

APH: **551.1** CDL: **8.883**

GPH: **618.8** CertNo: **22/1**

BOAT

Class **Grand Surprise**
Designer **Joubert/Nivelt**
Builder **Archambault**
Age date **01/2007**
Series date **06/2000**
Offset file **GRANDSURPRISE31.OFI**
Data file **SUI180**

HULL

Length Overall **9.550 m**
Maximum Beam **2.964 m**
Draft **2.086 m**
Displacement **2,853 kg**
DLR **3.3747**
IMS Division **Performance**
Dynamic Allowance **0.000%**
Age Allowance **0.487%**

PROPELLER

Installation **Shaft exposed**
Type **Folding 2 blades**
Diameter **0.382m**

CREW

Maximum weight **500 kg**
Minimum weight **375 kg * when applied**
Non Manual Power **No**
Crew Arm Extension

SAIL AREAS (m²)

	Measured	Rated
Mainsail	31.85	32.70
Headsail Luffed	17.92	17.92
Headsail Flying		
Symmetric	65.96	65.96
Asymmetric	88.55	88.55

(All asymmetric spinnakers with SHW/SFL > 85%)

STORM SAIL AREAS (m²)

Trysail **8.93**
Storm Jib **7.88**
Heavy Weather Jib **21.26**

SAIL LIMITS

Headsails **5**
Spinnakers **4 * Asymmetric SHALL NOT be tacked on the pole**

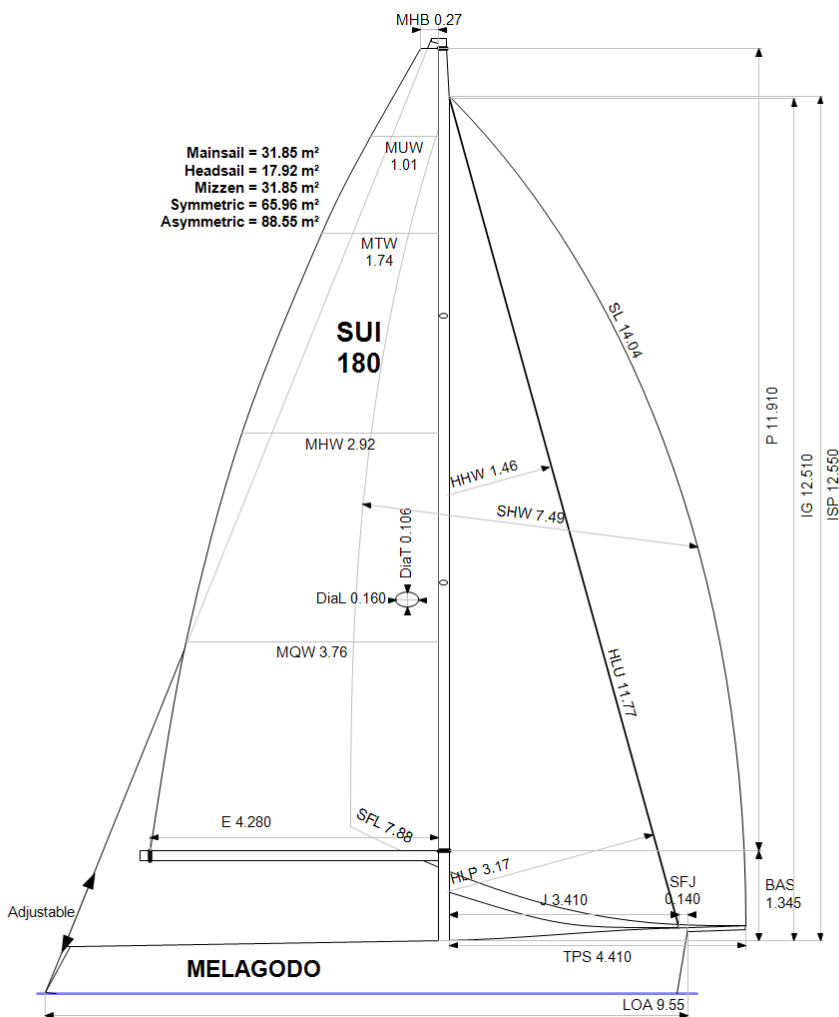
STABILITY

Righting Moment **66.9 kg·m**
Stability Index **107.9**

OWNER

Vecchio Mario S.C. Lecco

The owner and any other person in charge is responsible that boat is complying with her certificate in accordance with RRS 78.1 and ORC Rule 304.



