,00e+7	0,002246	0,000210	0,010119	0,010329	0,012975
10,00	0,427	6,67e+7	0,002211	0,000154	0,014360	0,014514	0,017125
11,00	0,470	7,34e+7	0,002180	0,000123	0,017295	0,017418	0,019997
12,00	0,513	8,00e+7	0,002152	0,000096	0,017335	0,017430	0,019983
13,00	0,556	8,67e+7	0,002127	0,000070	0,016212	0,016281	0,018808
14,00	0,598	9,34e+7	0,002104	0,000047	0,014956	0,015002	0,017506
15,00	0,641	1,00e+8	0,002083	0,000030	0,013538	0,013568	0,016051
16,00	0,684	1,07e+8	0,002064	0,000018	0,012154	0,012172	0,014636

Vel [kts]	Rw/W	Rr/W	Rbare/W	Rw [kN]	Rr [kN]	Rbare [kN]	PEbare [kW]
6,00	0,00372	0,00425	0,00756	1	1	2	5
7,00	0,00743	0,00805	0,01246	2	2	3	10
9,00	0,02695	0,02751	0,03456	6	6	8	35
10,00	0,04722	0,04773	0,05631	10	10	12	64
11,00	0,06881	0,06930	0,07957	15	15	17	99
12,00	0,08208	0,08254	0,09462	18	18	21	128
13,00	0,09009	0,09048	0,10452	20	20	23	153
14,00	0,09639	0,09669	0,11283	21	21	25	178
15,00	0,10017	0,10038	0,11876	22	22	26	201
16,00	0,10232	0,10246	0,12321	22	22	27	223

Vel [kts]	Rapp [kN]	Rwind [kN]	Rseas [kN]	Rchan [kN]	Rmisc [kN]	Rtotal [kN]	PEtotal [kW]
6,00	0	0	0	0	0	2	5
7,00	0	0	0	0	0	3	10
9,00	0	0	0	0	0	8	35
10,00	0	0	0	0	0	12	64
11,00	0	0	0	0	0	17	99
12,00	0	0	0	0	0	21	128
13,00	0	0	0	0	0	23	153
14,00	0	0	0	0	0	25	178
15,00	0	0	0	0	0	26	201
16,00	0	0	0	0	0	27	223

Hull data

General:		Ct-based:	
Length between PP	14,767 [m]	Max section area	2,226 [m2]
WL bow pt aft FP	0,000 [m]	Waterplane area	48,922 [m2]
Length on WL	14,767 [m]	Trim by stern	0,100 [m]
Max beam on WL	4,330 [m]	LCB aft of FP	8,153 [m]
Max molded draft	0,950 [m]	Bulb ext fwd FP	0,000 [m]
Displacement bare	22,38 [t]	Bulb area at FP	0,000 [m2]
Wetted surface	54,593 [m2]	Bulb ctr above BL	0,000 [m]

Chine type	Hard chine		Transom area	0,943 [m2]
			Transom beam	4,330 [m]
Parameters:			Transom draft	0,400 [m]
Lwl/B	3,4104		Half ent angle	23,200 [deg]
B/T	4,5579		Bow shape	Average flow [Normal]
Cb	0,3688		Stern shape	WL flow [U-shape]
Cws	3,0015			
			Cx	0,5411
			Cw	0,7651
			LCB/Lpp	0,5521
			At/Ax	0,4236
			Bt/Bx	1,0000
			Tt/T	0,4211

Parameters:	DeGroot HC		
Fn(Lwl)	0,3...1,5	0,26	Limit
Fn-high	0,3...1,5	0,68	
Cvol(Lwl)	4,87...8,94	5,24	
Lwl/Bwl	3,09...5,79	3,41	
Bwl/T	3,57...8,05	4,56	
Cx	0,34...0,67	0,54	
At/Ax	0,17...0,3	0,42	Limit

Appendages

Wetted areas (ex. thruster):			[Drag coefficient]
Rudders	0,000 [m2]		[0,000]

Shaft brackets	0,000 [m2]	[0,000]
Skeg	0,000 [m2]	[0,000]
Strut bossing	0,000 [m2]	[0,000]
Hull bossing	0,000 [m2]	[0,000]
Exposed shafts	0,000 [m2]	[0,000]
Stablizer fins	0,000 [m2]	[0,000]
Dome	0,000 [m2]	[0,000]
Bilge keel	0,000 [m2]	[0,000]
Bow thruster diam	0,000 [m]	[0,000]

Environment data

Wind:		Seas:	
Wind speed	0,00 [kts]	Sig. wave height	0,000 [m]
Angle off bow	0,000 [deg]	Modal wave period	0 [sec]
Tran hull area	0,000 [m2]	Channel:	
VCE above WL	0,000 [m2]		
Tran superst area	0,000 [m2]		0,000 [m]
VCE above WL	0,000 [m]		0,000 [m]
Total Longl area	0,000 [m2]	Side slope	0,000 [deg]
VCE above WL	0,000 [m]	Wetted hull girth	0,000 [m]
Wind speed	Free stream		

Analysis parameters

Bare-hull	[Calc] Holtrop 1984	Appendage	[Off]
Friction line	ITTC	Wind	[Off]
Technique	Prediction	Seas	[Off]
Align to	[Off]	Channel	[Off]
Align by	[Off]	Misc: Margin	[Off]
Correlation allowance	0,00056	Water type	Standard Fresh
Roughness (mm)	[On] 0,2	Mass density	999,0100 [kg/m3]
3D form factor	[On] 1,5441	Kinematic viscosity	1,1390e-06 [m2/s]
Speed dependent correction	[Off]		

Prediction results

Vel [kts]	Fn	Rn	Cf	[Cform]	[Cw]	Cr	Ct
5,00	0,214	3,33e+7	0,002459	0,001338	0,002439	0,003777	0,006796
7,00	0,299	4,67e+7	0,002334	0,001270	0,003203	0,004473	0,007367
9,00	0,385	6,00e+7	0,002246	0,001222	0,004342	0,005564	0,008370
10,00	0,427	6,67e+7	0,002211	0,001203	0,006059	0,007262	0,010033
11,00	0,470	7,34e+7	0,002180	0,001186	0,007747	0,008933	0,011673
12,00	0,513	8,00e+7	0,002152	0,001171	0,008920	0,010091	0,012803
13,00	0,556	8,67e+7	0,002127	0,001157	0,009391	0,010548	0,013235

