

BOAT Name KATARIINA II Sail Nr EST 646	GPH 618.2	HULL Length Overall 10.405m Maximum Beam 3.476m Displacement 4,621kg Draft 2.113m IMS Reg. Division Cruiser/Racer Dynamic Allowance 0.129% Fwd Accommodation Yes Hull Construction Cored Carbon Rudder No Crew Arm Extension
GENERAL Class ARCONA 340 Designer STEFAN QVIBERG Builder ARCONA YACHTS Series 05/2009 Age 05/2010 Age Allowance 0.325% Offset File EST646-2019b.off - 7/22/2019 5:23:03 Measurement by A.Tetsmann - 11/07/2019		IMSL 9.398m VCGD 0.017m Sink 18.87kg/mm RL 8.767m VCGM 0.023m WS 24.98m² LSMO 9.274m Displacement/Length ratio 5.7934



2019
ORC International
Certificate

Rating Office
EYU
Purje 8
11911, Tallinn
Estonia

SCORING OPTIONS						
	COASTAL / LONG DISTANCE			WINDWARD / LEEWARD		
Time on Distance	600.5			671.0		
Time on Time	0.9992			1.0060		
Triple Number	Low	Medium	High	Low	Medium	High
Time on Distance	707.5	547.9	488.5	912.2	672.4	587.8
Time on Time	0.9540	1.2320	1.3818	0.7400	1.0039	1.1484

TIME ALLOWANCES							
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat VMG	1035.0	853.4	751.8	713.2	699.8	695.1	684.2
52°	678.6	572.1	520.8	502.6	496.6	493.9	486.8
60°	641.6	548.7	508.0	490.0	482.7	479.0	472.5
75°	614.6	532.6	498.6	477.9	462.5	454.2	448.2
90°	622.9	531.2	490.5	467.7	455.9	437.8	417.4
110°	628.7	525.1	484.6	456.0	431.9	410.0	386.4
120°	647.5	536.0	490.5	460.6	432.3	406.7	363.3
135°	717.1	582.6	514.0	481.2	453.2	426.4	372.4
150°	849.9	674.6	571.1	512.4	482.3	456.3	407.1
Run VMG	981.4	779.0	658.5	581.7	528.1	493.3	443.7

Certificate
Number **EST646**
ORC Ref **EST00000805**
Issued On **7/29/2019**
VPP Ver. **2019 1.01**
Valid until **12/31/2019**

Crew Weight
Default **618kg**
Maximum **660kg**
Minimum* **495kg**
**when applied by the NoR and SI*
Non Manual Pwr **No**

Special Scoring

	ToD	ToT
Double H.GPH	627.6	0.9561
Double H.OSN	611.7	0.9808
Non Spin GPH	651.6	0.9208
Non Spin OSN	631.8	0.9496

Selected Courses							
Windward / Leeward	1008.2	816.2	705.1	647.4	614.0	594.2	563.9
Circular Random	850.1	686.9	599.8	549.6	518.5	497.6	469.2
Coastal / Long Distance	1005.5	767.5	638.0	567.4	530.4	499.6	445.9
Non Spinnaker	909.5	728.9	631.2	574.2	539.1	516.1	486.0

Sails Limitations

Headsails	Spinnakers
5	3

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	42.5°	41.2°	39.9°	38.5°	38.6°	38.6°	38.8°
Beat VMG	3.48	4.22	4.79	5.05	5.14	5.18	5.26
52°	5.31	6.29	6.91	7.16	7.25	7.29	7.40
60°	5.61	6.56	7.09	7.35	7.46	7.51	7.62
75°	5.86	6.76	7.22	7.53	7.78	7.93	8.03
90°	5.78	6.78	7.34	7.70	7.90	8.22	8.63
110°	5.73	6.86	7.43	7.89	8.34	8.78	9.32
120°	5.56	6.72	7.34	7.82	8.33	8.85	9.91
135°	5.02	6.18	7.00	7.48	7.94	8.44	9.67
150°	4.24	5.34	6.30	7.03	7.46	7.89	8.84
Run VMG	3.67	4.62	5.47	6.19	6.82	7.30	8.11
Gybe Angles	144.7°	148.9°	151.5°	157.8°	175.8°	180.0°	180.0°

