



ORC

Offshore Racing Congress
World leader in rating technology

**2019
ORC Club
Certificate**

Rating Office

**EYU
Purje 8
11911, Tallinn
Estonia**

Certificate

Number **EST632**
Issued On **6/18/2019**
ORC Ref **EST00000663**
VPP Ver. **2019.1.01**
Valid until **12/31/2019**

Crew Weight

Default 638kg
Maximum **620kg**
Minimum* **465kg**
**when applied by the NoR and SI*
Non Manual Pwr **No**

Special Scoring

	ToD	ToT
Double H.GPH	653.7	0.9178
Double H.OSN	636.5	0.9426
Non Spin GPH	680.4	0.8818
Non Spin OSN	658.5	0.9112

Sails Limitations

Headsails **5** Spinnakers **3**

Spinnaker configuration

Symmetric: **Yes** **82.06**
Asymmetric: **Yes** **68.27**
Flying H/S: **No**
Spin. Pole: **Yes**

Class Division Length

CDL = 8.726

Stability (Measured)

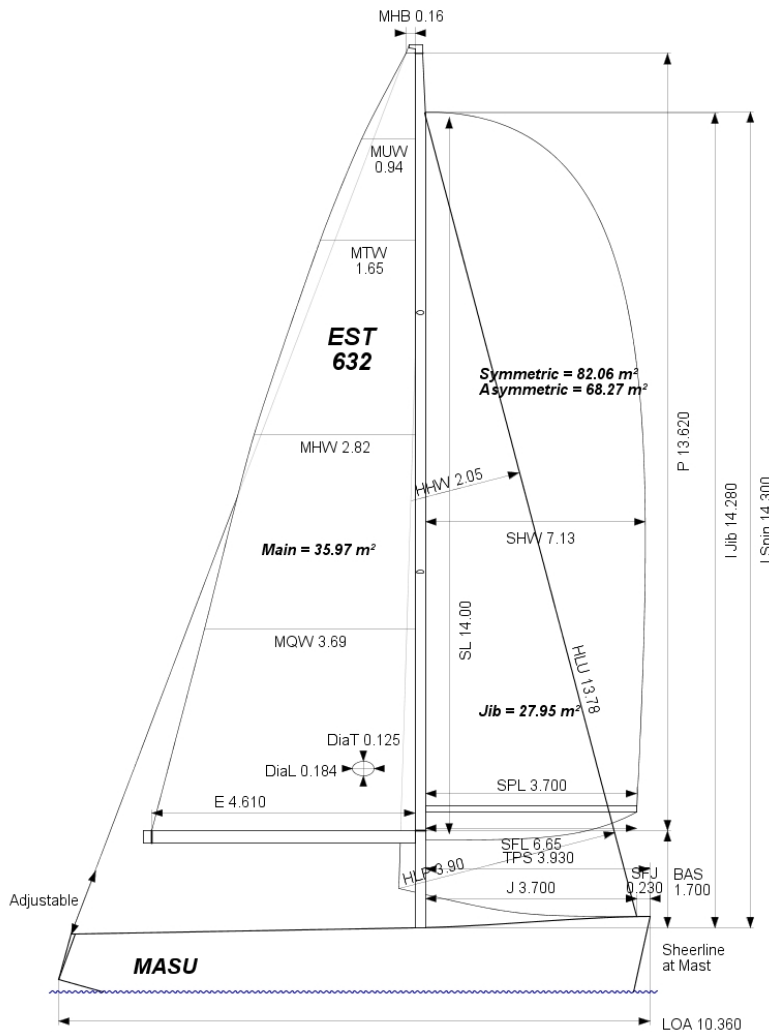
Limit Positive Stab.: **116.0°**
Stability Index: **118.9**

