

<b>BOAT</b> Name <b>QUATTRO</b> Sail Nr <b>GER 4687</b>	<b>GPH</b> <b>646.0</b>	<b>HULL</b> Length Overall <b>10.060m</b> Maximum Beam <b>3.284m</b> Displacement <b>4,707kg</b> Draft <b>1.832m</b> IMS Reg. Division <b>Cruiser/Racer</b> Dynamic Allowance <b>0.171%</b> Fwd Accommodation <b>Yes</b> Hull Construction <b>Cored</b> Carbon Rudder <b>No</b> Crew Arm Extension <b>0.00</b>
<b>GENERAL</b> Class <b>X-332</b> Designer <b>JEPPESEN</b> Builder <b>X-YACHTS</b> Series <b>01/1994</b> Age <b>01/1997</b> Age Allowance <b>0.487%</b> Offset File <b>X332_I.OFF - 24/04/2001 23:00:24</b> Measurement by - <b>31/03/2001</b>		IMSL <b>9.190m</b> VCGD <b>0.039m</b> Sink <b>17.14kg/mm</b> RL <b>8.047m</b> VCGM <b>0.087m</b> WS <b>23.01m<sup>2</sup></b> LSM0 <b>9.197m</b> Displacement/Length ratio <b>6.0507</b>



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SCORING OPTIONS						
Time on Distance	COASTAL / LONG DISTANCE			WINDWARD / LEEWARD		
	<b>629.0</b>			<b>700.8</b>		
Time on Time	<b>0.9538</b>			<b>0.9631</b>		
Triple Number	Low	Medium	High	Low	Medium	High
Time on Distance	<b>736.0</b>	<b>573.0</b>	<b>515.5</b>	<b>950.6</b>	<b>703.1</b>	<b>615.4</b>
Time on Time	<b>0.9171</b>	<b>1.1781</b>	<b>1.3093</b>	<b>0.7101</b>	<b>0.9600</b>	<b>1.0968</b>

TIME ALLOWANCES							
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat VMG	<b>1062.4</b>	<b>885.2</b>	<b>784.3</b>	<b>744.4</b>	<b>730.1</b>	<b>725.1</b>	<b>721.3</b>
52°	<b>696.9</b>	<b>590.3</b>	<b>539.8</b>	<b>522.0</b>	<b>516.0</b>	<b>513.2</b>	<b>510.5</b>
60°	<b>659.0</b>	<b>565.1</b>	<b>525.7</b>	<b>509.3</b>	<b>502.4</b>	<b>499.0</b>	<b>497.5</b>
75°	<b>630.7</b>	<b>548.2</b>	<b>515.6</b>	<b>497.4</b>	<b>484.8</b>	<b>477.3</b>	<b>471.5</b>
90°	<b>638.8</b>	<b>549.3</b>	<b>511.5</b>	<b>493.6</b>	<b>478.0</b>	<b>462.7</b>	<b>443.3</b>
110°	<b>658.3</b>	<b>548.7</b>	<b>507.1</b>	<b>482.2</b>	<b>459.3</b>	<b>442.8</b>	<b>423.4</b>
120°	<b>681.4</b>	<b>562.8</b>	<b>513.6</b>	<b>487.4</b>	<b>463.1</b>	<b>439.6</b>	<b>405.9</b>
135°	<b>757.1</b>	<b>618.0</b>	<b>540.4</b>	<b>505.9</b>	<b>481.8</b>	<b>457.4</b>	<b>411.3</b>
150°	<b>895.5</b>	<b>710.5</b>	<b>602.8</b>	<b>537.5</b>	<b>505.9</b>	<b>483.2</b>	<b>438.0</b>
Run VMG	<b>1034.1</b>	<b>820.5</b>	<b>694.3</b>	<b>609.7</b>	<b>549.5</b>	<b>513.8</b>	<b>468.8</b>

**Certificate**  
Number **99509**  
ORC Ref **GER20040538**  
Issued On **08/04/2019**  
VPP Ver. **2019 1.01**  
Valid until **01/01/2020**

**Crew Weight**  
Default **611kg**  
Maximum **580kg**  
Minimum\* **435kg**  
*\*when applied by the NoR and SI*  
Non Manual Pwr **No**

**Special Scoring**

	ToD	ToT
Double H.GPH	<b>656.0</b>	<b>0.9147</b>
Double H.OSN	<b>640.7</b>	<b>0.9365</b>
Non Spin GPH	<b>671.0</b>	<b>0.8942</b>
Non Spin OSN	<b>651.9</b>	<b>0.9204</b>