Rated boat velocities in knots

Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat Angles	42.9°	41.4°	40.2°	38.7°	38.2°	38.2°	37.8°
Beat VMG	3.36	4.10	4.68	4.95	5.04	5.08	5.19
52°	5.13	6.15	6.77	7.01	7.10	7.15	7.29
60°	5.42	6.43	6.95	7.21	7.34	7.41	7.57
75°	5.63	6.63	7.09	7.43	7.74	7.95	8.13
90°	5.83	6.88	7.22	7.50	7.94	8.37	8.94
110°	5.93	7.00	7.56	8.03	8.40	8.75	9.41
120°	5.76	6.92	7.52	8.19	8.81	9.26	10.14
135°	5.14	6.45	7.19	7.79	8.53	9.42	11.41
150°	4.34	5.49	6.51	7.14	7.55	8.05	9.92
Run VMG	3.76	4.76	5.64	6.19	6.76	7.24	8.59
Gybe Angles	143.5°	146.0°	148.7°	151.0°	170.0°	177.2°	142.6°

Time Allowances in secs/NM							
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat VMG	1073.0	877.3	769.0	727.5	714.2	709.2	694.2
52°	702.4	585.5	531.6	513.3	506.8	503.4	493.7
60°	664.2	559.7	517.9	499.3	490.5	485.6	475.3
75°	638.9	542.7	507.7	484.3	464.8	452.8	442.8
90°	617.8	523.5	498.9	480.1	453.5	430.1	402.5
110°	607.4	514.0	475.9	448.1	428.8	411.5	382.7
120°	624.7	520.2	479.0	439.5	408.8	388.7	354.9
135°	700.8	558.4	500.4	462.1	422.0	382.4	315.5
150°	829.2	655.3	552.7	504.1	476.8	447.3	362.7
Run VMG	957.5	756.7	638.2	581.5	532.4	497.2	418.9
Selected Courses							
Windward / Leeward	1015.2	817.0	703.6	654.5	623.3	603.2	556.5
All purpose	779.3	638.2	568.6	534.3	510.7	493.0	457.8

Single Number Scoring Options		
Course	Time On Distance	Time On Time
Windward / Leeward	682.3	0.8793
All purpose	551.1	1.0887

Custom scoring options for Italy

Single Number	Time On Distance	Time On Time
Coastal/Long Distance	601.1	0.9982
Triple Number Coastal/Long Distance Low	708.7	0.8466
Triple Number Coastal/Long Distance Medium	548.5	1.0939
Triple Number Coastal/Long Distance High	484.2	1.2391
Triple Number Windward/Leeward Low	916.2	0.6549
Triple Number Windward/Leeward Medium	676.6	0.8868
Triple Number Windward/Leeward High	590.7	1.0157

Performance Curve	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Coastal/Long Distance	1009.5	766.5	637.0	569.9	530.7	498.0	435.6

Data in meters/kilograms (Metric)

HULL AND APPENDAGES (Lightship Trim)

Class	Grand Surprise	LOA	9.550	VCGD	-0.093
Measurement	15/09/2016	Max. Beam	2.964	VCGM	-0.059
HIN		Draft	2.086	RM Measured (kg·m)	66.9
Plan review		Displacement	2,853	RM Default (kg·m)	65.2
Hull construction	Solid	Wetted area	19.17	Limit of positive stability(°)	110.4
Aramid Hull Core	No	IMS L	9.340	Stability Index	107.9
Carbon Rudder	No	LSM0	9.455		
Light stanchions	No	Acc. length	9.550		
Trim tab	No	Sink (kg/mm)	14.88		

