

<b>BOAT</b> Name <b>MINNI</b> Sail Nr <b>EST 50</b>	<b>GPH</b> <b>609.5</b>	<b>HULL</b> Length Overall <b>10.600m</b> Maximum Beam <b>3.250m</b> Displacement <b>4,568kg</b> Draft <b>2.035m</b> IMS Reg. Division <b>Cruiser/Racer</b> Dynamic Allowance <b>0.000%</b> Fwd Accommodation <b>Yes</b> Hull Construction <b>Cored</b> Carbon Rudder <b>No</b> Crew Arm Extension
<b>GENERAL</b> Class <b>X-35 mod</b> Designer <b>JEPPESEN</b> Builder <b>X YACHTS</b> Series <b>09/2005</b> Age <b>01/2006</b> Age Allowance <b>0.455%</b> Offset File <b>EST50a.off - 6/11/2019 8:54:41 AM</b> Measurement by <b>K-H.Tagu - 19/06/2019</b>		IMSL <b>9.468m</b> VCGD <b>-0.002m</b> Sink <b>17.68kg/mm</b> RL <b>8.872m</b> VCGM <b>-0.015m</b> WS <b>23.54m<sup>2</sup></b> LSMO <b>9.291m</b> Displacement/Length ratio <b>5.6956</b>



<b>Rating Office</b> EYU Purje 8 11911, Tallinn Estonia
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<b>SCORING OPTIONS</b>						
	<b>COASTAL / LONG DISTANCE</b>			<b>WINDWARD / LEEWARD</b>		
Time on Distance	<b>593.6</b>			<b>662.6</b>		
Time on Time	<b>1.0108</b>			<b>1.0188</b>		
Triple Number	Low	Medium	High	Low	Medium	High
Time on Distance	<b>690.6</b>	<b>542.0</b>	<b>486.9</b>	<b>890.4</b>	<b>663.5</b>	<b>584.5</b>
Time on Time	<b>0.9774</b>	<b>1.2455</b>	<b>1.3863</b>	<b>0.7581</b>	<b>1.0173</b>	<b>1.1549</b>

<b>TIME ALLOWANCES</b>							
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat VMG	<b>1006.6</b>	<b>833.0</b>	<b>739.7</b>	<b>708.9</b>	<b>697.6</b>	<b>691.5</b>	<b>684.4</b>
52°	<b>659.7</b>	<b>557.7</b>	<b>514.8</b>	<b>501.0</b>	<b>495.8</b>	<b>493.5</b>	<b>486.4</b>
60°	<b>623.3</b>	<b>536.7</b>	<b>502.6</b>	<b>488.0</b>	<b>482.1</b>	<b>479.1</b>	<b>471.2</b>
75°	<b>596.1</b>	<b>522.8</b>	<b>493.5</b>	<b>474.5</b>	<b>461.2</b>	<b>454.5</b>	<b>449.2</b>
90°	<b>603.6</b>	<b>523.1</b>	<b>490.0</b>	<b>471.5</b>	<b>451.8</b>	<b>435.2</b>	<b>418.0</b>
110°	<b>613.7</b>	<b>516.8</b>	<b>480.2</b>	<b>453.1</b>	<b>433.9</b>	<b>420.8</b>	<b>399.3</b>
120°	<b>631.6</b>	<b>525.8</b>	<b>485.4</b>	<b>455.9</b>	<b>427.8</b>	<b>404.1</b>	<b>376.7</b>
135°	<b>699.3</b>	<b>568.3</b>	<b>506.6</b>	<b>475.9</b>	<b>447.6</b>	<b>420.3</b>	<b>363.9</b>
150°	<b>829.8</b>	<b>661.2</b>	<b>560.1</b>	<b>506.1</b>	<b>477.5</b>	<b>451.3</b>	<b>401.1</b>
Run VMG	<b>958.2</b>	<b>763.5</b>	<b>646.0</b>	<b>573.0</b>	<b>521.6</b>	<b>489.1</b>	<b>439.2</b>