Selected Courses							
Windward / Leeward	<b>1048.2</b>	<b>852.8</b>	<b>739.3</b>	<b>677.1</b>	<b>639.8</b>	<b>619.5</b>	<b>595.1</b>
Circular Random	<b>884.7</b>	<b>716.3</b>	<b>626.8</b>	<b>575.6</b>	<b>544.7</b>	<b>524.9</b>	<b>499.8</b>
Coastal / Long Distance	<b>1046.8</b>	<b>801.7</b>	<b>668.0</b>	<b>594.3</b>	<b>555.8</b>	<b>526.0</b>	<b>477.3</b>
Non Spinnaker	<b>930.3</b>	<b>748.2</b>	<b>650.4</b>	<b>593.8</b>	<b>559.5</b>	<b>537.4</b>	<b>509.6</b>

**Sails Limitations**

Headsails	5	Spinnakers	3
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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	<b>42.4°</b>	<b>41.3°</b>	<b>40.6°</b>	<b>39.3°</b>	<b>38.9°</b>	<b>38.7°</b>	<b>38.8°</b>
Beat VMG	<b>3.39</b>	<b>4.07</b>	<b>4.59</b>	<b>4.84</b>	<b>4.93</b>	<b>4.96</b>	<b>4.99</b>
52°	<b>5.17</b>	<b>6.10</b>	<b>6.67</b>	<b>6.90</b>	<b>6.98</b>	<b>7.01</b>	<b>7.05</b>
60°	<b>5.46</b>	<b>6.37</b>	<b>6.85</b>	<b>7.07</b>	<b>7.17</b>	<b>7.22</b>	<b>7.24</b>
75°	<b>5.71</b>	<b>6.57</b>	<b>6.98</b>	<b>7.24</b>	<b>7.43</b>	<b>7.54</b>	<b>7.64</b>
90°	<b>5.64</b>	<b>6.55</b>	<b>7.04</b>	<b>7.29</b>	<b>7.53</b>	<b>7.78</b>	<b>8.12</b>
110°	<b>5.47</b>	<b>6.56</b>	<b>7.10</b>	<b>7.47</b>	<b>7.84</b>	<b>8.13</b>	<b>8.50</b>
120°	<b>5.28</b>	<b>6.40</b>	<b>7.01</b>	<b>7.39</b>	<b>7.77</b>	<b>8.19</b>	<b>8.87</b>
135°	<b>4.76</b>	<b>5.83</b>	<b>6.66</b>	<b>7.12</b>	<b>7.47</b>	<b>7.87</b>	<b>8.75</b>
150°	<b>4.02</b>	<b>5.07</b>	<b>5.97</b>	<b>6.70</b>	<b>7.12</b>	<b>7.45</b>	<b>8.22</b>
Run VMG	<b>3.48</b>	<b>4.39</b>	<b>5.18</b>	<b>5.90</b>	<b>6.55</b>	<b>7.01</b>	<b>7.68</b>
Gybe Angles	<b>145.3°</b>	<b>150.4°</b>	<b>152.6°</b>	<b>159.0°</b>	<b>180.0°</b>	<b>180.0°</b>	<b>180.0°</b>

**Class Division Length**  
CDL = **8.619**

**Storm Sails Areas**  
Heavy Weather Jib **23.62**  
Storm Jib (JL=8.60) **8.75**  
Storm Trysail **10.59**

**Owner**

<b>BOAT</b>	
Name <b>QUATTRO</b>	Sail Nr <b>GER 4687</b>
File <b>GER4687</b>	Data in <b>meters/kilograms</b>

<b>INCLINING TEST AND FREEBOARDS</b>			
Inclining Test <b>Current Inclining</b>			
Flotation date <b>29/05/1998</b>		SG <b>1.0110</b>	
FFM <b>1.152</b>	FF <b>1.159</b>	SFFP <b>0.513</b>	
FAM <b>0.971</b>	FA <b>0.983</b>	SAFP <b>9.213</b>	
W1 <b>15.0</b>	PD1 <b>52.0</b>	WD <b>10.000</b>	
W2 <b>30.0</b>	PD2 <b>104.0</b>	GSA <b>1.0</b>	
W3 <b>45.0</b>	PD3 <b>156.0</b>	RSA <b>1.0</b>	
W4 <b>60.0</b>	PD4 <b>208.0</b>	PLM <b>4020.0</b>	
LCF from stem on CL / on sheer		<b>5.577 / 5.804</b>	
Maximum beam station from stem		<b>6.331</b>	
RM Measured		<b>101.5kg-m</b>	
RM Default		<b>103.6kg-m</b>	
Limit of positive stability / Stab.Index		<b>112.3° / 113.3</b>	
Freeboard at mast at 3.850		<b>1.065</b>	



