

<b>BOAT</b>
Name <b>Czarodziejka</b> Sail Nr <b>POL 9658</b>

<b>GPH</b>
<b>763,8</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>0,387%</b>
Fwd Accommodation	<b>No</b>
Hull Construction	<b>Solid</b>
Carbon Rudder	<b>No</b>
Crew Arm Extension	
IMSL	<b>6,784m VCGD -0,204m Sink 9,87kg/mm</b>
RL	<b>5,332m VCGM -0,089m WS 14,38m2</b>
LSM0	<b>6,908m Displacement/Length ratio 8,1844</b>



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**2017 (Test)**  
ORC International Certificate

<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>

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



<b>SCORING OPTIONS</b>						
	<b>COASTAL / LONG DISTANCE</b>			<b>WINDWARD / LEEWARD</b>		
Time On Distance	<b>741,8</b>			<b>822,6</b>		
Time On Time	<b>0,8089</b>			<b>0,8206</b>		
Triple Number	Low	Medium	High	Low	Medium	High
Time on Distance	<b>871,1</b>	<b>678,1</b>	<b>606,3</b>	<b>1118,7</b>	<b>829,1</b>	<b>718,2</b>
Time on Time	<b>0,7749</b>	<b>0,9955</b>	<b>1,1134</b>	<b>0,6034</b>	<b>0,8141</b>	<b>0,9398</b>

<b>TIME ALLOWANCES</b>							
Wind Velocity	6 kt	8 kt	10 kt	12 kt	14 kt	16 kt	20 kt
Beat VMG	<b>1325,8</b>	<b>1112,3</b>	<b>998,2</b>	<b>914,4</b>	<b>869,3</b>	<b>854,0</b>	<b>855,9</b>
52°	<b>874,8</b>	<b>743,6</b>	<b>663,3</b>	<b>629,1</b>	<b>611,1</b>	<b>601,8</b>	<b>598,8</b>
60°	<b>830,2</b>	<b>704,9</b>	<b>640,0</b>	<b>612,5</b>	<b>595,3</b>	<b>583,9</b>	<b>577,3</b>
75°	<b>794,9</b>	<b>673,3</b>	<b>623,5</b>	<b>598,8</b>	<b>580,4</b>	<b>564,5</b>	<b>543,2</b>
90°	<b>765,7</b>	<b>639,7</b>	<b>597,3</b>	<b>583,7</b>	<b>573,9</b>	<b>560,0</b>	<b>528,2</b>
110°	<b>747,0</b>	<b>630,5</b>	<b>589,6</b>	<b>560,5</b>	<b>540,5</b>	<b>528,9</b>	<b>511,3</b>
120°	<b>770,8</b>	<b>639,9</b>	<b>595,1</b>	<b>565,5</b>	<b>537,1</b>	<b>513,6</b>	<b>493,8</b>
135°	<b>842,2</b>	<b>692,1</b>	<b>614,9</b>	<b>582,5</b>	<b>555,1</b>	<b>528,5</b>	<b>484,8</b>
150°	<b>977,3</b>	<b>786,9</b>	<b>667,0</b>	<b>610,1</b>	<b>581,2</b>	<b>556,0</b>	<b>508,4</b>
Run VMG	<b>1128,4</b>	<b>907,7</b>	<b>766,9</b>	<b>673,7</b>	<b>619,0</b>	<b>588,5</b>	<b>540,0</b>

**Certificate**  
Number **28**  
ORC Ref **N/A**  
Issued On **2017-11-29**  
VPP Ver. **2017 1.00**  
**Invalid for Racing**

<b>Crew Weight</b>	
Declared	<b>300kg</b>
Default*	<b>406kg</b>
Non Manual Pwr	<b>No</b>

<b>Special Scoring</b>	
	ToD ToT
Double H.GPH	<b>766,4 0,7829</b>
Double H.OSN	<b>745,1 0,8053</b>
Non Spin GPH	<b>810,2 0,7406</b>
Non Spin OSN	<b>782,5 0,7668</b>

<b>Selected Courses</b>							
Windward / Leeward	<b>1227,1</b>	<b>1010,0</b>	<b>882,6</b>	<b>794,1</b>	<b>744,1</b>	<b>721,2</b>	<b>697,9</b>
Circular Random	<b>1047,1</b>	<b>848,0</b>	<b>741,5</b>	<b>679,7</b>	<b>641,9</b>	<b>617,9</b>	<b>589,6</b>
Ocean for PCS	<b>1270,8</b>	<b>988,5</b>	<b>829,0</b>	<b>731,0</b>	<b>667,5</b>	<b>623,8</b>	<b>564,8</b>
Non Spinnaker	<b>1132,0</b>	<b>907,7</b>	<b>785,2</b>	<b>712,8</b>	<b>668,1</b>	<b>639,9</b>	<b>608,2</b>

