

J/109 One-Design 104% Jib, 108sqm A-sail, deep keel

Based on ORC IMS 2004 Velocity Prediction program

Columns are as follows: VTW=Velocity True Wind, BTW=Beta True Wind (angle), VAW=Velocity Apparent Wind, BAW=Beta Apparent Wind (angle), V=Velocity (boatspeed), VMG=Velocity Made Good (directly to windward or leeward as the case may be), PHI = heel angle, REEF - program trying to quantify effect of flattening sails and bending mast, CL = calculated coefficient of lift, iter = # of iterations VPP used to generate best case boatspeed scenario.

For each wind condition grouping there are several rows of data for several sailing angles, three of these rows are for calculated OPTIMUM VMG data (indicated as such on right hand most column). First is Optimum Downwind VMG (OPTDN Asym Spin on CL) with Spinnaker, then Optimum downwind with Jib/Genoa ONLY (Jib OPTDN) and finally, Optimum Upwind (OPTUP).

VTW	BTW	VAW	BAW	V	VMG	PHI	REEF	FLAT	CL	iter	
6.0	180.0	2.69	180.00	3.232	-3.232	0.0	1.0000	1.0000	-0.0692	4	Asym Spin tacked on CL
6.0	165.0	2.71	145.65	3.475	-3.357	0.2	1.0000	1.0000	0.8024	3	Asym Spin tacked on CL
6.0	150.0	3.08	105.85	4.285	-3.711	0.8	1.0000	1.0000	2.0933	5	Asym Spin tacked on CL
6.0	135.0	4.35	74.07	5.378	-3.803	1.9	1.0000	1.0000	2.8220	6	Asym Spin tacked on CL
6.0	120.0	6.04	57.85	6.173	-3.086	3.4	1.0000	1.0000	2.8859	5	Asym Spin tacked on CL
6.0	110.0	7.09	51.35	6.454	-2.207	4.6	1.0000	1.0000	2.8279	4	Asym Spin tacked on CL
6.0	90.0	8.74	42.12	6.482	0.000	7.5	1.0000	1.0000	2.4177	4	Asym Spin tacked on CL
6.0	80.0	9.24	38.78	6.174	1.072	6.5	1.0000	1.0000	2.0463	3	Asym Spin tacked on CL
6.0	75.0	9.36	37.41	5.905	1.528	5.4	1.0000	1.0000	1.8454	3	Asym Spin tacked on CL
6.0	70.0	9.39	36.14	5.562	1.902	4.7	1.0000	1.0000	1.6545	3	Asym Spin tacked on CL
6.0	60.0	9.21	33.74	4.698	2.349	3.7	1.0000	1.0000	1.3189	4	Asym Spin tacked on CL
6.0	140.9	3.75	84.02	4.983	-3.868	1.4	1.0000	1.0000	2.6899	4	OPTDN CL Asym
6.0	180.0	2.89	180.00	2.910	-2.910	0.1	1.0000	1.0000	-0.1158	3	Jib
6.0	165.0	3.00	150.01	2.999	-2.897	0.3	1.0000	1.0000	0.1825	4	Jib
6.0	150.0	3.42	122.10	3.201	-2.772	0.5	1.0000	1.0000	0.5685	3	Jib
6.0	135.0	4.13	96.69	3.617	-2.558	0.7	1.0000	1.0000	0.9023	3	Jib
6.0	120.0	5.26	72.56	4.474	-2.237	1.2	1.0000	1.0000	1.2281	3	Jib
6.0	110.0	6.27	60.28	5.089	-1.741	1.7	1.0000	1.0000	1.3989	3	Jib
6.0	90.0	8.22	44.76	5.836	0.000	3.0	1.0000	1.0000	1.5660	3	Jib
6.0	80.0	8.97	39.43	5.920	1.028	3.5	1.0000	1.0000	1.5836	3	Jib
6.0	75.0	9.27	37.02	5.906	1.529	3.7	1.0000	1.0000	1.5867	4	Jib
6.0	70.0	9.53	34.74	5.851	2.001	4.0	1.0000	1.0000	1.5876	4	Jib
6.0	60.0	9.86	30.48	5.602	2.801	4.3	1.0000	1.0000	1.5854	4	Jib
6.0	52.0	9.92	27.32	5.244	3.229	4.4	1.0000	1.0000	1.5833	5	Jib
6.0	173.6	2.90	167.18	2.935	-2.917	0.2	1.0000	1.0000	-0.0009	4	Jib OPTDN
6.0	44.4	9.75	24.51	4.733	3.380	4.3	1.0000	1.0000	1.5787	5	OPTUP

