

<b>BOAT</b> Name <b>Czarodziejka</b> Sail Nr <b>POL 9658</b>	<b>GPH</b> <b>811,8</b>	<b>HULL</b> Length Overall <b>8,560m</b> Maximum Beam <b>2,818m</b> Displacement <b>2 698kg</b> Draft <b>1,757m</b> IMS Reg. Division <b>Cruiser/Racer</b> Dynamic Allowance <b>0,457%</b> Fwd Accommodation <b>No</b> Hull Construction <b>Solid</b> Carbon Rudder <b>No</b> Crew Arm Extension
<b>GENERAL</b> Class <b>GRANADA 27</b> Designer <b>ELVSTROEM/KJAERULF</b> Builder <b>GESTEN GLASFIBER</b> Series <b>01-1976</b> Age <b>01-1979</b> Age Allowance <b>0,487%</b> Offset File <b>czarodziejka.off - 2014-01-23</b> Measurement by <b>J.Gorski - 14-06-2013</b>		IMSL <b>6,784m</b> VCGD <b>-0,204m</b> Sink <b>9,87kg/mm</b> RL <b>5,383m</b> VCGM <b>-0,089m</b> WS <b>14,38m2</b> LSM0 <b>6,908m</b> Displacement/Length ratio <b>8,1844</b>



**Rating Office**  
Polski Związek Żeglarski  
al. ks. J.Poniatowskiego 1  
03-901 Warszawa, Polska

	COASTAL / LONG DISTANCE			WINDWARD / LEEWARD		
	Low	Medium	High	Low	Medium	High
Time On Distance	<b>782,9</b>			<b>862,0</b>		
Time On Time	<b>0,7664</b>			<b>0,7831</b>		
Triple Number	Low	Medium	High	Low	Medium	High
Time on Distance	<b>950,2</b>	<b>714,1</b>	<b>627,0</b>	<b>1213,6</b>	<b>871,0</b>	<b>738,4</b>
Time on Time	<b>0,7104</b>	<b>0,9452</b>	<b>1,0765</b>	<b>0,5562</b>	<b>0,7750</b>	<b>0,9141</b>

Wind Velocity	TIME ALLOWANCES						
	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat VMG	<b>1316,6</b>	<b>1105,8</b>	<b>992,8</b>	<b>910,1</b>	<b>867,0</b>	<b>852,6</b>	<b>854,1</b>
52°	<b>870,3</b>	<b>740,2</b>	<b>661,2</b>	<b>628,0</b>	<b>610,4</b>	<b>601,5</b>	<b>598,5</b>
60°	<b>826,7</b>	<b>702,0</b>	<b>638,9</b>	<b>611,7</b>	<b>594,7</b>	<b>583,5</b>	<b>577,1</b>
75°	<b>792,6</b>	<b>671,8</b>	<b>622,8</b>	<b>598,4</b>	<b>580,0</b>	<b>564,1</b>	<b>543,1</b>
90°	<b>798,7</b>	<b>676,4</b>	<b>622,6</b>	<b>596,7</b>	<b>576,9</b>	<b>556,0</b>	<b>528,1</b>
110°	<b>878,4</b>	<b>733,3</b>	<b>644,8</b>	<b>608,2</b>	<b>584,8</b>	<b>564,5</b>	<b>524,8</b>
120°	<b>935,4</b>	<b>772,0</b>	<b>667,5</b>	<b>619,4</b>	<b>593,3</b>	<b>572,6</b>	<b>533,2</b>
135°	<b>1059,3</b>	<b>848,9</b>	<b>731,4</b>	<b>650,7</b>	<b>613,6</b>	<b>590,2</b>	<b>551,2</b>
150°	<b>1228,9</b>	<b>951,9</b>	<b>805,3</b>	<b>707,6</b>	<b>642,0</b>	<b>609,7</b>	<b>569,0</b>
Run VMG	<b>1381,4</b>	<b>1050,9</b>	<b>870,1</b>	<b>757,9</b>	<b>674,3</b>	<b>626,3</b>	<b>577,6</b>

**Certificate**  
Number **28**  
ORC Ref **N/A**  
Issued On **2017-11-28**  
VPP Ver. **2017 1.00**  
**Invalid for Racing**