14,00	0,598	9,34e+7	0,002104	0,001145	0,009054	0,010199	0,012863
15,00	0,641	1,00e+8	0,002083	0,001133	0,008194	0,009327	0,011971
16,00	0,684	1,07e+8	0,002064	0,001123	0,007400	0,008523	0,011146

Vel [kts]	Rw/W	Rr/W	Rbare/W	Rw [kN]	Rr [kN]	Rbare [kN]	PEbare [kW]
5,00	0,00201	0,00311	0,00559	0	1	1	3
7,00	0,00516	0,00721	0,01187	1	2	3	9
9,00	0,01156	0,01482	0,02229	3	3	5	23
10,00	0,01992	0,02388	0,03299	4	5	7	37
11,00	0,03082	0,03554	0,04645	7	8	10	58
12,00	0,04224	0,04778	0,06062	9	10	13	82
13,00	0,05219	0,05862	0,07355	11	13	16	108
14,00	0,05835	0,06573	0,08290	13	14	18	131
15,00	0,06062	0,06901	0,08857	13	15	19	150
16,00	0,06229	0,07174	0,09383	14	16	21	170

Vel [kts]	Rapp [kN]	Rwind [kN]	Rseas [kN]	Rchan [kN]	Rmisc [kN]	Rtotal [kN]	PEtotal [kW]
5,00	0	0	0	0	0	1	3
7,00	0	0	0	0	0	3	9
9,00	0	0	0	0	0	5	23
10,00	0	0	0	0	0	7	37
11,00	0	0	0	0	0	10	58
12,00	0	0	0	0	0	13	82
13,00	0	0	0	0	0	16	108
14,00	0	0	0	0	0	18	131
15,00	0	0	0	0	0	19	150
16,00	0	0	0	0	0	21	170

Hull data

General:		Ct-based:	
Length between PP	14,767 [m]	Max section area	2,226 [m2]
WL bow pt aft FP	0,000 [m]	Waterplane area	48,922 [m2]
Length on WL	14,767 [m]	Trim by stern	0,100 [m]
Max beam on WL	4,330 [m]	LCB aft of FP	8,153 [m]
Max molded draft	0,950 [m]	Bulb ext fwd FP	0,000 [m]
Displacement bare	22,38 [t]	Bulb area at FP	0,000 [m2]
Wetted surface	54,593 [m2]	Bulb ctr above BL	0,000 [m]
Chine type	Hard chine	Transom area	0,943 [m2]
Parameters:		Transom beam	4,330 [m]
Lwl/B	3,4104	Transom draft	0,400 [m]
B/T	4,5579	Half ent angle	23,200 [deg]
Cb	0,3688	Bow shape	Average flow [Normal]
Cws	3,0015	Stern shape	WL flow [U-shape]
		Cx	0,5411
		Cw	0,7651
		LCB/Lpp	0,5521
		At/Ax	0,4236
		Bt/Bx	1,0000
		Tt/T	0,4211

Parameters:	Holtrop 1984			
Fn(Lwl)	0,1...0,8	0,21		
Fn-high	0,1...0,8	0,68		
Lwl/Bwl	3,9...14,9	3,41	Limit	
Bwl/T	2,1...4	4,56	Limit	
Cp(Lwl)	0,55...0,85	0,68		
Lambda	0...0,75	0,88	Limit	

Appendages

Wetted areas (ex. thruster):		[Drag coefficient]
Rudders	0,000 [m2]	[0,000]
Shaft brackets	0,000 [m2]	[0,000]
Skeg	0,000 [m2]	[0,000]
Strut bossing	0,000 [m2]	[0,000]
Hull bossing	0,000 [m2]	[0,000]
Exposed shafts	0,000 [m2]	[0,000]
Stablizer fins	0,000 [m2]	[0,000]
Dome	0,000 [m2]	[0,000]
Bilge keel	0,000 [m2]	[0,000]
Bow thruster diam	0,000 [m]	[0,000]

Environment data

Wind:		Seas:	
Wind speed	0,00 [kts]	Sig. wave height	0,000 [m]
Angle off bow	0,000 [deg]	Modal wave period	0 [sec]
Tran hull area	0,000 [m2]	Channel:	
VCE above WL	0,000 [m2]		
Tran superst area	0,000 [m2]		0,000 [m]
VCE above WL	0,000 [m]		0,000 [m]
Total Longl area	0,000 [m2]		0,000 [deg]
VCE above WL	0,000 [m]	Wetted hull girth	0,000 [m]
Wind speed	Free stream		
Arrangement	Passenger		

Analysis parameters

Bare-hull	[Calc] HSTS	Appendage	[Off]
Friction line	ITTC	Wind	[Off]
Technique	Prediction	Seas	[Off]
Align to	[Off]	Channel	[Off]
Align by	[Off]	Misc: Margin	[Off]
Correlation allowance	0,0004	Water type	Standard Fresh

Roughness (mm)	[On] 0,2	Mass density	999,0100 [kg/m3]
3D form factor	[On] 1,2187	Kinematic viscosity	1,1390e-06 [m2/s]
Speed dependent correction	[Off]		

Prediction results

Vel [kts]	Fn	Rn	Cf	[Cform]	[Cw]	Cr	Ct
5,00	0,214	3,33e+7	0,002459	0,000538	0,004552	0,005090	0,007949
7,00	0,299	4,67e+7	0,002334	0,000510	0,006763	0,007274	0,010007
9,00	0,385	6,00e+7	0,002246	0,000491	0,008157	0,008648	0,011294
10,00	0,427	6,67e+7	0,002211	0,000484	0,010798	0,011282	0,013893
11,00	0,470	7,34e+7	0,002180	0,000477	0,014100	0,014576	0,017156
12,00	0,513	8,00e+7	0,002152	0,000471	0,015649	0,016120	0,018672
13,00	0,556	8,67e+7	0,002127	0,000465	0,015102	0,015567	0,018094
14,00	0,598	9,34e+7	0,002104	0,000460	0,013546	0,014006	0,016510
15,00	0,641	1,00e+8	0,002083	0,000456	0,011845	0,012301	0,014784
16,00	0,684	1,07e+8	0,002064	0,000451	0,010338	0,010789	0,013253