Class Division Length
CDL = **9.083**

Storm Sails Areas

Heavy Weather Jib	28.86
Storm Jib (JL=9.51)	10.69
Storm Trysail	11.09

Owner
Aivar Tuulberg
Sõbra 54, Tartu
Estonia
Pärnu YC

I certify that I understand my responsibilities under ORC Rules and Regulations
Signature

BOAT	
Name KATARIINA II	Sail Nr EST 646
File Est0646	Data in meters/kilograms

INCLINING TEST AND FREEBOARDS			
Inclining Test Current Inclining			
Flotation date 08/07/2019		SG 1.0000	
FFM 1.261	FF 1.266	SFFP 0.220	
FAM 1.091	FA 1.100	SAFP 10.028	
W1 80.2	PD1 507.9	WD 11.140	
W2 80.2	PD2 511.6	GSA 1.0	
W3 80.2	PD3 512.0	RSA 1.0	
W4 80.2	PD4 509.6	PLM 9000.0	
LCF from stem on CL / on sheer		5.698 / 5.941	
Maximum beam station from stem		6.419	
RM Measured		137.9kg·m	
RM Default		131.3kg·m	
Limit of positive stability / Stab.Index		115.8° / 114.3	
Freeboard at mast at 3.950		1.119	



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RIG			
Forestay Tension Aft & Forward	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 13.650	E 4.640	MDT1 0.125	MW 0.205
IG 14.510	J 3.950	MDL1 0.205	GO 0.235
ISP 14.615	SFJ	MDT2 0.105	BD
BAS 1.730	SPL 4.160	MDL2 0.145	MWT 137.90
FSP 0.068	TPS 4.620	TL 0.910	MCG 4.450

MIZZEN RIG AND SAILS	
N/A	

PROPELLER			
Installation Strut	PRD 0.425		
Type Folding 2 blades	PBW 0.100		
Twin Screw No	PIPA 0.0033		
ST1 0.042	ST3 0.180	ST5 0.264	
ST2 0.180	ST4 0.112	EDL 2.420	

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COMMENTS	

MOVABLE BALLAST	
N/A	

CENTERBOARD	
N/A	

SAILS (Maximum Areas)									
Mainsail	MHB	MUW	MTW	MHW	MQW	Area	Area (r)	Formula	
	0.410	1.16	1.88	3.02	3.89	38.64	39.46	P/8 · (E + 2·MQW + 2·MHW + 1.5·MTW + MUW + 0.5·MHB)	
Symmetric	SLU	SLE	SL	SHW	SFL				
	14.54	14.54	14.54	7.51	7.30	90.49		SL · (SFL + 4·SHW) / 6	
Asymmetric on centerline	SLU	SLE	SL	SHW	SFL				
	14.31	12.88	13.60	5.05	6.62	60.77 71.80		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
0.10	0.71	1.31	2.31	3.22	4.12	14.64	32.51	Y	N		Carbon	Light 2019
0.10	0.69	1.30	2.32	3.25	4.13	14.57	32.45	Y	N	11/07/2019	Carbon	SuperLight2018
0.10	0.69	1.30	2.31	3.24	4.12	14.50	32.21	Y	N	20/06/2016	Carbon	
0.10	0.69	1.30	2.32	3.25	4.13	14.45	32.19	Y	N	20/06/2016	Carbon	
0.10	0.67	1.26	2.32	3.26	4.12	14.46	32.09	Y	N		Unknow	JibTop 2016
0.10	0.69	1.28	2.26	3.16	4.06	14.66	31.94	Y	N	11/07/2019	Carbon	Medium 2019
0.10	0.67	1.27	2.28	3.16	4.08	14.45	31.54	Y	N	20/06/2016	Unknow	Medium 2016
0.09	0.66	1.25	2.25	3.16	4.06	14.19	30.76	Y	N	19/06/2014	Unknow	HEAVY
0.07	0.43	0.81	1.52	2.22	2.96	12.20	18.45	N	Y	22/04/2014	Unknow	Staysail