<b>Sails Limitations</b>	
Headsails	Spinnakers
<b>5</b>	<b>3</b>
<b>Dacron Sails</b>	

<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>40,9°</b>	<b>41,3°</b>	<b>41,5°</b>	<b>39,8°</b>	<b>39,2°</b>	<b>39,6°</b>
Beat VMG	<b>2,72</b>	<b>3,24</b>	<b>3,61</b>	<b>3,94</b>	<b>4,14</b>	<b>4,22</b>	<b>4,21</b>
52°	<b>4,12</b>	<b>4,84</b>	<b>5,43</b>	<b>5,72</b>	<b>5,89</b>	<b>5,98</b>	<b>6,01</b>
60°	<b>4,34</b>	<b>5,11</b>	<b>5,62</b>	<b>5,88</b>	<b>6,05</b>	<b>6,17</b>	<b>6,24</b>
75°	<b>4,53</b>	<b>5,35</b>	<b>5,77</b>	<b>6,01</b>	<b>6,20</b>	<b>6,38</b>	<b>6,63</b>
90°	<b>4,70</b>	<b>5,63</b>	<b>6,03</b>	<b>6,17</b>	<b>6,27</b>	<b>6,43</b>	<b>6,82</b>
110°	<b>4,82</b>	<b>5,71</b>	<b>6,11</b>	<b>6,42</b>	<b>6,66</b>	<b>6,81</b>	<b>7,04</b>
120°	<b>4,67</b>	<b>5,63</b>	<b>6,05</b>	<b>6,37</b>	<b>6,70</b>	<b>7,01</b>	<b>7,29</b>
135°	<b>4,27</b>	<b>5,20</b>	<b>5,85</b>	<b>6,18</b>	<b>6,49</b>	<b>6,81</b>	<b>7,43</b>
150°	<b>3,68</b>	<b>4,58</b>	<b>5,40</b>	<b>5,90</b>	<b>6,19</b>	<b>6,47</b>	<b>7,08</b>
Run VMG	<b>3,19</b>	<b>3,97</b>	<b>4,69</b>	<b>5,34</b>	<b>5,82</b>	<b>6,12</b>	<b>6,67</b>
Gybe Angles	<b>148,5°</b>	<b>152,4°</b>	<b>151,9°</b>	<b>170,5°</b>	<b>180,0°</b>	<b>180,0°</b>	<b>180,0°</b>

<b>Class Division Length</b>	
<b>CDL = 6,058</b>	

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

**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_test6</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>		Runners <b>0</b>
Inner Stay <b>None Fitted</b>	Jumper Struts <b>None</b>		Jib Furler <b>No</b>
Carbon Mast <b>No</b>	Main Furler <b>No</b>		Without Backstay <b>No</b>
Taper Hollows <b>No</b>	Main Furler <b>No</b>		Without Backstay <b>No</b>
Fiber Rigging <b>No</b>	Main Furler <b>No</b>		Without Backstay <b>No</b>
Lenticular Rigging <b>No</b>	Main Furler <b>No</b>		Without Backstay <b>No</b>
Articulated Bowsprit <b>No</b>	Main Furler <b>No</b>		Without Backstay <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 <b>10,613</b>	SFJ <b>0,670</b>	MDT2 <b>0,106</b>	BD <b>0,120</b>
BAS <b>0,973</b>	SPL <b>3,300</b>	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**  
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**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>						
<b>Mainsail</b>	<b>MHB</b>	<b>MUW</b>	<b>MTW</b>	<b>MHW</b>	<b>MQW</b>	<b>Area Area (r) Formula</b>
	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>	<b>SLU</b>	<b>SLE</b>	<b>SL</b>	<b>SHW</b>	<b>SFL</b>	
	10,68	10,68	10,68	6,77	5,41	57,83 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>
0,05	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