<b>Certificate</b> Number <b>EST050</b> ORC Ref <b>EST00000688</b> Issued On <b>6/24/2019</b> VPP Ver. <b>2019 1.01</b> Valid until <b>12/31/2019</b>
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<b>Crew Weight</b> Default <b>620kg</b> Maximum <b>745kg</b> Minimum* <b>559kg</b> <i>*when applied by the NoR and SI</i> Non Manual Pwr <b>No</b>
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<b>Special Scoring</b> ToD ToT Double H.GPH <b>622.2 0.9643</b> Double H.OSN <b>608.2 0.9865</b> Non Spin GPH <b>641.0 0.9360</b> Non Spin OSN <b>623.4 0.9624</b>
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<b>Selected Courses</b>							
Windward / Leeward	<b>982.4</b>	<b>798.3</b>	<b>692.8</b>	<b>640.9</b>	<b>609.6</b>	<b>590.3</b>	<b>561.8</b>
Circular Random	<b>831.8</b>	<b>674.8</b>	<b>591.7</b>	<b>544.2</b>	<b>515.1</b>	<b>495.7</b>	<b>468.9</b>
Coastal / Long Distance	<b>980.0</b>	<b>751.0</b>	<b>628.1</b>	<b>563.3</b>	<b>526.9</b>	<b>496.8</b>	<b>448.0</b>
Non Spinnaker	<b>888.5</b>	<b>714.7</b>	<b>621.4</b>	<b>567.3</b>	<b>534.2</b>	<b>512.3</b>	<b>483.6</b>

<b>Sails Limitations</b> Headsails <b>5</b>   Spinnakers <b>3</b>
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<b>Velocity Prediction in Knots for True Wind Speeds</b>							
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat Angles	<b>42.5°</b>	<b>41.4°</b>	<b>39.9°</b>	<b>38.5°</b>	<b>38.7°</b>	<b>38.4°</b>	<b>39.0°</b>
Beat VMG	<b>3.58</b>	<b>4.32</b>	<b>4.87</b>	<b>5.08</b>	<b>5.16</b>	<b>5.21</b>	<b>5.26</b>
52°	<b>5.46</b>	<b>6.45</b>	<b>6.99</b>	<b>7.19</b>	<b>7.26</b>	<b>7.29</b>	<b>7.40</b>
60°	<b>5.78</b>	<b>6.71</b>	<b>7.16</b>	<b>7.38</b>	<b>7.47</b>	<b>7.51</b>	<b>7.64</b>
75°	<b>6.04</b>	<b>6.89</b>	<b>7.29</b>	<b>7.59</b>	<b>7.81</b>	<b>7.92</b>	<b>8.01</b>
90°	<b>5.96</b>	<b>6.88</b>	<b>7.35</b>	<b>7.63</b>	<b>7.97</b>	<b>8.27</b>	<b>8.61</b>
110°	<b>5.87</b>	<b>6.97</b>	<b>7.50</b>	<b>7.94</b>	<b>8.30</b>	<b>8.55</b>	<b>9.02</b>
120°	<b>5.70</b>	<b>6.85</b>	<b>7.42</b>	<b>7.90</b>	<b>8.42</b>	<b>8.91</b>	<b>9.56</b>
135°	<b>5.15</b>	<b>6.34</b>	<b>7.11</b>	<b>7.56</b>	<b>8.04</b>	<b>8.57</b>	<b>9.89</b>
150°	<b>4.34</b>	<b>5.44</b>	<b>6.43</b>	<b>7.11</b>	<b>7.54</b>	<b>7.98</b>	<b>8.98</b>
Run VMG	<b>3.76</b>	<b>4.71</b>	<b>5.57</b>	<b>6.28</b>	<b>6.90</b>	<b>7.36</b>	<b>8.20</b>
Gybe Angles	<b>144.5°</b>	<b>148.4°</b>	<b>151.0°</b>	<b>158.5°</b>	<b>180.0°</b>	<b>180.0°</b>	<b>180.0°</b>

<b>Class Division Length</b> CDL = <b>9.171</b>
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<b>Storm Sails Areas</b> Heavy Weather Jib <b>28.66</b> Storm Jib (JL=9.48) <b>10.62</b> Storm Trysail <b>11.51</b>
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<b>Owner</b> MINNI JA MEESKOND OÜ Pihelga tee 14, Suurupi Estonia ESS Kalev JK
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I certify that I understand my responsibilities under ORC Rules and Regulations  
Signature