VTW	BTW	VAW	BAW	V	VMG	PHI	REEF	FLAT	CL	iter	
8.0	180.0	3.62	180.00	4.275	-4.275	0.1	1.0000	1.0000	-0.0692	5	Asym Spin tacked on CL
8.0	165.0	3.67	146.20	4.571	-4.415	0.4	1.0000	1.0000	0.7870	3	Asym Spin tacked on CL
8.0	150.0	4.17	108.98	5.477	-4.743	1.2	1.0000	1.0000	1.9779	5	Asym Spin tacked on CL
8.0	135.0	5.66	80.14	6.548	-4.630	2.7	1.0000	1.0000	2.7508	5	Asym Spin tacked on CL
8.0	120.0	7.49	65.21	7.086	-3.543	5.0	1.0000	1.0000	2.8773	5	Asym Spin tacked on CL
8.0	110.0	8.62	57.88	7.277	-2.489	9.4	1.0000	1.0000	2.8864	4	Asym Spin tacked on CL
8.0	90.0	10.42	45.71	7.275	0.000	17.8	1.0000	1.0000	2.6720	5	Asym Spin tacked on CL
8.0	80.0	11.18	40.88	7.093	1.232	18.4	1.0000	1.0000	2.3505	2	Asym Spin tacked on CL
8.0	75.0	11.53	38.91	6.942	1.797	17.0	1.0000	1.0000	2.1240	3	Asym Spin tacked on CL
8.0	70.0	11.81	37.21	6.722	2.299	14.6	1.0000	1.0000	1.8730	3	Asym Spin tacked on CL
8.0	60.0	11.96	34.30	5.944	2.972	8.9	1.0000	1.0000	1.4171	5	Asym Spin tacked on CL
8.0	143.7	4.68	94.37	6.004	-4.839	1.7	1.0000	1.0000	2.4624	4	OPTDN CL Asym
8.0	180.0	3.86	180.00	3.865	-3.865	0.1	1.0000	1.0000	-0.1158	3	Jib
8.0	165.0	4.02	150.16	3.978	-3.843	0.5	1.0000	1.0000	0.1807	4	Jib
8.0	150.0	4.58	122.55	4.226	-3.660	0.8	1.0000	1.0000	0.5623	3	Jib
8.0	135.0	5.52	97.96	4.700	-3.323	1.0	1.0000	1.0000	0.8856	3	Jib
8.0	120.0	6.91	75.62	5.578	-2.789	1.7	1.0000	1.0000	1.1860	3	Jib
8.0	110.0	8.06	64.14	6.159	-2.106	2.4	1.0000	1.0000	1.3445	3	Jib
8.0	90.0	10.25	48.76	6.755	0.000	4.1	1.0000	1.0000	1.5390	4	Jib
8.0	80.0	11.13	42.87	6.818	1.184	5.2	1.0000	1.0000	1.5740	4	Jib
8.0	75.0	11.51	40.10	6.807	1.762	6.1	1.0000	1.0000	1.5821	4	Jib
8.0	70.0	11.84	37.41	6.766	2.314	7.3	1.0000	1.0000	1.5862	4	Jib
8.0	60.0	12.34	32.29	6.580	3.290	9.2	1.0000	1.0000	1.5868	4	Jib
8.0	52.0	12.54	28.48	6.279	3.866	10.1	1.0000	1.0000	1.5841	4	Jib
8.0	174.2	3.87	168.36	3.893	-3.873	0.3	1.0000	1.0000	-0.0120	4	Jib OPTDN
8.0	43.2	12.42	24.74	5.660	4.126	9.9	1.0000	1.0000	1.5800	5	OPTUP