MEASUREMENT INVENTORY				
Measurer Tetsmann EST1				
Date 08/07/2019				
Comment Pirita				
Id	Item	Weight	Distance	VCG Description
Id	Item	Maker	Model	
1	Engine	YANMAR	3YM20	
Id	Item	Weight Description		

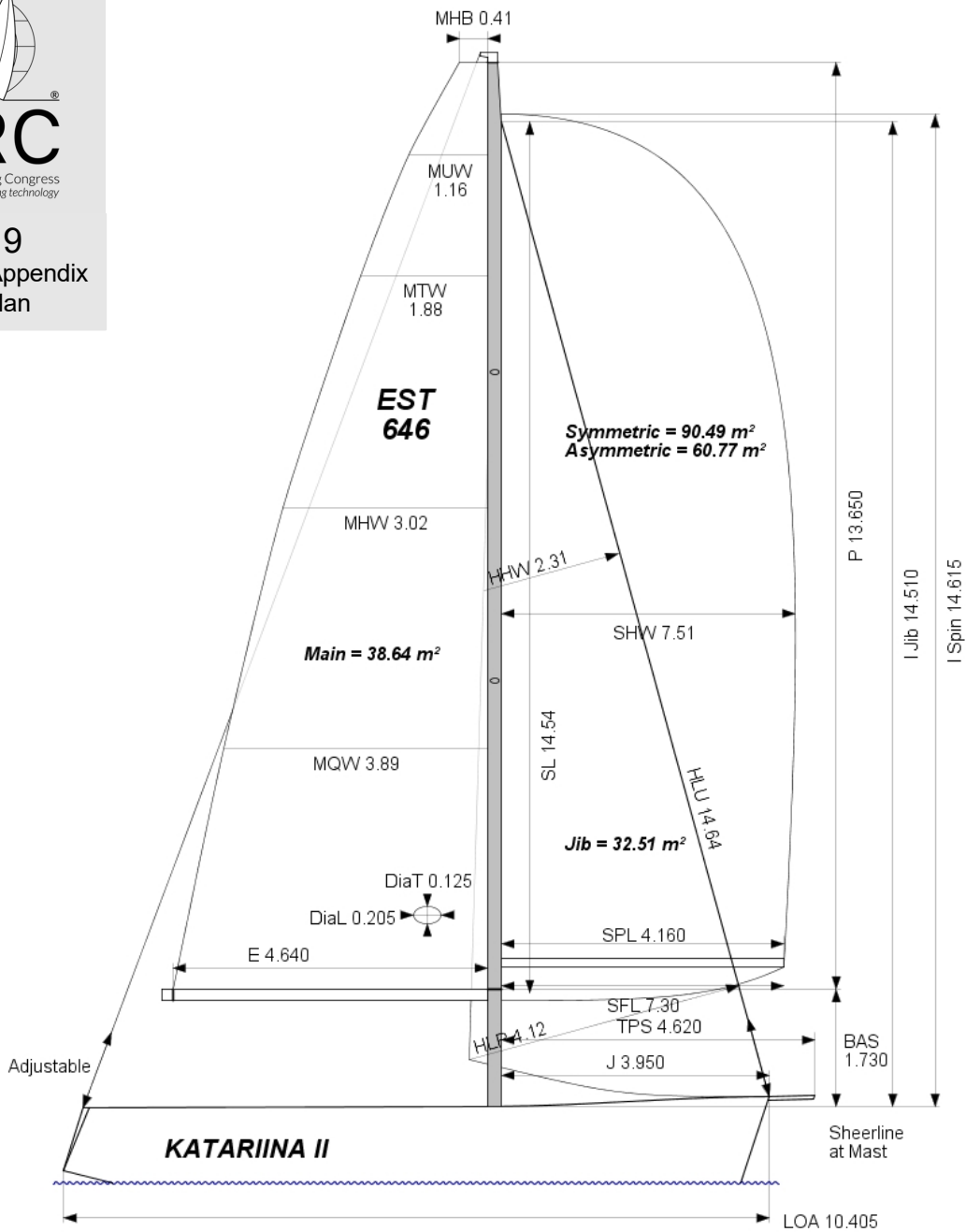
MEASUREMENT INVENTORY							
Id	Item	Tank Use	Tank Type	Capcty	Dist.	VCG	Condn Description
1	Tank	FUEL	plastic	80.0	8.20		20-0 Fuel tank, starboard
2	Tank	WATER	plastic	65.0	4.30		0-0 Fresh water, portside
Id	Item	Weight	Distance	VCG Description			
1	Battery	17.0	7.75	90 Ah, portside			
2	Battery	3.0	7.75	30 Ah, portside			
1	Misc		9.80	Air Heater Eberspächer			



