



PERFORMANCE PREDICTION

A red wireframe model of a yacht hull and keel, showing the structural grid of the design. The hull is sleek and curved, tapering towards the stern. The keel is deep and curved, with a small fin at the base. The model is positioned behind the main title text.

DESIGN # 608
Beneteau First 40 – Shallow Keel
Standard rig and Genoas
for
Chantiers Beneteau



DESCRIPTION OF SYMBOLS IN VPP OUTPUT

The accompanying document contains a large amount information about the predicted performance of your boat. To allow this document to be used as a valuable racing tool we have prepared the following explanation of the important terms it contains.

General Terms:

Vt or TWS	True Wind Speed
Bt or TWA	True Wind Angle
V or Vs	Boat Speed
VMG	Boat Velocity Made Good
HEEL	Heel Angle
REEF	Measure of Reduction in Sail Area
FLAT	Measure of Reduction in Sail Lift
Va, AWS	Apparent Wind Speed
Ba, AWA	Apparent Wind Angle
Lee	Leeway Angle
Sail	Sail Combination Designator (Upwind or Downwind)
Flot	Flotation Designator (Varies Only For Water Ballasted Boats)

VPP Polar Diagram

This is a graphical representation of the boats performance across a range of windspeeds and true wind directions. Optimal upwind and downwind conditions are marked as small rectangles on the boat speed contours for each windspeed.

Best Boatspeeds

The upper portion of this page gives a numerical representation of the polar diagram. Boatspeeds in knots are given for a series of true windspeeds at masthead height, across a range of true wind angles. All boatspeeds and windspeeds are given in knots. The shaded cells lie beyond the upwind and downwind optimum points. The two tables on the lower portion of the page provide a ready reference of useful details about the optimum upwind and downwind sailing conditions as a function of the true windspeeds (Vt's) across the top of the page. In addition to indicating the optimum upwind and downwind boat speeds in knots, they are also expressed in seconds/mile and in seconds/boat length. VMG is also expressed in seconds/mile.

Course Times

This page shows the predicted boat performance over a series of 1.0 nautical mile courses in various windspeeds. Times around the course are expressed as seconds. The courses reflect five different course conditions:- LEEWARD, LINEAR RANDOM (LR), WINDWARD-LEEWARD (WL), WINDWARD and CIRCULAR-RANDOM (CR).

Times for 1 nm (secs)

This page is similar to the Best Boatspeeds page in that it represents the boatspeeds for a series of true windspeeds and true wind angles. Boatspeeds are expressed as seconds/nautical mile. Shaded areas again depict the off optimum conditions. Optimum upwind and downwind values, in terms of VMG, are presented underneath the table.

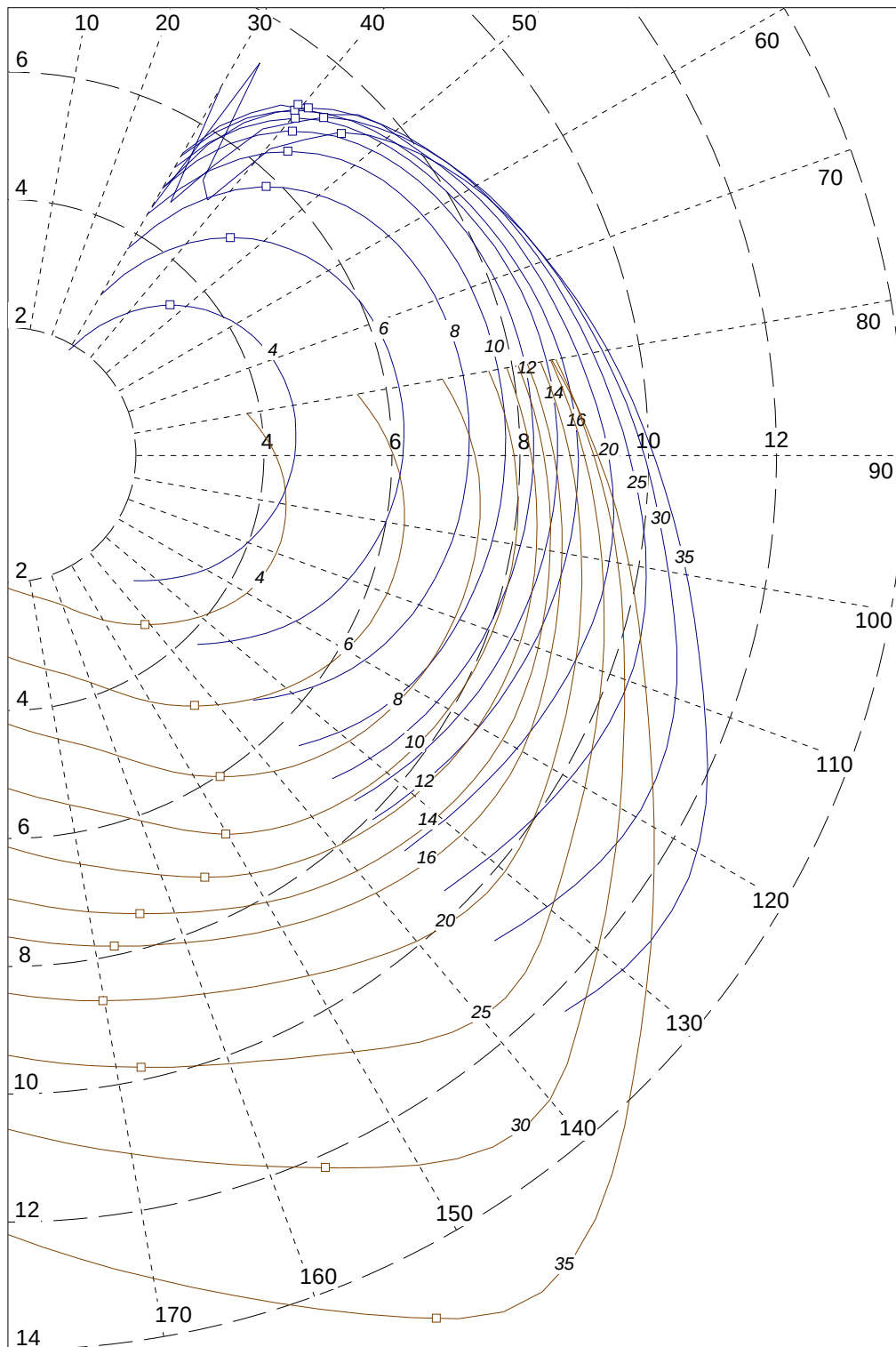
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Best Performance

This page is a detailed representation of the polar diagram showing a list of predicted performance variables for each windspeed over the range of true wind angles. All of those items listed in the “General Terms” section are listed and optimum upwind and downwind settings are included in bold type.