PROPELLER

Propeller Type	Folding 2 blades										
Installation	Shaft exposed	PRD	0.382	PSD	0.025	PSA	16.0°	ST1	0.021	ST4	0.050
Twin screw	No	PBW	0.110	PHD	0.069	ESL	0.880	ST2	0.080	ST5	0.165
Hydro generator	No	PIPA	0.0042	PHL	0.115			ST3	0.085		

RIG

Forestay tension	Aft	P	11.910	E	4.280
Inner stay	None Fitted	IG	12.510	J	3.410
Carbon mast	No	ISP	12.550	BAS	1.345
Headsail furler	No	MDT1	0.106	FSD	0.033
Mainsail furler	No	MDL1	0.160	SFJ	0.140
Articulated bowsprit	No	MDT2	0.078	SPL	3.960
Non-circular rigging	No	MDL2	0.124	WPL	
Fiber rigging	No	TL	0.800	TPS	4.410
Runners/Checkstays	0	MW	0.160	BD	0.150
Spreaders	2	GO	0.170	MWT	80.00
				MCG	4.600

FLOTATION AND STABILITY

Calculation method	Poles inclining	SFFP	0.230	SAFP	9.178	W1	47.0	PD1	534.5	WD	9.700
Flotation Date	04/03/2016	FFM	0.970	FAM	0.688	W2	47.0	PD2	537.7	PLM	9000.00
Measurer	FIV-122	FF	0.970	FA	0.688	W3	47.0	PD3	536.8	GSA	1.0
Comment		LCFcl	5.369	LCFsh	5.565	W4	47.0	PD4	537.6	RSA	1.0
		SG	1.0260	HBI	0.779						

INVENTORY

TANKS	<i>Id</i>	<i>Description</i>	<i>Sp.Wght</i>	<i>Capacity</i>	<i>Condition</i>	<i>LCG</i>	<i>VCG</i>
	A	acqua pvc vuoto		50	0	3.60	0.00
	B	gasolio pvc vuoto		30	0	8.00	0.00
				<i>Total deductible</i>			

OTHER ITEMS	<i>Id</i>	<i>Kind</i>	<i>Description</i>	<i>Weight</i>	<i>LCG</i>	<i>VCG</i>
	A		Battery 2x50AH	0	5.00	0.00
	A		Engine Lombardini 11 hp			
				<i>Total deductible</i>		

MAINSAIL

<i>Id</i>	<i>MHB</i>	<i>MUW</i>	<i>MTW</i>	<i>MHW</i>	<i>MQW</i>	<i>Area Meas.Date</i>	<i>Maker</i>	<i>Material</i>	<i>Comment</i>
C	0.27	1.01	1.74	2.92	3.76	31.85 28/04/2022			
A	0.17	0.99	1.76	2.86	3.68	31.38 09/04/2018			
B	0.16	0.90	1.63	2.77	3.62	30.50 15/09/2016	Sailwear		

HEADSAIL

<i>Id</i>	<i>HHB</i>	<i>HUW</i>	<i>HTW</i>	<i>HHW</i>	<i>HQW</i>	<i>HLP</i>	<i>HLU</i>	<i>Btn</i>	<i>Flying</i>	<i>FT</i>	<i>Area Meas.Date</i>	<i>Maker</i>	<i>Material</i>	<i>Comment</i>
B	0.05	0.37	0.72	1.46	2.28	3.17	11.77	No	No		17.92 04/03/2016			

SYMMETRIC SPINNAKER

<i>Id</i>	<i>SLU</i>	<i>SLE</i>	<i>SL</i>	<i>SHW</i>	<i>SFL</i>	<i>Area Meas.Date</i>	<i>Maker</i>	<i>Material</i>	<i>Comment</i>
B	11.80	11.80	11.80	6.74	6.58	65.96 15/09/2016	Sailwear		