Selected Courses							
Windward / Leeward	<b>1349,0</b>	<b>1078,4</b>	<b>931,5</b>	<b>834,0</b>	<b>770,7</b>	<b>739,4</b>	<b>715,9</b>
Circular Random	<b>1134,7</b>	<b>909,5</b>	<b>786,6</b>	<b>714,0</b>	<b>669,2</b>	<b>640,9</b>	<b>609,0</b>
Ocean for PCS	<b>1385,2</b>	<b>1062,4</b>	<b>879,9</b>	<b>768,5</b>	<b>696,9</b>	<b>648,3</b>	<b>584,3</b>
Non Spinnaker	<b>1134,7</b>	<b>909,5</b>	<b>786,6</b>	<b>714,0</b>	<b>669,2</b>	<b>640,9</b>	<b>609,0</b>

**Crew Weight**  
Declared **300kg**  
Default\* **406kg**  
Non Manual Pwr **No**

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>42,3°</b>	<b>40,7°</b>	<b>41,3°</b>	<b>41,3°</b>	<b>39,7°</b>	<b>39,1°</b>	<b>39,4°</b>
Beat VMG	<b>2,73</b>	<b>3,26</b>	<b>3,63</b>	<b>3,96</b>	<b>4,15</b>	<b>4,22</b>	<b>4,21</b>
52°	<b>4,14</b>	<b>4,86</b>	<b>5,44</b>	<b>5,73</b>	<b>5,90</b>	<b>5,99</b>	<b>6,02</b>
60°	<b>4,35</b>	<b>5,13</b>	<b>5,64</b>	<b>5,89</b>	<b>6,05</b>	<b>6,17</b>	<b>6,24</b>
75°	<b>4,54</b>	<b>5,36</b>	<b>5,78</b>	<b>6,02</b>	<b>6,21</b>	<b>6,38</b>	<b>6,63</b>
90°	<b>4,51</b>	<b>5,32</b>	<b>5,78</b>	<b>6,03</b>	<b>6,24</b>	<b>6,47</b>	<b>6,82</b>
110°	<b>4,10</b>	<b>4,91</b>	<b>5,58</b>	<b>5,92</b>	<b>6,16</b>	<b>6,38</b>	<b>6,86</b>
120°	<b>3,85</b>	<b>4,66</b>	<b>5,39</b>	<b>5,81</b>	<b>6,07</b>	<b>6,29</b>	<b>6,75</b>
135°	<b>3,40</b>	<b>4,24</b>	<b>4,92</b>	<b>5,53</b>	<b>5,87</b>	<b>6,10</b>	<b>6,53</b>
150°	<b>2,93</b>	<b>3,78</b>	<b>4,47</b>	<b>5,09</b>	<b>5,61</b>	<b>5,90</b>	<b>6,33</b>
Run VMG	<b>2,61</b>	<b>3,43</b>	<b>4,14</b>	<b>4,75</b>	<b>5,34</b>	<b>5,75</b>	<b>6,23</b>
Gybe Angles	<b>177,1°</b>	<b>178,4°</b>	<b>179,3°</b>	<b>179,4°</b>	<b>179,5°</b>	<b>179,8°</b>	<b>179,9°</b>

**Special Scoring**  
ToD ToT  
Double H.GPH **813,5 0,7375**  
Double H.OSN **785,4 0,7639**  
Non Spin GPH **811,8 0,7391**  
Non Spin OSN **782,9 0,7664**

**Sails Limitations**  
Headsails **5** | Spinnakers **0**

**Class Division Length**  
CDL = **6,084**

**Storm Sails Areas**  
Heavy Weather Jib **15,64**  
Storm Jib (JL=7,00) **5,79**  
Storm Trysail **4,63**

**Owner**  
Tomasz Konnak


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

Signature

<b>BOAT</b>	
Name <b>Czarodziejka</b> File <b>czarodziejka_test3</b>	Sail Nr <b>POL 9658</b> Data in <b>meters/kilograms</b>

<b>INCLINING TEST AND FREEBOARDS</b>		
Inclining Test <b>Current Inclining</b>		
Flotation date <b>08-06-2013</b>		SG <b>1,0050</b>
FFM <b>1,002</b>	FF <b>1,003</b>	SFFP <b>0,600</b>
FAM <b>0,842</b>	FA <b>0,856</b>	SAFP <b>7,680</b>
W1 <b>11,2</b>	PD1 <b>59,0</b>	WD <b>5,950</b>
W2 <b>22,4</b>	PD2 <b>124,0</b>	GSA <b>15,9</b>
W3 <b>33,6</b>	PD3 <b>184,0</b>	RSA <b>10751,</b>
W4 <b>44,8</b>	PD4 <b>244,0</b>	PLM <b>2115,0</b>
LCF from stem on CL / on sheer		<b>4,852 / 5,008</b>
Maximum beam station from stem		<b>5,250</b>
RM Measured		<b>40,4kg·m</b>
RM Default		<b>33,9kg·m</b>
Limit of positive stability / Stab.Index		<b>124,7° / 122,7</b>
Freeboard at mast at 4,000		<b>0,962</b>

