

<b>BOAT</b> Name <b>GRANMA X</b> Sail Nr <b>GRE-88</b>	<b>GPH</b> <b>612.5</b>	<b>HULL</b> Length Overall <b>11.360m</b> Maximum Beam <b>3.660m</b> Displacement <b>5,463kg</b> Draft <b>2.101m</b> IMS Reg. Division <b>Performance</b> Dynamic Allowance <b>0.136%</b> Fwd Accommodation <b>No</b> Hull Construction <b>Cored</b> Carbon Rudder <b>No</b> Crew Arm Extension IMSL <b>9.831m</b> VCGD <b>-0.020m</b> Sink <b>19.61kg/mm</b> RL <b>8.959m</b> VCGM <b>0.045m</b> WS <b>26.06m<sup>2</sup></b> LSM0 <b>9.761m</b> Displacement/Length ratio <b>5.8742</b>
<b>GENERAL</b> Class <b>IMX-38</b> Designer <b>N.JEPESEN</b> Builder <b>X-YACHTS</b> Series <b>09/1992</b> Age <b>04/1996</b> Age Allowance <b>0.487%</b> Offset File <b>ORC0010.OFF - 23/11/1995 11:10:40</b> Measurement by - <b>11/03/2006</b>		



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<b>SCORING OPTIONS</b>						
	<b>COASTAL / LONG DISTANCE</b>			<b>WINDWARD / LEEWARD</b>		
Time on Distance	<b>594.9</b>			<b>663.0</b>		
Time on Time	<b>1.0086</b>			<b>1.0180</b>		
Triple Number	Low	Medium	High	Low	Medium	High
Time on Distance	<b>700.4</b>	<b>542.9</b>	<b>485.2</b>	<b>901.6</b>	<b>665.2</b>	<b>579.5</b>
Time on Time	<b>0.9637</b>	<b>1.2434</b>	<b>1.3911</b>	<b>0.7487</b>	<b>1.0147</b>	<b>1.1648</b>

<b>TIME ALLOWANCES</b>							
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat VMG	<b>1027.2</b>	<b>850.1</b>	<b>749.3</b>	<b>705.5</b>	<b>690.2</b>	<b>684.2</b>	<b>669.8</b>
52°	<b>674.3</b>	<b>568.6</b>	<b>517.1</b>	<b>497.4</b>	<b>490.2</b>	<b>486.8</b>	<b>481.0</b>
60°	<b>638.3</b>	<b>544.4</b>	<b>503.6</b>	<b>485.7</b>	<b>476.8</b>	<b>472.7</b>	<b>468.5</b>
75°	<b>611.7</b>	<b>527.8</b>	<b>493.6</b>	<b>474.6</b>	<b>460.4</b>	<b>450.4</b>	<b>442.5</b>
90°	<b>620.1</b>	<b>529.3</b>	<b>489.3</b>	<b>472.4</b>	<b>454.8</b>	<b>438.4</b>	<b>416.5</b>
110°	<b>623.9</b>	<b>519.1</b>	<b>479.4</b>	<b>454.4</b>	<b>435.1</b>	<b>423.0</b>	<b>403.8</b>
120°	<b>640.6</b>	<b>528.9</b>	<b>484.0</b>	<b>456.6</b>	<b>430.9</b>	<b>409.3</b>	<b>384.6</b>
135°	<b>706.8</b>	<b>573.5</b>	<b>505.1</b>	<b>473.8</b>	<b>447.8</b>	<b>422.4</b>	<b>375.0</b>
150°	<b>833.3</b>	<b>663.9</b>	<b>562.0</b>	<b>504.4</b>	<b>475.3</b>	<b>451.1</b>	<b>405.1</b>
Run VMG	<b>962.2</b>	<b>766.6</b>	<b>648.6</b>	<b>574.0</b>	<b>522.7</b>	<b>487.6</b>	<b>440.6</b>

**Certificate**  
Number **000231**  
ORC Ref **GRE01016210**  
Issued On **29/07/2019**  
VPP Ver. **2019 1.01**  
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**Crew Weight**  
Default **665kg**  
Maximum **640kg**  
Minimum\* **480kg**  
*\*when applied by the NoR and SI*  
Non Manual Pwr **No**