ASYMMETRIC SPINNAKER

<i>Id</i>	<i>SLU</i>	<i>SLE</i>	<i>SL</i>	<i>SHW</i>	<i>SFL</i>	<i>Ratio</i>	<i>Area Meas.Date</i>	<i>Maker</i>	<i>Material</i>	<i>Comment</i>
A	14.88	13.20	14.04	7.49	7.88	95%	88.55 04/03/2016			

APH: **591.4** CDL: **8.506**

GPH: **668.3** CertNo: **22/1**

BOAT

Class **Grand Surprise**
Designer **Joubert/Nivelt**
Builder **Archambault**
Age date **01/2007**
Series date **06/2000**
Offset file **GRANDSURPRISE31.OF1**
Data file **SUI180**

HULL

Length Overall **9.550 m**
Maximum Beam **2.964 m**
Draft **2.086 m**
Displacement **2,853 kg**
DLR **3.3747**
IMS Division **Performance**
Dynamic Allowance **0.000%**
Age Allowance **0.487%**

PROPELLER

Installation **Shaft exposed**
Type **Folding 2 blades**
Diameter **0.382m**

CREW

Maximum weight **240 kg**
Minimum weight **155 kg** * when applied
Non Manual Power **No**
Crew Arm Extension

SAIL AREAS (m²)

	Measured	Rated
Mainsail	31.85	32.70
Headsail Luffed	17.92	17.92
Headsail Flying		

Symmetric
Asymmetric

STORM SAIL AREAS (m²)