**Design 608 - First 40
For Chantiers Beneteau**



Best Boatspeeds (kt)

	4	6	8	10	12	14	16	20	25	30	35
30.0	1.90	2.91	3.73	4.35	4.84	5.20	5.41	5.46	4.81	6.63	4.48
33.0	2.25	3.41	4.34	5.03	5.55	5.88	6.08	6.19	5.88	4.64	7.29
36.0	2.55	3.84	4.84	5.59	6.07	6.38	6.57	6.67	6.50	5.96	4.70
39.0	2.83	4.21	5.27	6.03	6.49	6.77	6.94	7.06	6.97	6.62	5.76
42.0	3.08	4.53	5.63	6.39	6.82	7.08	7.23	7.18	7.31	7.10	6.56
45.0	3.31	4.82	5.94	6.69	7.09	7.32	7.45	7.56	7.56	7.44	7.12
50.0	3.64	5.22	6.34	7.07	7.42	7.61	7.72	7.85	7.90	7.84	7.68
60.0	4.12	5.78	6.86	7.49	7.85	8.03	8.15	8.32	8.43	8.45	8.40
70.0	4.40	6.08	7.12	7.69	8.09	8.36	8.51	8.70	8.86	8.94	8.95
80.0	4.51	6.20	7.21	7.77	8.20	8.54	8.78	9.04	9.27	9.42	9.50
90.0	4.47	6.16	7.29	7.90	8.20	8.58	8.90	9.37	9.70	9.93	10.08
100.0	4.41	6.28	7.44	8.04	8.38	8.59	8.86	9.53	10.12	10.46	10.76
110.0	4.46	6.30	7.43	8.05	8.51	8.80	9.02	9.43	10.31	11.09	11.57
120.0	4.30	6.09	7.27	7.94	8.47	8.91	9.26	9.80	10.39	11.32	12.42
130.0	3.92	5.66	6.95	7.71	8.28	8.77	9.24	10.12	11.07	12.02	13.01
135.0	3.69	5.39	6.72	7.56	8.14	8.64	9.11	10.10	11.43	12.60	13.80
140.0	3.45	5.09	6.44	7.38	7.98	8.48	8.93	9.92	11.49	13.16	14.67
150.0	2.97	4.45	5.77	6.84	7.55	8.07	8.52	9.39	10.77	12.82	15.47
160.0	2.50	3.78	4.99	6.08	6.98	7.61	8.11	8.96	10.12	11.83	14.20
170.0	2.23	3.39	4.50	5.55	6.49	7.24	7.79	8.66	9.71	11.09	13.07
180.0	2.08	3.15	4.21	5.20	6.13	6.93	7.53	8.41	9.38	10.53	12.18
Up.Vs(kts)	3.46	4.87	5.83	6.46	6.74	6.92	7.01	7.11	7.18	7.22	7.24
Up.Vs(s/m)	1040.9	739.9	617.8	557.3	534.3	519.9	513.3	506.0	501.3	498.6	497.4
Up.Vs(s/L)	6.9	4.9	4.1	3.7	3.5	3.4	3.4	3.3	3.3	3.3	3.3
Up.Bt	47.2	45.6	43.8	42.6	41.2	40.4	39.7	39.6	40.8	43.0	46.0
Up.Vmg(kts)	2.35	3.41	4.20	4.75	5.07	5.27	5.40	5.48	5.43	5.28	5.03
Up.Vmg(s/m)	1530.6	1057.1	856.6	757.4	710.1	682.7	667.1	656.7	662.4	682.1	715.7
Up.Heel	2.4	5.2	8.9	14.0	17.8	20.1	21.8	23.2	23.9	24.1	24.5
Up.Reef	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.93	0.82	0.71	0.63
Up.Flat	1.00	1.00	1.00	1.00	0.90	0.78	0.67	0.61	0.63	0.69	0.75
Up.Va	6.84	10.02	12.82	15.30	17.47	19.54	21.53	25.39	30.08	34.63	38.99
Up.Ba	25.4	25.2	25.3	25.4	25.5	25.9	26.1	27.5	29.8	32.7	36.0
Up.Leewy	2.91	3.10	3.51	4.12	4.51	4.70	4.91	5.31	5.91	6.50	7.18
Dn.Vs(kts)	3.41	4.88	6.02	6.83	7.28	7.46	7.86	8.66	9.80	12.19	15.07
Dn.Vs(s/m)	1056.7	737.7	598.4	526.9	494.7	482.6	458.3	415.8	367.5	295.4	238.9
Dn.Vs(s/L)	7.0	4.9	4.0	3.5	3.3	3.2	3.0	2.7	2.4	2.0	1.6
Dn.Bt	141.0	143.4	146.6	150.1	155.0	163.9	167.8	170.1	167.7	156.0	153.6
Dn.Vmg(kts)	2.65	3.92	5.02	5.92	6.60	7.17	7.68	8.53	9.57	11.14	13.50
Dn.Vmg(s/m)	1360.1	919.3	716.7	607.7	545.7	502.2	469.0	422.0	376.2	323.3	266.7
Dn.Heel	0.6	1.1	1.5	1.6	1.4	1.0	1.0	1.3	2.8	9.7	16.4
Dn.Reef	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Dn.Flat	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Dn.Va	2.54	3.58	4.45	5.31	6.21	7.14	8.49	11.56	15.57	19.40	22.08
Dn.Ba	83.2	89.0	98.6	110.3	125.4	147.1	156.5	162.8	160.0	141.7	137.5
Dn.Leewy	0.61	0.54	0.46	0.38	0.29	0.19	0.17	0.17	0.27	0.49	0.39