Vel [kts]	Rw/W	Rr/W	Rbare/W	Rw [kN]	Rr [kN]	Rbare [kN]	PEbare [kW]
5,00	0,00374	0,00418	0,00653	1	1	1	4
7,00	0,01090	0,01172	0,01612	2	3	4	13
9,00	0,02173	0,02303	0,03008	5	5	7	31
10,00	0,03551	0,03710	0,04568	8	8	10	52
11,00	0,05610	0,05800	0,06826	12	13	15	85
12,00	0,07410	0,07633	0,08842	16	17	19	120
13,00	0,08392	0,08651	0,10055	18	19	22	148
14,00	0,08731	0,09027	0,10641	19	20	23	168
15,00	0,08764	0,09101	0,10938	19	20	24	185

16,00	0,08702	0,09082	0,11156	19	20	24	202
Vel [kts]	Rapp [kN]	Rwind [kN]	Rseas [kN]	Rchan [kN]	Rmisc [kN]	Rtotal [kN]	PEtotal [kW]
5,00	0	0	0	0	0	1	4
7,00	0	0	0	0	0	4	13
9,00	0	0	0	0	0	7	31
10,00	0	0	0	0	0	10	52
11,00	0	0	0	0	0	15	85
12,00	0	0	0	0	0	19	120
13,00	0	0	0	0	0	22	148
14,00	0	0	0	0	0	23	168
15,00	0	0	0	0	0	24	185
16,00	0	0	0	0	0	24	202

Hull data

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Length between PP	14,767 [m]	Max section area	2,226 [m2]
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Length on WL	14,767 [m]	Trim by stern	0,100 [m]
Max beam on WL	4,330 [m]	LCB aft of FP	8,153 [m]
Max molded draft	0,950 [m]	Bulb ext fwd FP	0,000 [m]
Displacement bare	22,38 [t]	Bulb area at FP	0,000 [m2]

Wetted surface	54,593 [m2]	Bulb ctr above BL	0,000 [m]
Chine type	Hard chine	Transom area	0,943 [m2]
		Transom beam	4,330 [m]
Parameters:		Transom draft	0,400 [m]
Lwl/B	3,4104	Half ent angle	23,200 [deg]
B/T	4,5579	Bow shape	Average flow [Normal]
Cb	0,3688	Stern shape	WL flow [U-shape]
Cws	3,0015		
		Cx	0,5411
		Cw	0,7651
		LCB/Lpp	0,5521
		At/Ax	0,4236
		Bt/Bx	1,0000
		Tt/T	0,4211

Parameters:	HSTS		
Fn(Lwl)	0,15...0,9	0,21	
Fn-high	0,15...0,9	0,68	
Cvol(Lwl)	4,73...10,6	5,24	
Lwl/Bwl	3,4...12,1	3,41	
Bwl/T	2,1...6,9	4,56	
Cp(Lwl)	0,55...0,72	0,68	
le	3,7...26	23,2	
LCB(Lwl)	-6...1%Lwl	-5,21	
Cx	0,59...0,98	0,54	Limit
At/Ax	0...0,54	0,42	
Bt/Bwl	0,17...0,95	1,00	Limit

Tt/T

0,05...0,59

0,42

Appendages

Wetted areas (ex. thruster):		[Drag coefficient]
Rudders	0,000 [m2]	[0,000]
Shaft brackets	0,000 [m2]	[0,000]
Skeg	0,000 [m2]	[0,000]
Strut bossing	0,000 [m2]	[0,000]
Hull bossing	0,000 [m2]	[0,000]
Exposed shafts	0,000 [m2]	[0,000]
Stablizer fins	0,000 [m2]	[0,000]
Dome	0,000 [m2]	[0,000]
Bilge keel	0,000 [m2]	[0,000]
Bow thruster diam	0,000 [m]	[0,000]

Environment data

Wind:		Seas:	
Wind speed	0,00 [kts]	Sig. wave height	0,000 [m]
Angle off bow	0,000 [deg]	Modal wave period	0 [sec]
Tran hull area	0,000 [m2]		

VCE above WL	0,000 [m2]	Channel:	
Tran superst area	0,000 [m2]	Channel width	0,000 [m]
VCE above WL	0,000 [m]	Channel depth	0,000 [m]
Total Longl area	0,000 [m2]	Side slope	0,000 [deg]
VCE above WL	0,000 [m]	Wetted hull girth	0,000 [m]
Wind speed	Free stream		
Arrangement	Passenger		

Analysis parameters

Bare-hull	[Calc] Jin 1980	Appendage	[Off]
Friction line	ITTC	Wind	[Off]
Technique	Prediction	Seas	[Off]
Align to	[Off]	Channel	[Off]
Align by	[Off]	Misc: Margin	[Off]
Correlation allowance	0,0004	Water type	Standard Fresh
Roughness (mm)	[On] 0,2	Mass density	999,0100 [kg/m3]
3D form factor	[On] 1,2187	Kinematic viscosity	1,1390e-06 [m2/s]
Speed dependent correction	[On]		

Prediction results

Vel [kts]	Fn	Rn	Cf	[Cform]	[Cw]	Cr	Ct
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10,00	0,427	6,67e+7	0,002211	0,000154	0,010822	0,010977	0,013588
11,00	0,470	7,34e+7	0,002180	0,000123	0,012497	0,012620	0,015200
12,00	0,513	8,00e+7	0,002152	0,000096	0,014140	0,014236	0,016788
13,00	0,556	8,67e+7	0,002127	0,000070	0,017137	0,017206	0,019733
14,00	0,598	9,34e+7	0,002104	0,000047	0,017824	0,017871	0,020375
15,00	0,641	1,00e+8	0,002083	0,000030	0,015890	0,015920	0,018403
16,00	0,684	1,07e+8	0,002064	0,000018	0,012898	0,012916	0,015380

Vel [kts]	Rw/W	Rr/W	Rbare/W	Rw [kN]	Rr [kN]	Rbare [kN]	PEbare [kW]
10,00	0,03559	0,03609	0,04468	8	8	10	50
11,00	0,04973	0,05021	0,06048	11	11	13	75
12,00	0,06696	0,06741	0,07949	15	15	17	108
13,00	0,09523	0,09562	0,10966	21	21	24	161
14,00	0,11488	0,11518	0,13132	25	25	29	208
15,00	0,11757	0,11779	0,13616	26	26	30	231
16,00	0,10858	0,10872	0,12947	24	24	28	234