**Special Scoring**  
ToD ToT  
Non Spin GPH **647.8 0.9262**  
Non Spin OSN **628.3 0.9549**

<b>Selected Courses</b>							
Windward / Leeward	<b>994.7</b>	<b>808.3</b>	<b>699.0</b>	<b>639.8</b>	<b>606.5</b>	<b>585.9</b>	<b>555.2</b>
Circular Random	<b>841.5</b>	<b>680.2</b>	<b>594.3</b>	<b>544.8</b>	<b>514.4</b>	<b>494.2</b>	<b>467.3</b>
Coastal / Long Distance	<b>991.4</b>	<b>760.0</b>	<b>632.3</b>	<b>562.0</b>	<b>524.9</b>	<b>495.4</b>	<b>448.1</b>
Non Spinnaker	<b>905.2</b>	<b>725.2</b>	<b>627.6</b>	<b>570.3</b>	<b>534.9</b>	<b>511.5</b>	<b>480.7</b>

**Sails Limitations**  
Headsails **5** | Spinnakers **3**

<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>42.6°</b>	<b>40.9°</b>	<b>40.2°</b>	<b>38.9°</b>	<b>38.6°</b>	<b>38.5°</b>	<b>38.2°</b>
Beat VMG	<b>3.50</b>	<b>4.23</b>	<b>4.80</b>	<b>5.10</b>	<b>5.22</b>	<b>5.26</b>	<b>5.37</b>
52°	<b>5.34</b>	<b>6.33</b>	<b>6.96</b>	<b>7.24</b>	<b>7.34</b>	<b>7.39</b>	<b>7.48</b>
60°	<b>5.64</b>	<b>6.61</b>	<b>7.15</b>	<b>7.41</b>	<b>7.55</b>	<b>7.62</b>	<b>7.68</b>
75°	<b>5.89</b>	<b>6.82</b>	<b>7.29</b>	<b>7.59</b>	<b>7.82</b>	<b>7.99</b>	<b>8.14</b>
90°	<b>5.81</b>	<b>6.80</b>	<b>7.36</b>	<b>7.62</b>	<b>7.92</b>	<b>8.21</b>	<b>8.64</b>
110°	<b>5.77</b>	<b>6.93</b>	<b>7.51</b>	<b>7.92</b>	<b>8.27</b>	<b>8.51</b>	<b>8.92</b>
120°	<b>5.62</b>	<b>6.81</b>	<b>7.44</b>	<b>7.88</b>	<b>8.35</b>	<b>8.80</b>	<b>9.36</b>
135°	<b>5.09</b>	<b>6.28</b>	<b>7.13</b>	<b>7.60</b>	<b>8.04</b>	<b>8.52</b>	<b>9.60</b>
150°	<b>4.32</b>	<b>5.42</b>	<b>6.41</b>	<b>7.14</b>	<b>7.57</b>	<b>7.98</b>	<b>8.89</b>
Run VMG	<b>3.74</b>	<b>4.70</b>	<b>5.55</b>	<b>6.27</b>	<b>6.89</b>	<b>7.38</b>	<b>8.17</b>
Gybe Angles	<b>145.1°</b>	<b>148.7°</b>	<b>150.6°</b>	<b>156.8°</b>	<b>174.1°</b>	<b>180.0°</b>	<b>180.0°</b>

**Class Division Length**  
CDL = **9.396**

**Storm Sails Areas**  
Heavy Weather Jib **32.84**  
Storm Jib (JL=10.14) **12.17**  
Storm Trysail **11.48**

**Owner**

<b>BOAT</b>	
Name <b>GRANMA X</b>	Sail Nr <b>GRE-88</b>
File <b>GR88IMX</b>	Data in <b>meters/kilograms</b>

<b>INCLINING TEST AND FREEBOARDS</b>					
Inclining Test <b>Current Inclining</b>					
Flotation date <b>13/05/2017</b>				SG <b>1.0265</b>	
FFM <b>1.219</b>	FF <b>1.219</b>	SFFP <b>1.098</b>			
FAM <b>0.957</b>	FA <b>0.957</b>	SAFP <b>10.595</b>			
W1 <b>80.0</b>	PD1 <b>259.0</b>	WD <b>12.260</b>			
W2 <b>80.0</b>	PD2 <b>259.0</b>	GSA <b>50.2</b>			
W3 <b>80.0</b>	PD3 <b>259.0</b>	RSA <b>5941.7</b>			
W4 <b>80.0</b>	PD4 <b>259.0</b>	PLM <b>2069.0</b>			
LCF from stem on CL / on sheer				<b>6.239 / 6.480</b>	
Maximum beam station from stem				<b>6.705</b>	
RM Measured				<b>136.0kg-m</b>	
RM Default				<b>133.1kg-m</b>	
Limit of positive stability / Stab.Index				<b>112.9° / 112.3</b>	
Freeboard at mast at 4.650				<b>1.091</b>	