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VTW	BTW	VAW	BAW	V	VMG	PHI	REEF	FLAT	CL	iter				
10.0	180.0	4.62	180.00	5.243	-5.243	0.1	1.0000	1.0000	-0.0692	5	Asym	Spin	tacked	on CL
10.0	165.0	4.71	147.17	5.570	-5.380	0.6	1.0000	1.0000	0.7600	4	Asym	Spin	tacked	on CL
10.0	150.0	5.36	113.07	6.442	-5.579	1.6	1.0000	1.0000	1.8265	5	Asym	Spin	tacked	on CL
10.0	135.0	6.97	87.78	7.243	-5.122	3.4	1.0000	1.0000	2.6186	5	Asym	Spin	tacked	on CL
10.0	120.0	8.86	71.90	7.676	-3.838	8.9	1.0000	1.0000	2.8395	5	Asym	Spin	tacked	on CL
10.0	110.0	9.94	63.40	7.805	-2.669	15.4	1.0000	1.0000	2.8818	4	Asym	Spin	tacked	on CL
10.0	90.0	11.76	49.56	7.628	0.000	23.2	1.0000	0.8826	2.4788	6	Asym	Spin	tacked	on CL
10.0	80.0	12.69	44.05	7.426	1.290	23.2	1.0000	0.8129	2.1149	4	Asym	Spin	tacked	on CL
10.0	75.0	13.10	41.43	7.303	1.890	22.9	1.0000	0.8105	1.9608	3	Asym	Spin	tacked	on CL
10.0	70.0	13.49	38.97	7.150	2.446	22.3	1.0000	0.8416	1.8195	3	Asym	Spin	tacked	on CL
10.0	60.0	14.07	34.71	6.672	3.336	19.0	1.0000	1.0000	1.5351	5	Asym	Spin	tacked	on CL
10.0	149.5	5.40	112.02	6.475	-5.579	1.6	1.0000	1.0000	1.8651	2	OPTDN	CL	Asym	
10.0	180.0	4.90	180.00	4.762	-4.762	0.2	1.0000	1.0000	-0.1158	4	Jib			
10.0	165.0	5.10	150.62	4.890	-4.723	0.7	1.0000	1.0000	0.1751	4	Jib			
10.0	150.0	5.80	123.58	5.160	-4.468	1.1	1.0000	1.0000	0.5480	3	Jib			
10.0	135.0	6.93	99.87	5.642	-3.990	1.5	1.0000	1.0000	0.8606	3	Jib			
10.0	120.0	8.51	79.26	6.414	-3.207	2.2	1.0000	1.0000	1.1363	3	Jib			
10.0	110.0	9.72	68.80	6.818	-2.332	3.0	1.0000	1.0000	1.2796	3	Jib			
10.0	90.0	12.05	52.84	7.279	0.000	5.7	1.0000	1.0000	1.4969	5	Jib			
10.0	80.0	12.99	46.14	7.325	1.272	9.4	1.0000	1.0000	1.5566	4	Jib			
10.0	75.0	13.39	42.95	7.309	1.892	11.2	1.0000	1.0000	1.5726	4	Jib			
10.0	70.0	13.75	39.85	7.268	2.486	12.9	1.0000	1.0000	1.5820	4	Jib			
10.0	60.0	14.33	33.92	7.090	3.545	16.0	1.0000	1.0000	1.5875	4	Jib			
10.0	52.0	14.62	29.49	6.820	4.199	17.7	1.0000	1.0000	1.5850	4	Jib			
10.0	175.0	4.91	170.14	4.788	-4.770	0.4	1.0000	1.0000	-0.0284	4	Jib	OPTDN		
10.0	41.7	14.64	24.67	6.143	4.586	16.8	1.0000	0.9614	1.5195	6	OPTUP			