Course Times

	LR 1.00 nm.	WL 1.00 nm.	OCEAN 1.00 nm.	OLYMPIC 1.00 nm.	CR 1.00 nm.
4.0	1021.8	1445.4	0.0	1354.0	1077.4
6.0	714.9	988.2	0.0	930.0	747.9
8.0	587.4	786.7	0.0	747.0	609.1
10.0	526.3	682.5	0.0	656.3	541.8
12.0	492.8	627.9	0.0	609.7	506.1
14.0	470.3	592.5	0.0	579.9	483.0
16.0	453.6	568.0	0.0	559.5	466.7
20.0	429.3	539.4	0.0	534.9	445.1
25.0	404.2	519.3	0.0	518.8	426.3
30.0	379.4	502.7	0.0	512.3	412.4
35.0	354.8	491.2	0.0	514.0	404.2

Times for 1 nm (secs)

	4	6	8	10	12	14	16	20	25	30	35
30.0	1896.9	1237.5	964.4	827.4	743.4	692.0	664.8	658.8	747.9	542.7	803.0
33.0	1602.9	1054.7	829.4	716.0	648.8	612.1	592.3	581.3	612.1	775.4	493.5
36.0	1410.5	938.0	743.8	644.2	592.9	564.3	548.2	539.6	553.8	604.1	766.1
39.0	1271.8	855.8	683.4	596.8	554.8	531.6	518.5	510.3	516.8	544.2	624.7
42.0	1167.6	794.8	639.0	563.0	527.7	508.3	498.0	501.1	492.4	507.0	548.5
45.0	1087.4	747.6	606.3	538.1	507.5	491.9	483.5	476.3	475.9	483.8	506.0
50.0	989.9	690.2	567.8	509.4	485.0	473.0	466.1	458.7	455.9	459.0	468.7
60.0	874.4	623.1	524.4	480.6	458.8	448.1	441.5	432.7	427.0	425.8	428.5
70.0	818.1	591.9	505.5	468.2	445.2	430.7	423.3	413.6	406.3	402.8	402.3
80.0	797.5	580.6	499.1	463.4	439.3	421.7	410.1	398.4	388.5	382.1	378.8
90.0	804.6	584.0	493.8	455.8	439.0	419.7	404.6	384.0	371.1	362.6	357.1
100.0	816.3	573.5	483.6	447.6	429.8	418.9	406.2	377.6	355.9	344.0	334.6
110.0	807.7	571.6	484.7	447.1	423.1	409.0	398.9	381.7	349.2	324.6	311.1
120.0	837.3	590.8	495.4	453.5	424.9	404.1	388.6	367.5	346.5	318.0	289.8
130.0	918.0	635.8	518.2	466.8	434.8	410.5	389.7	355.6	325.3	299.5	276.8
135.0	975.1	668.0	535.7	476.2	442.2	416.7	395.4	356.5	315.1	285.8	260.8
140.0	1042.3	707.2	558.6	488.1	451.4	424.5	402.9	362.9	313.4	273.6	245.4
150.0	1212.5	809.0	623.6	526.3	476.6	446.0	422.3	383.2	334.2	280.9	232.8
160.0	1441.8	951.2	721.5	592.3	515.8	472.9	443.9	401.7	355.7	304.3	253.4
170.0	1613.4	1063.0	800.0	648.7	555.0	496.9	462.1	415.6	370.8	324.6	275.4
180.0	1733.6	1141.3	856.1	691.6	587.5	519.6	478.2	427.8	383.8	341.8	295.6
Up	1530.6	1057.1	856.6	757.4	710.1	682.7	667.1	656.7	662.4	682.1	715.7
Dn	1360.1	919.3	716.7	607.7	545.7	502.2	469.0	422.0	376.2	323.3	266.7

