



ORC
Offshore Racing Congress
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2020 ORC Club Certificate

Rating Office

Estonian Yachting Union
Purje 8, maja 3
11911 Tallinn
Estonia



**ESTONIAN
YACHTING
UNION**

Certificate

Number **151/20**
Issued On **25/08/2020**
ORC Ref **03880000VU**
VPP Ver. **2020 1.02**
Valid until **31/12/2020**

Crew Weight

Default 637kg
Maximum **620kg**
Minimum* **465kg**
*when applied by the NoR and SI
Non Manual Pwr **No**

Special Scoring

ToD ToT
Non Spin GPH **682.3 0.8794**
Non Spin OSN **659.7 0.9095**

Sails Limitations

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

Asymmetric on centerline

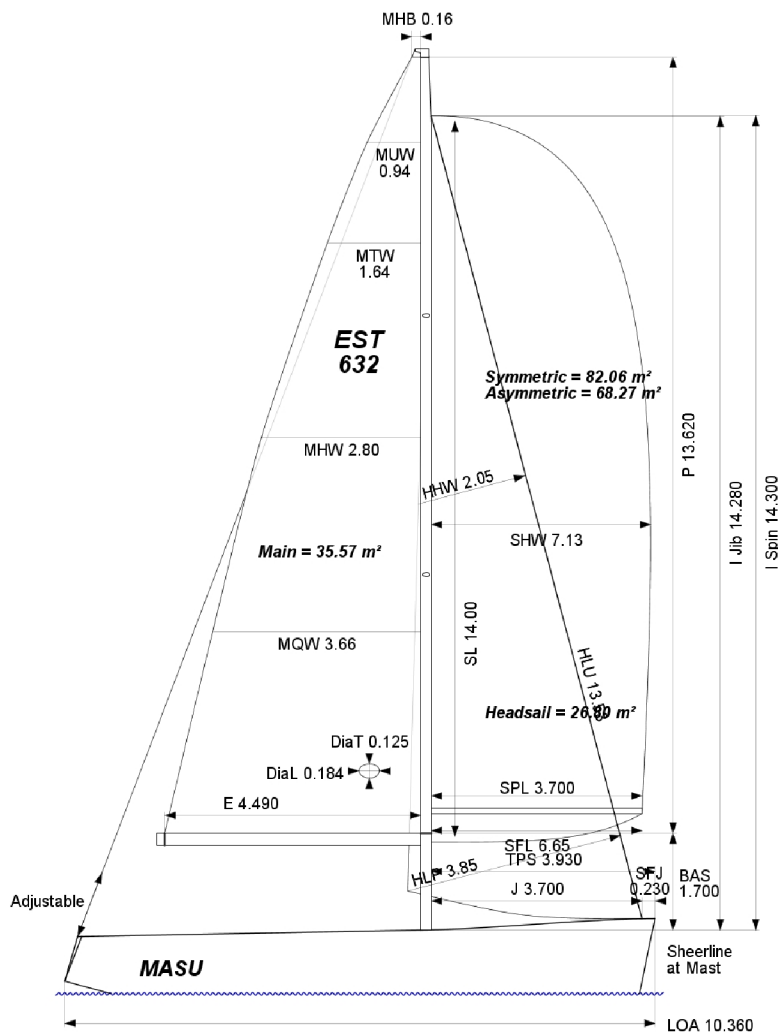
Spinnaker configuration
Symmetric: **Yes 82.06**
Asymmetric: **Yes 68.27**
Flying H/S: **No**
Spin. Pole: **Yes**

Class Division Length

CDL = 8.716

Stability (Estimated)

Limit Positive Stab.: **124.3°**
Stability Index: **127.1**



BOAT		GPH		HULL			
Name	MASU	646.0		Data File	EST632	LOA	10.360m
Sail Nr	EST 632			Offset File	X34.OFF	MB	3.384m
				Displacement	5,672kg	Draft	1.924m
CLASS				IMS Division	Cruiser/Racer	Dynamic All.	0.247%
	Class	X-34		Plan Review		Construction	Cored
	Designer	JEYPESEN		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	9.470m	VCGD	-0.051m Sink 18.18kg/mm
	Age Allowance	0.422%		RL	7.961m	VCGM	-0.082m WS 24.67m
COMMENTS				LSM0	9.475m	Displacement/Length ratio	6.6680
				Water Ballast		Trim Tab	No
				BLR Index	0.0000		
PROPELLER				CENTERBOARD			
Installation	Strut	PRD	0.412				
Type	Folding 2 blades	PBW	0.121			N/A	
		PIPA	0.0034				

SCORING OPTIONS						
	COASTAL / LONG DISTANCE			WINDWARD / LEEWARD		
Time on Distance	627.0			699.1		
Time on Time	0.9570			0.9655		
Triple Number	Low	Medium	High	Low	Medium	High
Time on Distance	745.5	570.7	507.3	964.3	704.3	606.5
Time on Time	0.9054	1.1827	1.3306	0.7000	0.9584	1.1129

