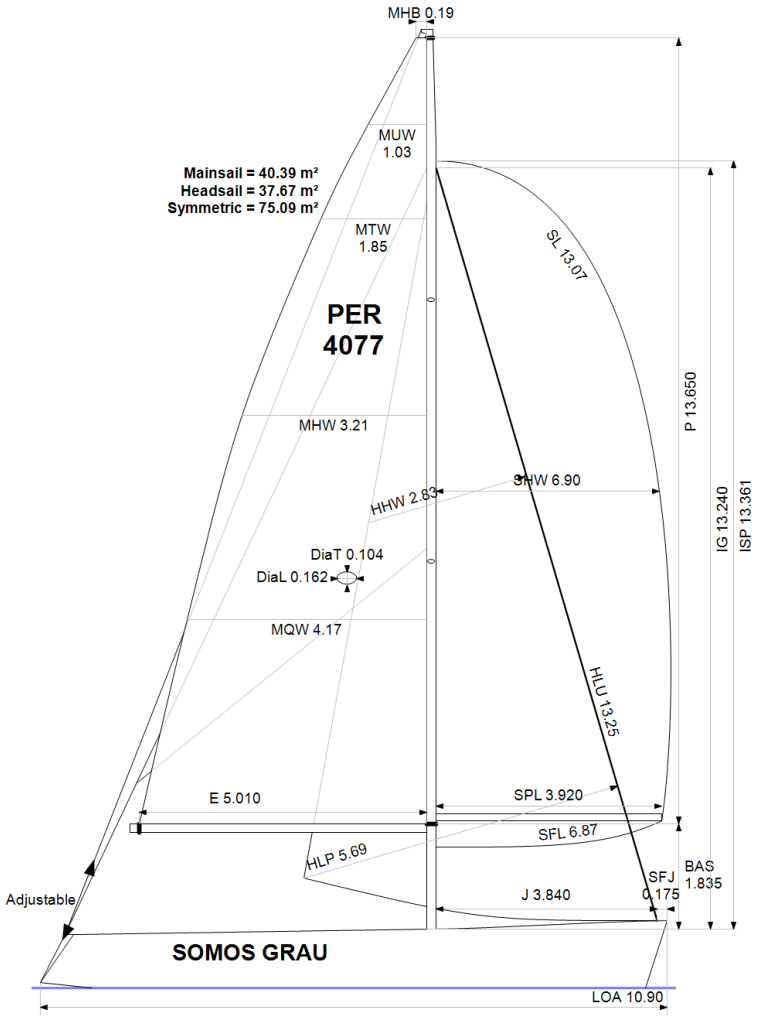
International Certificate 2022

Boat
SOMOS GRAU
PER 4077

Asociacion de Vela Oceanica
del Peru - AVOP
Roberto Peschiera - Rating Officer
peschiera56@gmail.com

APH: **528.0** CDL: **9.688**

GPH: **590.5** CertNo: **PERI09**



BOAT

Class	**MUMM 36**
Designer	**BRUCE FARR**
Builder	**AST. DEL SUR**
Age date	**09/1992**
Series date	**09/1992**
Offset file	**SANGREGO.OFF**
Data file	**PER4077**

HULL

Length Overall	**10.900 m**
Maximum Beam	**3.610 m**
Draft	**2.248 m**
Displacement	**3,835 kg**
DLR	**4.3254**
IMS Division	**Performance**
Dynamic Allowance	**0.000%**
Age Allowance	**0.487%**

PROPELLER

Installation	**Strut**
Type	**Folding 2 blades**
Diameter	**0.385m**

CREW

Maximum weight	**560 kg**
Minimum weight	**420 kg** ** when applied*
Non Manual Power	**No**
Crew Arm Extension	

SAIL AREAS (m²)

	Measured	Rated
Mainsail	**40.39**	**41.24**
Headsail Luffed	**37.67**	**37.67**
Headsail Flying		
Symmetric	**75.09**	**75.09**
Asymmetric		

STORM SAIL AREAS (m²)