Vel [kts]	Rapp [kN]	Rwind [kN]	Rseas [kN]	Rchan [kN]	Rmisc [kN]	Rtotal [kN]	PEtotal [kW]
10,00	0	0	0	0	0	10	50
11,00	0	0	0	0	0	13	75
12,00	0	0	0	0	0	17	108
13,00	0	0	0	0	0	24	161
14,00	0	0	0	0	0	29	208
15,00	0	0	0	0	0	30	231
16,00	0	0	0	0	0	28	234

Hull data

General:

Length between PP	14,767 [m]
WL bow pt aft FP	0,000 [m]
Length on WL	14,767 [m]
Max beam on WL	4,330 [m]
Max molded draft	0,950 [m]
Displacement bare	22,38 [t]
Wetted surface	54,593 [m2]
Chine type	Hard chine

Parameters:

Lwl/B	3,4104
B/T	4,5579
Cb	0,3688
Cws	3,0015

Ct-based:

Max section area	2,226 [m2]
Waterplane area	48,922 [m2]
Trim by stern	0,100 [m]
LCB aft of FP	8,153 [m]
Bulb ext fwd FP	0,000 [m]
Bulb area at FP	0,000 [m2]
Bulb ctr above BL	0,000 [m]
Transom area	0,943 [m2]
Transom beam	4,330 [m]
Transom draft	0,400 [m]
Half ent angle	23,200 [deg]
Bow shape	Average flow [Normal]
Stern shape	WL flow [U-shape]
Cx	0,5411
Cw	0,7651
LCB/Lpp	0,5521
At/Ax	0,4236
Bt/Bx	1,0000
Tt/T	0,4211

Parameters:	Jin 1980	
Fn(Lwl)	0,4...1	0,43
Fn-high	0,4...1	0,68
Cp(Lwl)	0,55...0,85	0,68
le	7,6...26,6	23,2
LCB(Lwl)	-6,4...0 %Lwl	-5,21
At/Ax	0...0,74	0,42

Appendages

Wetted areas (ex. thruster):	[Drag coefficient]	
Rudders	0,000 [m2]	[0,000]
Shaft brackets	0,000 [m2]	[0,000]
Skeg	0,000 [m2]	[0,000]
Strut bossing	0,000 [m2]	[0,000]
Hull bossing	0,000 [m2]	[0,000]
Exposed shafts	0,000 [m2]	[0,000]
Stablizer fins	0,000 [m2]	[0,000]
Dome	0,000 [m2]	[0,000]
Bilge keel	0,000 [m2]	[0,000]
Bow thruster diam	0,000 [m]	[0,000]

Environment data

Wind:		Seas:		
Wind speed	0,00 [kts]	Sig. wave height	0,000 [m]	
Angle off bow	0,000 [deg]	Modal wave period	0 [sec]	
Tran hull area	0,000 [m2]	Channel:		
VCE above WL	0,000 [m2]			
Tran superst area	0,000 [m2]		Channel width	0,000 [m]
VCE above WL	0,000 [m]		Channel depth	0,000 [m]
Total Longl area	0,000 [m2]		Side slope	0,000 [deg]
VCE above WL	0,000 [m]	Wetted hull girth	0,000 [m]	
Wind speed	Free stream			
Arrangement	Passenger			

Analysis parameters

Bare-hull	[Calc] Jin 1988	Appendage	[Off]
Friction line	ITTC	Wind	[Off]
Technique	Prediction	Seas	[Off]
Align to	[Off]	Channel	[Off]
Align by	[Off]	Misc: Margin	[Off]
Correlation allowance	0,0004	Water type	Standard Fresh
Roughness (mm)	[On] 0,2	Mass density	999,0100 [kg/m3]

3D form factor

[On] 1,2187

Kinematic viscosity

1,1390e-06 [m2/s]

Speed dependent correction

[On]

Prediction results

Vel [kts]	Fn	Rn	Cf	[Cform]	[Cw]	Cr	Ct
10,00	0,427	6,67e+7	0,002211	0,000154	0,010086	0,010241	0,012852
11,00	0,470	7,34e+7	0,002180	0,000123	0,013260	0,013383	0,015963
12,00	0,513	8,00e+7	0,002152	0,000096	0,015073	0,015169	0,017721
13,00	0,556	8,67e+7	0,002127	0,000070	0,014679	0,014749	0,017276
14,00	0,598	9,34e+7	0,002104	0,000047	0,013174	0,013221	0,015725
15,00	0,641	1,00e+8	0,002083	0,000030	0,011573	0,011603	0,014086
16,00	0,684	1,07e+8	0,002064	0,000018	0,010242	0,010260	0,012723

Vel [kts]	Rw/W	Rr/W	Rbare/W	Rw [kN]	Rr [kN]	Rbare [kN]	PEbare [kW]
10,00	0,03317	0,03367	0,04226	7	7	9	48
11,00	0,05276	0,05325	0,06351	12	12	14	79
12,00	0,07137	0,07183	0,08391	16	16	18	114
13,00	0,08158	0,08196	0,09601	18	18	21	141
14,00	0,08491	0,08521	0,10135	19	19	22	160
15,00	0,08563	0,08585	0,10422	19	19	23	177
16,00	0,08622	0,08637	0,10711	19	19	24	193

Vel [kts]	Rapp [kN]	Rwind [kN]	Rseas [kN]	Rchan [kN]	Rmisc [kN]	Rtotal [kN]	PEtotal [kW]
10,00	0	0	0	0	0	9	48
11,00	0	0	0	0	0	14	79
12,00	0	0	0	0	0	18	114
13,00	0	0	0	0	0	21	141