Equivalent ILC Average (using IMS formula): 664.76

Best Performance

	<i>TWS</i>	<i>TWA</i>	<i>V</i>	<i>VMG</i>	<i>Heel</i>	<i>Reef</i>	<i>Flat</i>	<i>AWS</i>	<i>AWA</i>	<i>Lee</i>	<i>Sail</i>	<i>Flot</i>
OptUp >	4.0	30.0	1.898	1.644	1.6	1.000	1.000	5.72	20.4	6.36	Up	60el
	4.0	33.0	2.246	1.884	1.7	1.000	1.000	6.01	21.2	5.09	Up	60el
	4.0	36.0	2.552	2.065	1.9	1.000	1.000	6.25	22.1	4.32	Up	60el
	4.0	39.0	2.831	2.200	2.1	1.000	1.000	6.45	23.0	3.79	Up	60el
	4.0	42.0	3.083	2.291	2.2	1.000	1.000	6.62	23.8	3.39	Up	60el
	4.0	45.0	3.311	2.341	2.3	1.000	1.000	6.76	24.7	3.09	Up	60el
	4.0	47.2	3.458	2.352	2.4	1.000	1.000	6.84	25.4	2.91	Up	60el
	4.0	50.0	3.637	2.338	2.5	1.000	1.000	6.92	26.2	2.71	Up	60el
	4.0	60.0	4.117	2.059	2.6	1.000	1.000	7.03	29.5	2.18	Up	60el
	4.0	70.0	4.401	1.505	2.4	1.000	1.000	6.88	33.1	1.82	Up	60el
	4.0	80.0	4.514	0.784	2.2	1.000	1.000	6.53	37.1	1.53	Up	60el
	4.0	90.0	4.474	-0.000	1.8	1.000	1.000	6.00	41.8	1.29	Up	60el
OptDn >	4.0	100.0	4.410	-0.766	2.4	1.000	1.000	5.41	46.6	1.46	Dn	60el
	4.0	110.0	4.457	-1.524	2.2	1.000	1.000	4.86	50.6	1.29	Dn	60el
	4.0	120.0	4.299	-2.150	1.8	1.000	1.000	4.16	56.4	1.10	Dn	60el
	4.0	130.0	3.922	-2.521	1.2	1.000	1.000	3.35	66.2	0.88	Dn	60el
	4.0	135.0	3.692	-2.611	0.9	1.000	1.000	2.96	73.0	0.76	Dn	60el
	4.0	140.0	3.454	-2.646	0.6	1.000	1.000	2.60	81.4	0.63	Dn	60el
	4.0	141.0	3.407	2.647	0.6	1.000	1.000	2.54	83.2	0.61	Dn	60el
	4.0	150.0	2.969	-2.571	0.3	1.000	1.000	2.06	103.9	0.39	Dn	60el
	4.0	160.0	2.497	-2.346	0.1	1.000	1.000	1.86	132.7	0.20	Dn	60el
	4.0	170.0	2.231	-2.197	0.0	1.000	1.000	1.84	157.9	0.10	Dn	60el
	4.0	180.0	2.077	-2.077	0.0	1.000	1.000	1.92	180.0	-0.00	Dn	60el
OptUp >	6.0	30.0	2.909	2.519	3.6	1.000	1.000	8.64	20.3	6.15	Up	60el
	6.0	33.0	3.413	2.863	4.0	1.000	1.000	9.05	21.1	4.98	Up	60el
	6.0	36.0	3.838	3.105	4.4	1.000	1.000	9.38	22.0	4.28	Up	60el
	6.0	39.0	4.206	3.269	4.7	1.000	1.000	9.63	23.0	3.80	Up	60el
	6.0	42.0	4.530	3.366	5.0	1.000	1.000	9.84	24.0	3.44	Up	60el
	6.0	45.0	4.815	3.405	5.2	1.000	1.000	9.99	25.0	3.15	Up	60el
	6.0	45.6	4.865	3.406	5.2	1.000	1.000	10.02	25.2	3.10	Up	60el
	6.0	50.0	5.216	3.353	5.4	1.000	1.000	10.16	26.8	2.78	Up	60el
	6.0	60.0	5.778	2.889	5.4	1.000	1.000	10.19	30.5	2.26	Up	60el
	6.0	70.0	6.082	2.080	5.0	1.000	1.000	9.88	34.6	1.88	Up	60el
	6.0	80.0	6.200	1.077	4.4	1.000	1.000	9.34	39.1	1.58	Up	60el
	6.0	90.0	6.165	-0.000	3.6	1.000	1.000	8.59	44.2	1.31	Up	60el
OptDn >	6.0	100.0	6.278	-1.090	5.6	1.000	1.000	7.87	48.3	1.56	Dn	60el
	6.0	110.0	6.299	-2.154	4.9	1.000	1.000	7.04	52.9	1.36	Dn	60el
	6.0	120.0	6.094	-3.047	3.8	1.000	1.000	6.04	59.2	1.13	Dn	60el
	6.0	130.0	5.662	-3.640	2.5	1.000	1.000	4.93	68.5	0.88	Dn	60el
	6.0	135.0	5.389	-3.811	1.9	1.000	1.000	4.39	74.9	0.75	Dn	60el
	6.0	140.0	5.090	-3.899	1.4	1.000	1.000	3.89	82.7	0.63	Dn	60el
	6.0	143.4	4.880	3.916	1.1	1.000	1.000	3.58	89.0	0.54	Dn	60el
	6.0	150.0	4.450	-3.854	0.6	1.000	1.000	3.09	104.0	0.38	Dn	60el
	6.0	160.0	3.785	-3.556	0.2	1.000	1.000	2.77	132.1	0.19	Dn	60el
	6.0	170.0	3.387	-3.335	0.1	1.000	1.000	2.73	157.6	0.10	Dn	60el
	6.0	180.0	3.154	-3.154	0.0	1.000	1.000	2.85	180.0	-0.00	Dn	60el

Best Performance (cont)