Trysail **8.93**
Storm Jib **7.88**
Heavy Weather Jib **21.26**

SAIL LIMITS

Headsails **5**
Spinnakers **0** * No spinnaker pole aboard

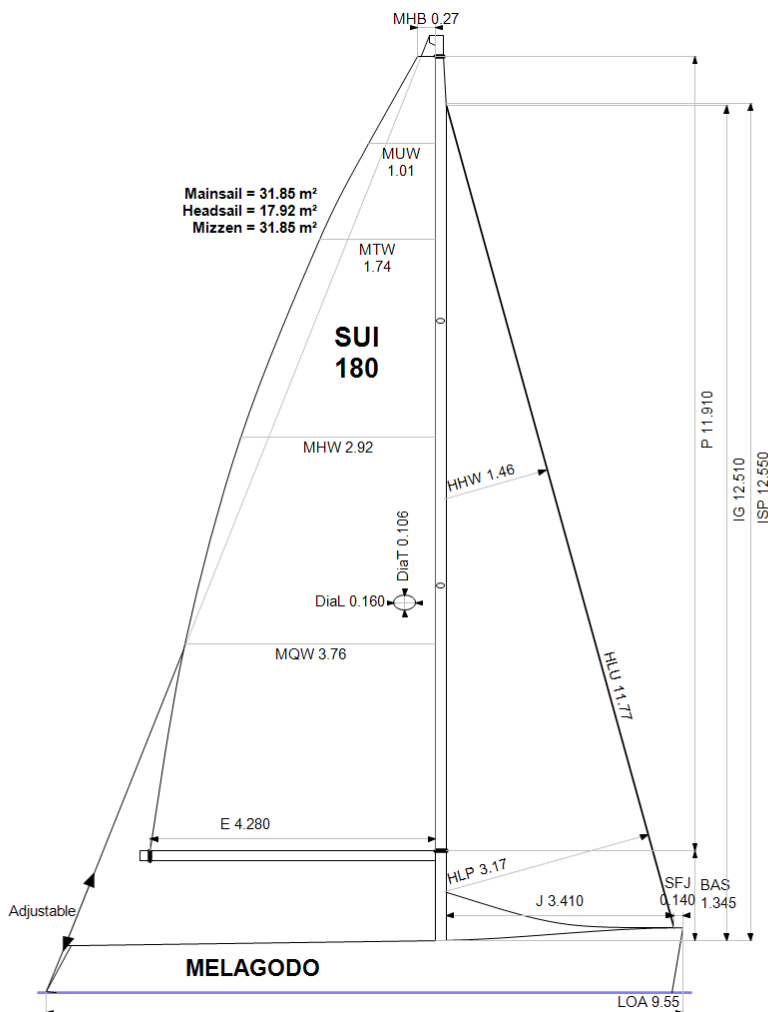
STABILITY

Righting Moment **66.9 kg·m**
Stability Index **112.9**

OWNER

Vecchio Mario S.C. Lecco

The owner and any other person in charge is responsible that boat is complying with her certificate in accordance with RRS 78.1 and ORC Rule 304.



Rated boat velocities in knots

Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat Angles	43.0°	41.8°	40.6°	40.0°	40.0°	39.4°	41.0°
Beat VMG	3.39	4.15	4.60	4.74	4.78	4.91	4.89
52°	5.16	6.23	6.73	6.87	6.93	7.01	7.11
60°	5.45	6.51	6.95	7.11	7.19	7.22	7.41
75°	5.69	6.69	7.14	7.44	7.63	7.75	7.95
90°	5.63	6.69	7.19	7.59	8.01	8.34	8.68
110°	5.01	6.20	6.96	7.41	7.94	8.52	9.42
120°	4.67	5.85	6.76	7.25	7.73	8.30	9.71
135°	4.02	5.15	6.14	6.87	7.31	7.79	9.01
150°	3.38	4.42	5.32	6.16	6.82	7.23	8.11
Run VMG	2.93	3.83	4.68	5.50	6.27	6.88	7.73
Gybe Angles	145.1°	146.9°	175.4°	179.9°	179.9°	179.9°	179.9°

Time Allowances in secs/NM							
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat VMG	1062.3	867.6	783.2	759.8	752.4	733.5	736.8
52°	698.3	577.9	534.9	523.8	519.3	513.5	506.5
60°	660.9	553.4	518.0	506.5	501.0	498.5	485.8
75°	632.4	537.7	503.9	484.2	471.8	464.6	452.7
90°	639.2	538.3	501.0	474.1	449.4	431.4	414.9
110°	718.6	580.7	517.1	485.6	453.6	422.3	382.3
120°	771.0	615.1	532.3	496.5	465.9	433.6	370.6
135°	896.4	699.5	586.2	524.1	492.4	462.0	399.3
150°	1064.2	814.8	676.6	584.0	528.1	498.0	443.7
Run VMG	1228.8	940.9	769.2	654.9	574.1	523.4	465.7
Selected Courses							
Windward / Leeward	1145.6	904.3	776.2	707.3	663.3	628.5	601.2
All purpose	866.2	695.7	612.8	569.9	542.3	519.3	491.8

Single Number Scoring Options		
Course	Time On Distance	Time On Time
Windward / Leeward	740.7	0.8100
All purpose	591.4	1.0146

Custom scoring options for Italy

Single Number	Time On Distance	Time On Time
Coastal/Long Distance	649.4	0.9239
Triple Number Coastal/Long Distance Low	780.9	0.7683
Triple Number Coastal/Long Distance Medium	587.8	1.0208
Triple Number Coastal/Long Distance High	514.7	1.1657
Triple Number Windward/Leeward Low	1024.9	0.5854
Triple Number Windward/Leeward Medium	735.7	0.8156
Triple Number Windward/Leeward High	627.0	0.9570

Performance Curve	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Coastal/Long Distance	1153.9	849.5	695.9	611.6	564.5	524.9	461.7



Data in meters/kilograms (Metric)

HULL AND APPENDAGES (Lightship Trim)