BOAT

Name **MASU**
File **EST632**

Sail Nr **EST 632**
Data in **meters/kilograms**

RIG

Forestay Tension **Aft**
Inner Stay **None Fitted**
Carbon Mast **No**
Fiber Riggig **No**
Non-Circular Riggig **No**
Articulated Bowsprit **No**

Spreaders **2**
Runners/Checkstays **0**
Jib Furler **No**
Main Furler **No**

P **13.620** E **4.490** 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**
FSD **0.035** TPS **3.930** TL **1.170** MCG **4.520**

INCLINING TEST AND FREEBOARDS

Inclining Test **Club Estimated VCG**
Flotation date **22/06/2012** SG **1.0252**

FFM **1.301** FF **1.308** SFFP **0.325**
FAM **1.001** FA **1.006** SAFF **10.060**

LCF from stem on CL / on sheer **5.808 / 6.023**
Maximum beam station from stem **6.985**
RM Measured **129.2kg·m**
RM Default **125.4kg·m**
Limit of positive stability / Stab.Index **124.3° / 127.1**
Freeboard at mast at 3.930 **1.120**

MIZZEN RIG AND SAILS

N/A

PROPELLER

Installation **Strut** PRD **0.412**
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**

COMMENTS

MOVABLE BALLAST

N/A

CENTERBOARD

N/A

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SAILS INVENTORY

MAINSAIL (1)

Id	MHB	MUW	MTW	MHW	MQW	Area	Measurer	Meas.Date	Manufacture	Material	Comment
3a	0.16	0.94	1.64	2.80	3.66	35.57		21/10/2015		Unknown	

HEADSAILS (3)

Id	HHB	HUW	HTW	HHW	HQW	HLP	HLU	Ovrlp	Area	Btn	Flying	Measurer	Meas.Date	Manufacture	Material	Comment
5a	0.11	0.63	1.16	2.05	2.76	3.85	13.53	104%	26.80		No		18/06/2020		Unknown	
2	0.08	0.53	1.00	1.89	2.83	3.92	13.77	106%	26.61		No		13/05/2012		Unknown	
4	0.07	0.47	0.90	1.80	2.71	3.59	12.55	97%	22.68		No		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		13/05/2012		Unknown	
2	13.75	13.75	13.75	6.80	6.80	77.92		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	asy85		13/05/2012		Unknown	

MEASUREMENT INVENTORY

Measurer
Date
Comment
Internal Ballast total = 0.0

Id	Item	Weight	Distance	VCG	Description
Id	Item	Maker	Model		
1	Engine	YANMAR	20YM		
Id	Item	Weight	Distance	VCG	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, stab.
3	Tank	Septic	Plastic	40.0	8.20			
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			

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ORC Club Certificate Appendix

BOAT			
Name	MASU	Certificate Number	151/20
Sail Nr	EST 632	Issued On	25/08/2020

TIME ALLOWANCES							
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat VMG	1116.3	926.3	816.1	748.4	721.8	713.3	710.8
52°	724.7	613.7	549.0	519.3	506.2	501.3	499.6
60°	683.6	581.9	530.3	506.6	493.8	487.2	484.0
75°	655.7	558.7	517.0	496.4	481.7	470.0	457.4
90°	655.1	548.2	504.0	482.3	469.6	461.8	437.6
110°	651.2	540.6	498.4	474.6	453.3	435.8	410.4
120°	671.5	553.2	504.0	478.8	456.1	433.8	399.3
135°	742.5	605.5	528.5	495.2	472.5	450.0	407.2
150°	874.9	696.4	590.8	526.5	495.9	474.5	432.8
Run VMG	1010.2	804.1	681.4	599.4	541.9	505.4	463.0
Selected Courses							
Windward / Leeward	1063.3	865.2	748.7	673.9	631.8	609.4	586.9
Circular Random	893.4	720.0	626.5	572.0	538.8	517.4	491.2
Coastal / Long Distance	1058.0	811.2	673.3	589.5	547.5	517.8	469.0
Non Spinnaker	959.2	766.3	660.7	598.2	559.5	534.9	506.7

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	43.9°	42.0°	41.3°	40.3°	39.4°	39.0°	39.8°
Beat VMG	3.22	3.89	4.41	4.81	4.99	5.05	5.06
52°	4.97	5.87	6.56	6.93	7.11	7.18	7.21
60°	5.27	6.19	6.79	7.11	7.29	7.39	7.44
75°	5.49	6.44	6.96	7.25	7.47	7.66	7.87
90°	5.50	6.57	7.14	7.46	7.67	7.80	8.23
110°	5.53	6.66	7.22	7.59	7.94	8.26	8.77
120°	5.36	6.51	7.14	7.52	7.89	8.30	9.02
135°	4.85	5.95	6.81	7.27	7.62	8.00	8.84
150°	4.11	5.17	6.09	6.84	7.26	7.59	8.32
Run VMG	3.56	4.48	5.28	6.01	6.64	7.12	7.78
Gybe Angles	145.0°	150.0°	151.5°	157.0°	180.0°	180.0°	180.0°