	<i>TWS</i>	<i>TWA</i>	<i>V</i>	<i>VMG</i>	<i>Heel</i>	<i>Reef</i>	<i>Flat</i>	<i>AWS</i>	<i>AWA</i>	<i>Lee</i>	<i>Sail</i>	<i>Flot</i>
OptUp >	8.0	30.0	3.733	3.233	6.2	1.000	0.970	11.38	20.5	6.29	Up	60el
	8.0	33.0	4.340	3.640	7.1	1.000	1.000	11.87	21.4	5.30	Up	60el
	8.0	36.0	4.840	3.916	7.8	1.000	1.000	12.23	22.4	4.58	Up	60el
	8.0	39.0	5.268	4.094	8.3	1.000	1.000	12.52	23.5	4.07	Up	60el
	8.0	42.0	5.634	4.187	8.7	1.000	1.000	12.73	24.6	3.70	Up	60el
	8.0	43.8	5.827	4.203	8.9	1.000	1.000	12.82	25.3	3.51	Up	60el
	8.0	45.0	5.938	4.199	9.0	1.000	1.000	12.87	25.7	3.41	Up	60el
	8.0	50.0	6.340	4.075	9.2	1.000	1.000	12.98	27.8	3.03	Up	60el
	8.0	60.0	6.865	3.432	9.0	1.000	1.000	12.84	32.2	2.47	Up	60el
	8.0	70.0	7.121	2.436	8.0	1.000	1.000	12.35	37.1	2.05	Up	60el
	8.0	80.0	7.213	1.253	6.7	1.000	1.000	11.63	42.3	1.71	Up	60el
	8.0	90.0	7.291	-0.000	10.9	1.000	1.000	10.72	47.1	2.05	Dn	60el
	8.0	100.0	7.445	-1.293	10.2	1.000	1.000	9.84	52.0	1.84	Dn	60el
	8.0	110.0	7.428	-2.540	8.4	1.000	1.000	8.79	57.8	1.55	Dn	60el
	8.0	120.0	7.267	-3.633	6.2	1.000	1.000	7.62	64.6	1.22	Dn	60el
OptDn >	8.0	130.0	6.947	-4.466	4.1	1.000	1.000	6.37	73.5	0.91	Dn	60el
	8.0	135.0	6.720	-4.752	3.2	1.000	1.000	5.75	79.3	0.77	Dn	60el
	8.0	140.0	6.444	-4.937	2.4	1.000	1.000	5.15	86.5	0.63	Dn	60el
	8.0	146.6	6.016	5.023	1.5	1.000	1.000	4.45	98.6	0.46	Dn	60el
	8.0	150.0	5.773	-5.000	1.1	1.000	1.000	4.16	106.1	0.38	Dn	60el
	8.0	160.0	4.990	-4.689	0.0	1.000	1.000	3.73	132.7	0.19	Dn	60el
	8.0	170.0	4.500	-4.431	0.0	1.000	1.000	3.65	157.6	0.10	Dn	60el
	8.0	180.0	4.205	-4.205	0.0	1.000	1.000	3.79	180.0	-0.00	Dn	60el
	10.0	30.0	4.351	3.768	9.0	1.000	0.909	13.92	20.8	6.54	Up	60el
	10.0	33.0	5.028	4.217	11.0	1.000	0.976	14.44	21.7	5.77	Up	60el
	10.0	36.0	5.588	4.521	12.4	1.000	1.000	14.83	22.8	5.12	Up	60el
	10.0	39.0	6.033	4.688	13.3	1.000	1.000	15.10	23.9	4.59	Up	60el
	10.0	42.0	6.395	4.752	13.9	1.000	1.000	15.28	25.2	4.19	Up	60el
	10.0	42.6	6.459	4.753	14.0	1.000	1.000	15.30	25.4	4.12	Up	60el
	10.0	45.0	6.691	4.731	14.3	1.000	1.000	15.37	26.5	3.88	Up	60el
OptDn >	10.0	50.0	7.067	4.543	14.5	1.000	1.000	15.40	28.8	3.46	Up	60el
	10.0	60.0	7.491	3.745	13.2	1.000	1.000	15.07	34.0	2.83	Up	60el
	10.0	70.0	7.689	2.630	11.3	1.000	1.000	14.43	39.7	2.34	Up	60el
	10.0	80.0	7.769	1.349	9.2	1.000	1.000	13.60	45.6	1.93	Up	60el
	10.0	90.0	7.898	-0.000	19.0	1.000	1.000	12.32	50.1	2.66	Dn	60el
	10.0	100.0	8.043	-1.397	16.6	1.000	1.000	11.35	56.2	2.27	Dn	60el
	10.0	110.0	8.052	-2.754	12.5	1.000	1.000	10.28	63.2	1.81	Dn	60el
	10.0	120.0	7.938	-3.969	8.8	1.000	1.000	9.05	71.1	1.39	Dn	60el
	10.0	130.0	7.712	-4.957	5.8	1.000	1.000	7.73	80.4	1.01	Dn	60el
	10.0	135.0	7.560	-5.346	4.6	1.000	1.000	7.07	86.0	0.83	Dn	60el
	10.0	140.0	7.375	-5.650	3.4	1.000	1.000	6.42	92.5	0.67	Dn	60el
	10.0	150.0	6.840	-5.924	1.6	1.000	1.000	5.32	110.0	0.39	Dn	60el
	10.0	150.1	6.832	5.924	1.6	1.000	1.000	5.31	110.3	0.38	Dn	60el
	10.0	160.0	6.078	-5.711	0.0	1.000	1.000	4.77	134.1	0.20	Dn	60el
	10.0	170.0	5.550	-5.465	0.0	1.000	1.000	4.64	158.0	0.10	Dn	60el
	10.0	180.0	5.205	-5.205	0.0	1.000	1.000	4.80	180.0	-0.00	Dn	60el

Best Performance (cont)