Trysail	**11.97**
Storm Jib	**8.91**
Heavy Weather Jib	**24.04**

SAIL LIMITS

Headsails	**5**
Spinnakers	**4**

STABILITY

Righting Moment	**101.1 kg·m**
Stability Index	**111.3**

COMMENTS

CAMBIO DE ARMADOR MEDICION FLOTACION Y ESTAB EX PISCO PURO

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	42.4°	40.8°	38.8°	38.2°	37.6°	37.5°	37.5°
Beat VMG	3.87	4.69	5.10	5.27	5.36	5.39	5.47
52°	5.88	6.89	7.25	7.38	7.46	7.50	7.62
60°	6.20	7.10	7.44	7.60	7.69	7.76	7.92
75°	6.46	7.24	7.64	7.94	8.14	8.27	8.41
90°	6.38	7.23	7.66	8.10	8.49	8.78	9.10
110°	5.91	7.10	7.69	8.25	8.72	9.04	9.67
120°	5.69	6.94	7.57	8.14	8.79	9.44	10.30
135°	5.06	6.31	7.19	7.70	8.27	8.91	10.56
150°	4.22	5.36	6.41	7.19	7.68	8.21	9.47
Run VMG	3.65	4.65	5.55	6.33	6.96	7.47	8.44
Gybe Angles	140.8°	147.5°	150.2°	157.0°	170.0°	177.2°	175.4°

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AVOP

Time Allowances in secs/NM							
Wind Velocity	**6 kt**	**8 kt**	**10 kt**	**12 kt**	**14 kt**	**16 kt**	**20 kt**
Beat VMG	929.7	767.8	706.5	683.6	671.7	668.0	657.8
52°	612.6	522.3	496.7	487.6	482.6	479.9	472.2
60°	580.6	506.8	483.6	473.9	467.8	463.8	454.6
75°	557.6	497.3	471.3	453.2	442.5	435.4	428.2
90°	564.5	498.1	469.8	444.6	423.9	409.8	395.7
110°	609.6	507.3	468.4	436.5	413.0	398.1	372.4
120°	632.7	518.9	475.5	442.0	409.7	381.5	349.4
135°	712.0	570.5	501.0	467.6	435.4	404.1	340.9
150°	853.6	671.1	561.7	500.6	468.7	438.6	380.3
Run VMG	985.6	775.0	648.5	568.7	517.4	482.0	426.6
Selected Courses							
Windward / Leeward	957.7	771.4	677.5	626.2	594.6	575.0	542.2
All purpose	731.3	603.9	545.6	512.7	490.7	475.3	448.6

Single Number Scoring Options		
Course	**Time On Distance**	**Time On Time**
Windward / Leeward	651.9	0.9204
All purpose	528.0	1.1364

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Data in **meters/kilograms (Metric)**

HULL AND APPENDAGES (Lightship Trim)

Class	**MUMM 36**	LOA	**10.900**	VCGD	**-0.073**
Measurement	**18/09/2014**	Max. Beam	**3.610**	VCGM	**-0.026**
HIN		Draft	**2.248**	RM Measured (kg·m)	**101.1**
Plan review		Displacement	**3,835**	RM Default (kg·m)	**105.3**
Hull construction	**Cored**	Wetted area	**22.30**	Limit of positive stability(°)	**116.0**
Aramid Hull Core	**No**	IMS L	**9.832**	Stability Index	**111.3**
Carbon Rudder	**No**	LSM0	**9.606**		
Light stanchions	**No**	Acc. length	**10.900**		
Trim tab	**No**	Sink (kg/mm)	**17.10**		

PROPELLER

Propeller Type	**Folding 2 blades**						
Installation	**Strut**	PRD	**0.385**	EDL	**0.850**	ST3	**0.180**
Twin screw	**No**	PBW	**0.105**	ST1	**0.041**	ST4	**0.113**
Hydro generator	**No**	PIPA	**0.0034**	ST2	**0.180**	ST5	**0.290**