VTW	BTW	VAW	BAW	V	VMG	PHI	REEF	FLAT	CL	iter				
12.0	180.0	5.72	180.00	6.121	-6.121	0.2	1.0000	1.0000	-0.0692	5	Asym	Spin	tacked	on CL
12.0	165.0	5.87	148.52	6.430	-6.211	0.8	1.0000	1.0000	0.7230	3	Asym	Spin	tacked	on CL
12.0	150.0	6.71	118.11	7.091	-6.141	2.0	1.0000	1.0000	1.6475	4	Asym	Spin	tacked	on CL
12.0	135.0	8.37	94.11	7.767	-5.492	4.2	1.0000	1.0000	2.4696	5	Asym	Spin	tacked	on CL
12.0	120.0	10.17	77.06	8.170	-4.085	13.7	1.0000	1.0000	2.7880	6	Asym	Spin	tacked	on CL
12.0	110.0	11.05	67.71	8.193	-2.802	21.7	1.0000	1.0000	2.8641	5	Asym	Spin	tacked	on CL
12.0	90.0	13.15	53.35	7.847	0.000	25.1	0.9893	0.7618	2.1377	6	Asym	Spin	tacked	on CL
12.0	80.0	14.18	47.18	7.619	1.323	24.8	0.9781	0.6922	1.8168	4	Asym	Spin	tacked	on CL
12.0	75.0	14.65	44.22	7.489	1.938	24.6	0.9767	0.6755	1.6846	3	Asym	Spin	tacked	on CL
12.0	70.0	15.09	41.36	7.343	2.512	24.3	0.9782	0.6754	1.5638	3	Asym	Spin	tacked	on CL
12.0	60.0	15.82	36.15	6.930	3.465	22.8	1.0000	0.7615	1.3502	4	Asym	Spin	tacked	on CL
12.0	159.8	6.06	137.57	6.633	-6.225	1.1	1.0000	1.0000	1.0341	3	OPTDN	CL	Asym	
12.0	180.0	6.00	180.00	5.591	-5.591	0.3	1.0000	1.0000	-0.1158	4	Jib			
12.0	165.0	6.24	151.25	5.727	-5.532	0.9	1.0000	1.0000	0.1675	4	Jib			
12.0	150.0	7.06	124.89	5.998	-5.195	1.4	1.0000	1.0000	0.5296	3	Jib			
12.0	135.0	8.38	102.27	6.414	-4.535	1.9	1.0000	1.0000	0.8295	3	Jib			
12.0	120.0	10.09	83.40	6.954	-3.477	2.7	1.0000	1.0000	1.0803	3	Jib			
12.0	110.0	11.36	73.11	7.263	-2.484	3.6	1.0000	1.0000	1.2201	3	Jib			
12.0	90.0	13.75	56.12	7.667	0.000	9.2	1.0000	1.0000	1.4531	5	Jib			
12.0	80.0	14.67	48.61	7.699	1.337	14.3	1.0000	1.0000	1.5364	4	Jib			
12.0	75.0	15.06	45.01	7.665	1.984	16.8	1.0000	1.0000	1.5614	4	Jib			
12.0	70.0	15.39	41.51	7.596	2.598	19.1	1.0000	1.0000	1.5766	4	Jib			
12.0	60.0	15.99	35.14	7.349	3.675	22.0	1.0000	0.9682	1.5368	5	Jib			
12.0	52.0	16.45	30.82	7.064	4.349	21.2	1.0000	0.8942	1.4184	4	Jib			
12.0	175.8	6.01	171.78	5.614	-5.599	0.5	1.0000	1.0000	-0.0434	4	Jib	OPTDN		
12.0	40.3	16.67	24.95	6.339	4.837	18.8	1.0000	0.8133	1.2861	6	OPTUP			