<b>RIG</b>				
Forestay Tension <b>Aft</b>	Spreaders <b>1</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>9,516</b>	E <b>2,780</b>	MDT1 <b>0,106</b>	MW <b>0,155</b>	
IG <b>10,563</b>	J <b>3,330</b>	MDL1 <b>0,155</b>	GO <b>0,217</b>	
ISP	SFJ <b>0,670</b>	MDT2 <b>0,106</b>	BD <b>0,120</b>	
BAS <b>0,973</b>	SPL	MDL2 <b>0,155</b>	MWT <b>63,30</b>	
FSP <b>0,000</b>	TPS <b>0,000</b>	TL <b>0,000</b>	MCG <b>4,210</b>	



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**2017**

IMS Measurement Certificate

**Certificate**

Number **28**  
ORC Ref **N/A**  
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VPP Ver. **2017 1.00**

**Invalid for Racing**



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

<b>PROPELLER</b>		
Installation <b>Strut</b>	PRD <b>0,354</b>	
Type <b>Folding 2 blades</b>	PBW <b>0,013</b>	
Twin Screw <b>No</b>	PIPA <b>0,0018</b>	
ST1 <b>0,060</b>	ST3 <b>0,195</b>	ST5 <b>0,270</b>
ST2 <b>0,195</b>	ST4 <b>0,059</b>	EDL <b>1,360</b>

<b>COMMENTS</b>	

<b>MOVEABLE BALLAST</b>	
N/A	

<b>CENTERBOARD</b>	
N/A	

<b>SAILS (Maximum Areas)</b>									
Mainsail	MHB	MUW	MTW	MHW	MQW	Area	Area (r)	Formula	
	0,130	0,54	0,97	1,68	2,25	15,11	15,27	P/8 · (E + 2·MQW + 2·MHW + 1.5·MTW + MUW + 0.5·MHB)	
<b>Symmetric</b>									
Not Available									
<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>
0,05	0,42	0,81	1,63	2,48	3,38	10,57	17,56			21-11-2017	Polyest	genua 2
0,05	0,40	0,78	1,64	2,62	3,66	8,54	14,80			04-02-2015	Dacron	fok
0,03	0,28	0,56	1,20	1,92	2,66	7,98	10,07			25-05-2013	Dacron	fok may