<b>BOAT</b>	
Name <b>MINNI</b>	Sail Nr <b>EST 50</b>
File <b>Est0050</b>	Data in <b>meters/kilograms</b>

<b>INCLINING TEST AND FREEBOARDS</b>			
Inclining Test <b>Current Inclining</b>			
Flotation date <b>19/06/2019</b>		SG <b>1.0000</b>	
FFM <b>1.313</b>	FF <b>1.324</b>	SFFP <b>0.075</b>	
FAM <b>0.969</b>	FA <b>0.978</b>	SAFP <b>10.275</b>	
W1 <b>70.0</b>	PD1 <b>544.2</b>	WD <b>11.400</b>	
W2 <b>70.0</b>	PD2 <b>544.9</b>	GSA <b>1.0</b>	
W3 <b>70.0</b>	PD3 <b>545.0</b>	RSA <b>1.0</b>	
W4 <b>70.0</b>	PD4 <b>545.1</b>	PLM <b>9000.0</b>	
LCF from stem on CL / on sheer		<b>5.979 / 6.175</b>	
Maximum beam station from stem		<b>7.300</b>	
RM Measured		<b>115.3kg·m</b>	
RM Default		<b>121.5kg·m</b>	
Limit of positive stability / Stab.Index		<b>119.5° / 120.4</b>	
Freeboard at mast at 4.185		<b>1.104</b>	



**2019**  
IMS Measurement  
Certificate

<b>RIG</b>			
Forestay Tension <b>Aft</b>	Spreaders <b>2</b>		
Inner Stay <b>None Fitted</b>	Runners <b>0</b>		
Carbon Mast <b>No</b>	Jumper Struts <b>None</b>		
Taper Hollows <b>No</b>	Jib Furler <b>No</b>		
Fiber Rigging <b>No</b>	Main Furler <b>No</b>		
Lenticular Rigging <b>No</b>	Without Backstay <b>No</b>		
Articulated Bowsprit <b>No</b>			
P <b>13.780</b>	E <b>4.770</b>	MDT1 <b>0.125</b>	MW <b>0.184</b>
IG <b>14.500</b>	J <b>4.185</b>	MDL1 <b>0.185</b>	GO <b>0.204</b>
ISP <b>14.530</b>	SFJ	MDT2 <b>0.125</b>	BD <b>0.220</b>
BAS <b>1.745</b>	SPL <b>4.180</b>	MDL2 <b>0.177</b>	MWT <b>156.00</b>
FSP <b>0.068</b>	TPS	TL <b>0.760</b>	MCG <b>4.600</b>

<b>MIZZEN RIG AND SAILS</b>	
N/A	

<b>PROPELLER</b>			
Installation <b>Strut</b>	PRD <b>0.420</b>		
Type <b>Folding 2 blades</b>	PBW <b>0.128</b>		
Twin Screw <b>No</b>	PIPA <b>0.0033</b>		
ST1 <b>0.042</b>	ST3 <b>0.182</b>	ST5 <b>0.255</b>	
ST2 <b>0.178</b>	ST4 <b>0.112</b>	EDL <b>2.390</b>	

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<b>COMMENTS</b>	

<b>MOVABLE BALLAST</b>	
N/A	

<b>CENTERBOARD</b>	
N/A	

<b>SAILS (Maximum Areas)</b>						
Mainsail	MHB	MUW	MTW	MHW	MQW	Area Area (r) Formula
	0.400	1.09	1.88	3.15	4.02	40.00 40.85 P/8 · (E + 2·MQW+ 2·MHW + 1.5·MTW + MUW + 0.5·MHB)
Symmetric	SLU	SLE	SL	SHW	SFL	93.31 SL · (SFL + 4·SHW) / 6
	14.30	14.30	14.30	7.94	7.39	
Asymmetric	Not Available					