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<b>RIG</b>					
Forestay Tension <b>Aft</b>	Spreaders <b>3</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>13.380</b>	E <b>4.900</b>	MDT1 <b>0.117</b>	MW <b>0.160</b>		
IG <b>15.500</b>	J <b>4.390</b>	MDL1 <b>0.200</b>	GO <b>0.187</b>		
ISP <b>15.453</b>	SFJ <b>0.260</b>	MDT2 <b>0.116</b>	BD <b>0.190</b>		
BAS <b>1.848</b>	SPL <b>4.485</b>	MDL2 <b>0.160</b>	MWT <b>180.00</b>		
FSP <b>0.084</b>	TPS	TL <b>1.600</b>	MCG <b>5.000</b>		

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

<b>PROPELLER</b>			
Installation <b>Strut</b>	PRD <b>0.410</b>		
Type <b>Folding 2 blades</b>	PBW <b>0.110</b>		
Twin Screw <b>No</b>	PIPA <b>0.0031</b>		
ST1 <b>0.048</b>	ST3 <b>0.170</b>	ST5 <b>0.280</b>	
ST2 <b>0.170</b>	ST4 <b>0.097</b>	EDL <b>1.480</b>	

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<b>COMMENTS</b>	
ex "AEOLOS II", ex "ELLINIX", ex "MAISTRATO". Builder's displacement.	

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



<b>CENTERBOARD</b>	
N/A	

<b>SAILS (Maximum Areas)</b>									
<b>Mainsail</b>	<b>MHB</b>	<b>MUW</b>	<b>MTW</b>	<b>MHW</b>	<b>MQW</b>	<b>Area</b>	<b>Area (r)</b>	<b>Formula</b>	
	0.180	1.01	1.84	3.15	4.13	39.00	39.86	P/8 · (E + 2·MQW + 2·MHW + 1.5·MTW + MUW + 0.5·MHB)	
<b>Symmetric</b>	<b>SLU</b>	<b>SLE</b>	<b>SL</b>	<b>SHW</b>	<b>SFL</b>				
	15.18	15.18	15.18	8.18	7.90	102.77	SL · (SFL + 4·SHW) / 6		
<b>Asymmetric</b>	Not Available								

<b>HEADSAILS</b>												
Area = 0.1125·HLU · (1.445·HLP + 2·HQW + 2·HHW + 1.5·HTW + HUW + 0.5·HHB)												
<b>HHB</b>	<b>HUW</b>	<b>HTW</b>	<b>HHW</b>	<b>HQW</b>	<b>HLP</b>	<b>HLU</b>	<b>Area</b>	<b>Btn</b>	<b>Fly</b>	<b>Meas.Date</b>	<b>Material</b>	<b>Comment</b>
0.15	0.73	1.33	2.35	3.32	4.29	15.34	35.10	Y		21/07/2019	Kevlar	light
0.13	0.71	1.27	2.28	3.28	4.28	15.36	34.53			06/07/2017	Polyest	#3
0.09	0.58	1.09	2.14	3.22	4.28	15.38	33.16			29/07/2010	Unknow	

<b>MEASUREMENT INVENTORY</b>				
Measurer <b>GRE-16</b>				
Date <b>13/05/2017</b>				
Comment				
<b>Id</b>	<b>Item</b>	<b>Weight</b>	<b>Distance</b>	<b>VCG Description</b>
<b>Id</b>	<b>Item</b>	<b>Maker</b>	<b>Model</b>	
1	Engine	VOLVO PENTA	2030	
<b>Id</b>	<b>Item</b>	<b>Weight Description</b>		