	<i>TWS</i>	<i>TWA</i>	<i>V</i>	<i>VMG</i>	<i>Heel</i>	<i>Reef</i>	<i>Flat</i>	<i>AWS</i>	<i>AWA</i>	<i>Lee</i>	<i>Sail</i>	<i>Flot</i>
	12.0	30.0	4.843	4.194	12.3	1.000	0.849	16.32	21.0	6.88	Up	60el
	12.0	33.0	5.549	4.654	14.3	1.000	0.867	16.85	22.1	5.80	Up	60el
	12.0	36.0	6.072	4.913	15.7	1.000	0.873	17.18	23.3	5.15	Up	60el
	12.0	39.0	6.488	5.042	17.0	1.000	0.884	17.39	24.5	4.73	Up	60el
OptUp >	12.0	41.2	6.738	5.070	17.8	1.000	0.895	17.47	25.5	4.51	Up	60el
	12.0	42.0	6.822	5.070	18.1	1.000	0.899	17.49	25.9	4.44	Up	60el
	12.0	45.0	7.093	5.016	19.0	1.000	0.918	17.52	27.3	4.23	Up	60el
	12.0	50.0	7.423	4.772	20.2	1.000	0.961	17.42	29.7	4.02	Up	60el
	12.0	60.0	7.847	3.923	19.1	1.000	1.000	16.97	35.3	3.39	Up	60el
	12.0	70.0	8.087	2.766	15.7	1.000	1.000	16.32	41.7	2.72	Up	60el
	12.0	80.0	8.195	1.423	12.3	1.000	1.000	15.46	48.3	2.19	Up	60el
	12.0	90.0	8.200	-0.000	9.4	1.000	1.000	14.40	55.3	1.75	Up	60el
	12.0	100.0	8.376	-1.454	23.1	0.986	1.000	12.56	59.9	2.75	Dn	60el
	12.0	110.0	8.508	-2.910	18.3	1.000	1.000	11.58	67.6	2.14	Dn	60el
	12.0	120.0	8.473	-4.237	12.2	1.000	1.000	10.45	76.3	1.58	Dn	60el
	12.0	130.0	8.280	-5.323	7.8	1.000	1.000	9.12	86.4	1.13	Dn	60el
	12.0	135.0	8.142	-5.757	6.1	1.000	1.000	8.44	92.3	0.92	Dn	60el
	12.0	140.0	7.976	-6.110	4.5	1.000	1.000	7.79	99.0	0.74	Dn	60el
OptDn >	12.0	155.0	7.277	6.597	1.4	1.000	1.000	6.21	125.4	0.29	Dn	60el
	12.0	160.0	6.979	-6.558	0.9	1.000	1.000	5.94	136.3	0.21	Dn	60el
	12.0	170.0	6.487	-6.388	0.0	1.000	1.000	5.72	158.6	0.10	Dn	60el
	12.0	180.0	6.128	-6.128	0.0	1.000	1.000	5.87	180.0	-0.00	Dn	60el
	14.0	30.0	5.203	4.506	15.0	1.000	0.747	18.60	21.3	6.91	Up	60el
	14.0	33.0	5.882	4.933	17.0	1.000	0.755	19.07	22.5	5.86	Up	60el
	14.0	36.0	6.380	5.161	18.5	1.000	0.761	19.35	23.8	5.25	Up	60el
	14.0	39.0	6.772	5.263	19.6	1.000	0.770	19.51	25.2	4.84	Up	60el
OptUp >	14.0	40.4	6.925	5.273	20.1	1.000	0.775	19.54	25.9	4.70	Up	60el
	14.0	42.0	7.082	5.263	20.6	1.000	0.783	19.56	26.6	4.56	Up	60el
	14.0	45.0	7.318	5.175	21.3	1.000	0.800	19.53	28.2	4.37	Up	60el
	14.0	50.0	7.611	4.892	22.2	1.000	0.837	19.35	30.9	4.15	Up	60el
	14.0	60.0	8.034	4.017	23.3	1.000	0.934	18.71	36.5	3.82	Up	60el
	14.0	70.0	8.358	2.859	21.3	1.000	1.000	17.97	43.0	3.23	Up	60el
	14.0	80.0	8.536	1.482	16.4	1.000	1.000	17.18	50.3	2.49	Up	60el
	14.0	90.0	8.577	-0.000	12.0	1.000	1.000	16.16	57.9	1.95	Up	60el
	14.0	100.0	8.594	-1.492	23.4	0.910	1.000	14.07	64.0	2.81	Dn	60el
	14.0	110.0	8.802	-3.011	23.9	0.988	1.000	12.68	71.6	2.51	Dn	60el
	14.0	120.0	8.908	-4.454	17.0	1.000	1.000	11.75	80.7	1.81	Dn	60el
	14.0	130.0	8.769	-5.637	10.2	1.000	1.000	10.56	91.2	1.25	Dn	60el
	14.0	135.0	8.639	-6.109	7.8	1.000	1.000	9.89	97.3	1.02	Dn	60el
	14.0	140.0	8.481	-6.497	5.8	1.000	1.000	9.23	104.1	0.81	Dn	60el
	14.0	150.0	8.072	-6.990	2.8	1.000	1.000	8.08	120.1	0.45	Dn	60el
	14.0	160.0	7.613	-7.154	1.3	1.000	1.000	7.32	139.2	0.25	Dn	60el
OptDn >	14.0	163.9	7.459	7.168	1.0	1.000	1.000	7.14	147.1	0.19	Dn	60el
	14.0	170.0	7.244	-7.134	0.0	1.000	1.000	6.98	159.6	0.11	Dn	60el
	14.0	180.0	6.928	-6.928	0.0	1.000	1.000	7.07	180.0	-0.00	Dn	60el

Best Performance (cont)

