

BOAT Name ZUUL Sail Nr 38012	GPH 564.1	HULL Length Overall 11.552m Maximum Beam 3.987m Displacement 5,478kg Draft 2.401m IMS Reg. Division Cruiser/Racer Dynamic Allowance 0.031% Fwd Accommodation Yes Hull Construction Cored Carbon Rudder Yes Crew Arm Extension 0.00
GENERAL Class AERODYNE 38 Designer Roger Martin Builder Aerodyne Yachts Series 01/1999 Age 01/2001 Age Allowance 0.487% Offset File A38a.off - 02/05/2018 16:39:54 Measurement by - 23/05/2018		IMSL 10.787m VCGD -0.076m Sink 21.65kg/mm RL 10.340m VCGM -0.095m WS 28.31m² LSM0 10.712m Displacement/Length ratio 4.4567



2019
ORC International
Certificate

Rating Office

Offshore
Racing
Congress



SCORING OPTIONS						
	COASTAL / LONG DISTANCE			WINDWARD / LEEWARD		
Time on Distance	548.9			617.8		
Time on Time	1.0931			1.0926		
Triple Number	Low	Medium	High	Low	Medium	High
Time on Distance	639.1	502.0	447.7	824.6	617.5	544.8
Time on Time	1.0562	1.3445	1.5077	0.8186	1.0931	1.2389

TIME ALLOWANCES							
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat VMG	948.9	780.9	691.4	656.7	642.4	635.7	620.7
52°	622.8	524.9	483.3	467.9	461.5	458.0	449.6
60°	589.6	505.0	471.8	455.8	447.6	442.7	434.8
75°	564.7	491.9	462.8	442.6	426.3	416.5	407.7
90°	565.7	482.8	462.1	440.4	418.7	400.1	377.1
110°	552.3	472.5	439.7	419.1	405.4	391.3	363.2
120°	564.2	477.0	441.3	409.6	387.5	371.3	341.7
135°	635.4	508.2	460.2	427.8	395.5	363.6	307.7
150°	754.2	604.1	510.9	463.7	439.6	412.8	351.8
Run VMG	870.8	697.5	589.9	535.0	507.6	476.6	406.2

Certificate
Number **US6294**
ORC Ref **US00000376**
Issued On **19/09/2019**
VPP Ver. **2019 1.01**
Valid until **31/12/2019**

Crew Weight
Default **759kg**
Maximum **759kg**
Minimum* **569kg**
**when applied by the NoR and SI*
Non Manual Pwr **No**

Special Scoring
ToD ToT
Double H.GPH **574.5 1.0444**
Double H.OSN **561.0 1.0695**
Non Spin GPH **607.2 0.9881**
Non Spin OSN **590.5 1.0162**

Selected Courses							
Windward / Leeward	909.9	739.2	640.6	595.8	575.0	556.2	513.5
Circular Random	770.4	624.8	547.8	503.5	475.7	455.8	424.9
Coastal / Long Distance	906.0	694.8	581.3	520.7	488.5	459.5	407.4
Non Spinnaker	848.6	680.1	588.5	534.3	500.2	476.9	445.1

Sails Limitations
Headsails **6** Spinnakers **4**

Velocity Prediction in Knots for True Wind Speeds							
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat Angles	42.6°	40.9°	39.5°	37.9°	37.6°	37.2°	36.7°
Beat VMG	3.79	4.61	5.21	5.48	5.60	5.66	5.80
52°	5.78	6.86	7.45	7.69	7.80	7.86	8.01
60°	6.11	7.13	7.63	7.90	8.04	8.13	8.28
75°	6.38	7.32	7.78	8.13	8.44	8.64	8.83
90°	6.36	7.46	7.79	8.17	8.60	9.00	9.55
110°	6.52	7.62	8.19	8.59	8.88	9.20	9.91
120°	6.38	7.55	8.16	8.79	9.29	9.70	10.54
135°	5.67	7.08	7.82	8.42	9.10	9.90	11.70
150°	4.77	5.96	7.05	7.76	8.19	8.72	10.23
Run VMG	4.13	5.16	6.10	6.73	7.09	7.55	8.86
Gybe Angles	143.3°	146.5°	148.3°	151.6°	149.1°	146.6°	143.0°

Class Division Length
CDL = **10.564**

Storm Sails Areas
Heavy Weather Jib **32.98**
Storm Jib (JL=10.16) **12.22**
Storm Trysail **13.79**