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VTW	BTW	VAW	BAW	V	VMG	PHI	REEF	FLAT	CL	iter				
14.0	180.0	7.00	180.00	6.813	-6.813	0.2	1.0000	1.0000	-0.0692	4	Asym Spin tacked on CL			
14.0	165.0	7.23	150.36	7.058	-6.817	1.1	1.0000	1.0000	0.6729	3	Asym Spin tacked on CL			
14.0	150.0	8.17	122.36	7.588	-6.571	2.4	1.0000	1.0000	1.5051	4	Asym Spin tacked on CL			
14.0	135.0	9.83	98.84	8.247	-5.831	5.4	1.0000	1.0000	2.3339	5	Asym Spin tacked on CL			
14.0	120.0	11.37	81.15	8.599	-4.299	18.7	1.0000	1.0000	2.7331	6	Asym Spin tacked on CL			
14.0	110.0	12.08	71.58	8.454	-2.891	25.9	0.9780	1.0000	2.7149	4	Asym Spin tacked on CL			
14.0	90.0	14.54	56.57	8.011	0.000	25.2	0.8988	0.8071	1.8812	5	Asym Spin tacked on CL			
14.0	80.0	15.66	49.89	7.759	1.347	24.9	0.8905	0.7170	1.6019	4	Asym Spin tacked on CL			
14.0	75.0	16.17	46.69	7.621	1.972	24.7	0.8912	0.6861	1.4853	3	Asym Spin tacked on CL			
14.0	70.0	16.64	43.57	7.469	2.555	24.5	0.8936	0.6713	1.3818	3	Asym Spin tacked on CL			
14.0	60.0	17.48	37.80	7.074	3.537	23.4	0.9153	0.7063	1.1924	4	Asym Spin tacked on CL			
14.0	170.8	7.06	161.83	6.921	-6.832	0.7	1.0000	1.0000	0.3731	4	OPTDN CL Asym			
14.0	180.0	7.20	180.00	6.325	-6.325	0.4	1.0000	1.0000	-0.1158	4	Jib			
14.0	165.0	7.48	152.12	6.446	-6.227	1.2	1.0000	1.0000	0.1571	4	Jib			
14.0	150.0	8.44	126.76	6.662	-5.769	1.9	1.0000	1.0000	0.5030	3	Jib			
14.0	135.0	9.90	105.24	6.958	-4.920	2.4	1.0000	1.0000	0.7912	3	Jib			
14.0	120.0	11.70	87.07	7.359	-3.679	3.3	1.0000	1.0000	1.0309	3	Jib			
14.0	110.0	13.02	76.64	7.630	-2.610	4.4	1.0000	1.0000	1.1716	4	Jib			
14.0	90.0	15.36	58.62	7.998	0.000	13.1	1.0000	1.0000	1.4165	5	Jib			
14.0	80.0	16.15	50.35	7.980	1.386	19.6	1.0000	1.0000	1.5177	4	Jib			
14.0	75.0	16.45	46.35	7.898	2.044	22.7	1.0000	1.0000	1.5510	4	Jib			
14.0	70.0	16.87	42.96	7.778	2.660	23.6	1.0000	0.9524	1.4954	4	Jib			
14.0	60.0	17.72	36.87	7.496	3.748	23.2	1.0000	0.8411	1.3340	5	Jib			
14.0	52.0	18.25	32.22	7.213	4.441	22.5	1.0000	0.7734	1.2274	4	Jib			
14.0	177.0	7.20	174.35	6.339	-6.330	0.6	1.0000	1.0000	-0.0664	4	Jib OPTDN			
14.0	39.3	18.61	25.35	6.458	4.995	20.2	1.0000	0.6952	1.0998	6	OPTUP			