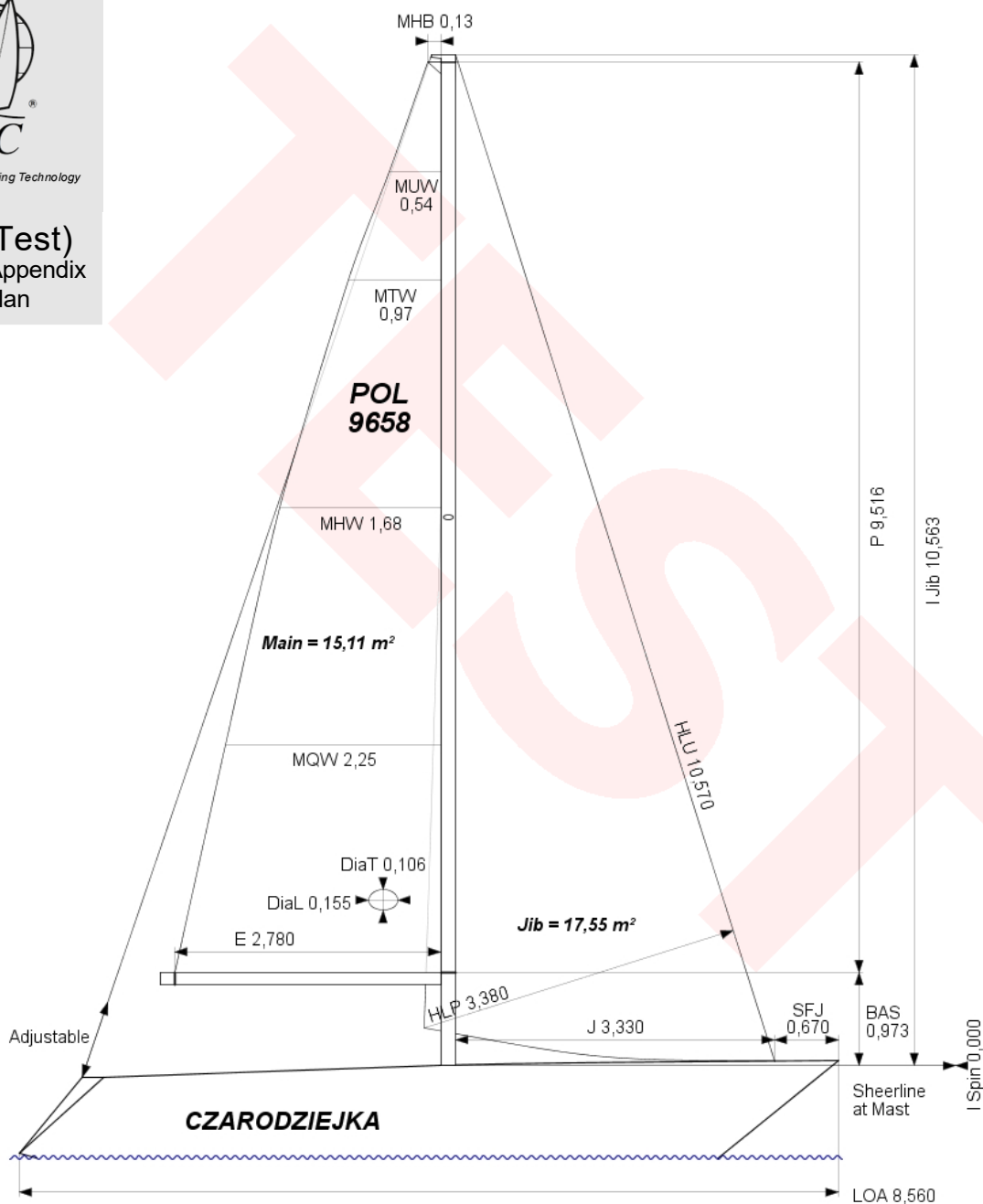
<b>MEASUREMENT INVENTORY</b>				
Measurer <b>J.Gorski JG</b>				
Date <b>08-06-2013</b>				
Comment				
<b>Id</b>	<b>Item</b>	<b>Weight</b>	<b>Distance</b>	<b>VCG Description</b>
+	Ancher	7,0	6,78	0,00
+	Chain	4,3	6,23	0,00
+	Feels	4,9	4,03	0,00
<b>Id</b>	<b>Item</b>	<b>Maker</b>	<b>Model</b>	
1	Engine	Volvo	MD5B	
<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>
1	Tank		fuel	22,0	6,53	0,00	16,0
2	Tank		water	50,0	5,59	0,00	0,0
<b>Id</b>	<b>Item</b>	<b>Weight</b>	<b>Distance</b>	<b>VCG Description</b>			
1	Battery	5,60	0,00	75 Ah			
2	Battery	5,60	0,00	WARTA, 140 Ah			



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2017 (Test)  
Certificate Appendix  
Sail Plan



**SAILS INVENTORY**

**MANSAIL (2)**

Id	MHB	MUW	MTW	MHW	MQW	Area	Measurer	Meas.Date	Manufacture	Material	Comment
2	0,130	0,54	0,97	1,68	2,25	15,11	J.Górski	07-09-2016	Bryt Sails	Polyester	Flex z tafetą
1	0,120	0,51	0,92	1,64	2,21	14,79	J.Gorski	25-05-2013	Sundelin	Dacron	

**HEADSAILS (3)**

Id	HHB	HUW	HTW	HHW	HQW	HLP	HLU	Ovrlp	Area	Btn	Fly	Measurer	Meas.Date	Manufacture	Material	Comment
1	0,05	0,42	0,81	1,63	2,48	3,38	10,57	102%	17,56			T.Konnak	21-11-2017	Bryt Sails	Polyest	genua 2
4	0,05	0,40	0,78	1,64	2,62	3,66	8,54	110%	14,80			J.Górski	04-02-2015	De Vries	Dacron	fok
2	0,03	0,28	0,56	1,20	1,92	2,66	7,98	80%	10,07			J.Gorski	25-05-2013	DeVries	Dacron	fok may

**SYMMETRIC SPINNAKERS (0)**

Id	SLU	SLE	SL	SHW	SFL	Area	Measurer	Meas.Date	Manufacture	Material	Comment
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**ASYMMETRIC SPINNAKERS (0)**

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