RIG

Forestay tension	**Aft**	P	**13.650**	E	**5.010**
Inner stay	**None Fitted**	IG	**13.240**	J	**3.840**
Carbon mast	**No**	ISP	**13.361**	BAS	**1.835**
Headsail furler	**No**	MDT1	**0.104**	FSD	**0.032**
Mainsail furler	**No**	MDL1	**0.162**	SFJ	**0.175**
Articulated bowsprit	**No**	MDT2	**0.089**	SPL	**3.920**
Non-circular rigging	**No**	MDL2	**0.098**	WPL	
Fiber rigging	**No**	TL	**1.895**	TPS	
Runners/Checkstays	**2**	MW	**0.162**	BD	**0.153**
Spreaders	**2**	GO	**0.192**	MWT	**128.00**
				MCG	**4.300**

FLOTATION AND STABILITY

Calculation method	**Poles inclining**	SFFP	**0.414**	SAFP	**10.320**	W1	**60.0**	PD1	**530.3**	WD	**11.400**
Flotation Date	**17/06/2017**	FFM	**1.161**	FAM	**0.925**	W2	**60.0**	PD2	**532.5**	PLM	**9000.00**
Measurer		FF	**1.161**	FA	**0.926**	W3	**60.0**	PD3	**539.1**	GSA	**1.0**
Comment		LCFcl	**6.086**	LCFsh	**6.336**	W4	**60.0**	PD4	**529.4**	RSA	**1.0**
		SG	**1.0253**	HBI	**1.015**						

INVENTORY

BALLAST

Id	*Kind*	*Description*	*Weight*	*LCG*	*VCG*	*TCG*
C3	Fixed	barras de plomo laminadas	127	7.87		
		Fixed Ballast Total	**127**			

TANKS

Id	*Description*	*Sp.Wght*	*Capacity*	*Condition*	*LCG*	*VCG*
E5	AGUA FLEX		50	0	6.44	
C4	PETROLEO ALUMINIO	0.9000	20	~~12~~	7.44	
			Total deductible	**11**	**7.44**	

OTHER ITEMS

Id	*Kind*	*Description*	*Weight*	*LCG*	*VCG*
C2	Miscellaneous Battery	02 baterias 12v de 12 placas	28	10.04	
C4	Engine	YANMAR 18 HP			
		Total deductible	**0**		

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MAINSAIL

Id	*MHB*	*MUW*	*MTW*	*MHW*	*MQW*	*Area*	*Meas.Date*	*Maker*	*Material*	*Comment*
M-2	0.19	1.03	1.85	3.21	4.17	40.39	09/06/2017	NORTH	Kevlar	NUEVA

HEADSAIL

Id	*HHB*	*HUW*	*HTW*	*HHW*	*HQW*	*HLP*	*HLU*	*Btn*	*Flying*	*FT*	*Area*	*Meas.Date*	*Maker*	*Material*	*Comment*
GM-1	0.09	0.73	1.40	2.83	4.26	5.69	13.25	No	No		37.67	13/04/2016	NORTH	Kevlar	remedicion
G1-L	0.07	0.68	1.32	2.70	4.17	5.67	13.50	No	No		37.40	13/04/2016	DOYLE	Technora	remedicion
G1R	0.08	0.71	1.36	2.70	4.07	5.55	13.35	No	No		36.57	07/10/2014	NORTH	Kevlar	REMEDICION
G2-1	0.08	0.63	1.21	2.44	3.78	5.25	13.35	No	No		33.80	09/06/2017	NORTH	Kevlar	NUEVA
G3	0.07	0.50	0.95	1.87	2.81	3.76	13.37	Yes	No		25.20	09/06/2017	NORTH	Kevlar	NUEVA
JIB	0.09	0.48	0.87	1.70	2.67	3.61	12.86	Yes	No		22.84	07/10/2014	NORTH	Kevlar	RMEDICION

SYMMETRIC SPINNAKER

Id	*SLU*	*SLE*	*SL*	*SHW*	*SFL*	*Area*	*Meas.Date*	*Maker*	*Material*	*Comment*
S1	13.07	13.07	13.07	6.90	6.87	75.09	13/04/2016	DOYLE	Nylon	remedicion
S3	13.03	13.03	13.03	6.83	6.81	74.12	07/10/2014	NORTH	Nylon	REMEDICION
S2	12.90	12.90	12.90	6.85	6.58	73.06	13/04/2016	NORTH	Nylon	remedicion