Owner

**OÜ Nobell AB
Hoiu 9A, Laagri
Estonia
PJK**

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

Signature



BOAT		GPH		HULL				
Name	MASU	645.4	Data File	Est0632	LOA	10.360m		
Sail Nr	EST 632		Offset File	X34.OFF	MB	3.384m		
			Displacement	5,714kg	Draft	1.926m		
CLASS		IMS Division Cruiser/Racer				Dynamic All.	0.251%	
Class	X-34	Fwd Accom. Yes				Construction	Cored	
Designer	JEPPESEN	Fiber Rigging No				Aramid Core	No	
Builder	X YACHTS	Crew Arm Ex				Carbon Rudder	No	
Series	11/2007					Light Stanchions		
Age Date	04/2008	IMSL	9.492m	VCGD	0.095m	Sink	18.24kg/mm	
Age Allowance	0.390%	RL	7.958m	VCGM	0.063m	WS	24.74m²	
COMMENTS		LSM0	9.484m				Displacement/Length ratio	6.6983
		Water Ballast	0				Trim Tab	No
		BLR Index	0.0000				CENTERBOARD	
PROPELLER		Installation Strut						
Type	Folding 2 blades	PRD	0.410				N/A	
		PBW	0.121					
		PIPA	0.0034					
SCORING OPTIONS								
	COASTAL / LONG DISTANCE			WINDWARD / LEEWARD				
Time on Distance	626.9			699.5				
Time on Time	0.9571			0.9649				
Triple Number	Low	Medium	High	Low	Medium	High		
Time on Distance	742.3	570.5	509.7	959.6	703.8	609.3		
Time on Time	0.9093	1.1831	1.3243	0.7034	0.9591	1.1079		

BOAT	
Name MASU	Sail Nr EST 632
File Est0632	Data in meters/kilograms

INCLINING TEST AND FREEBOARDS			
Inclining Test Current Inclining			
Flotation date 22/06/2012		SG 1.0020	
FFM 1.300	FF 1.309	SFFP 0.325	
FAM 0.992	FA 1.001	SAFP 10.060	
W1 65.1	PD1 466.8	WD 10.535	
W2 65.1	PD2 482.2	GSA 1.0	
W3 65.1	PD3 494.9	RSA 1.0	
W4 65.1	PD4 463.4	PLM 9000.0	
LCF from stem on CL / on sheer		5.814 / 6.031	
Maximum beam station from stem		6.985	
RM Measured		113.3kg·m	
RM Default		126.5kg·m	
Limit of positive stability / Stab.Index		116.0° / 118.9	
Freeboard at mast at 3.930		1.119	



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2019
Measurements
Datasheet

RIG			
Forestay Tension Aft	Spreaders 2		
Inner Stay None Fitted	Runners 0		
Carbon Mast No	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 13.620	E 4.610	MDT1 0.125	MW 0.184
IG 14.280	J 3.700	MDL1 0.184	GO 0.204
ISP 14.300	SFJ 0.230	MDT2 0.120	BD 0.219
BAS 1.700	SPL 3.700	MDL2 0.143	MWT 172.00
FSP 0.070	TPS 3.930	TL 1.170	MCG 4.520

MIZZEN RIG AND SAILS	
N/A	

PROPELLER			
Installation Strut	PRD 0.410		
Type Folding 2 blades	PBW 0.121		
Twin Screw No	PIPA 0.0034		
ST1 0.042	ST3 0.181	ST5 0.320	
ST2 0.185	ST4 0.110	EDL 1.820	

Certificate	
Number EST632	
ORC Ref EST00000663	
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VPP Ver. 2019 1.01	
Valid until 12/31/2019	

COMMENTS	

MOVABLE BALLAST	
N/A	

CENTERBOARD	
N/A	

SAILS INVENTORY																
MAINSAIL (1)																
Id	MHB	MUW	MTW	MHW	MQW	Area	Measurer	Meas.Date	Manufacture	Material	Comment					
3	0.16	0.94	1.65	2.82	3.69	35.97	Sisil	21/10/2015		Unknown						
HEADSAILS (4)																
Id	HHB	HUW	HTW	HHW	HQW	HLP	HLU	Ovrlp	Area	Btn	Fly	Measurer	Meas.Date	Manufacture	Material	Comment
5	0.10	0.66	1.19	2.05	2.90	3.90	13.78	105%	27.95			Sisil	13/10/2017		Unknown	
3	0.10	0.59	1.08	1.99	2.88	3.92	13.85	106%	27.52			EST1	13/05/2012		Unknown	
2	0.08	0.53	1.00	1.89	2.83	3.92	13.77	106%	26.61			EST1	13/05/2012		Unknown	
4	0.07	0.47	0.90	1.80	2.71	3.59	12.55	97%	22.68			EST 1	27/04/2016		Unknown	
SYMMETRIC SPINNAKERS (2)																
Id	SLU	SLE	SL	SHW	SFL	Area	Measurer	Meas.Date	Manufacture	Material	Comment					
1	14.00	14.00	14.00	7.13	6.65	82.07	EST1	13/05/2012		Unknown						
2	13.75	13.75	13.75	6.80	6.80	77.92	Hemamali	30/05/2015		Unknown						
ASYMMETRIC SPINNAKERS (1)																
Id	SLU	SLE	SL	SHW	SFL	Area	Kind	Measurer	Meas.Date	Manufacture	Material	Comment				
2	14.55	13.46	14.01	5.65	6.65	68.28	asym	EST1	13/05/2012		Unknown					