<b>HEADSAILS</b>												
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	0.65	1.21	2.28	3.34	4.40	14.60	33.04			30/10/2018	Carbon	3di 2019 Light
0.13	0.67	1.24	2.31	3.34	4.40	14.46	32.95			04/05/2018	Technor	Light 2016
0.10	0.64	1.20	2.29	3.34	4.35	14.60	32.91			16/10/2018	Carbon	3di 2019 Medium
0.10	0.63	1.20	2.27	3.30	4.36	14.31	32.07			04/05/2018	Spectra	Medium 2016
0.14	0.59	1.11	2.16	3.28	4.44	13.42	29.62			01/06/2017	Technor	OS 2017 Heavy
0.10	0.51	0.90	1.69	2.50	3.37	12.47	21.27			19/06/2019	Unknow	Staysail 2019

<b>MEASUREMENT INVENTORY</b>				
Measurer <b>K-H.Tagu EST 7</b>				
Date <b>19/06/2019</b>				
Comment <b>Pirita</b>				
<i>Id</i>	<i>Item</i>	<i>Weight</i>	<i>Distance</i>	<i>VCG Description</i>
<i>Id</i>	<i>Item</i>	<i>Maker</i>	<i>Model</i>	
1	Engine	Yanmar	3YM20C	
<i>Id</i>	<i>Item</i>	<i>Weight</i>	<i>Description</i>	

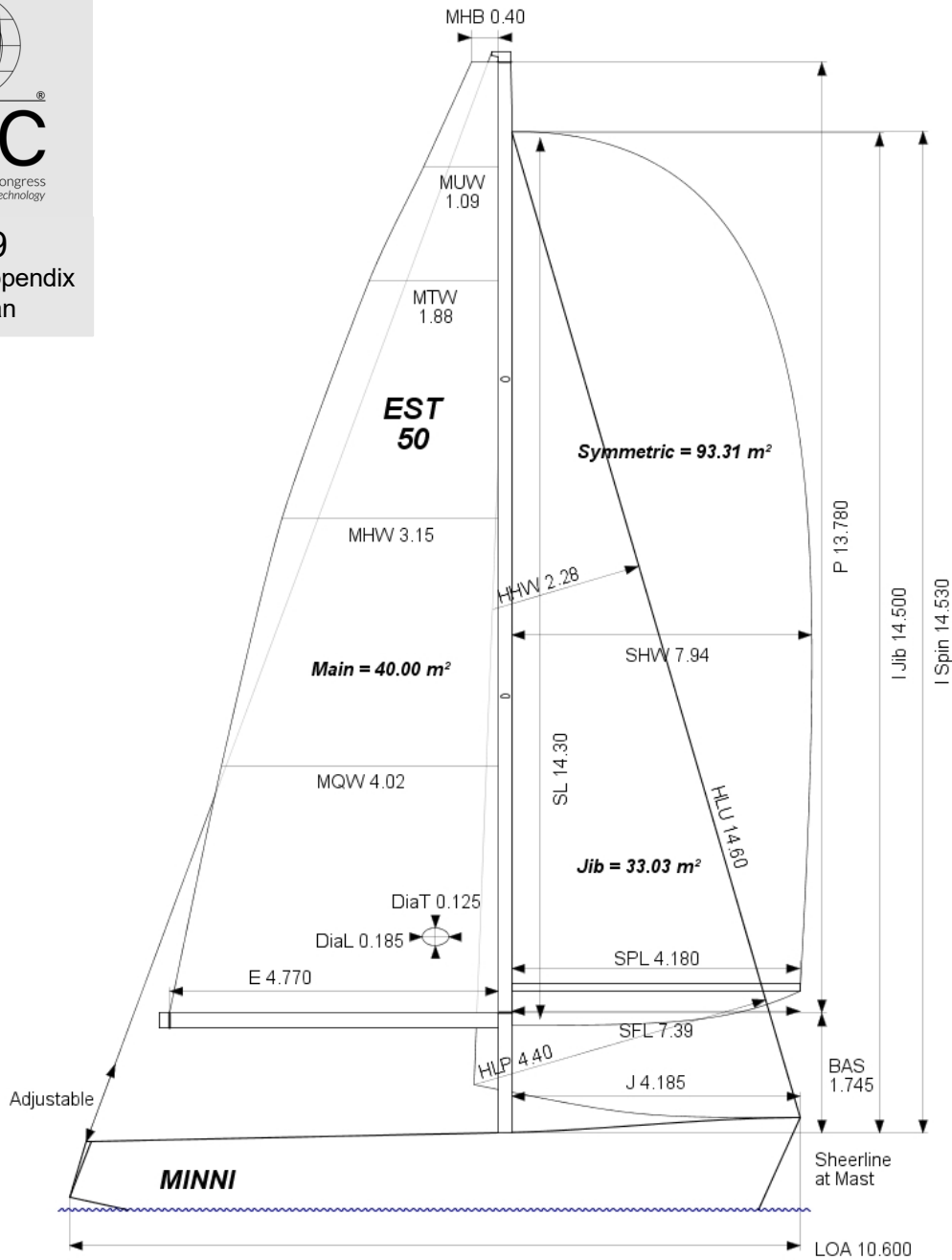
<b>MEASUREMENT INVENTORY</b>							
<i>Id</i>	<i>Item</i>	<i>Tank Use</i>	<i>Tank Type</i>	<i>Capcty</i>	<i>Dist.</i>	<i>VCG</i>	<i>Condn Description</i>
1	Tank fuel		st.stl	60.0	6.15		60.0 fuel
2	Tank H2O		pvc	120.0	5.52		0.0 Water
<i>Id</i>	<i>Item</i>	<i>Weight</i>	<i>Distance</i>	<i>VCG</i>	<i>Description</i>		
1	Battery	44.3	4.85	170 Ah gel - services			
2	Battery	17.4	5.18	55 Ah - engine			
1	Misc	20.0	5.52	Table			
2	Misc	15.0	7.60	Boiler			
3	Misc	7.0	9.60	Autopilot			