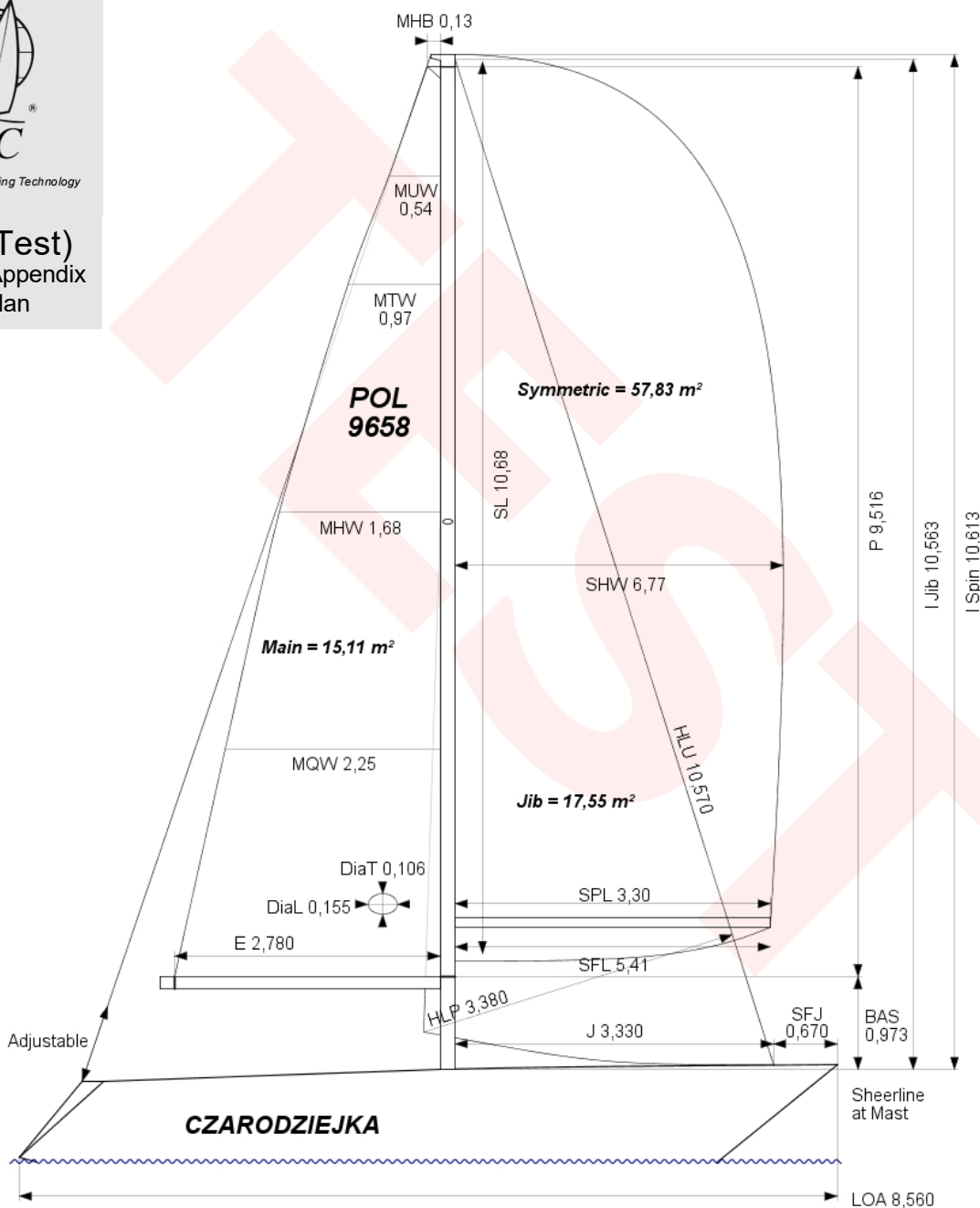
<b>MEASUREMENT INVENTORY</b>				
Measurer <b>J.Gorski JG</b>				
Date <b>08-06-2013</b>				
Comment				
<b>Id</b>	<b>Item</b>	<b>Weight</b>	<b>Distance</b>	<b>VCG Description</b>
+	Ancher	7,0	6,78	0,00
+	Chain	4,3	6,23	0,00
+	Feels	4,9	4,03	0,00
<b>Id</b>	<b>Item</b>	<b>Maker</b>	<b>Model</b>	
1	Engine	Volvo	MD5B	
<b>Id</b>	<b>Item</b>	<b>Weight</b>	<b>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.Górski	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.Górski	25-05-2013	DeVries	Dacron	fok may

**SYMMETRIC SPINNAKERS (2)**

Id	SLU	SLE	SL	SHW	SFL	Area	Measurer	Meas.Date	Manufacture	Material	Comment
1	10,68	10,68	10,68	6,77	5,41	57,83	J.Górski	25-05-2013	Neil Pryde	Nylon	kolorowy
2	10,85	10,85	10,85	5,73	5,26	50,96	J.Górski	26-08-2014	Ocean Sails	Nylon	black

**ASYMMETRIC SPINNAKERS (0)**

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