14,00	0	0	0	0	0	0	22	160
15,00	0	0	0	0	0	0	23	177
16,00	0	0	0	0	0	0	24	193

Hull data

General:			Ct-based:		
Length between PP	14,767 [m]		Max section area	2,226 [m2]	
WL bow pt aft FP	0,000 [m]		Waterplane area	48,922 [m2]	
Length on WL	14,767 [m]		Trim by stern	0,100 [m]	
Max beam on WL	4,330 [m]		LCB aft of FP	8,153 [m]	
Max molded draft	0,950 [m]		Bulb ext fwd FP	0,000 [m]	
Displacement bare	22,38 [t]		Bulb area at FP	0,000 [m2]	
Wetted surface	54,593 [m2]		Bulb ctr above BL	0,000 [m]	
Chine type	Hard chine		Transom area	0,943 [m2]	
			Transom beam	4,330 [m]	
			Transom draft	0,400 [m]	
Parameters:			Half ent angle	23,200 [deg]	
Lwl/B	3,4104		Bow shape	Average flow [Normal]	
B/T	4,5579		Stern shape	WL flow [U-shape]	
Cb	0,3688				
Cws	3,0015				
			Cx	0,5411	
			Cw	0,7651	

LCB/Lpp	0,5521
At/Ax	0,4236
Bt/Bx	1,0000
Tt/T	0,4211

Parameters:	Jin 1988	
Fn(Lwl)	0,4...1	0,43
Fn-high	0,4...1	0,68
Cvol(Lwl)	4,53...8,74	5,24
Lwl/Bwl	2,5...8,5	3,41
Cp(Lwl)	0,56...0,77	0,68
le	7...28	23,2
LCB(Lwl)	-9,5...1,5 %Lwl	-5,21
At/Ax	0...0,73	0,42

Appendages

Wetted areas (ex. thruster):	[Drag coefficient]	
Rudders	0,000 [m2]	[0,000]
Shaft brackets	0,000 [m2]	[0,000]
Skeg	0,000 [m2]	[0,000]
Strut bossing	0,000 [m2]	[0,000]
Hull bossing	0,000 [m2]	[0,000]
Exposed shafts	0,000 [m2]	[0,000]
Stablizer fins	0,000 [m2]	[0,000]
Dome	0,000 [m2]	[0,000]
Bilge keel	0,000 [m2]	[0,000]

Bow thruster diam

0,000 [m]

[0,000]

Environment data

Wind:		Seas:	
Wind speed	0,00 [kts]	Sig. wave height	0,000 [m]
Angle off bow	0,000 [deg]	Modal wave period	0 [sec]
Tran hull area	0,000 [m2]		
VCE above WL	0,000 [m2]	Channel:	
Tran superst area	0,000 [m2]	Channel width	0,000 [m]
VCE above WL	0,000 [m]	Channel depth	0,000 [m]
Total Longl area	0,000 [m2]	Side slope	0,000 [deg]
VCE above WL	0,000 [m]	Wetted hull girth	0,000 [m]
Wind speed	Free stream		
Arrangement	Passenger		

Analysis parameters

Bare-hull	[Calc] Mercier	Appendage	[Off]
Friction line	ITTC	Wind	[Off]
Technique	Prediction	Seas	[Off]
Align to	[Off]	Channel	[Off]
Align by	[Off]	Misc: Margin	[Off]
Correlation allowance	0,0004	Water type	Standard Fresh
Roughness (mm)	[On] 0,2	Mass density	999,0100 [kg/m3]
3D form factor	[On] 1,2187	Kinematic viscosity	1,1390e-06 [m2/s]
Speed dependent correction	[On]		

Prediction results

Vel [kts]	Fn	Rn	Cf	[Cform]	[Cw]	Cr	Ct
11,00	0,470	7,34e+7	0,002180	0,000123	0,014276	0,014399	0,016979
12,00	0,513	8,00e+7	0,002152	0,000096	0,015229	0,015325	0,017877
13,00	0,556	8,67e+7	0,002127	0,000070	0,014130	0,014200	0,016727
14,00	0,598	9,34e+7	0,002104	0,000047	0,012772	0,012819	0,015323
15,00	0,641	1,00e+8	0,002083	0,000030	0,011575	0,011604	0,014088
16,00	0,684	1,07e+8	0,002064	0,000018	0,010455	0,010473	0,012937
Vel [kts]	Rw/W	Rr/W	Rbare/W	Rw [kN]	Rr [kN]	Rbare [kN]	PEbare [kW]
11,00	0,05680	0,05729	0,06756	12	13	15	84
12,00	0,07211	0,07257	0,08465	16	16	19	115
13,00	0,07853	0,07891	0,09296	17	17	20	136
14,00	0,08232	0,08262	0,09876	18	18	22	156
15,00	0,08564	0,08586	0,10423	19	19	23	177

16,00	0,08801	0,08816	0,10890	19	19	24	197
Vel [kts]	Rapp [kN]	Rwind [kN]	Rseas [kN]	Rchan [kN]	Rmisc [kN]	Rtotal [kN]	PEtotal [kW]
11,00	0	0	0	0	0	15	84
12,00	0	0	0	0	0	19	115
13,00	0	0	0	0	0	20	136
14,00	0	0	0	0	0	22	156
15,00	0	0	0	0	0	23	177
16,00	0	0	0	0	0	24	197

Hull data

General:		Ct-based:	
Length between PP	14,767 [m]	Max section area	2,226 [m2]
WL bow pt aft FP	0,000 [m]	Waterplane area	48,922 [m2]
Length on WL	14,767 [m]	Trim by stern	0,100 [m]
Max beam on WL	4,330 [m]	LCB aft of FP	8,153 [m]
Max molded draft	0,950 [m]	Bulb ext fwd FP	0,000 [m]
Displacement bare	22,38 [t]	Bulb area at FP	0,000 [m2]
Wetted surface	54,593 [m2]	Bulb ctr above BL	0,000 [m]
Chine type	Hard chine	Transom area	0,943 [m2]
		Transom beam	4,330 [m]
Parameters:		Transom draft	0,400 [m]

Lwl/B	3,4104	Half ent angle	23,200 [deg]
B/T	4,5579	Bow shape	Average flow [Normal]
Cb	0,3688	Stern shape	WL flow [U-shape]
Cws	3,0015		
		Cx	0,5411
		Cw	0,7651
		LCB/Lpp	0,5521
		At/Ax	0,4236
		Bt/Bx	1,0000
		Tt/T	0,4211