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**2019**  
Certificate Appendix  
Sail Plan



**SAILS INVENTORY**

**MAINSAIL (2)**

Id	MHB	MUW	MTW	MHW	MQW	Area	Measurer	Meas.Date	Manufacture	Material	Comment
4	0.40	1.09	1.88	3.15	4.02	40.00	Sisl	16/10/2018		Carbon	3di 2019
3	0.36	1.09	1.80	2.97	3.85	38.55	EST 7	04/05/2018	OneSails	Unknown	P13,25;E4,60

**HEADSAILS (6)**

Id	HHB	HUW	HTW	HHW	HQW	HLP	HLU	Ovrlp	Area	Btn	Fly	Measurer	Meas.Date	Manufacture	Material	Comment
9	0.10	0.65	1.21	2.28	3.34	4.40	14.60	105%	33.04			Sisil	30/10/2018		Carbon	3di 2019 Light
7a	0.13	0.67	1.24	2.31	3.34	4.40	14.46	105%	32.95			EST 7	04/05/2018		Technor	Light 2016
10	0.10	0.64	1.20	2.29	3.34	4.35	14.60	104%	32.91			Sisil	16/10/2018		Carbon	3di 2019 Medium
6a	0.10	0.63	1.20	2.27	3.30	4.36	14.31	104%	32.07			EST 7	04/05/2018		Spectra	Medium 2016
8	0.14	0.59	1.11	2.16	3.28	4.44	13.42	106%	29.62			SLO 03	01/06/2017	OneSails	Technor	OS 2017 Heavy
11	0.10	0.51	0.90	1.69	2.50	3.37	12.47	81%	21.27			EST 7	19/06/2019		Unknow	Staysail 2019

**SYMMETRIC SPINNAKERS (4)**

Id	SLU	SLE	SL	SHW	SFL	Area	Measurer	Meas.Date	Manufacture	Material	Comment
10	14.30	14.30	14.30	7.94	7.39	93.31	EST 7	04/05/2018		Unknown	S2
9	14.14	14.14	14.14	7.92	7.80	93.05	EST 7	04/05/2018		Unknown	S1
3	14.20	14.20	14.20	7.70	7.40	90.41	EST 1	01/07/2015		Unknown	S4 0,75oz
8	14.07	14.07	14.07	6.54	6.78	77.25	SLO 03	01/06/2017		Unknown	R

**ASYMMETRIC SPINNAKERS (0)**

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