VTW	BTW	VAW	BAW	V	VMG	PHI	REEF	FLAT	CL	iter				
16.0	180.0	8.45	180.00	7.334	-7.334	0.3	1.0000	1.0000	-0.0692	3	Asym Spin tacked on CL			
16.0	165.0	8.71	152.05	7.547	-7.289	1.3	1.0000	1.0000	0.6274	3	Asym Spin tacked on CL			
16.0	150.0	9.68	125.53	8.038	-6.961	2.9	1.0000	1.0000	1.4029	4	Asym Spin tacked on CL			
16.0	135.0	11.28	102.39	8.719	-6.166	8.4	1.0000	1.0000	2.2197	6	Asym Spin tacked on CL			
16.0	120.0	12.41	84.61	8.956	-4.478	23.7	1.0000	1.0000	2.6764	6	Asym Spin tacked on CL			
16.0	110.0	13.40	75.23	8.671	-2.965	26.1	0.9179	1.0000	2.3635	7	Asym Spin tacked on CL			
16.0	90.0	15.95	59.27	8.150	0.000	25.3	0.8248	0.8470	1.6639	5	Asym Spin tacked on CL			
16.0	80.0	17.13	52.17	7.873	1.367	25.0	0.8190	0.7419	1.4207	4	Asym Spin tacked on CL			
16.0	75.0	17.68	48.78	7.724	1.999	24.8	0.8205	0.7017	1.3186	3	Asym Spin tacked on CL			
16.0	70.0	18.19	45.47	7.564	2.587	24.6	0.8245	0.6746	1.2272	3	Asym Spin tacked on CL			
16.0	60.0	19.09	39.24	7.171	3.585	23.7	0.8411	0.6827	1.0643	4	Asym Spin tacked on CL			
16.0	175.5	8.46	171.52	7.364	-7.341	0.6	1.0000	1.0000	0.1334	4	OPTDN CL Asym			
16.0	180.0	8.57	180.00	6.889	-6.889	0.5	1.0000	1.0000	-0.1158	5	Jib			
16.0	165.0	8.89	153.27	6.987	-6.749	1.5	1.0000	1.0000	0.1437	4	Jib			
16.0	150.0	9.92	128.91	7.151	-6.193	2.3	1.0000	1.0000	0.4724	4	Jib			
16.0	135.0	11.47	108.02	7.377	-5.216	3.0	1.0000	1.0000	0.7557	3	Jib			
16.0	120.0	13.35	90.05	7.712	-3.856	4.0	1.0000	1.0000	0.9908	3	Jib			
16.0	110.0	14.69	79.46	7.968	-2.725	5.8	1.0000	1.0000	1.1331	4	Jib			
16.0	90.0	16.82	60.52	8.278	0.000	17.4	1.0000	1.0000	1.3877	6	Jib			
16.0	80.0	17.40	51.64	8.154	1.416	24.6	1.0000	0.9915	1.4883	5	Jib			
16.0	75.0	17.95	48.18	8.027	2.078	24.6	1.0000	0.9090	1.3961	4	Jib			
16.0	70.0	18.48	44.83	7.892	2.699	24.5	1.0000	0.8409	1.3121	4	Jib			
16.0	60.0	19.41	38.37	7.594	3.797	24.2	1.0000	0.7367	1.1668	5	Jib			
16.0	52.0	20.01	33.43	7.306	4.498	23.5	1.0000	0.6745	1.0708	4	Jib			
16.0	178.0	8.57	176.42	6.896	-6.892	0.7	1.0000	1.0000	-0.0846	4	Jib OPTDN			
16.0	38.8	20.49	25.84	6.533	5.090	21.3	1.0000	0.6009	0.9511	6	OPTUP			