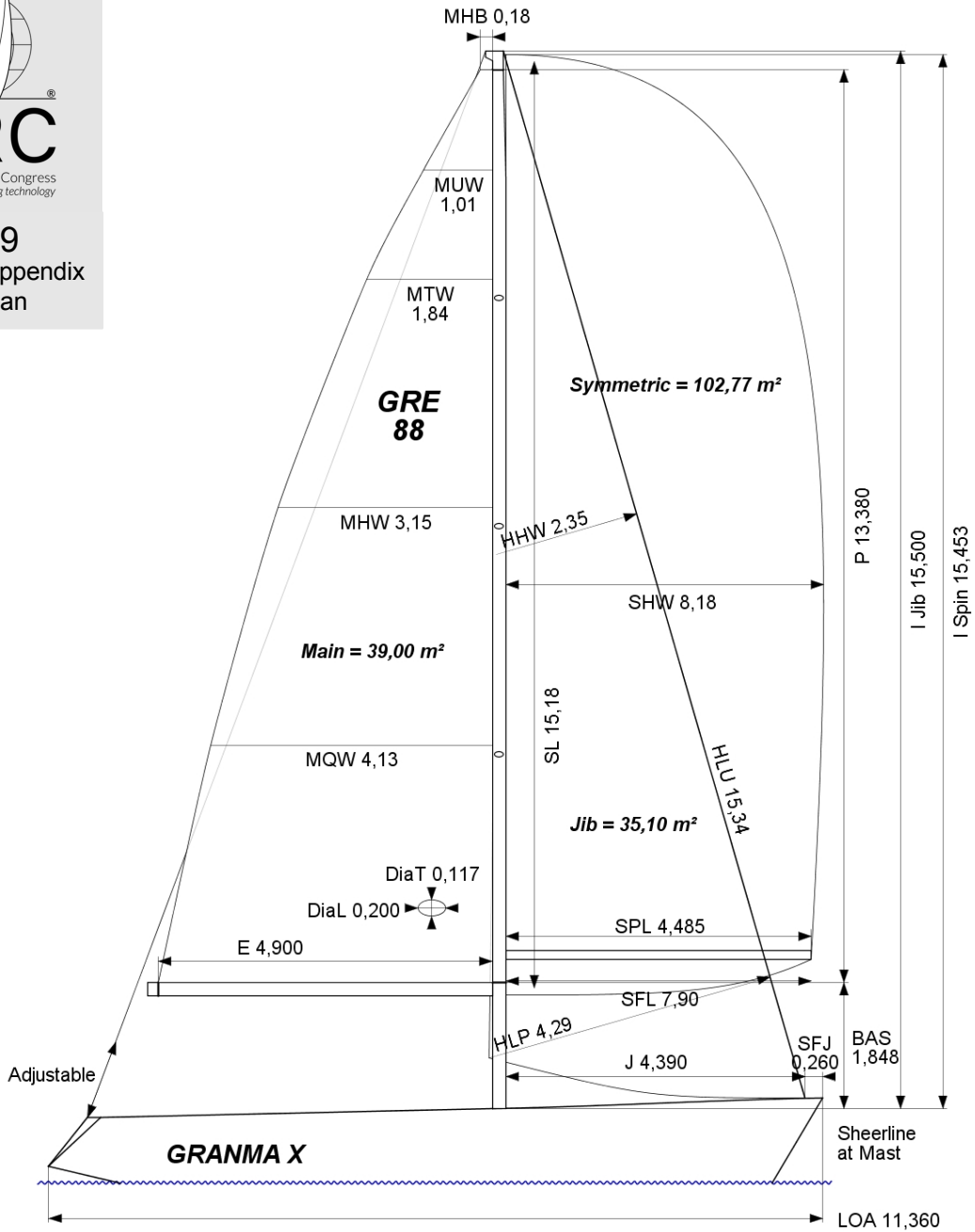
<b>MEASUREMENT INVENTORY</b>							
<b>Id</b>	<b>Item</b>	<b>Tank Use</b>	<b>Tank Type</b>	<b>Capcty</b>	<b>Dist.</b>	<b>VCG</b>	<b>Condtn Description</b>
2	Tank	FUEL	INOX	80.0	6.50		6-0 6 LT
1	Tank	WATER	PVC	120.0	6.30		0-0 EMPTY
<b>Id</b>	<b>Item</b>	<b>Weight</b>	<b>Distance</b>	<b>VCG Description</b>			
2	Battery	19.0	6.70	70Ah, port			
1	Battery	60.0	6.60	3 x 75Ah, centerline			



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Sail Plan



**SAILS INVENTORY**

MAINSAIL (1)																
Id	MHB	MUW	MTW	MHW	MQW	Area	Measurer	Meas.Date	Manufacture	Material	Comment					
4	0.18	1.01	1.84	3.15	4.13	39.01		03/05/2018		Unknown						
HEADSAILS (3)																
Id	HHB	HUW	HTW	HHW	HQW	HLP	HLU	Ovrlp	Area	Btn	Fly	Measurer	Meas.Date	Manufacture	Material	Comment
10	0.15	0.73	1.33	2.35	3.32	4.29	15.34	98%	35.10	Y			21/07/2019	Quantum	Kevlar	light
9	0.13	0.71	1.27	2.28	3.28	4.28	15.36	97%	34.53				06/07/2017	Quantum	Polyest	#3
6	0.09	0.58	1.09	2.14	3.22	4.28	15.38	97%	33.16				29/07/2010		Unknow	
SYMMETRIC SPINNAKERS (1)																
Id	SLU	SLE	SL	SHW	SFL	Area	Measurer	Meas.Date	Manufacture	Material	Comment					
9	15.18	15.18	15.18	8.18	7.90	102.77		03/05/2018	Quantum	Nylon	1.5					
ASYMMETRIC SPINNAKERS (0)																
Id	SLU	SLE	SL	SHW	SFL	Area	Kind	Measurer	Meas.Date	Manufacture	Material	Comment				