Parameters:	Mercier	
Fv-low	1...2	1,08
Fv-high	1...2	1,57
Cvol(Lwl)	4,3...8,9	5,24
Lwl/Bwl	2...7,8	3,41
le	6...65	23,2
At/Ax	0...1	0,42

Appendages

Wetted areas (ex. thruster):	[Drag coefficient]	
Rudders	0,000 [m2]	[0,000]
Shaft brackets	0,000 [m2]	[0,000]
Skeg	0,000 [m2]	[0,000]
Strut bossing	0,000 [m2]	[0,000]
Hull bossing	0,000 [m2]	[0,000]

Exposed shafts	0,000 [m2]	[0,000]
Stablizer fins	0,000 [m2]	[0,000]
Dome	0,000 [m2]	[0,000]
Bilge keel	0,000 [m2]	[0,000]
Bow thruster diam	0,000 [m]	[0,000]

Environment data

Wind:		Seas:	
Wind speed	0,00 [kts]	Sig. wave height	0,000 [m]
Angle off bow	0,000 [deg]	Modal wave period	0 [sec]
Tran hull area	0,000 [m2]		
VCE above WL	0,000 [m2]	Channel:	
Tran superst area	0,000 [m2]	Channel width	0,000 [m]
VCE above WL	0,000 [m]	Channel depth	0,000 [m]
Total Longl area	0,000 [m2]	Side slope	0,000 [deg]
VCE above WL	0,000 [m]	Wetted hull girth	0,000 [m]
Wind speed	Free stream		
Arrangement	Passenger		

Monohull/Resistance

Project: AY-15-Resistance Calculation-02032019.nc5

Analysis parameters

Bare-hull	[Calc] NPL	Appendage	[Off]
Friction line	ITTC	Wind	[Off]
Technique	Prediction	Seas	[Off]
Align to	[Off]	Channel	[Off]
Align by	[Off]	Misc: Margin	[Off]
Correlation allowance	0,0004	Water type	Standard Fresh
Roughness (mm)	[On] 0,2	Mass density	999,0100 [kg/m3]
3D form factor	[On] 1,2187	Kinematic viscosity	1,1390e-06 [m2/s]
Speed dependent correction	[On]		

Prediction results

Vel [kts]	Fn	Rn	Cf	[Cform]	[Cw]	Cr	Ct
9,00	0,385	6,00e+7	0,002246	0,000210	0,005258	0,005468	0,008114
10,00	0,427	6,67e+7	0,002211	0,000154	0,009652	0,009806	0,012417
11,00	0,470	7,34e+7	0,002180	0,000123	0,013166	0,013289	0,015869
12,00	0,513	8,00e+7	0,002152	0,000096	0,014399	0,014494	0,017047
13,00	0,556	8,67e+7	0,002127	0,000070	0,013969	0,014039	0,016566
14,00	0,598	9,34e+7	0,002104	0,000047	0,012733	0,012780	0,015284
15,00	0,641	1,00e+8	0,002083	0,000030	0,011299	0,011329	0,013812
16,00	0,684	1,07e+8	0,002064	0,000018	0,009984	0,010002	0,012465

Vel [kts]	Rw/W	Rr/W	Rbare/W	Rw [kN]	Rr [kN]	Rbare [kN]	PEbare [kW]
9,00	0,01400	0,01456	0,02161	3	3	5	22
10,00	0,03174	0,03224	0,04083	7	7	9	46
11,00	0,05239	0,05287	0,06314	11	12	14	78
12,00	0,06818	0,06863	0,08072	15	15	18	109
13,00	0,07763	0,07802	0,09206	17	17	20	135
14,00	0,08207	0,08237	0,09851	18	18	22	156
15,00	0,08360	0,08382	0,10219	18	18	22	173
16,00	0,08405	0,08419	0,10494	18	18	23	190

Vel [kts]	Rapp [kN]	Rwind [kN]	Rseas [kN]	Rchan [kN]	Rmisc [kN]	Rtotal [kN]	PEtotal [kW]
9,00	0	0	0	0	0	5	22
10,00	0	0	0	0	0	9	46
11,00	0	0	0	0	0	14	78
12,00	0	0	0	0	0	18	109
13,00	0	0	0	0	0	20	135
14,00	0	0	0	0	0	22	156
15,00	0	0	0	0	0	22	173
16,00	0	0	0	0	0	23	190

Hull data

General:

Ct-based:

Length between PP	14,767 [m]	Max section area	2,226 [m2]
WL bow pt aft FP	0,000 [m]	Waterplane area	48,922 [m2]
Length on WL	14,767 [m]	Trim by stern	0,100 [m]
Max beam on WL	4,330 [m]	LCB aft of FP	8,153 [m]
Max molded draft	0,950 [m]	Bulb ext fwd FP	0,000 [m]
Displacement bare	22,38 [t]	Bulb area at FP	0,000 [m2]
Wetted surface	54,593 [m2]	Bulb ctr above BL	0,000 [m]
Chine type	Hard chine	Transom area	0,943 [m2]
Parameters:		Transom beam	4,330 [m]
		Transom draft	0,400 [m]
		Half ent angle	23,200 [deg]
		Bow shape	Average flow [Normal]
		Stern shape	WL flow [U-shape]
Lwl/B	3,4104	Cx	0,5411
B/T	4,5579	Cw	0,7651
Cb	0,3688	LCB/Lpp	0,5521
Cws	3,0015	At/Ax	0,4236
		Bt/Bx	1,0000
		Tt/T	0,4211

Parameters:	NPL	
Fv-low	0,8...3	0,88
Fv-high	0,8...3	1,57
Cvol(Lwl)	4,5...8,3	5,24
Lwl/Bwl	3,33...7,5	3,41
Bwl/T	1,76...10,77	4,56

LCB(Lwl)	-6,8...-6 %Lwl	-5,2	Limit
Cb(Lwl)	0,387...0,407	0,369	Limit
At/Ax	0,51...0,53	0,42	Limit

Appendages

Wetted areas (ex. thruster):		[Drag coefficient]
Rudders	0,000 [m2]	[0,000]
Shaft brackets	0,000 [m2]	[0,000]
Skeg	0,000 [m2]	[0,000]
Strut bossing	0,000 [m2]	[0,000]
Hull bossing	0,000 [m2]	[0,000]
Exposed shafts	0,000 [m2]	[0,000]
Stablizer fins	0,000 [m2]	[0,000]
Dome	0,000 [m2]	[0,000]
Bilge keel	0,000 [m2]	[0,000]
Bow thruster diam	0,000 [m]	[0,000]