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Sail Plan



SAILS INVENTORY

MAINSAIL (2)

Id	MHB	MUW	MTW	MHW	MQW	Area	Measurer	Meas.Date	Manufacture	Material	Comment
5a	0.41	1.16	1.88	3.02	3.89	38.64	EST1	11/07/2019	North Sails	Carbon	2019
4a	0.35	1.08	1.80	2.97	3.86	37.98		20/06/2016	NorthSails	Carbon	

HEADSAILS (9)

Id	HHB	HUW	HTW	HHW	HQW	HLP	HLU	Ovrlp	Area	Btn	Fly	Measurer	Meas.Date	Manufacture	Material	Comment
13a	0.10	0.71	1.31	2.31	3.22	4.12	14.64	104%	32.51	Y	N	EST1		North Sails	Carbon	Light 2019
12a	0.10	0.69	1.30	2.32	3.25	4.13	14.57	105%	32.45	Y	N	EST1	11/07/2019	North Sails	Carbon	SuperLight2018
10a	0.10	0.69	1.30	2.31	3.24	4.12	14.50	104%	32.21	Y	N		20/06/2016	NorthSails	Carbon	
11a	0.10	0.69	1.30	2.32	3.25	4.13	14.45	105%	32.19	Y	N		20/06/2016	NorthSails	Carbon	
13	0.10	0.67	1.26	2.32	3.26	4.12	14.46	104%	32.09	Y	N			NorthSails	Unknown	JibTop 2016
14a	0.10	0.69	1.28	2.26	3.16	4.06	14.66	103%	31.94	Y	N	EST1	11/07/2019	North Sails	Carbon	Medium 2019
12a	0.10	0.67	1.27	2.28	3.16	4.08	14.45	103%	31.54	Y	N		20/06/2016	NorthSails	Unknown	Medium 2016

SYMMETRIC SPINNAKERS (7)

Id	SLU	SLE	SL	SHW	SFL	Area	Measurer	Meas.Date	Manufacture	Material	Comment
10	14.54	14.54	14.54	7.51	7.30	90.49		23/02/2018	North Sails	Unknown	S-1,5 2018
8	14.60	14.60	14.60	7.47	7.17	90.16		08/01/2014	NorthSails	Unknown	S-4 2014
7	14.60	14.60	14.60	7.47	7.17	90.16		08/01/2014	NorthSails	Unknown	S-1,5 2014
9	14.60	14.60	14.60	7.42	7.36	90.14			NorthSails	Unknown	S-1 2017
11	14.47	14.47	14.47	7.51	7.32	90.10			NorthSails	Unknown	S-2 2019

ASYMMETRIC SPINNAKERS (1)

Id	SLU	SLE	SL	SHW	SFL	Area	Kind	Measurer	Meas.Date	Manufacture	Material	Comment
1	14.31	12.88	13.60	5.05	6.62	60.77	asym	EST1	11/07/2019	UK	Unknown	UK