MEASUREMENT INVENTORY				
Measurer Veiko Rosme EST 2				
Date 22/06/2012				
Comment				
Id	Item	Weight	Distance	VCG Description
4	Anchor	20.5	5.70	Anchor and rope,
4	Tools	42.0	8.30	Toolbox
Id	Item	Maker	Model	
1	Engine	YANMAR	20YM	
Id	Item	Weight	Description	

MEASUREMENT INVENTORY								
Id	Item	Tank Use	Tank Type	Capcty	Dist.	VCG	Condn	Description
1	Tank	Water	Plastic	210.0	4.40		0-0	Water tank, ports.
2	Tank	Fuel	Alum	90.0	4.85		0-0	Fuel tank, starb.
3	Tank	Septic	Plastic	40.0	8.20		0-0	
Id	Item	Weight	Distance	VCG	Description			
1	Battery	38.0	3.95		Battery, stbr.			
2	Battery	38.0	4.20		Battery, stbr.			
1	Misc				Isoterm Boiler in engine room			
2	Misc		9.15		Heater Ebersbrächer D4			

2009

ORC Club Certificate Appendix

BOAT	
Name MASU	Certificate Number EST632
Sail Nr EST 632	Issued On 6/18/2019

TIME ALLOWANCES							
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat VMG	1105.0	918.1	809.9	748.5	727.2	720.2	714.0
52°	718.7	609.8	546.5	519.2	508.2	504.4	502.0
60°	678.6	578.7	528.6	506.2	494.9	490.2	487.9
75°	650.8	556.0	515.7	495.6	481.7	471.5	462.5
90°	651.7	546.5	503.5	483.4	472.8	463.7	440.1
110°	651.1	540.7	498.6	475.2	454.9	437.3	415.5
120°	671.7	553.4	504.1	479.1	457.0	435.2	401.4
135°	743.2	606.0	528.7	495.3	472.9	450.7	408.2
150°	875.3	696.8	591.3	526.8	496.1	474.9	433.6
Run VMG	1010.8	804.6	681.9	599.8	542.1	505.6	463.4
Selected Courses							
Windward / Leeward	1057.9	861.4	745.9	674.2	634.7	612.9	588.7
Circular Random	890.1	718.2	625.9	572.5	540.1	519.4	493.7
Coastal / Long Distance	1053.2	807.9	671.2	589.7	549.7	520.4	471.5
Non Spinnaker	953.6	762.9	659.0	597.9	560.4	536.4	507.5

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	43.1°	41.8°	41.2°	40.3°	39.5°	39.4°	39.3°
Beat VMG	3.26	3.92	4.45	4.81	4.95	5.00	5.04
52°	5.01	5.90	6.59	6.93	7.08	7.14	7.17
60°	5.30	6.22	6.81	7.11	7.27	7.34	7.38
75°	5.53	6.47	6.98	7.26	7.47	7.64	7.78
90°	5.52	6.59	7.15	7.45	7.61	7.76	8.18
110°	5.53	6.66	7.22	7.58	7.91	8.23	8.67
120°	5.36	6.51	7.14	7.51	7.88	8.27	8.97
135°	4.84	5.94	6.81	7.27	7.61	7.99	8.82
150°	4.11	5.17	6.09	6.83	7.26	7.58	8.30
Run VMG	3.56	4.47	5.28	6.00	6.64	7.12	7.77
Gybe Angles	145.2°	150.0°	151.6°	157.2°	180.0°	180.0°	180.0°