Environment data

Wind:		Seas:	
Wind speed	0,00 [kts]	Sig. wave height	0,000 [m]

Angle off bow	0,000 [deg]	Modal wave period	0 [sec]
Tran hull area	0,000 [m2]		
VCE above WL	0,000 [m2]	Channel:	
Tran superst area	0,000 [m2]	Channel width	0,000 [m]
VCE above WL	0,000 [m]	Channel depth	0,000 [m]
Total Longl area	0,000 [m2]	Side slope	0,000 [deg]
VCE above WL	0,000 [m]	Wetted hull girth	0,000 [m]
Wind speed	Free stream		
Arrangement	Passenger		

Analysis parameters

Bare-hull	[Calc] NTUA	Appendage	[Off]
Friction line	ITTC	Wind	[Off]
Technique	Prediction	Seas	[Off]
Align to	[Off]	Channel	[Off]
Align by	[Off]	Misc: Margin	[Off]
Correlation allowance	0,0004	Water type	Standard Fresh
Roughness (mm)	[On] 0,2	Mass density	999,0100 [kg/m3]
3D form factor	[On] 1,2187	Kinematic viscosity	1,1390e-06 [m2/s]
Speed dependent correction	[On]		

Prediction results

Vel [kts]	Fn	Rn	Cf	[Cform]	[Cw]	Cr	Ct
5,00	0,214	3,33e+7	0,002459	0,000503	0,005014	0,005517	0,008376
7,00	0,299	4,67e+7	0,002334	0,000384	0,010081	0,010465	0,013198
9,00	0,385	6,00e+7	0,002246	0,000210	0,012640	0,012850	0,015496
10,00	0,427	6,67e+7	0,002211	0,000154	0,013018	0,013172	0,015783
11,00	0,470	7,34e+7	0,002180	0,000123	0,012892	0,013015	0,015595
12,00	0,513	8,00e+7	0,002152	0,000096	0,012384	0,012480	0,015032
13,00	0,556	8,67e+7	0,002127	0,000070	0,011600	0,011669	0,014196
14,00	0,598	9,34e+7	0,002104	0,000047	0,010635	0,010682	0,013186
15,00	0,641	1,00e+8	0,002083	0,000030	0,009583	0,009612	0,012095
16,00	0,684	1,07e+8	0,002064	0,000018	0,008531	0,008549	0,011012

Vel [kts]	Rw/W	Rr/W	Rbare/W	Rw [kN]	Rr [kN]	Rbare [kN]	PEbare [kW]
5,00	0,00412	0,00454	0,00689	1	1	2	4
7,00	0,01624	0,01686	0,02127	4	4	5	17
9,00	0,03367	0,03423	0,04127	7	8	9	42
10,00	0,04281	0,04331	0,05190	9	10	11	59
11,00	0,05129	0,05178	0,06205	11	11	14	77
12,00	0,05864	0,05909	0,07118	13	13	16	96
13,00	0,06446	0,06485	0,07889	14	14	17	116
14,00	0,06854	0,06885	0,08498	15	15	19	134
15,00	0,07090	0,07112	0,08949	16	16	20	152
16,00	0,07181	0,07196	0,09270	16	16	20	167

Vel [kts]	Rapp [kN]	Rwind [kN]	Rseas [kN]	Rchan [kN]	Rmisc [kN]	Rtotal [kN]	PEtotal [kW]
5,00	0	0	0	0	0	2	4

7,00	0	0	0	0	0	5	17
9,00	0	0	0	0	0	9	42
10,00	0	0	0	0	0	11	59
11,00	0	0	0	0	0	14	77
12,00	0	0	0	0	0	16	96
13,00	0	0	0	0	0	17	116
14,00	0	0	0	0	0	19	134
15,00	0	0	0	0	0	20	152
16,00	0	0	0	0	0	20	167

Hull data

General:		Ct-based:	
Length between PP	14,767 [m]	Max section area	2,226 [m2]
WL bow pt aft FP	0,000 [m]	Waterplane area	48,922 [m2]
Length on WL	14,767 [m]	Trim by stern	0,100 [m]
Max beam on WL	4,330 [m]	LCB aft of FP	8,153 [m]
Max molded draft	0,950 [m]	Bulb ext fwd FP	0,000 [m]
Displacement bare	22,38 [t]	Bulb area at FP	0,000 [m2]
Wetted surface	54,593 [m2]	Bulb ctr above BL	0,000 [m]
Chine type	Hard chine	Transom area	0,943 [m2]
		Transom beam	4,330 [m]
Parameters:		Transom draft	0,400 [m]

Lwl/B		3,4104		Half ent angle	23,200 [deg]
B/T		4,5579		Bow shape	Average flow [Normal]
Cb		0,3688		Stern shape	WL flow [U-shape]
Cws		3,0015			
				Cx	0,5411
				Cw	0,7651
				LCB/Lpp	0,5521
				At/Ax	0,4236
				Bt/Bx	1,0000
				Tt/T	0,4211

Parameters:	NTUA		
Fn(Lwl)	0,2...1,1	0,21	
Fn-high	0,2...1,1	0,68	
Cvol(Lwl)	6,2...8,5	5,24	Limit
Lwl/Bwl	4,3...7,5	3,41	Limit
Bwl/T	3,2...6,2	4,56	
Cb(Lwl)	0,34...0,54	0,37	

Appendages

Wetted areas (ex. thruster):	[Drag coefficient]	
Rudders	0,000 [m2]	[0,000]
Shaft brackets	0,000 [m2]	[0,000]
Skeg	0,000 [m2]	[0,000]
Strut bossing	0,000 [m2]	[0,000]
Hull bossing	0,000 [m2]	[0,000]

Exposed shafts	0,000 [m2]	[0,000]
Stablizer fins	0,000 [m2]	[0,000]
Dome	0,000 [m2]	[0,000]
Bilge keel	0,000 [m2]	[0,000]
Bow thruster diam	0,000 [m]	[0,000]