J/109 One-Design 104% Jib, 108sqm A-sail, deep keel

Based on ORC IMS 2004 Velocity Prediction program

VTW	BTW	VAW	BAW	V	VMG	PHI	REEF	FLAT	CL	iter	
20.0	180.0	11.53	180.00	8.196	-8.196	0.6	1.0000	1.0000	-0.0692	4	Asym Spin tacked on CL
20.0	165.0	11.80	154.38	8.413	-8.126	1.9	1.0000	1.0000	0.5657	3	Asym Spin tacked on CL
20.0	150.0	12.76	129.59	8.946	-7.747	4.1	1.0000	1.0000	1.2766	4	Asym Spin tacked on CL
20.0	135.0	13.94	107.16	9.753	-6.897	16.1	1.0000	1.0000	2.0577	7	Asym Spin tacked on CL
20.0	120.0	14.79	90.42	9.499	-4.750	27.3	0.9337	1.0000	2.2327	9	Asym Spin tacked on CL
20.0	110.0	16.12	80.74	9.067	-3.101	26.6	0.8201	1.0000	1.8409	4	Asym Spin tacked on CL
20.0	90.0	18.79	63.54	8.372	0.000	25.5	0.7100	0.9106	1.3220	4	Asym Spin tacked on CL
20.0	80.0	20.08	55.83	8.040	1.396	25.2	0.7084	0.7853	1.1360	4	Asym Spin tacked on CL
20.0	75.0	20.68	52.13	7.868	2.037	25.0	0.7107	0.7331	1.0569	3	Asym Spin tacked on CL
20.0	70.0	21.25	48.54	7.687	2.629	24.8	0.7158	0.6907	0.9856	3	Asym Spin tacked on CL
20.0	60.0	22.26	41.66	7.269	3.634	24.1	0.7315	0.6590	0.8616	4	Asym Spin tacked on CL
20.0	176.5	11.54	174.05	8.217	-8.202	0.9	1.0000	1.0000	0.0725	4	OPTDN CL Asym
20.0	180.0	11.61	180.00	7.710	-7.710	0.8	1.0000	1.0000	-0.1158	4	Jib
20.0	165.0	11.96	155.31	7.792	-7.527	2.3	1.0000	1.0000	0.1207	4	Jib
20.0	150.0	13.06	132.42	7.919	-6.858	3.4	1.0000	1.0000	0.4225	4	Jib
20.0	135.0	14.70	112.21	8.097	-5.725	4.7	1.0000	1.0000	0.7020	4	Jib
20.0	120.0	16.61	94.40	8.371	-4.186	7.6	1.0000	1.0000	0.9331	4	Jib
20.0	110.0	17.81	83.53	8.591	-2.938	12.1	1.0000	1.0000	1.0773	4	Jib
20.0	90.0	19.12	63.18	8.627	0.000	26.1	1.0000	0.9982	1.3436	7	Jib
20.0	80.0	20.40	55.27	8.337	1.448	25.9	0.9633	0.8732	1.1788	4	Jib
20.0	75.0	21.00	51.51	8.183	2.118	25.7	0.9474	0.8216	1.1077	4	Jib
20.0	70.0	21.57	47.86	8.025	2.745	25.5	0.9373	0.7718	1.0429	4	Jib
20.0	60.0	22.63	40.84	7.688	3.844	25.0	0.9361	0.6709	0.9276	4	Jib
20.0	52.0	23.36	35.47	7.379	4.543	24.6	0.9545	0.5849	0.8458	5	Jib
20.0	178.5	11.61	177.50	7.715	-7.712	1.0	1.0000	1.0000	-0.0940	4	Jib OPTDN
20.0	38.8	24.12	27.17	6.593	5.137	22.9	1.0000	0.4641	0.7350	7	OPTUP

J109JEZ.DAT J109USSA.OFF Cert#: Yacht: J109
 Class: Designer: RODNEY JOHNSTONE

Ratings Before Wind Averaging and NOT multiplied by Dynamic Allowance.

VTW	WW/LW	OLYMPIC	CR	LR	OCEAN	CC CR	CC LR
6.0	1006.5	946.4	755.8	718.2	893.3	881.4	829.8
8.0	814.5	771.4	628.5	605.1	710.0	708.5	679.5
10.0	720.3	689.7	569.1	552.1	610.7	620.6	603.2
12.0	665.6	645.1	535.2	520.3	549.9	570.6	558.0
14.0	627.5	614.8	512.5	498.2	508.3	539.1	528.1
16.0	602.1	593.9	495.9	481.0	478.3	518.6	507.5
20.0	572.1	568.2	474.0	455.6	433.7	493.8	480.5

Wind Averaged Ratings multiplied by Dynamic allowance.