	<i>TWS</i>	<i>TWA</i>	<i>V</i>	<i>VMG</i>	<i>Heel</i>	<i>Reef</i>	<i>Flat</i>	<i>AWS</i>	<i>AWA</i>	<i>Lee</i>	<i>Sail</i>	<i>Flot</i>
OptUp >	16.0	30.0	5.415	4.689	17.4	1.000	0.658	20.73	21.6	7.11	Up	60el
	16.0	33.0	6.078	5.097	19.1	1.000	0.659	21.16	22.9	6.00	Up	60el
	16.0	36.0	6.567	5.313	20.5	1.000	0.664	21.41	24.3	5.39	Up	60el
	16.0	39.0	6.943	5.396	21.6	1.000	0.672	21.52	25.8	4.98	Up	60el
	16.0	39.7	7.013	5.397	21.8	1.000	0.675	21.53	26.1	4.91	Up	60el
	16.0	42.0	7.229	5.372	22.5	1.000	0.684	21.53	27.4	4.70	Up	60el
	16.0	45.0	7.446	5.265	23.1	1.000	0.700	21.45	29.0	4.51	Up	60el
	16.0	50.0	7.723	4.964	23.7	0.989	0.751	21.22	31.9	4.29	Up	60el
	16.0	60.0	8.154	4.077	23.7	0.946	0.924	20.54	38.2	3.92	Up	60el
	16.0	70.0	8.505	2.909	24.0	0.966	1.000	19.60	44.5	3.54	Up	60el
	16.0	80.0	8.778	1.524	21.3	1.000	1.000	18.68	51.8	2.90	Up	60el
	16.0	90.0	8.898	-0.000	15.4	1.000	1.000	17.81	60.0	2.18	Up	60el
	16.0	100.0	8.862	-1.539	10.7	1.000	1.000	16.64	68.5	1.65	Up	60el
	16.0	110.0	9.025	-3.087	24.2	0.921	1.000	14.16	75.5	2.55	Dn	60el
	16.0	120.0	9.265	-4.632	22.6	1.000	1.000	12.86	84.4	2.09	Dn	60el
OptDn >	16.0	130.0	9.237	-5.938	13.3	1.000	1.000	11.97	95.0	1.38	Dn	60el
	16.0	135.0	9.106	-6.439	9.9	1.000	1.000	11.36	101.2	1.12	Dn	60el
	16.0	140.0	8.935	-6.844	7.2	1.000	1.000	10.73	108.0	0.88	Dn	60el
	16.0	150.0	8.524	-7.382	3.5	1.000	1.000	9.60	123.7	0.50	Dn	60el
	16.0	160.0	8.111	-7.621	1.8	1.000	1.000	8.82	141.7	0.29	Dn	60el
	16.0	167.8	7.855	7.677	1.0	1.000	1.000	8.49	156.5	0.17	Dn	60el
	16.0	170.0	7.790	-7.672	0.0	1.000	1.000	8.44	160.8	0.13	Dn	60el
	16.0	180.0	7.528	-7.528	0.0	1.000	1.000	8.47	180.0	-0.00	Dn	60el
	20.0	30.0	5.465	4.732	20.2	1.000	0.510	24.64	22.4	7.94	Up	60el
	20.0	33.0	6.193	5.194	22.1	0.999	0.513	25.09	23.7	6.56	Up	60el
	20.0	36.0	6.672	5.398	22.8	0.969	0.552	25.29	25.4	5.86	Up	60el
	20.0	39.0	7.055	5.483	23.1	0.940	0.599	25.39	27.1	5.38	Up	60el
	20.0	39.6	7.115	5.482	23.2	0.934	0.608	25.39	27.5	5.31	Up	60el
	20.0	42.0	7.184	5.339	20.3	0.751	0.998	25.37	29.7	5.39	Up	60el
	20.0	45.0	7.559	5.345	24.0	0.904	0.685	25.26	30.8	4.89	Up	60el
OptDn >	20.0	50.0	7.849	5.045	24.0	0.872	0.779	24.99	34.1	4.62	Up	60el
	20.0	60.0	8.321	4.160	24.0	0.836	0.953	24.21	40.8	4.17	Up	60el
	20.0	70.0	8.705	2.977	24.4	0.867	1.000	23.12	47.8	3.72	Up	60el
	20.0	80.0	9.037	1.569	24.6	0.928	1.000	21.85	55.1	3.28	Up	60el
	20.0	90.0	9.374	-0.000	24.0	1.000	1.000	20.53	62.8	2.79	Up	60el
	20.0	100.0	9.533	-1.655	16.6	1.000	1.000	19.83	72.2	1.97	Up	60el
	20.0	110.0	9.431	-3.226	24.9	0.812	1.000	17.24	81.4	2.62	Dn	60el
	20.0	120.0	9.797	-4.898	25.8	0.912	1.000	15.59	90.7	2.24	Dn	60el
	20.0	130.0	10.123	-6.507	22.0	1.000	1.000	14.47	100.9	1.64	Dn	60el
	20.0	135.0	10.099	-7.141	15.9	1.000	1.000	14.19	106.6	1.27	Dn	60el
	20.0	140.0	9.920	-7.599	11.0	1.000	1.000	13.73	113.2	0.99	Dn	60el
	20.0	150.0	9.395	-8.136	5.5	1.000	1.000	12.72	128.5	0.61	Dn	60el
	20.0	160.0	8.962	-8.422	3.0	1.000	1.000	11.97	145.2	0.38	Dn	60el
	20.0	170.0	8.662	-8.530	0.0	1.000	1.000	11.57	162.5	0.18	Dn	60el
	20.0	170.1	8.659	8.531	1.3	1.000	1.000	11.56	162.8	0.17	Dn	60el
	20.0	180.0	8.415	-8.415	0.0	1.000	1.000	11.59	180.0	-0.00	Dn	60el

Best Performance (cont)