Environment data

Wind:		Seas:	
Wind speed	0,00 [kts]	Sig. wave height	0,000 [m]
Angle off bow	0,000 [deg]	Modal wave period	0 [sec]
Tran hull area	0,000 [m2]	Channel:	
VCE above WL	0,000 [m2]	Channel width	0,000 [m]
Tran superst area	0,000 [m2]	Channel depth	0,000 [m]
VCE above WL	0,000 [m]	Side slope	0,000 [deg]
Total Longl area	0,000 [m2]	Wetted hull girth	0,000 [m]
VCE above WL	0,000 [m]		
Wind speed	Free stream		
Arrangement	Passenger		

Analysis parameters

Bare-hull	[Calc] Simple displ/semi	Appendage	[Off]
Friction line	ITTC	Wind	[Off]
Technique	Prediction	Seas	[Off]
Align to	[Off]	Channel	[Off]
Align by	[Off]	Misc: Margin	[Off]
Correlation allowance	0,0004	Water type	Standard Fresh
Roughness (mm)	[On] 0,2	Mass density	999,0100 [kg/m3]
3D form factor	[On] 1,2187	Kinematic viscosity	1,1390e-06 [m2/s]
Speed dependent correction	[Off]		

Prediction results

Vel [kts]	Fn	Rn	Cf	[Cform]	[Cw]	Cr	Ct
5,00	0,214	3,33e+7	0,002459	0,000538	0,000731	0,001268	0,004127
7,00	0,299	4,67e+7	0,002334	0,000510	0,002128	0,002638	0,005372
9,00	0,385	6,00e+7	0,002246	0,000491	0,003361	0,003853	0,006499
10,00	0,427	6,67e+7	0,002211	0,000484	0,003936	0,004419	0,007030
11,00	0,470	7,34e+7	0,002180	0,000477	0,004488	0,004965	0,007545
12,00	0,513	8,00e+7	0,002152	0,000471	0,005021	0,005492	0,008044
13,00	0,556	8,67e+7	0,002127	0,000465	0,005538	0,006003	0,008530
14,00	0,598	9,34e+7	0,002104	0,000460	0,006040	0,006500	0,009004
15,00	0,641	1,00e+8	0,002083	0,000456	0,006529	0,006985	0,009468
16,00	0,684	1,07e+8	0,002064	0,000451	0,007006	0,007457	0,009921

Vel [kts]	Rw/W	Rr/W	Rbare/W	Rw [kN]	Rr [kN]	Rbare [kN]	PEbare [kW]
5,00	0,00060	0,00104	0,00339	0	0	1	2
7,00	0,00343	0,00425	0,00866	1	1	2	7
9,00	0,00895	0,01026	0,01731	2	2	4	18
10,00	0,01294	0,01453	0,02312	3	3	5	26
11,00	0,01786	0,01975	0,03002	4	4	7	37
12,00	0,02378	0,02601	0,03809	5	6	8	52
13,00	0,03078	0,03336	0,04740	7	7	10	70
14,00	0,03893	0,04189	0,05803	9	9	13	92
15,00	0,04831	0,05168	0,07005	11	11	15	119
16,00	0,05898	0,06278	0,08352	13	14	18	151

Vel [kts]	Rapp [kN]	Rwind [kN]	Rseas [kN]	Rchan [kN]	Rmisc [kN]	Rtotal [kN]	PEtotal [kW]
5,00	0	0	0	0	0	1	2
7,00	0	0	0	0	0	2	7
9,00	0	0	0	0	0	4	18
10,00	0	0	0	0	0	5	26
11,00	0	0	0	0	0	7	37
12,00	0	0	0	0	0	8	52
13,00	0	0	0	0	0	10	70
14,00	0	0	0	0	0	13	92
15,00	0	0	0	0	0	15	119
16,00	0	0	0	0	0	18	151

Hull data

General:			Ct-based:		
Length between PP		14,767 [m]	Max section area		2,226 [m2]
WL bow pt aft FP		0,000 [m]	Waterplane area		0,000 [m2]
Length on WL		14,767 [m]	Trim by stern		0,100 [m]
Max beam on WL		4,330 [m]	LCB aft of FP		8,153 [m]
Max molded draft		0,950 [m]	Bulb ext fwd FP		0,000 [m]
Displacement bare		22,38 [t]	Bulb area at FP		0,000 [m2]
Wetted surface		54,593 [m2]	Bulb ctr above BL		0,000 [m]
Chine type		Hard chine	Transom area		0,943 [m2]
Parameters:			Transom beam		4,330 [m]
			Transom draft		0,400 [m]
			Half ent angle		23,200 [deg]
			Bow shape	Average flow [Normal]	
			Stern shape	WL flow [U-shape]	
			Cx		0,5411
			Cw		0,7651
			LCB/Lpp		0,5521
			At/Ax		0,4236
Lwl/B		3,4104	Bt/Bx		1,0000
B/T		4,5579	Tt/T		0,4211
Cb		0,3688			
Cws		3,0015			

Parameters:	Simple displ/semi	
Fn(Lwl)	0...0,4	0,21

Fn-high	0...0,4	0,68	Limit
Cvol(Lwl)	4,1...11,3	5,24	

Appendages

Wetted areas (ex. thruster):	[Drag coefficient]	
Rudders	0,000 [m2]	[0,000]
Shaft brackets	0,000 [m2]	[0,000]
Skeg	0,000 [m2]	[0,000]
Strut bossing	0,000 [m2]	[0,000]
Hull bossing	0,000 [m2]	[0,000]
Exposed shafts	0,000 [m2]	[0,000]
Stablizer fins	0,000 [m2]	[0,000]
Dome	0,000 [m2]	[0,000]
Bilge keel	0,000 [m2]	[0,000]
Bow thruster diam	0,000 [m]	[0,000]

Environment data

Wind:	Seas:		
Wind speed	0,00 [kts]	Sig. wave height	0,000 [m]
Angle off bow	0,000 [deg]	Modal wave period	0 [sec]

Tran hull area	0,000 [m2]		
VCE above WL	0,000 [m2]	Channel:	
Tran superst area	0,000 [m2]	Channel width	0,000 [m]
VCE above WL	0,000 [m]	Channel depth	0,000 [m]
Total Longl area	0,000 [m2]	Side slope	0,000 [deg]
VCE above WL	0,000 [m]	Wetted hull girth	0,000 [m]