Owner

BOAT	
Name ZUUL	Sail Nr 38012
File US6294	Data in meters/kilograms

INCLINING TEST AND FREEBOARDS		
Inclining Test Boom Inclining	LCFD	
Flotation date 23/05/2018	SG 1.0030	
FFM 1.449	FF 1.463	SFFP 0.069
FAM 1.020	FA 1.021	SAFP 11.164
W1 123.2	PD1 286.4	WD 5.036
W2 123.2	PD2 291.0	GSA 1.0
W3 123.2	PD3 293.9	RSA 1.0
W4 123.2	PD4 282.1	PLM 9000.0
LCF from stem on CL / on sheer	6.363 / 6.653	
Maximum beam station from stem	7.474	
RM Measured	169.5kg-m	
RM Default	158.8kg-m	
Limit of positive stability / Stab.Index	118.9° / 115.4	
Freeboard at mast at 4.766	1.182	



ORC
Offshore Racing Congress
World leader in rating technology

2019
IMS Measurement
Certificate

RIG	
Forestay Tension Aft	Spreaders 2
Inner Stay None Fitted	Runners 0
Carbon Mast Yes	Jumper Struts None
Taper Hollows No	Jib Furler No
Fiber Rigging No	Main Furler No
Lenticular Rigging No	Without Backstay No
Articulated Bowsprit No	
P 15.758	E 4.999 MDT1 0.128 MW 0.178
IG 15.529	J 4.496 MDL1 0.198 GO 0.207
ISP 17.458	SFJ 0.270 MDT2 0.100 BD 0.165
BAS 1.468	SPL 0.000 MDL2 0.122 MWT 175.00
FSP 0.060	TPS 6.556 TL 1.745 MCG 5.825

Certificate	
Number US6294	
ORC Ref US00000376	
Issued On 19/09/2019	
VPP Ver. 2019 1.01	
Valid until 31/12/2019	

MIZZEN RIG AND SAILS	
N/A	

PROPELLER		
Installation Strut	PRD 0.413	
Type Folding 2 blades	PBW 0.105	
Twin Screw No	PIPA 0.0035	
ST1 0.041	ST3 0.180	ST5 0.265
ST2 0.180	ST4 0.112	EDL 0.885

COMMENTS	

MOVABLE BALLAST	
N/A	

BILGEBOARD		
BS	BT	BA
BF	BX	
BC	BY	

COPY ONLY Invalid for Racing

World Leader In Rating Technology

SAILS (Maximum Areas)									
Mainsail	MHB	MUW	MTW	MHW	MQW	Area	Area (r)	Formula	
	0.300	1.35	2.29	3.52	4.30	50.37	51.60	P/8 · (E + 2·MQW+ 2·MHW + 1.5·MTW + MUW + 0.5·MHB)	
Symmetric Not Available									
Asymmetric on centerline	SLU	SLE	SL	SHW	SFL	Area	Formula		
	19.79	16.83	18.31	11.09	10.81	168.36	AS · (SFL + 4·SHW) / 6		

HEADSAILS												
Area = 0.1125·HLU · (1.445·HLP + 2·HQW + 2·HHW + 1.5·HTW + HUW + 0.5·HHB)												
HHB	HUW	HTW	HHW	HQW	HLP	HLU	Area	Btn	Fly	Meas.Date	Material	Comment
0.08	0.70	1.32	2.45	3.56	4.67	15.60	37.71					2019 LIGHT-MED HEADSAIL

MEASUREMENT INVENTORY				
Measurer	Date	Comment		
Id	Item	Weight	Distance	VCG Description
a	Ancher	0.0	0.00	
Id	Item	Weight	Description	