	<i>TWS</i>	<i>TWA</i>	<i>V</i>	<i>VMG</i>	<i>Heel</i>	<i>Reef</i>	<i>Flat</i>	<i>AWS</i>	<i>AWA</i>	<i>Lee</i>	<i>Sail</i>	<i>Flot</i>
	25.0	30.0	4.814	4.169	20.3	0.927	0.454	28.94	23.9	11.09	Up	60el
	25.0	33.0	5.881	4.932	22.6	0.903	0.489	29.65	25.1	8.12	Up	60el
	25.0	36.0	6.501	5.259	23.1	0.866	0.540	29.95	26.8	6.88	Up	60el
	25.0	39.0	6.967	5.414	23.7	0.836	0.595	30.07	28.6	6.20	Up	60el
OptUp >	25.0	40.8	7.181	5.434	23.9	0.819	0.629	30.08	29.8	5.91	Up	60el
	25.0	42.0	7.311	5.433	24.0	0.810	0.652	30.07	30.6	5.74	Up	60el
	25.0	45.0	7.565	5.349	24.1	0.787	0.711	29.96	32.6	5.45	Up	60el
	25.0	50.0	7.897	5.076	24.2	0.758	0.811	29.65	36.1	5.10	Up	60el
	25.0	60.0	8.430	4.215	24.4	0.734	0.975	28.75	43.3	4.53	Up	60el
	25.0	70.0	8.860	3.030	24.8	0.768	1.000	27.53	50.8	3.99	Up	60el
	25.0	80.0	9.265	1.609	25.1	0.825	1.000	26.11	58.6	3.47	Up	60el
	25.0	90.0	9.700	-0.000	25.6	0.901	1.000	24.54	66.7	2.98	Up	60el
	25.0	100.0	10.116	-1.757	26.0	0.999	1.000	22.87	75.4	2.53	Up	60el
	25.0	110.0	10.311	-3.526	17.7	1.000	1.000	22.45	85.5	1.73	Up	60el
	25.0	120.0	10.390	-5.195	27.1	0.803	1.000	19.39	96.2	2.26	Dn	60el
	25.0	130.0	11.068	-7.114	28.7	0.944	1.000	17.53	106.6	1.77	Dn	60el
	25.0	135.0	11.426	-8.079	26.1	0.999	1.000	17.06	111.5	1.39	Dn	60el
	25.0	140.0	11.487	-8.799	18.7	1.000	1.000	17.04	116.7	1.02	Dn	60el
	25.0	150.0	10.773	-9.330	9.0	1.000	1.000	16.45	131.4	0.67	Dn	60el
OptDn >	25.0	167.7	9.795	9.571	2.8	1.000	1.000	15.57	160.0	0.27	Dn	60el
	25.0	170.0	9.710	-9.562	0.0	1.000	1.000	15.53	163.8	0.22	Dn	60el
	25.0	180.0	9.381	-9.381	0.0	1.000	1.000	15.62	180.0	-0.00	Dn	60el
	30.0	30.0	6.634	5.745	35.0	0.980	0.987	34.85	20.6	0.51	Up	60el
	30.0	33.0	4.643	3.894	21.0	0.823	0.472	33.48	27.1	13.53	Up	60el
	30.0	36.0	5.960	4.821	23.2	0.780	0.544	34.30	28.2	9.02	Up	60el
	30.0	39.0	6.615	5.141	23.7	0.749	0.603	34.56	30.0	7.54	Up	60el
OptUp >	30.0	43.0	7.221	5.278	24.1	0.715	0.685	34.63	32.7	6.50	Up	60el
	30.0	45.0	7.441	5.262	24.4	0.702	0.727	34.56	34.0	6.23	Up	60el
	30.0	50.0	7.843	5.042	24.5	0.676	0.827	34.25	37.6	5.70	Up	60el
	30.0	60.0	8.455	4.227	24.9	0.657	0.983	33.25	45.1	4.96	Up	60el
	30.0	70.0	8.938	3.057	25.4	0.691	1.000	31.89	53.0	4.32	Up	60el
	30.0	80.0	9.422	1.636	25.8	0.743	1.000	30.35	61.2	3.71	Up	60el
	30.0	90.0	9.929	-0.000	26.4	0.814	1.000	28.64	69.7	3.16	Up	60el
	30.0	100.0	10.465	-1.817	27.1	0.904	1.000	26.83	78.7	2.64	Up	60el
	30.0	110.0	11.092	-3.794	26.4	0.999	1.000	25.27	88.1	2.05	Up	60el
	30.0	120.0	11.319	-5.660	18.0	1.000	1.000	24.98	98.5	1.37	Up	60el
	30.0	130.0	12.021	-7.727	30.4	0.855	1.000	21.11	110.1	1.63	Dn	60el
	30.0	135.0	12.595	-8.906	31.5	0.946	1.000	20.04	115.5	1.36	Dn	60el
	30.0	140.0	13.157	-10.079	28.1	0.999	1.000	19.64	120.0	0.99	Dn	60el
OptDn >	30.0	156.0	12.188	11.135	9.7	1.000	1.000	19.40	141.7	0.49	Dn	60el
	30.0	160.0	11.829	-11.116	7.5	1.000	1.000	19.27	148.1	0.43	Dn	60el
	30.0	170.0	11.091	-10.923	0.0	1.000	1.000	19.17	164.2	0.23	Dn	60el
	30.0	180.0	10.533	-10.533	0.0	1.000	1.000	19.47	180.0	-0.00	Dn	60el

Best Performance (cont)

	TWS	TWA	V	VMG	Heel	Reef	Flat	AWS	AWA	Lee	Sail	Flot
	35.0	30.0	4.483	3.882	12.3	0.500	1.000	38.77	26.2	14.43	Up	60el
	35.0	33.0	7.294	6.118	35.0	0.943	0.943	39.84	23.1	0.64	Up	60el
	35.0	36.0	4.699	3.802	22.9	0.708	0.510	38.07	29.9	14.41	Up	60el
	35.0	39.0	5.763	4.479	23.3	0.683	0.606	38.68	31.5	10.73	Up	60el
	35.0	42.0	6.563	4.877	24.1	0.657	0.670	38.97	33.3	8.54	Up	60el
	35.0	45.0	7.115	5.031	24.5	0.637	0.733	39.02	35.3	7.40	Up	60el
OptUp >	35.0	46.0	7.237	5.030	24.5	0.631	0.753	38.99	36.0	7.18	Up	60el
	35.0	50.0	7.681	4.937	24.8	0.612	0.830	38.77	38.9	6.46	Up	60el
	35.0	60.0	8.401	4.201	25.4	0.596	0.980	37.69	46.6	5.49	Up	60el
	35.0	70.0	8.950	3.061	26.1	0.627	1.000	36.19	54.7	4.74	Up	60el
	35.0	80.0	9.504	1.650	26.7	0.676	1.000	34.52	63.2	4.04	Up	60el
	35.0	90.0	10.080	-0.000	27.4	0.741	1.000	32.66	72.0	3.41	Up	60el
	35.0	100.0	10.760	-1.868	28.2	0.824	1.000	30.74	81.2	2.78	Up	60el
	35.0	110.0	11.571	-3.958	28.8	0.925	1.000	28.83	90.8	2.15	Up	60el
	35.0	120.0	12.421	-6.211	25.9	1.000	1.000	27.73	100.6	1.46	Up	60el
	35.0	130.0	13.006	-8.360	32.0	0.783	1.000	24.63	112.7	1.48	Dn	60el
	35.0	135.0	13.802	-9.760	33.1	0.867	1.000	23.44	117.8	1.17	Dn	60el
	35.0	140.0	14.668	-11.236	34.1	0.964	1.000	22.24	123.1	0.90	Dn	60el
	35.0	150.0	15.467	-13.395	21.1	1.000	1.000	22.06	132.3	0.44	Dn	60el
OptDn >	35.0	153.6	15.067	13.500	16.4	1.000	1.000	22.08	137.5	0.39	Dn	60el
	35.0	160.0	14.204	-13.348	10.5	1.000	1.000	22.08	147.8	0.33	Dn	60el
	35.0	170.0	13.072	-12.873	4.4	1.000	1.000	22.24	164.2	0.19	Dn	60el
	35.0	180.0	12.180	-12.180	0.0	1.000	1.000	22.82	180.0	-0.00	Dn	60el