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<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>13.150</b>	E <b>4.600</b>	MDT1 <b>0.115</b>	MW <b>0.165</b>
IG <b>13.188</b>	J <b>3.540</b>	MDL1 <b>0.165</b>	GO <b>0.175</b>
ISP <b>13.208</b>	SFJ <b>0.310</b>	MDT2 <b>0.100</b>	BD <b>0.151</b>
BAS <b>1.745</b>	SPL <b>3.550</b>	MDL2 <b>0.130</b>	MWT <b>115.000</b>
FSP <b>0.000</b>	TPS <b>0.000</b>	TL <b>1.705</b>	MCG <b>4.600</b>

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

<b>PROPELLER</b>			
Installation <b>Strut</b>	PRD <b>0.380</b>		
Type <b>Folding 2 blades</b>	PBW <b>0.096</b>		
Twin Screw <b>No</b>	PIPA <b>0.0032</b>		
ST1 <b>0.048</b>	ST3 <b>0.170</b>	ST5 <b>0.320</b>	
ST2 <b>0.170</b>	ST4 <b>0.098</b>	EDL <b>2.100</b>	

<b>COMMENTS</b>	

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

<b>CENTERBOARD</b>	
<b>N/A</b>	



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<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	0.95	1.71	2.91	3.82	35.61	36.29	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>				
	12.82	12.82	12.82	6.48	6.16	68.54		SL · (SFL + 4·SHW) / 6	
<b>Asymmetric</b>	Not Available								

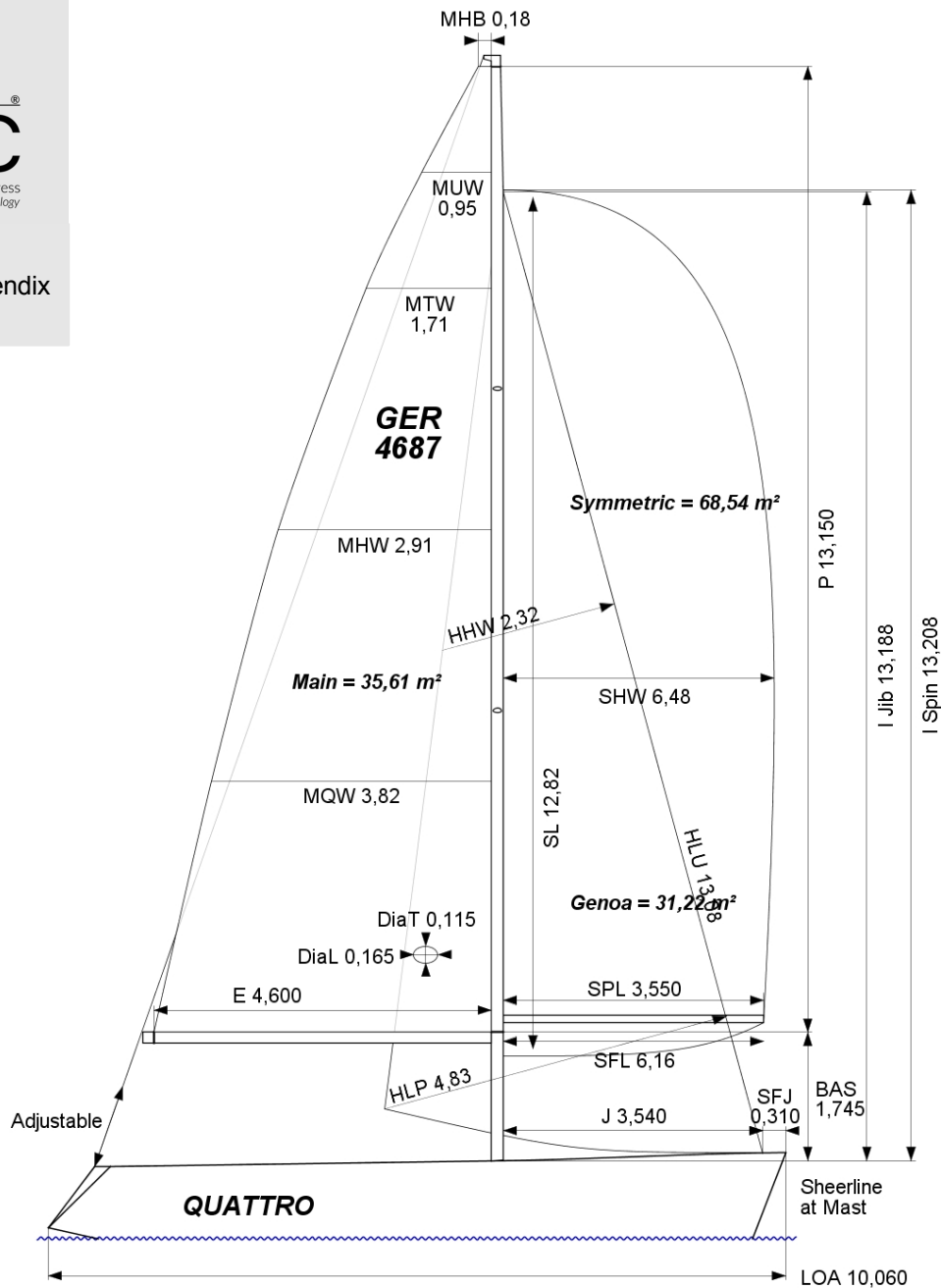
<b>HEADSAILS</b>												
Area = 0.1125·HLU · (1.445·HLP + 2·HQW + 2·HHW + 1.5·HTW + HUW + 0.5·HHB)												
<b>HHB</b>	<b>HUW</b>	<b>HTW</b>	<b>HHW</b>	<b>HQW</b>	<b>HLP</b>	<b>HLU</b>	<b>Area</b>	<b>Btn</b>	<b>Fly</b>	<b>Meas.Date</b>	<b>Material</b>	<b>Comment</b>
0.18	0.66	1.18	2.32	3.54	4.83	13.08	31.23			27/05/2017	Kevlar	G1
0.09	0.55	1.07	2.19	3.43	4.75	12.85	29.35			23/04/2018	Carbon	G1 2017
0.04	0.44	0.84	1.76	2.73	3.66	12.96	23.31	Y		15/08/2010	Kevlar	G3
0.07	0.52	0.99	1.75	2.60	3.42	12.81	22.60	Y		22/06/2017	Carbon	G3 + Taft