Class	Grand Surprise	LOA	9.550	VCGD	-0.093
Measurement	15/09/2016	Max. Beam	2.964	VCGM	-0.059
HIN		Draft	2.086	RM Measured (kg·m)	66.9
Plan review		Displacement	2,853	RM Default (kg·m)	62.7
Hull construction	Solid	Wetted area	19.17	Limit of positive stability(°)	115.4
Aramid Hull Core	No	IMS L	9.287	Stability Index	112.9
Carbon Rudder	No	LSM0	9.455		
Light stanchions	No	Acc. length	9.550		
Trim tab	No	Sink (kg/mm)	14.88		

PROPELLER

Propeller Type	Folding 2 blades						
Installation	Shaft exposed	PRD	0.382	PSD	0.025	PSA	16.0°
Twin screw	No	PBW	0.110	PHD	0.069	ESL	0.880
Hydro generator	No	PIPA	0.0042	PHL	0.115	ST1	0.021
						ST2	0.080
						ST3	0.085
						ST4	0.050
						ST5	0.165

RIG

Forestay tension	Aft	P	11.910	E	4.280
Inner stay	None Fitted	IG	12.510	J	3.410
Carbon mast	No	ISP	12.550	BAS	1.345
Headsail furler	No	MDT1	0.106	FSD	0.033
Mainsail furler	No	MDL1	0.160	SFJ	0.140
Articulated bowsprit	No	MDT2	0.078	SPL	
Non-circular rigging	No	MDL2	0.124	WPL	
Fiber rigging	No	TL	0.800	TPS	
Runners/Checkstays	0	MW	0.160	BD	0.150
Spreaders	2	GO	0.170	MWT	80.00
				MCG	4.600

FLOTATION AND STABILITY

Calculation method	Poles inclining	SFFP	0.230	SAFP	9.178	W1	47.0	PD1	534.5	WD	9.700
Flotation Date	04/03/2016	FFM	0.970	FAM	0.688	W2	47.0	PD2	537.7	PLM	9000.00
Measurer	FIV-122	FF	0.970	FA	0.688	W3	47.0	PD3	536.8	GSA	1.0
Comment		LCFcl	5.369	LCFsh	5.565	W4	47.0	PD4	537.6	RSA	1.0
		SG	1.0260	HBI	0.779						

INVENTORY

TANKS	<i>Id</i>	<i>Description</i>	<i>Sp.Wght</i>	<i>Capacity</i>	<i>Condition</i>	<i>LCG</i>	<i>VCG</i>
	A	acqua pvc vuoto		50	0	3.60	0.00
	B	gasolio pvc vuoto		30	0	8.00	0.00

Total deductible

OTHER ITEMS	<i>Id</i>	<i>Kind</i>	<i>Description</i>	<i>Weight</i>	<i>LCG</i>	<i>VCG</i>
	A		Battery 2x50AH	0	5.00	0.00
	A		Engine Lombardini 11 hp			

Total deductible 0

MAINSAIL

<i>Id</i>	<i>MHB</i>	<i>MUW</i>	<i>MTW</i>	<i>MHW</i>	<i>MQW</i>	<i>Area</i>	<i>Meas.Date</i>	<i>Maker</i>	<i>Material</i>	<i>Comment</i>
C	0.27	1.01	1.74	2.92	3.76	31.85	28/04/2022			
A	0.17	0.99	1.76	2.86	3.68	31.38	09/04/2018			
B	0.16	0.90	1.63	2.77	3.62	30.50	15/09/2016	Sailwear		

HEADSAIL

<i>Id</i>	<i>HHB</i>	<i>HUW</i>	<i>HTW</i>	<i>HHW</i>	<i>HQW</i>	<i>HLP</i>	<i>HLU</i>	<i>Btn</i>	<i>Flying</i>	<i>FT</i>	<i>Area</i>	<i>Meas.Date</i>	<i>Maker</i>	<i>Material</i>	<i>Comment</i>
B	0.05	0.37	0.72	1.46	2.28	3.17	11.77	No	No		17.92	04/03/2016			