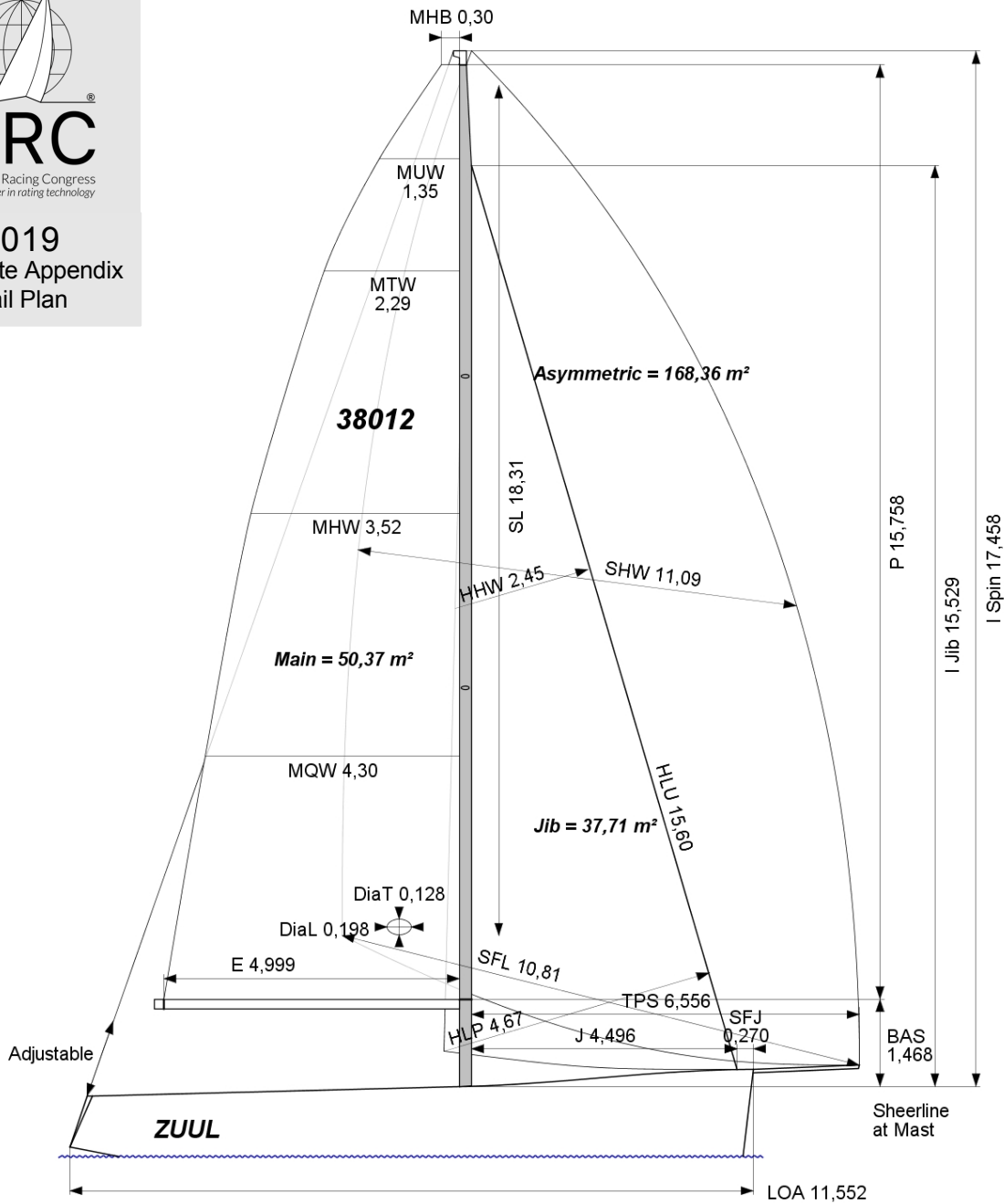
MEASUREMENT INVENTORY									
Id	Item	Tank	Use	Tank Type	Capcty	Dist.	VCG	Condtn	Description
	Tank					0.00	0.00	20.0	
Id	Item	Weight	Distance	VCG Description					



ORC

Offshore Racing Congress
World leader in rating technology

2019
Certificate Appendix
Sail Plan



SAILS INVENTORY

MAINSAIL (1)

Id	MHB	MUW	MTW	MHW	MQW	Area	Measurer	Meas.Date	Manufacture	Material	Comment
2381696	0.30	1.35	2.29	3.52	4.30	50.38			RIDGELY		2019 RE-CUT

HEADSAILS (1)

Id	HHB	HUW	HTW	HHW	HQW	HLP	HLU	Ovrlp	Area	Btn	Fly	Measurer	Meas.Date	Manufacture	Material	Comment
2381715	0.08	0.70	1.32	2.45	3.56	4.67	15.60	104%	37.71					ROBERT		2019 LIGHT-MED

SYMMETRIC SPINNAKERS (0)

Id	SLU	SLE	SL	SHW	SFL	Area	Measurer	Meas.Date	Manufacture	Material	Comment
----	-----	-----	----	-----	-----	------	----------	-----------	-------------	----------	---------

ASYMMETRIC SPINNAKERS (1)

Id	SLU	SLE	SL	SHW	SFL	Area	Kind	Measurer	Meas.Date	Manufacture	Material	Comment
2381727	19.79	16.83	18.31	11.09	10.81	168.37	asym			NORTH SRI		2019 A2