<b>MEASUREMENT INVENTORY</b>				
Measurer				
Date <b>29/05/1998</b>				
Comment				
<b>Id</b>	<b>Item</b>	<b>Weight</b>	<b>Distance</b>	<b>VCG Description</b>
1	Anchor	12.0	8.44	KLAPPANKER
2	Chain	10.0	8.44	BLEILEINE 40M
3	Tools	17.0	8.00	TOOLS &
4	Tools	23.0	4.50	6x SAFETY
<b>Id</b>	<b>Item</b>	<b>Maker</b>	<b>Model</b>	
6	Engine	YANMAR	2GM20	
<b>Id</b>	<b>Item</b>	<b>Weight</b>	<b>Description</b>	
5	Deck Gear	25.0		

<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</b>	<b>Description</b>	
7	Tank	WATER	PI.	60.0	4.70			0-0 empty	
8	Tank	FUEL	NIRO	40.0	7.50			10-0 10l	
<b>Id</b>	<b>Item</b>	<b>Weight</b>	<b>Distance</b>	<b>VCG Description</b>					
4	Battery	48.0	4.54	2 x 70Ah					



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Sail Plan



**SAILS INVENTORY**

**MAINSAIL (2)**

Id	MHB	MUW	MTW	MHW	MQW	Area	Measurer	Meas.Date	Manufacture	Material	Comment
148794	0.18	0.95	1.71	2.91	3.82	35.62		22/06/2017	ULLMAN	Carbon	TAFETTA SINGLE
128607	0.17	0.92	1.64	2.83	3.78	34.99		15/08/2010	QUANTUM	Kevlar	

**HEADSAILS (4)**

Id	HHB	HUW	HTW	HHW	HQW	HLP	HLU	Ovrlp	Area	Btn	Fly	Measurer	Meas.Date	Manufacture	Material	Comment
159292	0.18	0.66	1.18	2.32	3.54	4.83	13.08	136%	31.23				27/05/2017	ULLMAN	Kevlar	G1
162892	0.09	0.55	1.07	2.19	3.43	4.75	12.85	134%	29.35				23/04/2018	ULLMAN	Carbon	G1 2017
112428	0.04	0.44	0.84	1.76	2.73	3.66	12.96	103%	23.31	Y			15/08/2010	SCHULTZ	Kevlar	G3
148795	0.07	0.52	0.99	1.75	2.60	3.42	12.81	97%	22.60	Y			22/06/2017	ULLMAN	Carbon	G3 + Taft

**SYMMETRIC SPINNAKERS (3)**

Id	SLU	SLE	SL	SHW	SFL	Area	Measurer	Meas.Date	Manufacture	Material	Comment
148793	12.82	12.82	12.82	6.48	6.16	68.55		22/06/2017	ULLMAN	Nylon	Ullman mittel
148798	12.80	12.80	12.80	6.41	6.20	67.93		22/06/2017	ULLMAN	Nylon	Ullman leicht
128605	12.84	12.84	12.84	6.36	5.85	66.97		22/06/2017	QUANTUM	Nylon	2 leicht

**ASYMMETRIC SPINNAKERS (0)**

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