VTW	WW/LW	OLYMPIC	CR	LR	OCEAN	CC CR	CC LR
6.0	1028.0	967.5	837.5	801.6	951.6	951.7	906.8
8.0	831.6	788.6	680.9	655.2	749.9	758.6	729.0
10.0	732.1	701.4	598.2	578.2	636.4	653.4	632.6
12.0	674.4	653.7	550.7	533.6	565.6	591.2	575.5
14.0	635.9	622.6	521.3	505.3	518.1	552.4	539.1
16.0	609.7	601.1	501.6	485.3	483.7	527.0	514.5
20.0	578.4	574.5	475.7	457.0	435.1	496.0	482.4

General purpose rating (W/ DA): 615.8 Time on time multiplier (W/ DA): 0.9729

Ocean course performance line scoring time factor (W/ DA): 0.789

Ocean course performance line scoring distance factor (W/ DA): 81.6

J/109 One-Design 104% Jib, 108sqm A-sail, deep keel

Based on ORC IMS 2004 Velocity Prediction program

----- 2004 TIME ALLOWANCES IN SEC/MI BY TRUE WIND VELOCITY & ANGLE -----
----- NOT Wind Averaged. These have been multiplied by Dynamic Allowance -----

Wind Velocity:	6kt	8kt	10kt	12kt	14kt	16kt	20kt
BEAT ANGLES:	44.4ø	43.2ø	41.7ø	40.3ø	39.3ø	38.8ø	38.8ø
BEAT VMG:	1083.8	886.4	796.5	754.1	729.2	714.8	706.3
52ø:	695.1	579.8	533.0	514.1	503.0	496.0	490.4
R 60ø:	647.6	550.9	510.9	492.5	482.6	476.1	469.9
E 75ø:	610.5	519.4	493.2	470.4	456.5	449.2	440.6
A 90ø:	556.2	495.6	472.6	459.5	450.1	435.6	417.9
C 110ø:	558.6	495.4	462.0	440.1	426.4	415.8	397.7
H 120ø:	584.1	508.8	469.7	441.4	419.3	402.6	379.6
135ø:	670.4	550.6	497.7	464.2	437.2	413.5	369.7
150ø:	807.3	645.2	559.7	508.5	475.2	448.6	403.0
RUN VMG:	932.2	745.0	646.3	579.2	527.7	491.2	439.6
GYBE ANGLES:	140.9ø	143.7ø	149.5ø	159.8ø	170.8ø	175.5ø	176.5ø

NOTE: To convert any time allowance above to speed in knots: Kt = 3600/TA

----- 2004 WIND-AVERAGED TIME ALLOWANCES FOR SELECTED COURSES -----
----- Already multiplied by Dynamic Allowance -----

Wnd/Lwd VMG	1028.0	831.6	732.1	674.4	635.9	609.7	578.4
Olympic 6-leg	967.5	788.6	701.4	653.7	622.6	601.1	574.5
Circular Rndm	837.5	680.9	598.2	550.7	521.3	501.6	475.7
Non-Spinnaker	951.7	758.6	653.4	591.2	552.4	527.0	496.0
Ocean for PCS	951.6	749.9	636.4	565.6	518.1	483.7	435.1

International Level Class Time Allowances NOT wind averaged (W/ DA).

Wind	VMG Beat	110 Reach	VMG Run
6	1083.8	558.6	932.2
10	796.5	462.0	646.3
20	706.3	397.7	439.6

ORC ILC overall rating for ILC racing and for size limits (W/ DA): 693.8

Dynamic Allowance has ALREADY been used to multiply the ratings in all IMS output files: 1.0047
Dynamic Allowance expressed as a percentage credit: 0.47%

Age Allowance for optional use as a rating multiplier by scoring programs: 1.0015
Age Allowance expressed as a percentage credit: 0.15%

This boat's Accommodation Certificate status is: CRUISER/RACER
These Allowances differ from 0.0 only for CRUISER/RACERS.

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